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INTERSTATE COMMERCE COMMISSION

FIRST ANNUAL REPORT

OF THE

Chief Inspector of Locomotive
Boilers

TO THE

INTERSTATE COMMERCE COMMISSION

OCTOBER 5, 1912



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ANNUAL REPORT
OF THE
CHIEF INSPECTOR OF LOCOMOTIVE BOILERS.

INTERSTATE COMMERCE COMMISSION,
DIVISION OF LOCOMOTIVE BOILER INSPECTION,
Washington, October 5, 1912.

To the Interstate Commerce Commission:

In compliance with section 7 of the act of February 17, 1911 (Public No. 383), commonly known as the locomotive boiler inspection law, the chief inspector of locomotive boilers has the honor to submit his annual report for the fiscal year ending June 30, 1912.

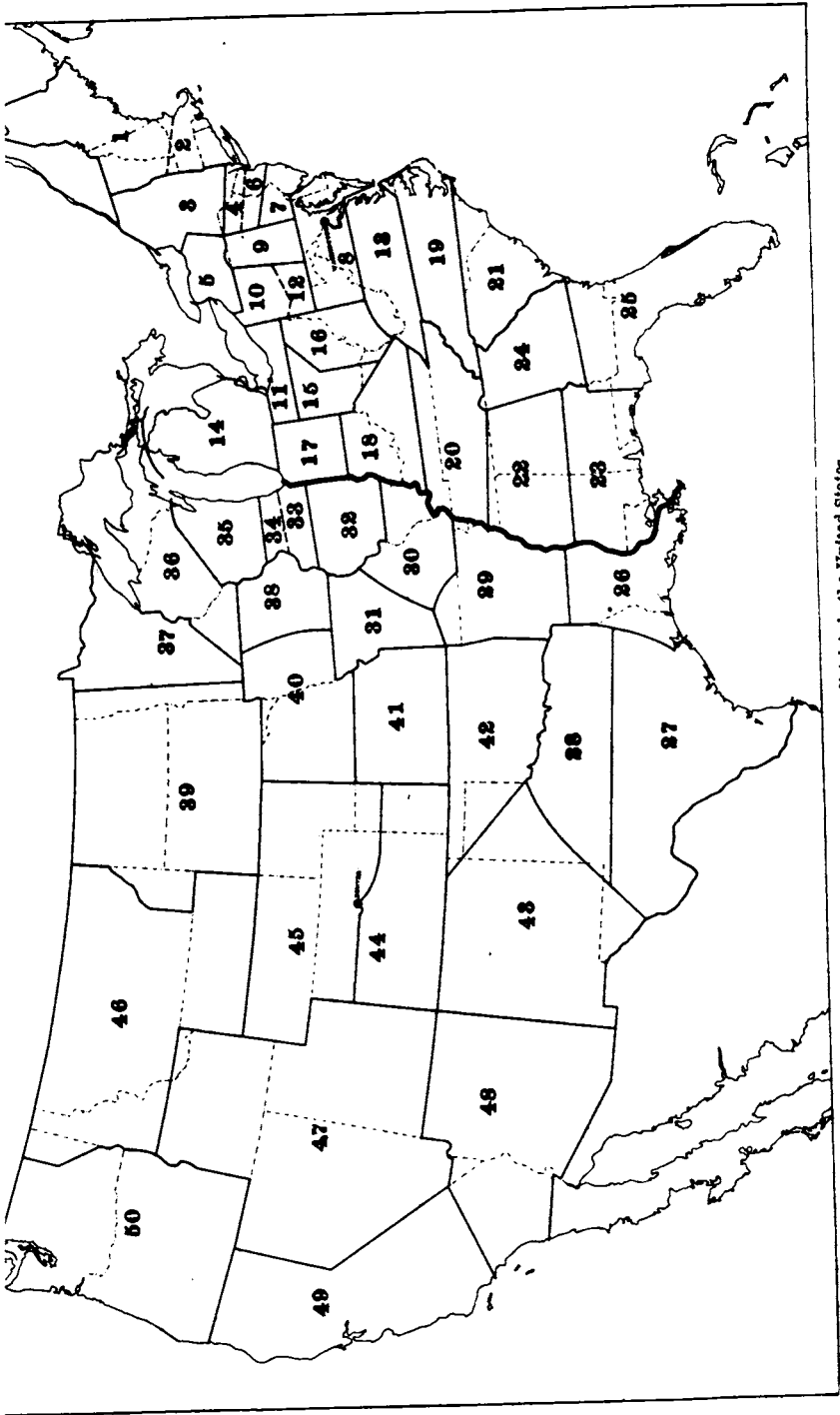
After the appointment by the President of the chief inspector and the two assistant chief inspectors of locomotive boilers, a conference was held in Washington, D. C., for the purpose of forming an organization to properly enforce the provisions of the locomotive boiler inspection law. Owing to the fact that the effective date of the law was July 1, 1911, it was essential to use the utmost diligence in effecting an organization which could properly supervise the inspection and testing of approximately 63,000 locomotives which were subject to the law.

Section 4 of the act provided that the territory comprising the several States, and Territories, and the District of Columbia be divided into 50 locomotive boiler inspection districts, so arranged that the service of the inspectors would be most effective, and so that the work required of each inspector would be substantially the same.

In making this division of territory it was necessary to consider, in addition to the number of locomotives in each district, the density of traffic, the number and location of inspection and repair points, the facilities for making repairs, the amount of travel necessary to properly cover the district, and the most advantageous location for the office of the inspector.†

The map on page 4 indicates the present arrangement of the districts, which is practically identical with the original arrangement, no material revision having become necessary. A copy of this map, together with a tentative circular governing the qualifications and eligibility of applicants, was immediately furnished the Civil Service

INTERSTATE COMMERCE COMMISSION.



Locomotive boiler inspection districts in the United States.

Commission to enable it to make proper announcement of an examination to secure eligibles from which certification might be made to fill the positions of district inspector of locomotive boilers. During the interim a list of questions to be propounded to applicants with respect to construction, repair, operation, testing, and inspection of locomotive boilers was prepared, which list, after having been approved by the Interstate Commerce Commission, was also furnished the Civil Service Commission to be used as part of its examination.

In preparing this list of questions and determining the proper preliminary qualifications for applicants, the expressed purpose of Congress in passing the law, namely, "to promote safety," was constantly borne in mind. A careful examination of the accident records which were available disclosed the fact that a large percentage of personal injuries were attributable to failures of locomotive boiler appurtenances or fittings as well as the boiler proper. As a consequence all applicants who by reason of their experience were familiar with the construction, operation, testing, and inspection of locomotive boilers and their appurtenances were made eligible to take the examination, provided their experience in railroad service had been recent enough to insure their being familiar with modern equipment and conditions. As a result the inspectors who were appointed through the examination conducted under the auspices of the Civil Service Commission came from the several branches of locomotive service. They are all skilled in various branches of mechanics necessary for the proper inspection, maintenance, and operation of locomotives, as well as being particularly qualified to investigate accidents resulting from failure from any cause of a locomotive boiler or its appurtenances.

Section 5 of the law required each carrier subject to its provisions to file its rules and instructions for the inspection of locomotive boilers with the chief inspector within three months after the approval of the act. It further provided that in the event any carrier failed to do so, it then became the duty of the chief inspector to prepare such rules and instructions, which, after approval by the Interstate Commerce Commission, would become obligatory upon such carriers. In order that the carriers might be fully cognizant of the requirements respecting the submission of these rules, a letter directing attention to section 5 of the law was addressed to all the carriers subject thereto. Notwithstanding this notice only 170 out of an approximate 2,200 carriers complied therewith. A careful comparison of these rules disclosed the fact that they were practically all either copies of rules which had been promulgated by the Master Mechanics' Association or were substantially the same. The desire of the carriers for a uniform set of rules governing the inspection and testing of locomotive boilers and their appurtenances therefore became apparent. With this end in view a standard code of rules governing the inspection and

testing of locomotive boilers and their appurtenances was prepared. They were then discussed at a series of conferences with a committee representing practically all of the railroads affected by the law and a committee representing the interested employees. As a result certain tentative rules and instructions were decided upon. After the submission of these rules and instructions to the Interstate Commerce Commission for its approval, there came on a hearing, after due notice, on the 29th day of May, 1911. All the parties appearing at such hearing were fully heard in respect to the matter involved, and the proposed rules and instructions having been fully considered by the commission, it was ordered that they become effective on July 1, 1911, and shall be observed by each and every carrier subject to the provisions of the locomotive boiler inspection law as minimum requirements.

Among the more important requirements of the rules are the following: The filing of specification cards for all locomotive boilers subject to the act, which shall give their description and general design; and the inspection and testing of all boilers at regular and proper intervals.

The specification card is required to be filed in the office of the chief inspector and embodies in connection with the general design of the boiler, the principal dimensions, material, and thickness of the boiler sheets, description and measurement of seams, the tensile strength of the various parts as shown by tests to which the material was originally subjected, the result of the calculations of the stresses to which the principal parts are subjected and from which the factor of safety and the proper working pressure can be computed.

From the data thus obtained it is possible at all times to determine the strength of any boiler in service and to fix the safe working pressure. The information thus collected forms a permanent record, and as new locomotives are constructed or the specifications for locomotives which are on file are altered in any manner, proper check and notation is made thereof.

The calculations given on these specifications are being carefully checked and those which contain errors are returned to the railroad company for correction before being filed. The importance of this checking is demonstrated by the fact that serious errors have been found in about 6,000 specification cards out of a total of 34,000 filed.

By the terms of the commission's order of June 2, 1911, the railroads were given until July 1, 1912, to file specification cards for locomotives for which accurate drawings were available and until July 1, 1913, to file specification cards for locomotives for which accurate drawings were not available.

Section 6 of the law provides "that each carrier subject to the act shall file with the inspector in charge under the oath of the

proper officer or employee a duplicate of the report of each inspection required by such rules and regulations, and shall also file with such inspector under the oath of the proper officer or employee a report showing the repair of the defects disclosed by the inspection." In accordance with this provision the rules require inspections of various parts of the boiler to be made at certain prescribed intervals and reports properly certified to filed with the district inspector. In order to reduce to a minimum the number of reports required a combination report showing the defects disclosed by the inspection and the repairs made was adopted. These reports show the date the safety valves were set and the pressure; the date on which steam gauges have been tested; that the boiler has been washed and gauge cocks and water glass cocks properly cleaned and repaired; that injectors were tested and left in good condition, all steam leaks repaired; the condition of flues, firebox sheets, stay bolts, and crown stays; the number of stay bolts and crown stays renewed; and the date of the previous hydrostatic test. These reports together with the information which the inspectors obtain during their regular inspections enable them to keep in close touch with the general condition of equipment and have repairs made when necessary.

A copy of this report or a special quarterly card showing that inspections had been made in accordance with the rules and that the locomotive is in a safe and proper condition to operate must be displayed in the cab of the locomotive.

Before being put into service and at least once every 12 months thereafter, every boiler must be subjected to hydrostatic pressure 25 per cent above the working steam pressure, thoroughly inspected, and a special report of the defects found and repairs made must be filed with the district inspectors.

In addition to the above-mentioned requirements special tests and inspections of all boiler appurtenances are required, and it is made the duty of the railroad company to know that all locomotives are in a safe and proper condition to operate before they allow them to be used. This places the burden of the inspection and the responsibility for the condition of all locomotives on the carriers, which was the manifest intent of the law.

The tabulated statement of inspections contained in this report gives a complete list of locomotives inspected and defects found on each railroad, but is not a complete record of the work performed by the district inspectors during the year.

While many railroads had reasonably efficient rules governing the inspection of locomotive boilers and their appurtenances before the law was passed they were not uniformly complied with. In many cases the date of inspection was governed by traffic conditions rather than by the condition of the locomotive, resulting during

periods of heavy traffic in locomotives being kept in service long after they were due for inspection and in need of repairs. For this reason much of the time of the inspectors has been consumed in checking the work performed by the railroad company's inspectors and their records of repairs in accordance with section 6 of the law which provides that "the first duty of the district inspectors shall be to see that the carriers make inspections in accordance with rules established or approved by the Interstate Commerce Commission, and that carriers repair the defects which such inspections disclose before the boiler or boilers or appurtenances pertaining thereto are again put in service."

The reports of inspections which the law requires the carriers to file with the proper district inspector each month are also a source of valuable information relative to the general condition of locomotives.

When making regular inspections of equipment district inspectors are instructed to report all defects which exist. This practice has been objected to in numerous instances by representatives of the railroads on the ground that certain defects which had been reported did not constitute violations of the law. These objections were given consideration, but investigation usually disclosed the fact that they originated at points where defective conditions existed and were due to a desire on the part of local officials to avoid censure for permitting such conditions. While the work of the district inspectors might be materially reduced by not reporting defects until they became violations, as some railroads seem to desire, and then take action as provided in section 9 of the law, the present practice of reporting and insisting on the prompt repair of all defects before they become serious has been so productive of good results that it will be vigorously continued, as we believe the purpose of the law can be best served by endeavoring to prevent violations rather than by waiting until violations occur and then filing suits to enforce the penalty. However, this should not be construed as meaning that suits will not be filed if necessary to enforce the provisions of the law or the lawful orders of any district inspector.

The investigation of accidents as provided by section 8 of the law has occupied a great deal of the time of the district inspectors, and is one of the most important of their duties. Two hundred and fifty-five accidents have been investigated during the year and in each case the necessary action has been taken to avoid, if possible, a recurrence of similar accidents.

In the more serious accidents the investigation has been conducted, wherever possible, by the chief or one of the assistant chief inspectors. The data obtained from the specification cards and from the monthly and annual reports is always available for use in making

accident investigations, and when additional information can be obtained by so doing tests are made of the boiler material to ascertain whether it conforms to the required standard.

Inasmuch as it is of the utmost importance that all accident investigations be conducted promptly, the headquarters of one of the assistant chief inspectors were established at Denver, Colo., where he could keep in close touch with this work in the western territory and have all investigations conducted without unnecessary delay to equipment. This has also resulted in materially reducing the traveling expenses necessary to the proper supervision of the work in that territory.

Locating the offices of the district inspectors in Federal buildings wherever proper space could be obtained has also resulted in a substantial reduction in expenses, 35 of the district offices now being so located. One inspector is located in the office of the chief inspector at Washington, and two in the office of the assistant chief inspector at Denver. It has therefore been necessary to rent office space at only eight points, as in several instances it has been practicable to have two district inspectors occupy the same office.

The summary of the tabulated statements contained herein discloses the following:

Number of locomotives inspected.....	74, 234
Number defective.....	48, 768
Number ordered out of service for repairs.....	3, 377

In addition to this the following locomotives were required to be strengthened or changed to comply with the requirements of the law or permanently removed from service:

Number having pressure reduced to insure a proper factor of safety.....	699
Number having seams reenforced by welt plates to insure a proper factor of safety.....	327
Number permanently removed from service on account of defective condition.....	698
Number having the lowest reading of water glass ordered raised to comply with the law.....	992
Number having lowest gauge cock ordered raised to comply with the law.....	408
Number ordered strengthened by having braces of greater sectional area applied.....	351
Number requiring additional support for crown sheet.....	116

It will thus be seen that a total of 6,968 locomotives were either held out of service for repairs or changed and strengthened to conform to the requirements of the law or permanently removed from service.

This work has been accomplished without the necessity of resorting to the courts in a single instance to enforce the requirements of the law or the lawful orders of the district inspectors. Of the 3,377 locomotives which have been ordered out of service only 5 cases have

been appealed to the chief inspector, in 3 of which the orders of the district inspectors were sustained and 2 reversed.

In this connection it is but fair to state that in our efforts to carry out the provisions of the law we have had the cooperation of the railroad officials on practically all roads. Wherever we have met with opposition it has usually been found to be due to the lack of a proper organization or necessary appropriation to properly perform the work as required. A marked improvement in this condition of affairs is, however, already manifest and the necessary action is being taken to bring about a proper observance of the law in all cases.

Section 8 of the law provides that all accidents resulting from failure from any cause of a locomotive boiler or its appurtenances resulting in serious injury or death shall be reported to the chief inspector and investigated. Under this provision accidents which occur while locomotives are being inspected, repaired, and tested in shops and roundhouses which were formerly classed as industrial accidents must be investigated and are included in this report. Inasmuch as a large percentage of accidents which occur are of this character, no fair basis exists from which a comparison with previous accident records can be made.

During the earlier part of the year the requirements of the law relative to reporting accidents to locomotive boilers and their appurtenances were apparently not fully understood by all carriers, in consequence of which many such accidents were not reported to the chief inspector of locomotive boilers in accordance with section 8 of the law. For this reason and also because a full corps of inspectors had not at that time been appointed, quite a few accidents were not investigated. Therefore the cause assigned by the railroad company in its report to the accident division has been used in our compilation. Every accident is being investigated at the present time and active steps are being taken to correct all faulty conditions discovered.

Much of the progress that has been made during the year can be attributed to the fact that the law was so wisely planned and skillfully drawn that very little difficulty has been experienced in applying it to every case that has arisen. No amendment or revision of the law is, therefore, recommended at this time.

Respectfully submitted,

JOHN F. ENSIGN,
Chief Inspector Locomotive Boilers.

ACCIDENTS RESULTING FROM THE FAILURE OF LOCOMOTIVE BOILERS AND THEIR APPURTENANCES DURING THE FISCAL YEAR ENDING JUNE 30, 1912.

A star (*) indicates accidents taken from records of the accident division of the Interstate Commerce Commission. Investigation thereof was impracticable inasmuch as this division was not apprised thereof until 30 to 90 days subsequent to their occurrence, which was too late to permit an intelligent investigation.

ALABAMA & VICKSBURG RAILWAY:

*February 6, 1912, water glass burst; 1 injured.

ARIZONA & NEW MEXICO RAILWAY:

*September 9, 1911, engine No. 26, injector delivery pipe blew off; 1 injured.

ATCHISON, TOPEKA & SANTA FE RAILWAY:

July 5, 1911, engine No. 1009, squirt-hose valve worked open; valve defective; 1 injured.

*July 11, 1911, squirt hose blew off; 1 injured.

July 20, 1911, engine No. 2152, handle on blow-off cock broke off (injured in attempting to close cock); 1 injured.

*July 26, 1911, squirt hose blew off; 1 injured.

*August 6, 1911, squirt hose blew off; 1 injured.

*August 8, 1911, engine No. 290, squirt hose came apart; 1 injured.

*August 28, 1911, engine No. 605, water glass burst; 1 injured.

*August 29, 1911, injector delivery pipe blew off; 1 injured.

September 23, 1911, engine No. 1404, washout plug blew out (attempting to tighten with boiler under pressure); 1 killed, 2 injured.

*October 5, 1911, water glass burst; 1 injured.

*November 8, 1911, water glass burst; 1 injured.

*November 11, 1911, engine No. 1176, water glass burst; 1 injured.

*November 16, 1911, engine No. 627, squirt-hose pipe broke; 1 injured.

*November 27, 1911, water glass burst; 1 injured.

December 12, 1911, engine No. 1061, water glass burst; not properly shielded; 1 injured.

*January 3, 1912, engine No. 997, water glass burst; 1 injured.

*January 21, 1912, engine No. 2014, water glass burst; 1 injured.

*January 27, 1912, blower pipe broke; 1 injured.

*February 20, 1912, blow-off cock stuck open; 1 injured.

*February 22, 1912, engine No. 1819, water glass burst; 1 injured.

*March 7, 1912, squirt hose blew off; 1 injured.

March 10, 1912, engine No. 747, washout plug blew out (attempting to tighten plug with boiler under pressure); 1 injured.

April 8, 1912, engine No. 1018, water-glass cock spindle blew out; spindle screwed out too far; 1 injured.

*May 6, 1912, engine No. 1103, squirt hose blew off; 1 injured.

May 8, 1912, engine No. 1126, flue pocket blew out front flue sheet; improperly applied (not prossered); 2 injured.

*May 22, 1912, squirt hose burst; 1 injured.

May 24, 1912, engine No. 2206, lubricator glass burst; 1 injured.

*May 25, 1912, engine No. 853, water glass burst; 1 injured.

*May 26, 1912, engine No. 528, water glass burst; 1 injured.

June 10, 1912, squirt hose burst; hose defective; 1 injured.

June 26, 1912, engine No. 988, crown sheet failure due to low water; top water-glass cock found closed at time of inspection; 2 killed.

*June 27, 1912, squirt hose blew off; 1 injured.

June 29, 1912, engine No. 2129, water glass burst; shield removed at time to clean glass; 1 injured.

Total accidents, 33; killed, 3; injured, 33.

ATLANTA, BIRMINGHAM & ATLANTIC RAILWAY:

September 15, 1912, engine No. 1623; crown sheet failure due to low water; fusible plug found defective; 3 injured.

ATLANTIC COAST LINE RAILROAD:

- *July 21, 1911, engine No. 154, gauge cock defective; 1 injured.
- *July 26, 1911, engine No. 910, squirt hose burst; 1 injured.
- *August 24, 1911, engine No. 910, defective injector; 1 injured.
- *October 3, 1911, engine No. 159, squirt-hose valve open; 1 injured.
- *December 10, 1911, engine No. 99, injector "broke"; 1 injured.
- *December 16, 1911, engine No. 918, stud blew out; 1 injured.
- March 20, 1912, engine No. 252, blow-off cock blown out; not screwed into sheet far enough; 1 injured.
- April 6, 1912, engine No. 814, crown sheet failure due to low water; right injector not working; tube found loose by inspector after test (reported by engineer day previous to accident); 3 injured.
- *April 30, 1912, engine No. 364, arch tube blew out; 2 injured.
- *May 10, 1912, engine No. 819, crown sheet failure; 1 injured.
- May 17, 1912, engine No. 1265, dome cap blew off; old defect in dome cap; 1 injured.
- June 14, 1912, engine No. 806, squirt hose blew off; hose not properly secured; 1 injured.
- June 22, 1912, engine No. 924, arch tube pulled out of flue sheet; improperly applied; 1 injured.

Total accidents, 13; killed, 0; injured, 16.

BALTIMORE & OHIO RAILROAD:

- *July 6, 1911, engine No. 1794, squirt hose burst; 1 injured.
- *July 7, 1911, engine No. 2329, lubricator glass burst; 1 injured.
- *July 8, 1911, squirt hose burst; 1 injured.
- *July 8, 1911, lubricator glass burst; 1 injured.
- *July 12, 1911, engine No. 1005, squirt-hose valve open; 1 injured.
- *July 21, 1911, spindle blew out of gauge cock; 1 injured.
- *July 22, 1911, squirt hose blew off; 1 injured.
- *July 28, 1911, squirt hose blew off; 1 injured.
- *August 1, 1911, engine No. 1663, loose exhaust pipe; 1 injured.
- *August 2, 1911, lubricator glass burst; 1 injured.
- *August 3, 1911, engine No. 1152, tank hose blew off; 1 injured.
- *August 4, 1911, squirt hose blew off; 1 injured.
- *August 11, 1911, engine No. 563, injector "broke"; 1 injured.
- *August 12, 1911, squirt hose blew off; 1 injured.
- *August 16, 1911, engine No. 1783, injured in plugging blower pipe on account no cap; 1 injured.
- *August 24, 1911, engine No. 1155, injector "broke"; 1 injured.
- *September 2, 1911, engine No. 2567, squirt hose blew off; 1 injured.
- *September 5, 1911, engine No. 2870, squirt hose blew off; 1 injured.
- *September 5, 1911, pocket flue blew out; 1 injured.
- *September 10, 1911, engine No. 2755, squirt hose blew off; 1 injured.
- *September 18, 1911, engine No. 2817, squirt hose blew off; 1 injured.
- *October 1, 1911, engine No. 2005, filling plug blew out of lubricator; 1 injured.
- October 2, 1911, engine No. 136, crown sheet failure, due to low water; all appurtenances removed from engine prior to investigation and could not be examined; 1 injured.
- *October 9, 1911, squirt hose burst; 1 injured.
- *October 13, 1911, defective blow-off cock; 1 injured.
- *October 31, 1911, engine No. 703, broken stay bolt (scalded by escaping steam); 1 injured.
- *November 4, 1911, engine No. 377, crown sheet failure; 2 injured.
- *December 5, 1911, engine No. 2143, boiler check cap blew off; 2 injured.
- *December 24, 1911, engine No. 2149, left injector steam pipe blew off; 1 injured.
- *January 6, 1912, engine No. 1537, defective nut on blower valve; 1 injured.
- *January 6, 1912, engine No. 14, squirt hose blew off; 1 injured.
- *January 17, 1912, squirt hose burst; 1 injured.
- *January 26, 1912, stud blew out; 1 injured.
- *February 5, 1912, engine No. 1939, blow-off cock blew out; 1 injured.
- *February 5, 1912, engine No. 2034, water glass burst; 1 injured.
- *February 14, 1912, engine No. 1931, flue burst; 1 injured.
- *February 25, 1912, engine No. 1815, stud blew out; 1 injured.
- March 13, 1912, engine No. 1857, blow-off cock blew out; cock not screwed entirely through sheet; 1 killed.
- March 15, 1912, engine No. 1769, blow-off cock blew out; poor threads on cock, and cock not screwed entirely through sheet; 2 injured.
- *March 18, 1912, squirt hose blew off; 1 injured.

BALTIMORE & OHIO RAILROAD—Continued.

- *March 20, 1912, squirt hose blew off; 1 injured.
- *March 30, 1912, steam pipe blew off; 2 injured.
- *April 7, 1912, engine No. 1858, lubricator glass burst; 1 injured.
- *April 10, 1912, lubricator glass burst; 1 injured.
- *April 11, 1912, engine No. 4139, steam pipe burst; 1 injured.
- May 12, 1912, engine No. 1827, blow-off cock knocked out; pipe not properly clamped; 1 injured.
- *May 30, 1912, lubricator glass burst; 1 injured.
- *June 3, 1912, arch tube blew out; 1 injured.
- *June 4, 1912, engine No. 2514, flue burst; 1 injured.
- June 19, 1912, engine No. 4024, flue burst; flue weakened by repeated working with sectional expander; 1 injured.
- *June 25, 1912, engine No. 2411, squirt-hose valve open; 1 injured.
- *June 27, 1912, engine No. 2772, defective blower pipe; 1 injured.
- Total accidents, 52; killed, 1; injured, 55.

BELT RAILWAY OF CHICAGO:

- *September 14, 1911, engine No. 52, water glass burst; 1 injured.

BOSTON & ALBANY RAILROAD:

- *August 8, 1911, squirt hose burst; 1 injured.
- *September 12, 1911, engine No. 2590, flue burst; 1 injured.
- April 28, 1912, engine No. 1251, flue burst at weld; defective weld; 1 injured.
- May 18, 1912, engine No. 1901, arch tube pulled out; not properly applied; 1 injured.
- June 2, 1912, engine No. 2603, squirt hose burst; defective hose; 1 injured.
- June 12, 1912, engine No. 2610, squirt hose blew off; not properly secured; 1 injured.
- June 21, 1912, engine No. 409, squirt hose blew off; not properly secured; 1 injured.
- June 23, 1912, engine No. 3536, squirt hose pulled out of fireman's hand; due to defective condition of hose; 1 injured.
- Total accidents, 8; killed, 0; injured, 8.

BOSTON & MAINE RAILROAD:

- *July 4, 1911, squirt hose blew off; 1 injured.
- *July 8, 1911, squirt hose blew off; 1 injured.
- *July 11, 1911, squirt hose blew off; 1 injured.
- *August 5, 1911, squirt hose blew off; 1 injured.
- *August 23, 1911, squirt hose burst; 1 injured.
- *October 3, 1911, water glass burst; 1 injured.
- *November 18, 1911, flue burst; 1 injured.
- November 30, 1911, engine No. 3209, crown sheet failure due to low water; no contributing cause; 1 killed.
- *December 16, 1911, grate-bar stud blew out; 1 injured.
- *January 27, 1912, water glass burst; 1 injured.
- *March 18, 1912, lubricator glass burst; 1 injured.
- *March 29, 1912, filling plug blew out of lubricator; 2 injured.
- *May 4, 1912, squirt hose burst; 1 injured.
- *June 19, 1912, squirt hose burst; 1 injured.
- *June 27, 1912, lubricator glass burst; 1 injured.
- Total accidents, 15; killed, 1; injured, 15.

BUFFALO & SUSQUEHANNA RAILWAY:

- *March 23, 1912, engine No. 139, water glass burst; 1 injured.

CENTRAL OF NEW ENGLAND RAILWAY:

- *August 11, 1911, engine No. 45, injector steam pipe burst; 1 injured.
- *November 4, 1911, engine No. 105, squirt hose burst; 1 injured.
- February 27, 1912, engine No. 56, scalded by hot water from injector overflow pipe; pipe out of place, due to defective connection; 1 injured.
- April 2, 1912, engine No. 55, draft pipe fell over exhaust nozzle, creating back draft; draft-pipe bracket broken; 1 injured.
- April 8, 1912, engine No. 47, scalded by hot water from injector overflow; overflow pipe disconnected (no contributory defect found); 1 injured.
- Total accidents, 5; killed, 0; injured, 5.

CENTRAL OF GEORGIA RAILWAY:

- September 7, 1911, engine No. 1330, crown sheet failure due to low water; no contributory cause; 3 injured.
- *December 25, 1911, water glass burst; 1 injured.
- Total accidents, 2; killed, 0; injured, 4.

CENTRAL RAILROAD OF NEW JERSEY:

- January 19, 1912, engine No. 214, water bar burst; overheated, due to temporary stopping of circulation through tube; 2 injured.

CENTRAL RAILROAD OF NEW JERSEY—Continued.

*February 16, 1912, water glass burst; 1 injured.

*March 1, 1912, engine No. 659, water bar burst; 1 injured.

*April 2, 1912, water bar burst; 1 injured.

May 30, 1912, engine No. 463, crown sheet failure, due to low water (bad leaks in fire box); 1 injured.

Total accidents, 5; killed, 0; injured, 6.

CENTRAL OF VERMONT RAILWAY:

*July 5, 1911, engine No. 1433, squirt hose blew off; 1 injured.

March 20, 1912, engine No. 322, arch tube plug blew out of back flue sheet; plug not properly secured; 1 injured.

Total accidents, 2; killed, 0; injured, 2.

CHARLESTON & WESTERN CAROLINA RAILWAY:

*January 30, 1912, engine No. 284, water glass burst; 1 injured.

CHESAPEAKE & OHIO RAILWAY:

*January 9, 1912, engine No. 526, arch pipe blew out; 2 injured.

*February 6, 1912, engine No. 710; water glass burst; 1 injured.

May 19, 1912, engine No. 673, crown sheet failure, due to low water; one safety valve blew badly from 160 to 200 pounds; one raised 225 pounds when tested; right tank hose defective, interfering with operation of injector; 2 injured.

Total accidents, 3; killed, 0; injured, 5.

CHICAGO & ALTON RAILROAD:

*August 17, 1911, squirt hose blew off; 1 injured.

February 23, 1912, engine No. 556, squirt hose blew off; not properly secured; 1 injured.

March 6, 1912, engine No. 418, crown sheet failure, due to low water; no contributing cause found; 1 injured.

April 16, 1912, engine No. 104, boiler explosion; defect in shell plate and excessive pressure; 2 injured.

Total accidents, 4; killed, 0; injured, 5.

CHICAGO & EASTERN ILLINOIS RAILROAD:

*August 3, 1911, water glass burst; 1 injured.

*August 31, 1911, water-glass valve blew out; 1 injured.

*January 9, 1912, lubricator glass burst; 1 injured.

February 19, 1912, engine No. 105, water-glass valve stem blew out; stem screwed out too far (no defect found); 1 injured.

March 20, 1912, engine No. 3612, water glass burst; valve opened before shield applied; 1 injured.

Total accidents, 5; killed, 0; injured, 5.

CHICAGO & ERIE RAILROAD:

*August 15, 1911, squirt hose blew off; 1 injured.

CHICAGO & NORTH WESTERN RAILWAY:

*August 6, 1911, engine No. 55, water glass burst; 1 injured.

*August 8, 1911, engine No. 1403, water glass burst; 1 injured.

*August 12, 1911, engine No. 864, water glass burst; 1 injured.

*August 22, 1911, engine No. 141, water glass burst; 1 injured.

*August 30, 1911, engine No. 1715, water glass burst; 1 injured.

*August 31, 1911, engine No. 1025, water glass burst; 1 injured.

*September 3, 1911, engine No. 856, lubricator glass burst; 1 injured.

*September 26, 1911, engine No. 1782, squirt hose burst; 1 injured.

*October 11, 1911, squirt hose blew off; 1 injured.

*November 9, 1911, engine No. 1107, water glass burst; 1 injured.

*November 12, 1911, engine No. 883, flue burst; 2 injured.

*November 22, 1911, engine No. 485, water glass burst; 1 injured.

November 29, 1911, engine No. 1465, crown sheet failure due to low water; no contributory cause found; 2 injured.

*December 19, 1911, engine No. 1130, water glass burst; 1 injured.

*December 26, 1911, engine No. 430, water glass burst; 1 injured.

*January 6, 1912, engine No. 959, lubricator glass burst; 1 injured.

*February 7, 1912, squirt hose blew off; 1 injured.

*February 25, 1912, engine No. 910, water glass burst; 1 injured.

*March 11, 1912, engine No. 714, water glass burst; 1 injured.

March 24, 1912, engine No. 182, water glass burst; shield inefficient; 1 injured.

March 25, 1912, engine No. 429, arch stud blew out; threads deteriorated due to continuous leaking; 1 injured.

March 26, 1912, engine No. 333; lubricator glass burst; shield inefficient; 1 injured.

CHICAGO & NORTH WESTERN RAILWAY—Continued.

*April 4, 1912, engine No. 403, water glass burst; 1 injured.
 April 11, 1912, engine No. 1481, water glass burst (scalded in attempting to close cock); 1 injured.

*April 24, 1912, engine No. 941, threaded plug blew out of flue sheet; 1 injured.

*May 1, 1912, engine No. 910, blow-off cock open; 1 injured.

May 28, 1912, engine No. 286, water glass burst (scalded while closing cock); 1 injured.

June 13, 1912, engine No. 106, water glass burst; cock opened while shield was temporarily removed; 1 injured.

Total accidents, 28; killed, 0; injured, 30.

CHICAGO, BURLINGTON & QUINCY RAILROAD:

*July 1, 1911, engine No. 4109, squirt hose blew off; 1 injured.

*July 3, 1911, gauge cock blew open; 1 injured.

*July 4, 1911, squirt hose blew off; 1 injured.

*July 4, 1911, squirt hose blew off; 1 injured.

*July 7, 1911, engine No. 3009, squirt hose below; 1 injured.

*July 11, 1911, leaking valve (injured in repairing); 1 injured.

*July 11, 1911, water glass burst; 1 injured.

*July 14, 1911, squirt hose blew off; 1 injured.

*July 16, 1911, injured by steam escaping from injector throttle; 1 injured.

*July 27, 1911, squirt hose blew off; 1 injured.

*August 9, 1911, squirt hose blew off; 1 injured.

*August 10, 1911, squirt hose blew off; 1 injured.

*August 14, 1911, squirt hose blew off; 1 injured.

*August 14, 1911, injector valve broken; 1 injured.

*August 15, 1911, squirt hose blew off; 1 injured.

*August 20, 1911, squirt hose blew off; 1 injured.

*August 23, 1911, water glass burst; 1 injured.

*August 23, 1911, squirt hose blew off; 1 injured.

*August 24, 1911, squirt hose blew off; 1 injured.

*September 1, 1911, squirt hose blew off; 1 injured.

*September 9, 1911, squirt hose burst; 1 injured.

*September 15, 1911, water glass burst; 1 injured.

*September 25, 1911, water glass burst; 1 injured.

*October 4, 1911, squirt hose blew off; 1 injured.

*October 13, 1911, engine No. 1491, gauge cock blew off; 1 injured.

*October 14, 1911, squirt hose blew off; 1 injured.

*October 26, 1911, blow-off cock disconnected; 1 injured.

*November 6, 1911, water glass burst; 1 injured.

*November 27, 1911, squirt hose blew off; 1 injured.

*December 2, 1911, cap on injector throttle leaking; 1 injured.

*December 7, 1911, heating pipe blew out; 1 injured.

*December 14, 1911, steam valve leaking; 1 injured.

*January 6, 1912, squirt hose burst; 1 injured.

*January 10, 1912, water glass burst; 1 injured.

*February 14, 1912, water glass burst; 1 injured.

*February 29, 1912, water glass burst; 1 injured.

*March 8, 1912, flue burst; 1 injured.

*March 31, 1912, water glass burst; 1 injured.

April 7, 1912, engine No. 2172, water glass burst; shield inefficient; 1 injured.

April 20, 1912, engine No. 2818, squirt hose blew off; not properly screwed; 1 injured.

May 3, 1912, engine No. 2511, squirt hose blew off; not properly secured; 1 injured.

May 18, 1912, engine No. 1979, squirt hose blew off; not properly secured; 1 injured.

May 21, 1912, engine No. 1602, fire hose blew off; not properly secured to branch pipe; 1 injured.

May 23, 1912, engine No. 1438, fire hose blew off; not properly secured to branch pipe; 1 injured.

May 26, 1912, engine No. 1415, squirt hose valve blew off pipe; threads on valve defective; 1 injured.

June 2, 1912, engine No. 1209, squirt hose valve worked open; valve defective; 1 injured.

June 5, 1912, engine No. 1230, squirt hose blew off; not properly secured; 1 injured.

June 13, 1912, engine No. 1204, flue burst; improperly welded; 1 injured.

Total accidents, 48; killed, 0; injured, 48.

CHICAGO GREAT WESTERN RAILROAD:

- *July 7, 1911, engine No. 217, squirt hose burst; 1 injured.
- *November 8, 1911, lubricator glass burst; 1 injured.
- *November 16, 1911, engine No. 207, lubricator glass burst; 1 injured.
- *January 11, 1912, delivery pipe defective; 1 injured.
- *February 3, 1912, engine No. 355, water glass burst; 1 injured.
- February 29, 1912, engine No. 291, lubricator glass burst; no shield on glass; 1 injured.
- March 28, 1912, engine No. 509, water glass burst; shield inefficient; 1 injured.
- *May 12, 1912, squirt-hose valve open; 1 injured.
- *June 9, 1912, engine No. 342, crown sheet failure; 1 injured.
- Total accidents, 9; killed, 0; injured 9.

CHICAGO, INDIANAPOLIS & LOUISVILLE RAILWAY:

April 21, 1912, engine No. 217, crown sheet failure due to defective condition of bracing of crown sheet and defects at top row of stay bolts in right side sheet where rupture occurred; 1 killed, 1 injured.

CHICAGO, MILWAUKEE & GARY RAILROAD:

- *January 27, 1912, engine No. 4, water glass burst; 1 injured.

CHICAGO, MILWAUKEE & ST. PAUL RAILWAY:

- *July 18, 1911, squirt hose blew off; 1 injured.
- August 18, 1911, engine No. 2068, crown sheet failure due to low water; no contributory cause found; 2 injured.
- *September 11, 1911, water glass burst; 1 injured.
- October 5, 1911, engine No. 3020, water glass burst; shield inefficient; 1 injured.
- *October 16, 1911, water glass burst; 1 injured.
- October 21, 1911, engine No. 2132, crown sheet failure due to low water; no contributory cause found; 1 injured.
- October 22, 1911, engine No. 5501, crown sheet failure due to low water; water glass and gauge cock found defective; 4 injured.
- *December 19, 1911, engine No. 2613, flue sheet defective; 1 injured.
- January 25, 1912, engine No. 2505, water glass burst; shield inefficient; 1 injured.
- *February 22, 1912, water glass burst; 1 injured.
- March 3, 1912, engine No. 1748, washout plug blew out; threads in sheet defective; 2 injured.
- March 10, 1912, engine No. 1237, water glass burst; shield inefficient; 1 injured.
- *March 17, 1912, water glass burst; 1 injured.
- March 23, 1912, engine No. 930, crown sheet failure due to low water; obstruction found in bottom water-glass connection; 1 injured.
- March 26, 1912, engine No. 1702, water glass burst; shield inefficient; 1 injured.
- March 30, 1912, engine No. 868, squirt-hose valve worked open; valve defective; 1 injured.
- *April 3, 1912, lubricator glass burst; 1 injured.
- *April 5, 1912, engine No. 78, lubricator gasket blew out; 1 injured.
- *April 12, 1912, engine No. 694, lubricator glass burst; 1 injured.
- April 18, 1912, engine No. 303, arch tube pulled out of flue sheet; arch tube improperly beaded; 1 injured.
- April 26, 1912, engine No. 1726, water glass burst; shield inefficient; 1 injured.
- April 27, 1912, engine No. 1758, water glass burst, shield inefficient; 1 injured.
- April 28, 1912, engine No. 390, plug blew out of crown sheet; plug not properly secured; 2 injured.
- May 9, 1912, engine No. 919, nipple broke off lubricator while engineer engaged in setting feed; broken part not inspected; 1 injured.
- May 24, 1912, engine No. 4208, water glass burst; shield inefficient; 1 injured.
- June 13, 1912, engine No. 3018, flue burst; defective weld; 2 injured.
- June 15, 1912, engine No. 1703, water glass burst; shield inefficient; 1 injured.
- June 18, 1912, engine No. 1731, arch tube pulled out of sheet; not enough stock left to bead over; 1 injured.
- Total accidents, 28; killed, 0; injured, 35.

CHICAGO, PEORIA & ST. LOUIS RAILWAY:

- *July 28, 1911, engine No. 66, washout plug blew out; 2 injured.
- *August 9, 1911, squirt hose burst; 1 injured.

CHICAGO, ROCK ISLAND & PACIFIC RAILWAY:

- *August 20, 1911, injured by hot water from overflow when injector "broke"; 1 injured.
- *October 17, 1911, blow-off cock blew out; 1 injured.
- *November 1, 1911, engine No. 941, injector steam pipe blew out of collar; 1 injured.
- *November 1, 1911, right injector steam pipe broke at throttle connection; 1 injured.

CHICAGO, ROCK ISLAND & PACIFIC RAILWAY—Continued.

November 23, 1911, engine No. 1932, water glass burst; shield inefficient; 1 injured.

*December 13, 1911, engine No. 1737, water glass burst; 1 injured.

December 31, 1911, engine No. 563, crown sheet failure due to low water; no contributory cause found; 1 injured.

February 20, 1912, engine No. 1613, arch tube burst; due to improper application of tube; 1 injured.

*March 17, 1912, flue plug blew out; 1 injured.

*April 24, 1912, steam pipe injector disconnected; 1 injured.

Total accidents, 10; killed, 0; injured, 10.

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA RAILWAY:

*January 22, 1912, engine No. 354, flue burst; 1 injured.

February 26, 1912, engine No. 104, crown sheet failure due to low water; fusible plug defective; 2 injured.

*March 12, 1912, water glass burst; 1 injured.

Total accidents, 3; injured, 4.

CHICAGO, TERRE HAUTE & SOUTH EASTERN RAILWAY:

*July 8, 1911, injured by steam from overflow when injector "broke"; 1 injured.

*February 29, 1912, engine No. 679, injured by escaping steam and hot water from injector overflow; 1 injured.

*June 29, 1912, squirt hose burst; 1 injured.

Total accidents, 3; killed, 0; injured, 3.

CINCINNATI & WESTWOOD RAILROAD:

*August 26, 1911, engine No. 2, stud blew out boiler head; 2 injured.

CINCINNATI, HAMILTON & DAYTON RAILWAY:

*August 25, 1911, engine No. 1601, water glass burst; 1 injured.

*September 13, 1911, engine No. 337, water-glass valve blew out; 1 injured.

*November 29, 1911, engine No. 420, blow-off cock disconnected; 1 injured.

*January 13, 1912, engine No. 378, water glass burst; 1 injured.

*January 14, 1912, water glass burst; 1 injured.

March 30, 1912, engine No. 378, crown sheet failure due to low water; no contributory cause found; 3 killed, 1 injured.

*April 14, 1912, engine No. 8629, gasket blew out of handhole plate; 1 injured.

May 24, 1912, engine No. 344, arch tube pulled out of flue sheet; not enough stock left to bead over; 2 injured.

June 22, 1912, engine No. 2529 (B. & O.), arch-tube plug blew out of back head; threads defective; 3 injured.

Total accidents, 9; killed, 3; injured, 12.

CINCINNATI NORTHERN RAILROAD:

January 6, 1912, engine No. 6373, ash-pan blower frozen up, scalded while thawing; 1 injured.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS RAILWAY:

*August 20, 1911, engine No. 7360, squirt-hose valve open; 1 injured.

*October 1, 1911, engine No. 6602, water glass burst; 1 injured.

*October 4, 1911, engine No. 6569, flue pulled through back flue sheet; 1 injured.

*November 6, 1911, engine No. 6334, water glass burst; 1 injured.

*November 14, 1911, engine No. 6789, water glass burst; 1 injured.

November 22, 1911, engine No. 6646, crown sheet failure due to low water; fire box leaking badly; 3 injured.

January 20, 1912, engine No. 7325, crown sheet failure due to low water; gauge cocks and water glass found defective; 1 injured, 1 killed.

January 20, 1912, engine No. 6620, threads stripped on right injector steam pipe nut; defect not repaired when reported; 1 injured.

*February 14, 1912, engine No. 7417, filling plug blew out of lubricator; 1 injured.

*March 17, 1912, engine No. 6789, lubricator glass burst; 1 injured.

March 31, 1912, engine No. 6650, filling plug blew out of lubricator; threads defective; 1 injured.

May 7, 1912, engine No. 6166 (P. & E.), steam pipe to left steam chest pulled apart, causing back draft and blowing fire in cab; not properly secured; 1 killed; 1 injured.

May 23, 1912, engine No. 7337, water glass burst; shield inefficient; 1 injured.

Total accidents, 13; killed, 2; injured, 15.

COLORADO MIDLAND RAILWAY:

February 1, 1912, engine No. 42, water glass burst; shield inefficient; 1 injured.

COLORADO & SOUTHERN RAILWAY:

*March 30, 1912, water glass burst; 1 injured.

*May 9, 1912, water glass burst; 1 injured.

CUMBERLAND & PENNSYLVANIA RAILROAD:

*July 3, 1911, squirt hose burst; 1 injured.

DELAWARE & HUDSON Co.:

December 8, 1911, engine No. 754, crown sheet failure due to low water; no contributory cause found; 1 killed, 2 injured.

March 7, 1912, engine No. 844, crown sheet failure due to low water; no contributory cause found; 1 injured.

March 29, 1912, engine No. 800, crown sheet failure due to low water; no contributory cause found; 1 killed, 4 injured.

Total accidents, 3; killed, 2; injured, 7.

DELAWARE, LACKAWANNA & WESTERN RAILROAD:

August 1, 1911, engine No. 860, crown sheet failure due to low water; crown stays leaking; 1 injured.

April 2, 1912, engine No. 1032, flue burst; flue defective on account of improper working; 1 killed.

Total accidents, 2; killed, 1; injured, 1.

DENVER & RIO GRANDE RAILROAD:

*July 1, 1911, engine No. 1124, squirt hose blew off; 1 injured.

*July 11, 1911, engine No. 679, squirt hose blew off; 1 injured.

July 20, 1911, engine No. 1177, squirt hose blew off; 1 injured.

*July 23, 1911, engine No. 1177, squirt hose blew off; 1 injured.

*July 31, 1911, engine No. 1177, squirt hose blew off; 1 injured.

*August 11, 1911, engine No. 647, water-glass valve disconnected; 1 injured.

*August 14, 1911, squirt hose blew off; 1 injured.

*August 27, 1911, squirt hose blew off; 1 injured.

*September 9, 1911, engine No. 806, squirt hose blew off; 1 injured.

September 25, 1911, engine No. 532, crown sheet failure due to overheated crown sheet and defective crown stays; right injector found inoperative; 2 injured.

*October 9, 1911, squirt hose blew off; 1 injured.

*November 6, 1911, engine No. 717, stay bolt blew out; 1 injured.

*December 1, 1911, water glass burst; 1 injured.

*December 2, 1911, engine No. 1199, injector delivery pipe leaking; 1 injured.

May 1, 1912, engine No. 522, dome cap blew off, due to old crack in cap; 1 injured.

Total accidents, 15; killed, none; injured, 16.

EL PASO & SOUTHWESTERN SYSTEM:

*October 4, 1911, squirt hose blew off; 1 injured.

ERIE RAILROAD:

*July 2, 1911, engine No. 1417, injector "broke"; 1 injured.

*July 14, 1911, engine No. 2024, squirt hose blew off; 1 injured.

*July 14, 1911, lubricator glass burst; 1 injured.

*July 25, 1911, engine No. 1696, squirt hose blew off; 1 injured.

*July 30, 1911, squirt hose blew off; 1 injured.

*August 10, 1911, squirt-hose valve open; 1 injured.

*September 15, 1911, engine No. 893, lubricator glass burst; 1 injured.

*October 6, 1911, engine No. 528, flue plug blew out; 1 injured.

*October 12, 1911, engine No. 883, stay bolt blew out; 1 injured.

*November 4, 1911, engine No. 1855, stud blew out of flue sheet; 1 injured.

*January 24, 1912, engine No. 2004, draft pipe fell down, forcing fire out door; 2 injured.

February 21, 1912, engine No. 1707, crown sheet failure due to low water; no contributory cause found; 1 injured.

March 3, 1912, engine No. 1059, nut stripped on injector steam pipe; improper repairs (by apprentice); 2 injured.

March 14, 1912, engine No. 1633, crown sheet failure due to low water; bottom water-glass cock found stopped up; 2 injured.

Total accidents, 14; killed, 0; injured, 17.

FORT WORTH & DENVER CITY RAILWAY:

December 28, 1911, engine No. 257, crown sheet failure due to low water; no contributory cause found; 2 injured.

March 22, 1912, engine No. 302, squirt hose blew off; not properly secured; 1 injured.

Total accidents, 2; killed, 0; injured, 3.

GEORGIA RAILROAD:

*October 2, 1911, squirt hose blew off; 1 injured.

GRAND TRUNK SYSTEM:

*November 1, 1911, water glass burst; 1 injured.

November 21, 1911, engine No. 1444, arch tube burst; tube too weak to withstand pressure; 1 injured.

GRAND TRUNK SYSTEM—Continued.

- *December 8, 1911, water glass burst; 1 injured.
- February 10, 1912, engine No. 296, coupling nut on steam-heat pipe blew off; improperly applied; 1 killed.
- *June 4, 1912, squirt hose blew off; 1 injured.
- June 14, 1912, engine No. 2245, blower pipe uncoupled in front end, causing back draft, which blew fire in cab; pipe not properly secured; 1 injured.

Total accidents, 6; killed, 1; injured, 5.

GREAT NORTHERN RAILWAY:

- *July 2, 1911, steam ram on injector defective (scalded while making repairs); 1 injured.
- *July 4, 1911, engine No. 1408, squirt hose blew off; 1 injured.
- *December 29, 1911, engine No. 1980, superheater pipe burst; 1 injured.
- *February 29, 1912, squirt hose blew off; 1 injured.
- May 17, 1912, engine No. 125, blower-throttle bonnet blew out; not properly secured to valve; 1 injured.
- May 22, 1912, engine No. 1306, squirt hose blew off; not properly secured; 1 injured.

Total accidents, 6; killed, 0; injured, 6.

GULF, COLORADO & SANTA FE RAILWAY:

- *October 2, 1911, squirt hose blew off; 1 injured.
- *October 16, 1911, engine No. 685, crown sheet failure; 5 injured.
- *January 26, 1912, boiler check broke; 1 injured.
- *February 9, 1912, stay bolt broken; 1 injured.
- *February 24, 1912, squirt hose blew off; 2 injured.
- *May 30, 1912, engine No. 2378, injector "broke"; 1 injured.
- *June 27, 1912, engine No. 616, squirt hose blew off; 1 injured.

Total accidents, 7; killed, 0; injured, 12.

HOCKING VALLEY RAILWAY:

- November 14, 1911, engine No. 154, crown sheet failure due to low water; water foaming (appurtenances removed prior to investigation by our inspector); 1 injured.

HOUSTON & TEXAS CENTRAL RAILROAD:

- *July 13, 1911, engine No. 414, squirt hose blew off; 1 injured.
- *August 16, 1911, engine No. 104, squirt hose burst; 1 injured.
- December 15, 1911, engine No. 41, crown sheet failure; overheated due to low water; no contributory cause found (engine temporarily in use for stationary purposes, in charge of watchman); 14 injured.

*June 13, 1912, engine No. 354, lubricator glass burst; 1 injured.

Total accidents, 4; killed, 0; injured, 17.

HOUSTON EAST & WEST TEXAS RAILWAY:

- *November 19, 1911, blower pipe stopped up; 1 injured.
- December 5, 1911, engine No. 8, crown sheet failure due to low water; water foaming in boiler; 3 injured.
- *January 25, 1912, engine No. 26, water glass burst; 1 injured.

Total accidents, 3; killed, 0; injured, 5.

ILLINOIS CENTRAL RAILROAD:

- *July 2, 1911, squirt hose blew off; 1 injured.
- *July 28, 1911, squirt hose blew off; 1 injured.
- *August 12, 1911, squirt hose blew off; 1 injured.
- *August 13, 1911, squirt hose blew off; 1 injured.
- *August 15, 1911, squirt hose blew off; 1 injured.
- *August 22, 1911, squirt hose blew off; 1 injured.
- *August 25, 1911, squirt hose blew off; 1 injured.
- *September 6, 1911, water glass burst; 1 injured.
- *September 30, 1911, water glass burst; 1 injured.
- *October 2, 1911, injector "broke"; 1 injured.
- *October 3, 1911, squirt hose burst; 1 injured.
- *October 8, 1911, water glass burst; 1 injured.
- *November 23, 1911, water glass burst; 1 injured.
- *December 8, 1911, steam pipe to injector burst; 1 injured.
- December 18, 1911, engine No. 746, washout plug blew out; attempting to tighten plug under pressure; 1 injured.
- *January 1, 1912, drainpipe from lubricator came off; 1 injured.
- *January 12, 1912, lubricator glass burst; 1 injured.
- *January 20, 1912, lubricator glass burst; 1 injured.
- *January 27, 1912, lubricator glass burst; 1 injured.
- *March 5, 1912, water glass burst; 1 injured.
- *March 9, 1912, lubricator glass burst; 1 injured.

ILLINOIS CENTRAL RAILROAD—Continued.

*April 30, 1912, flue burst; 1 injured.

*May 11, 1912, lubricator glass burst; 1 injured.

May 25, 1912, engine No. 859, flue pulled through flue sheet; defective bead on flue; 2 injured.

*June 20, 1912, engine No. 576, crown sheet failure due to low water; no contributory cause found; 1 injured.

Total accidents, 25; killed, 0; injured, 26.

INDIANA HARBOR BELT RAILROAD:

February 20, 1912, engine No. 5493, arch tube burst; due to accumulation of mud and scale in flue; 1 injured.

March 6, 1912, engine No. 5469, water glass burst; shield inefficient; 1 injured.

KANSAS CITY SOUTHERN RAILWAY:

*August 8, 1911, water glass burst; 1 injured.

*August 9, 1911, water glass burst; 1 injured.

*August 14, 1911, water glass burst; 1 injured.

*September 16, 1911, water glass burst; 2 injured.

*September 17, 1911, engine No. 58, water glass burst; 1 injured.

*December 27, 1911, water glass burst; 1 injured.

January 26, 1912, engine No. 364, crown sheet failure due to low water; no contributory cause found; 2 injured.

*April 23, 1912, water glass burst (shield not applied); 1 injured.

Total accidents, 8; killed, 0; injured, 10.

LAKE CHARLES & NORTHERN RAILROAD:

*December 29, 1911, engine No. 60, squirt hose blew off; 1 injured.

LAKE ERIE & WESTERN RAILROAD:

*April 6, 1912, engine No. 8555, stay bolt blew out; 1 injured.

May 19, 1912, engine No. 4166, water glass burst; shield inefficient; 1 injured.

LAKE ERIE, ALLIANCE & WHEELING RAILROAD:

November 29, 1911, engine No. 5885, crown sheet failure due to low water; no contributory cause found; 2 injured.

LAKE SHORE & MICHIGAN SOUTHERN RAILWAY:

*July 16, 1911, engine No. 4802, squirt hose blew off; 1 injured.

*August 8, 1911, water glass burst; 1 injured.

August 15, 1911, engine No. 5790, globe valve cap nut blew off; threads on cap nut worn and stripped; 1 injured.

August 22, 1911, engine No. 5156, water glass burst; shield inefficient; 1 injured.

*September 23, 1911, engine No. 4835, flue burst in weld; 1 injured.

October 30, 1911, engine No. 5906, water glass burst; shield inefficient; 1 injured.

*November 2, 1911, engine No. 5039, water glass burst; 1 injured.

*November 11, 1911, engine No. 5930, water glass burst; 1 injured.

December 16, 1911, engine No. 5698, water glass burst; shield inefficient; 1 injured.

*December 23, 1911, engine No. 4838, broken steam pipe on lubricator; 1 injured.

January 26, 1912, engine No. 5785, crown sheet failure due to low water; bottom water-glass cock stopped up; 1 killed; 1 injured.

February 2, 1912, engine No. 5994, crown sheet failure due to low water; no contributory cause found; 1 killed.

February 12, 1912, engine No. 5042, scalded while calking mud ring under pressure; 1 injured.

February 17, 1912, engine No. 5832, stay bolt blew out of back head; due to improper repairs; 2 injured.

February 19, 1912, engine No. 4434, water glass blow-off pipe disconnected; pipe improperly applied; 1 injured.

March 4, 1912, engine No. 5759, water glass burst; shield inefficient; 1 killed (fell from cab window in escaping steam).

March 16, 1912, engine No. 5572, water glass burst; shield inefficient; 1 injured.

March 16, 1912, engine No. 5962, flue burst; poor weld; 2 injured.

March 26, 1912, engine No. 5927, water glass burst; shield inefficient; 1 injured.

April 3, 1912, engine No. 4305, injector steam valve disconnected; scalded while making repairs; 1 injured.

April 13, 1912, engine No. 4364, water glass burst; shield inefficient; 1 injured.

May 1, 1912, engine No. 4430, arch-tube plate blew off; attempting to tighten under pressure; 1 injured.

May 14, 1912, engine No. 5780, water glass burst; shield inefficient (fell from engine while avoiding steam); 1 injured.

*June 4, 1912, engine No. 5975, patch bolt blew out; 1 injured.

June 20, 1912, engine No. 5717, water glass burst; shield inefficient; 1 injured.

Total accidents, 25; killed, 3; injured, 25.

LAS VEGAS & TONOPAH RAILROAD:

October 10, 1911, engine No. 4, crown sheet failure due to low water; no contributory cause found; 1 injured.

LEHIGH VALLEY RAILROAD:

- *July 27, 1911, stud blew out; 1 injured.
- *November 5, 1911, water glass burst; 1 injured.
- January 4, 1912, joint in steam pipe loose; 1 injured.
- *February 4, 1912, engine No. 1641, crown sheet failure; 2 killed, 3 injured.
- *February 13, 1912, lubricator glass burst; 1 injured.
- *February 18, 1912, engine No. 794, flue burst; 1 injured.
- March 4, 1912, engine No. 726, whistle elbow blew out; improperly applied; 1 injured.
- March 5, 1912, engine No. 726, lubricator glass burst; shield inefficient; 1 injured.
- *June 5, 1912, lubricator glass burst; 1 injured.
- *June 20, 1912, engine No. 3048, squirt hose blew off; 1 injured.
- Total accidents, 10; killed, 2; injured, 12.

LOUISIANA & NORTHWEST RAILROAD:

*August 9, 1911, injector broke; 1 injured.

LOUISIANA RAILROAD & NAVIGATION CO.:

*February 16, 1912, engine No. 57, ash pan blower blew off; 1 injured.

LOUISVILLE & NASHVILLE RAILROAD:

- August 22, 1911, engine No. 1188, flue pocket blew out; not prossered; 1 injured.
- October 12, 1911, engine No. 1292, crown sheet failure due to low water; no contributory-cause found; 1 killed; 3 injured.
- *February 26, 1912, lubricator defective; 1 injured.
- Total accidents, 3; killed, 1; injured, 5.

MICHIGAN CENTRAL RAILROAD:

- November 3, 1911, engine No. 8365, arch tube pulled out of flue sheet; improperly applied; 1 injured.
- *December 5, 1911, engine No. 8732, blow-off cock blew out; 1 injured.
- Total accidents, 2; killed, 0; injured, 2.

MINNEAPOLIS & ST. LOUIS RAILROAD:

- *March 1, 1912, lubricator glass burst; 1 injured.
- May 2, 1912, engine No. 310, arch tube pulled out of back flue sheet; improperly applied; 1 injured.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE RAILWAY:

- November 14, 1911, engine No. 433, crown sheet failure due to low water; obstruction found in water glass valve; 1 injured.
- *January 13, 1912, engine No. 730, blow-off cock opened; 1 injured.
- *January 15, 1912, blow-off cock came open; 1 injured.
- May 1, 1912, engine No. 2421, water glass burst; shield inefficient (fell from engine in avoiding steam); 1 injured.
- Total accidents, 4; killed, 0; injured, 4.

MISSISSIPPI CENTRAL RAILROAD:

*January 25, 1912, engine No. 106, lubricator glass burst; shield inefficient; 1 injured.

MISSOURI & NORTH ARKANSAS RAILROAD:

*August 7, 1911, engine No. 5, squirt hose blew off; 1 injured.

MISSOURI, KANSAS & TEXAS RAILWAY SYSTEM:

- *July 30, 1911, engine No. 540, flue burst; 2 injured.
- *October 16, 1911, engine No. 557, flue burst; 2 injured.
- *December 8, 1911, engine No. 588, gasket blew out of lubricator; 1 injured.
- *December 16, 1911, steam pipe to injector burst; 1 injured.
- *December 26, 1911, engine No. 449, crown sheet failure; 1 injured.
- *January 2, 1912, engine No. 613, flue burst; 1 injured.
- *January 7, 1912, engine No. 601, blow-off cock came open; 1 injured.
- *January 24, 1912, engine No. 100, expansion plate stud blew out; 1 injured.
- *February 18, 1912, engine No. 237, steam valve blew out; 1 injured.
- *March 5, 1912, engine No. 217, water glass burst; 1 injured.
- June 11, 1912, engine No. 228, blow-off cock blew out; threads in boiler defective; 1 killed.
- Total accidents, 11; killed, 1; injured, 12.

MISSOURI PACIFIC RAILWAY SYSTEM:

- *July 16, 1911, water glass burst; 1 injured.
- *July 17, 1911, blow-off cock blew out; 1 injured.
- *August 8, 1911, water glass burst; 1 injured.
- *August 27, 1911, water glass burst; 1 injured.
- *August 29, 1911, water glass burst; 1 injured.
- *October 25, 1911, water glass burst; 1 injured.

MISSOURI PACIFIC RAILWAY SYSTEM—Continued.

- *October 27, 1911, water glass burst; 1 injured.
- *November 1, 1911, flue burst; 1 injured.
- *November 3, 1911, flue burst; 1 injured.
- *December 7, 1911, injector throttle blew out; 2 injured.
- *January 3, 1912, lubricator glass burst; 1 injured.
- January 16, 1912, engine No. 456, rear-end collision; steam leaks obscuring view of enginemen; 1 killed.
- *February 3, 1912, blow-off cock blew out; 1 injured.
- *February 19, 1912, blow-off cock blew out; 1 injured.
- March 17, 1912, engine No. 540, washout plug blew out; threads on plug defective; 1 injured.
- May 20, 1912, engine No. 145, squirt hose blew off; not properly secured; 1 injured.
- June 3, 1912, engine No. 420, water glass burst; shield inefficient; 1 injured.
- *June 19, 1912, squirt hose blew off; 1 injured.
- *June 27, 1912, water glass burst; 1 injured.
- Total accidents, 19; killed, 1; injured, 19.

MOBILE & OHIO RAILROAD:

- *October 3, 1911, engine No. 303, squirt hose blew off; 1 injured.

NASHVILLE, CHATTANOOGA & ST. LOUIS RAILWAY:

- *May 27, 1912, engine No. 24, small tube burst; 1 injured.

NEW ORLEANS GREAT NORTHERN RAILROAD:

- March 7, 1912, engine No. 51, crown sheet failure due to low water; no contributory cause found; 1 killed.

NEW ORLEANS, MOBILE & CHICAGO RAILROAD:

- *August 7, 1911, engine No. 70, lubricator glass burst; 1 injured.
- *May 8, 1912, injector failure; scalded by hot water from overflow; 1 injured.
- *June 27, 1912, boiler check defective; 1 injured.
- *June 28, 1912, boiler check defective; 1 injured.
- Total accidents, 4; killed, 0; injured, 4.

NEW ORLEANS, TEXAS & MEXICO RAILROAD:

- February 25, 1912, engine No. 185, crown sheet failure due to low water; oil in boiler, and water-glass shield having such fine mesh that reading of water glass was very difficult; 2 killed.

- May 16, 1912, engine No. 1002, crown sheet failure due to low water; obstruction found at top end of water glass; 1 killed; 1 injured.

Total accidents, 2; killed, 3; injured, 1.

NEW YORK CENTRAL & HUDSON RIVER RAILROAD:

- *July 2, 1911, squirt hose blew off; 1 injured.
- *July 3, 1911, squirt hose blew off; 1 injured.
- *July 3, 1911, squirt hose burst; 1 injured.
- *July 3, 1911, squirt hose blew off; 1 injured.
- *July 4, 1911, engine No. 3964, squirt hose blew off; 1 injured.
- *July 5, 1911, union under injector broke; 1 injured.
- *July 6, 1911, engine No. 116, squirt hose blew off; 1 injured.
- *July 7, 1911, squirt hose blew off; 1 injured.
- *July 7, 1911, injector pipe burst; 1 injured.
- *July 13, 1911, squirt hose blew off; 1 injured.
- *July 22, 1911, injector "broke;" 1 injured.
- *July 22, 1911, squirt hose came off; 1 injured.
- *August 9, 1911, squirt hose blew off; 1 injured.
- August 11, 1911, engine No. 2815, crown sheet failure due to low water; no contributory cause found; 1 killed; 2 injured.
- *August 20, 1911, engine No. 2833, flue burst; 1 injured.
- *September 3, 1911, squirt hose blew off; 1 injured.
- *September 5, 1911, engine No. 3917, flue burst in weld; 1 injured.
- *September 16, 1911, squirt hose blew off; 1 injured.
- *September 19, 1911, squirt hose blew off; 1 injured.
- *October 9, 1911, engine No. 2896, water glass burst; 1 injured.
- *October 12, 1911, engine No. 132, injector throttle broke; 1 injured.
- *October 18, 1911, engine No. 3832, plug in door sheet defective; 1 injured.
- *November 20, 1911, engine No. 3418, steam pipe to left injector burst; 1 injured.
- *December 4, 1911, lubricator glass burst; 1 injured.
- December 10, 1911, engine No. 536, collar blew off injector steam pipe; brazing defective; 2 injured.
- *December 23, 1911, water glass burst; 1 injured.
- January 17, 1912, engine No. 2470, plug blew out of flue sheet; threads in flue sheet defective; 1 injured.

NEW YORK CENTRAL & HUDSON RIVER RAILROAD—Continued.

- *January 23, 1912, engine No. 3466, steam pipe on injector broken; 1 injured.
 - January 26, 1912, engine No. 3431, crown sheet failure due to low water; no contributory cause found; 2 killed.
 - *January 28, 1912, engine No. 3408, water glass burst; 2 injured.
 - *January 29, 1912, injector defective; 1 injured.
 - *February 4, 1912, engine No. 2891, flue burst; 1 injured.
 - *February 8, 1912, engine No. 2800, water glass burst; 1 injured.
 - *February 19, 1912, engine No. 1872, flue burst; 1 injured.
 - *February 16, 1912, engine No. 2902, flue burst; 1 injured.
 - *February 20, 1912, engine No. 2499, stud blew out of boiler; 1 injured.
 - *February 24, 1912, engine No. 379, boiler check blew out; 1 injured.
 - March 1, 1912, engine No. 2475, tank hose blew off while thawing out frozen hose; 1 injured.
 - March 10, 1912, engine No. 2918, washout plug blew out; attempting to tighten plug under pressure; 2 injured.
 - March 17, 1912, engine No. 363, nut on injector steam pipe broken; use of improper tools in making repairs; 2 injured.
 - *March 18, 1912, water glass burst; 1 injured.
 - March 22, 1912, engine No. 2017, washout plug blew out; threads on plug defective; 1 killed.
 - March 25, 1912, engine No. 3111, flue burst; flue burned in welding; 1 injured.
 - March 30, 1912, engine No. 3404, squirt pipe to injector blew off; collar on pipe defective; 1 injured.
 - March 30, 1912, engine No. 1607, steam pipe burst in smoke arch; steam pipe defective; 1 injured.
 - *April 1, 1912, injector "broke;" 1 injured.
 - April 11, 1912, engine No. 5955 (L. S. & M. S.), flue burst; flue burned in welding; 1 injured.
 - April 24, 1912, engine No. 1704, water glass burst; shield inefficient; 1 injured.
 - *May 2, 1912, engine No. 1495, boiler check body broke; 1 injured.
 - May 6, 1912, engine No. 2706, nipple blew out of injector delivery pipe; thread on nipple defective; 1 injured.
 - *May 6, 1912, engine No. 871, cab bracket stud blew out; improperly fitted; 1 injured.
 - *May 8, 1912, engine No. 2471, union nut on injector steam pipe broke; improper tools used in repairing; 1 injured.
 - *May 8, 1912, engine No. 927, collar on injector steam pipe broke; 1 injured.
 - *June 2, 1912, engine No. 514, squirt hose burst; 1 injured.
 - *June 10, 1912, scalded by steam from injector overflow pipe; 1 injured.
 - *June 18, 1912, engine No. 2954, squirt hose burst; 1 injured.
 - *June 19, 1912, engine No. 1876, water glass burst; shield defective; 1 injured.
 - *June 23, 1912, engine No. 178, squirt hose blew off; improperly secured; 1 injured.
 - Total accidents, 58; killed, 4; injured, 61.
- NEW YORK, CHICAGO & ST. LOUIS RAILROAD:**
- *August 25, 1911, water glass burst; 1 injured.
 - *January 23, 1912, engine No. 443, steam pipe on injector broken; 1 injured.
 - February 9, 1912, engine No. 26, injector "broke"; overflow pipe not connected to injector; 1 injured.
 - February 12, 1912, engine No. 281, blow-off cock blew out; threads in sheet and on cock defective; 1 injured.
 - February 24, 1912, engine No. 450, water glass burst; shield inefficient; 1 injured.
 - March 10, 1912, engine No. 6, lubricator glass burst; shield inefficient; 1 injured.
 - Total accidents, 6; killed, 0; injured, 6.
- NEW YORK, NEW HAVEN & HARTFORD RAILROAD:**
- *July 19, 1911, engine No. 2410, squirt hose burst; 1 injured.
 - October 25, 1911, engine No. 1611, crown sheet failure due to low water; no contributory cause found; 1 injured.
 - *January 19, 1912, steam pipe on injector broken; 1 injured.
 - *February 10, 1912, oil pipe broken; 1 injured.
 - March 29, 1912, engine No. 418, crown sheet failure due to low water; reading of water glass and gauge cock less than 3 inches above highest point of crown sheet, and scale on crown sheet; 3 injured.
 - April 1, 1911, engine No. 2525, squirt hose burst; hose defective; 1 injured.
 - June 2, 1912, engine No. 319, bonnet blew off squirt valve; threads defective; 1 injured.
 - *June 18, 1912, engine No. 2303, squirt hose burst; 1 injured.
 - June 26, 1912, engine No. 1214, flue burst; weld defective; 2 injured.
 - Total accidents, 9; killed, 0; injured, 12.

NORFOLK & WESTERN RAILWAY:

- *July 2, 1911, engine No. 90, squirt hose blew off; 1 injured.
- *July 8, 1911, engine No. 482, squirt hose blew off; 1 injured.
- July 22, 1911, engine No. 921, crown sheet failure due to low water; no contributing cause found; 1 killed, 4 injured.
- *July 22, 1911, engine No. 1036, flue burst; 1 injured.
- *July 26, 1911, engine No. 1086, squirt hose blew off; 1 injured.
- *August 11, 1911, squirt hose burst; 1 injured.
- *September 8, 1911, engine No. 84, squirt hose burst; 1 injured.
- November 11, 1911, engine No. 1131, crown sheet failure due to low water; no contributory cause found; 1 killed; 3 injured.
- *January 14, 1912, engine No. 398, valve on smoke consumer defective; 1 injured.
- *January 28, 1912, engine No. 420, flue burst; 1 injured.
- *February 7, 1912, engine No. 788, water-glass gasket blew out; 1 injured.
- *March 8, 1912, engine No. 411, flue burst; 1 injured.
- March 20, 1912, engine No. 1136, crown sheet failure due to low water; no contributory cause found; 2 killed, 1 injured.
- *May 20, 1912, engine No. 412, flue burst; 1 injured.
- *May 23, 1912, squirt hose burst; 1 injured.
- *May 29, 1912, engine No. 416, flue burst; 1 injured.
- *June 20, 1912, engine No. 493, packing nut blew out of top water-glass valve; 1 injured.
- June 20, 1912, engine No. 1306, squirt-hose valve worked open; valve defective; 2 injured.

Total accidents, 18; killed, 4; injured, 24.

NORFOLK SOUTHERN RAILROAD:

- August 25, 1911, engine No. 100, arch plug blew out; threads defective; 2 injured.
- May 24, 1912, engine No. 115, squirt hose blew off; not properly secured; 1 injured.

NORTHERN PACIFIC RAILWAY:

- *August 1, 1911, water glass burst; 1 injured.
 - *October 29, 1911, engine No. 1631, water glass burst; 1 injured.
 - *January 15, 1912, engine No. 1650, lubricator glass burst; 1 injured.
 - *February 4, 1912, engine No. 1504, water glass burst; 1 injured.
 - *May 5, 1912, engine No. 61, lubricator glass burst; 1 injured.
 - *June 9, 1912, engine No. 1605, squirt hose burst; 1 injured.
 - *June 19, 1912, engine No. 3006, injector "broke"; 1 injured.
 - *June 20, 1912, engine No. 1044, squirt hose blew off; 1 injured.
 - *June 22, 1912, engine No. 1601, squirt hose blew off; 1 injured.
- Total accidents, 9; killed, 0; injured, 9.

OREGON SHORT LINE RAILROAD:

- *October 7, 1911, engine No. 2823, crown sheet failure; 1 injured.
- May 29, 1912, engine No. 814, arch flue pulled out of flue sheet, due to improper washing; 2 injured.

OREGON-WASHINGTON RAILROAD & NAVIGATION Co.:

- *August 14, 1911, engine No. 363, squirt hose burst; 1 injured.
 - *September 30, 1911, engine No. 258, arch flue burst; 1 injured.
 - *October 10, 1911, engine No. 512, right injector "broke" while putting compound in boiler; 1 injured.
 - *November 15, 1911, engine No. 257, arch tube blew out; 1 injured.
 - December 13, 1911, engine No. 382, crown sheet failure due to low water; obstruction found in bottom water-glass cock; 1 killed, 3 injured.
- Total accidents, 5; killed, 1; injured, 7.

PECOS & NORTHERN TEXAS RAILWAY:

- *May 6, 1912, engine No. 779, squirt hose blew off; 1 injured.

PENNSYLVANIA RAILROAD:

- *July 5, 1911, squirt hose blew off; 1 injured.
- *July 8, 1911, squirt hose blew off; 1 injured.
- *July 10, 1911, squirt hose burst; 1 injured.
- *July 18, 1911, engine No. 395, squirt hose burst; 1 injured.
- *August 1, 1911, engine No. 1121, squirt hose blew off; 1 injured.
- *August 8, 1911, flue burst; 1 injured.
- *August 8, 1911, squirt hose blew off; 1 injured.
- *August 29, 1911, engine No. 742, cap nut blew out of injector pipe; 1 injured.
- *September 11, 1911, engine No. 529, steam escaping from fire box; 1 injured.
- *September 26, 1911, squirt hose blew off; 1 injured.
- October 31, 1911, engine No. 2043, diaphragm plate dropped, causing back draft; due to bolts breaking where connected to angle iron at flue sheet; 1 injured.

PENNSYLVANIA RAILROAD—Continued.

- *November 3, 1911, squirt hose blew off; 1 injured.
- November 21, 1911, engine No. 1126, packing nut blew off injector throttle; threads defective; 2 injured.
- *December 5, 1911, engine No. 3352, flue burst; 2 injured.
- *December 10, 1911, engine No. 972, boiler-check cap blew off; 1 injured.
- *January 8, 1912, squirt hose blew off; 1 injured.
- *January 11, 1912, engine No. 1466, packing nut blew out of injector; 1 injured.
- *February 4, 1912, engine No. 2751, water-glass gasket blew out; 1 injured.
- *February 5, 1912, arch tube blew out; 1 injured.
- February 8, 1912, engine No. 6222 (W., N. Y. & P.), boiler check cap blew off; threads on cap defective; 1 killed.
- February 12, 1912, engine No. 1621, crown sheet failure due to low water; no contributory cause found; 2 injured.
- April 2, 1912, engine No. 6310 (W., N. Y. & P.), water-glass stem blew out; stem unscrewed too far; 1 injured.
- April 5, 1912, engine No. 1676, squirt hose blew off; hose not properly secured; 1 injured.
- *April 10, 1912, engine No. 3118, flue burst; 1 injured.
- April 22, 1912, engine No. 1082, flue burst; weld defective; 1 injured.
- *April 30, 1912, engine No. 276, packing nut blew off right injector; 1 injured.
- May 12, 1912, engine No. 4049 (N. C. R.), packing nut stripped off left injector; threads on injector defective; 1 injured.
- May 17, 1912, engine No. 3137, squirt hose blew off; hose not properly secured; 1 injured.
- May 22, 1912, engine No. 6053, collar broke on injector steam pipe; 1 injured.
- June 18, 1912, engine No. 178, squirt hose blew off; hose not properly secured; 1 injured.
- June 25, 1912, engine No. 1997, bonnet came off blow-off cock; cock defective; 1 injured.
- Total accidents, 31; killed, 1; injured, 33.

PENNSYLVANIA LINES WEST OF PITTSBURGH:

- *July 2, 1911, engine No. 7739, squirt hose burst; 1 injured.
- *July 15, 1911, squirt hose blew off; 1 injured.
- *July 23, 1911, squirt hose blew off; 1 injured.
- *July 29, 1911, engine No. 7542, squirt hose burst; 1 injured.
- *August 9, 1911, engine No. 7749, squirt hose blew off; 1 injured.
- *August 21, 1911, engine No. 9054, nipple blew out of injector pipe; 1 injured.
- August 24, 1911, engine No. 8428, crown sheet failure due to low water; water in boiler foaming, and gauge cocks found stopped up; 3 injured.
- *September 2, 1911, engine No. 7955, squirt hose blew off; 1 injured.
- *September 13, 1911, engine No. 7439, squirt hose blew off; 1 injured.
- *September 16, 1911, squirt hose blew off; 1 injured.
- *October 3, 1911, engine No. 9950, squirt hose blew off; 1 injured.
- *October 16, 1911, engine No. 7526, squirt hose blew off; 1 injured.
- *October 8, 1911, squirt hose blew off; 1 injured.
- *October 31, 1911, engine No. 319 (P., C., C. & St. L.), flue burst; 1 injured.
- November 1, 1911, engine No. 9032, crown sheet failure due to low water; no contributory cause found; 3 injured.
- *November 4, 1911, engine No. 8411 (P., C., C. & St. L.), leak in steam pipe to pump; 1 injured.
- December 19, 1911, engine No. 7744, crown sheet failure due to low water; no contributory cause found; 1 killed; 2 injured.
- *January 16, 1912, blower disconnected; 1 injured.
- March 19, 1912, engine No. 9088, collar broke on injector steam pipe; improperly brazed; 1 injured.
- *March 14, 1912, engine No. 8330 (P., C., C. & St. L.), flue burst; 1 injured.
- April 6, 1912, engine No. 8555, stud blew out; threads in boiler defective; 1 injured.
- *May 6, 1912, engine No. 7440, squirt hose blew off; 1 injured.
- May 7, 1912, engine No. 7723, squirt hose blew off; hose not properly secured; 1 injured.
- *May 24, 1912, engine No. 1967, squirt hose blew off; 1 injured.
- Total accidents, 24; killed, 1; injured, 29.

PERE MARQUETTE RAILROAD:

- *July 8, 1911, squirt hose blew off; 1 injured.
- *September 2, 1911, squirt hose burst; 1 injured.
- *November 22, 1911, injector blew off; 1 injured.

PERE MARQUETTE RAILROAD—Continued.

- *December 6, 1911, flue burst; 1 injured.
- *December 29, 1911, lubricator glass burst; 1 injured.
- *February 15, 1912, squirt hose blew off; 1 injured.
- *March 19, 1912, steam pipe leaking; 1 injured.

Total accidents, 7; killed, 0; injured, 7.

PHILADELPHIA & READING RAILWAY:

- *September 21, 1911, flue burst; 1 injured.
- *November 10, 1911, engine No. 921, water glass burst; 1 injured.
- *November 24, 1911, engine No. 1002, lubricator glass burst; 1 injured.
- *December 21, 1911, engine No. 1190, lubricator glass burst; 1 injured.
- *December 27, 1911, engine No. 896, filling plug blew out of lubricator; 1 injured.
- *January 12, 1912, engine No. 1193, lubricator glass burst; 1 injured.
- *January 26, 1912, engine No. 604, globe valve broke; 1 injured.
- *February 3, 1912, engine No. 973, crown sheet failure; 1 injured.
- March 1, 1912, engine No. 699, crown sheet failure due to low water; no contributory cause found; 4 killed; 1 injured.
- *April 5, 1912, engine No. 1031, lubricator valve broke; 1 injured.
- May 1, 1912, engine No. 248, lubricator glass burst; shield inefficient; 1 injured.
- *May 2, 1912, lubricator glass burst; 1 injured.
- May 21, 1912, engine No. 1583, water glass burst; shield inefficient (injured in shutting off cock); 1 injured.

Total accidents, 13; killed, 4; injured, 13.

PITTSBURGH & LAKE ERIE RAILROAD:

- *November 13, 1911, engine No. 9141, water glass burst; 1 injured.
- *November 26, 1911, engine No. 9373, water glass burst; 2 injured.
- July 12, 1911, engine No. 9312, water glass burst; shield inefficient; 1 injured.

Total accidents, 3; killed, 0; injured, 4.

ROBBINS RAILROAD COMPANY:

- *February 27, 1912, flue burst; 1 injured.

ROCK ISLAND SOUTHERN RAILWAY SYSTEM:

- *September 17, 1911, engine No. 210, lubricator glass burst; 1 injured.

ROOSEVELT & WESTERN RAILROAD:

- *August 16, 1911, stud blew out; 1 injured.

ST. JOHN'S RIVER TERMINAL COMPANY:

- *July 26, 1911, engine No. 2, hose blew off blow-off cock during boiler test; 1 injured.

ST. LOUIS & SAN FRANCISCO RAILROAD:

- *July 7, 1911, engine No. 572, lubricator glass burst; 1 injured.
- *September 28, 1911, engine No. 3669, squirt hose blew off; 1 injured.
- *October 5, 1911, engine No. 220, squirt hose burst; 1 injured.
- November 9, 1911, engine No. 1111 (N. O. T. & M.), crown sheet failure due to low water; top water-glass cocks closed; 2 killed, 3 injured.
- *January 18, 1912, engine No. 1276, flue burst; 2 injured.
- *February 16, 1912, water glass burst; 1 injured.
- *February 17, 1912, squirt hose blew off; 2 injured.

Total accidents, 7; killed, 2; injured, 11.

ST. LOUIS, BROWNSVILLE & MEXICO RAILWAY:

- *August 8, 1911, squirt hose blew off; 1 injured.

ST. LOUIS, IRON MOUNTAIN & SOUTHERN RAILWAY:

- *July 19, 1911, squirt hose blew off; 1 injured.
- *July 20, 1911, squirt hose blew off; 1 injured.
- *July 31, 1911, squirt hose blew off; 1 injured.
- *August 1, 1911, water glass burst; 1 injured.
- *August 17, 1911, water glass burst; 1 injured.
- *August 24, 1911, squirt hose blew off; 1 injured.
- *August 28, 1911, lubricator glass burst; 1 injured.
- *October 2, 1911, squirt hose blew off; 1 injured.
- *October 14, 1911, squirt hose blew off; 1 injured.
- *October 27, 1911, crown sheet failure; 1 injured.
- *December 26, 1911, water glass burst; 1 injured.
- *January 13, 1912, water glass burst; 1 injured.
- *January 26, 1912, water glass burst; 1 injured.
- *February 16, 1912, water glass burst; 1 injured.
- *February 23, 1912, squirt hose blew off; 1 injured.
- *May 17, 1912, branch pipe blew off; 2 injured.
- *June 3, 1912, water glass burst; 1 injured.
- *June 20, 1912, squirt-hose valve open; 1 injured.

Total accidents, 18; killed, 0; injured, 19.

ST. LOUIS MERCHANTS BRIDGE TERMINAL RAILWAY:

December 3, 1911, engine No. 80, injector bonnet broke; defect in bonnet; 1 injured.

ST. LOUIS, SAN FRANCISCO & TEXAS RAILWAY:

*July 5, 1911, engine No. 616, injector broke; 1 injured.

*October 16, 1911, squirt hose blew off; 1 injured.

ST. LOUIS SOUTHWESTERN RAILWAY:

*September 11, 1911, water glass burst; 1 injured.

March 10, 1912, engine No. 252, water-glass cock broke off (attempting to remove water-glass packing nut); 1 injured.

Total accidents, 2; killed, 0; injured, 2.

SAN PEDRO, LOS ANGELES & SALT LAKE RAILROAD:

July 3, 1911, engine No. 3630, crown-sheet failure due to low water (flues and fire-box sheets in poor condition); 2 killed.

*August 22, 1911, squirt hose burst; 1 injured.

*August 26, 1911, squirt hose blew off; 1 injured.

*October 19, 1911, injector broke; 1 injured.

March 16, 1912, engine No. 3671, flue pulled through flue sheet; beading on flue defective; 1 injured.

May 27, 1912, engine No. 3672, squirt hose valve accidentally opened; improperly located; 1 injured.

June 22, 1912, engine No. 3653, squirt hose blew off; hose not properly secured; 1 injured.

Total accidents, 7; killed, 2; injured, 6.

SEABOARD AIR LINE RAILWAY:

August 11, 1911, engine No. 904, crown sheet failure due to low water; safety valve leaking badly; 1 killed; 2 injured.

*October 14, 1911, squirt-hose valve open; 1 injured.

*October 19, 1911, engine No. 538, washout plug blew out; 1 injured.

*October 20, 1911, engine No. 783, flue burst; 1 injured.

*November 25, 1911, engine No. 634, flue burst; 1 injured.

*December 1, 1911, defective ash-pan blower; 1 injured.

*December 16, 1911, defective boiler check; 1 injured.

*January 4, 1912, engine No. 90, blow-off cock opened while repairs were being made on boiler; 1 injured.

*January 10, 1912, squirt hose blew off; 1 injured.

*January 17, 1912, engine No. 748, squirt hose defective; 1 injured.

*February 15, 1912, engine No. 728, flue burst; 1 injured.

*May 21, 1912, engine No. 600, lubricator glass burst; 1 injured.

Total accidents, 12; killed, 1; injured, 13.

SOUTHERN RAILWAY:

*July 23, 1911, engine No. 863, crown sheet failure; 1 injured.

*July 31, 1911, blower pipe disconnected; 1 injured.

*August 17, 1911, injector broke; 1 injured.

*September 13, 1911, injector broke; 1 injured.

*September 15, 1911, engine No. 860, crown sheet failure; 2 injured.

*March 9, 1912, steam-heat valve blew out of boiler; 1 injured.

March 19, 1912, engine No. 678, stay bolt blew out; bolt smaller than tap applied in sheet; 1 injured.

May 22, 1912, engine No. 276, stay bolt blew out; bolt smaller than tap applied in sheet; 1 injured.

*June 14, 1912, squirt hose burst, 1 injured.

*June 25, 1912, engine No. 3406, squirt hose burst; 1 injured.

Total accidents, 10; killed, 0; injured, 11.

SOUTHERN KANSAS RAILWAY CO. OF TEXAS:

*October 5, 1911, water glass burst; 1 injured.

*December 4, 1911, water glass burst; 1 injured.

SOUTHERN PACIFIC CO.:

July 1, 1911, engine No. 1680, flue plug blew out; 1 injured.

July 3, 1911, engine No. 3045, crown sheet failure due to low water; water foaming badly in boiler (appurtenances removed prior to our investigation); 1 injured.

*September 14, 1911, squirt hose burst, 1 injured.

*October 17, 1911, squirt hose burst; 1 injured.

November 3, 1911, engine No. 418, crown sheet failure due to low water (influenced by broken stay bolt); 4 injured.

*November 5, 1911, squirt hose blew off; 1 injured.

*November 8, 1911, engine No. 2683, squirt hose blew off; 1 injured.

*November 11, 1911, engine No. 1538, collar broken on pipe to injector; 1 injured.

*December 1, 1911, engine No. 74, water glass burst; 1 injured.

SOUTHERN PACIFIC Co.—Continued.

*December 3, 1911, flue burst; 1 injured.

*December 9, 1911, squirt hose blew off; 1 injured.

January 3, 1912, engine No. 510, fusible plug blew out; plug improperly applied; 1 injured.

January 5, 1912, engine No. 2763, crown sheet failure due to low water; fire box in defective condition (appurtenances had been removed prior to inspection); 2 killed; 2 injured.

*January 6, 1912, engine No. 1729, injector throttle blew out; 1 injured.

*February 13, 1912, engine No. 257, stud blew out of boiler; 1 injured.

March 18, 1912, engine No. 704 (G. H. & S. A.), boiler explosion; overpressure due to screwing down safety valves by employee engaged in setting same; 26 killed; 32 injured.

April 4, 1912, engine No. 2538 (O. & C.), crown sheet failure due to low water; water glass too low; 2 killed.

April 9, 1912, engine No. 2739, crown sheet failure due to low water; fusible plug defective; fire box in defective condition (appurtenances removed prior to inspection); 1 killed; 1 injured.

April 18, 1912, engine No. 849 (G. H. & S. A.), crown sheet failure due to low water; threads on crown bolt defective; 2 injured.

May 2, 1912, engine No. 2701, flue pocket blew out; improperly applied—not pros-
sured; 1 injured.

May 14, 1912, engine No. 424 (G. H. & S. A.), crown sheet failure due to low water; engineer and fireman on duty for excessive period; condition of fire box and fusible plug defective; injector, water glass, and gauge cocks defective; 2 injured.

June 26, 1912, engine No. 838 (G. H. & S. A.), crown sheet failure, due to low water; no contributory cause found; 1 killed; 1 injured.

Total accidents, 22; killed, 32; injured, 58.

SPOKANE, PORTLAND & SEATTLE RAILWAY:

*November 5, 1911, collar on steam pipe to injector broke; 1 injured.

STANDARD & HERNANDO RAILROAD:

March 10, 1912, engine No. 7, crown sheet failure due to low water; no contributory cause found; 1 injured.

TAGOMA EASTERN RAILROAD:

*June 28, 1912, engine No. 3, squirt hose blew off; 1 injured.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS:

*April 25, 1912, engine No. 6418 (M. P.), water glass burst; 1 injured.

*June 7, 1912, engine No. 52, squirt hose blew off; 1 injured.

TEXAS & PACIFIC RAILROAD:

*October 6, 1911, engine No. 314, crown sheet failure; 2 injured.

*November 20, 1911, water glass burst; 1 injured.

*March 20, 1912, flue burst; 1 injured.

*March 31, 1912, water glass burst; 1 injured.

*May 28, 1912, squirt hose burst; 1 injured.

*May 30, 1912, squirt hose blew off; 1 injured.

*June 27, 1912, engine No. 354, stay bolt blew out; 2 injured.

Total accidents, 7; killed, 0; injured, 9.

TEXAS CENTRAL RAILROAD:

*October 20, 1911, engine No. 121, boiler check blew out; 1 injured.

*November 6, 1911, engine No. 121, squirt hose blew off; 1 injured.

*April 10, 1912, engine No. 125, boiler check broke; 1 injured.

Total accidents, 3; killed, 0; injured, 3.

TOLEDO & OHIO CENTRAL RAILWAY:

*November 20, 1911, engine No. 5536, water glass burst; 1 injured.

TOLEDO, PEORIA & WESTERN RAILWAY:

September 8, 1911, engine No. 7, crown sheet failure due to low water; bottom water-glass cock found stopped up; 1 injured.

*September 21, 1911, squirt hose blew off; 1 injured.

TOLEDO, ST. LOUIS & WESTERN RAILROAD:

*July 5, 1911, squirt hose blew off; 1 injured.

*August 5, 1911, squirt hose blew off; 1 injured.

TRINITY & BRAZOS VALLEY RAILWAY:

*July 21, 1911, water glass burst; 1 injured.

*October 25, 1911, injector broke; 1 injured.

October 28, 1911, engine No. 17, crown sheet failure due to low water; no contributory cause found; 3 killed.

TRINITY & BRAZOS VALLEY RAILWAY—Continued.

December 13, 1911, engine No. 41, crown sheet failure due to low water; bottom water-glass cock found closed; 2 killed; 1 injured.

*January 18, 1912, water glass burst; 1 injured.

February 26, 1912, engine No. 40, crown sheet failure due to low water; no contributory cause found; 1 killed; 3 injured.

Total accidents, 6; killed, 6; injured, 7.

UNION RAILROAD:

April 27, 1912, engine No. 98, crown sheet failure due to low water; no contributory cause found; 2 injured.

UNION PACIFIC RAILROAD:

*August 30, 1911, squirt hose burst; 1 injured.

*September 28, 1911, engine No. 103, soft plug blew out; 1 injured.

November 19, 1911, engine No. 300, crown sheet failure due to low water; gauge cocks defective, water glass not registering correct water level; 2 injured.

*January 17, 1912, engine No. 131, injector broke; 1 injured.

*January 23, 1912, flue burst; 1 injured.

March 7, 1912, engine No. 290, threads stripped on injector steam pipe; 1 injured.

April 15, 1912, engine No. 323, steam pipe to right injector broken; brazing defective; 2 injured.

June 9, 1912, engine No. 1904, injector broke while engineer was injecting water compound through overflow; 1 injured.

Total accidents, 8; killed, 0; injured, 10.

VANDALIA RAILROAD Co.:

November 8, 1911, engine No. 442, crown sheet failure due to low water; 2 gauge cocks stopped up; 3 injured.

*December 3, 1911, engine No. 528, crown sheet failure; 1 injured.

January 16, 1912, engine No. 349, crown sheet failure due to low water; bottom end of water glass stopped up with asbestos (had been reported by another engineer, but repairs were not made); 2 injured.

Total accidents, 3; killed, 0; injured, 6.

VINEGAR BEND LUMBER Co.:

February 20, 1912, engine No. 9, boiler explosion; old crack in barrel of boiler; 1 killed; 7 injured.

VIRGINIAN RAILWAY:

*July 30, 1911, engine No. 438, bad leak in flue sheet; 1 injured.

WABASH RAILROAD:

*August 18, 1911, engine No. 2082, squirt hose blew off; 1 injured.

*October 2, 1911, engine No. 857, squirt hose blew off; 1 injured.

*October 5, 1911, engine No. 607, flue burst; 1 injured.

October 31, 1911, engine No. 852, crown sheet failure due to low water; no contributory cause found; 1 killed; 2 injured.

*November 30, 1911, engine No. 2328, squirt hose blew off; 1 injured.

*December 11, 1911, engine No. 873, washout plug blew out; 1 injured.

December 30, 1911, engine No. 1890, crown sheet failure due to low water; no contributory cause found; 1 killed; 1 injured.

*January 3, 1912, engine No. 803, lubricator glass burst; 1 injured.

*February 20, 1912, engine No. 2059, blower pipe disconnected; 2 injured.

*March 4, 1912, engine No. 864, water glass burst; 1 injured.

*May 2, 1912, engine No. 558, water glass burst; 1 injured.

June 1, 1912, engine No. 29, crown sheet failure; overheated, due to scale on sheet and bolts; 1 injured.

*June 27, 1912, engine No. 250, water glass burst; 1 injured.

Total accidents, 13; killed, 2; injured, 15.

WESTERN MARYLAND RAILWAY:

*September 5, 1911, engine No. 1603, squirt hose valve defective; 1 injured.

*October 21, 1911, engine No. 616, broken collar on injector pipe; 1 injured.

February 7, 1912, engine No. 320, lubricator glass burst; follower to bull's-eye glass loose; 1 injured.

*May 4, 1912, engine No. 102, squirt hose burst; 1 injured.

June 10, 1912, engine No. 321, squirt hose blew off; not properly secured; 1 injured.

*June 28, 1912, engine No. 512, squirt hose blew off; 1 injured.

Total accidents, 6; killed, 0; injured, 6.

WESTERN PACIFIC RAILWAY Co.:

April 22, 1912, engine No. 49, crown sheet failure due to low water; water in boiler foaming badly; 3 killed.

WHEELING & LAKE ERIE RAILROAD:

- *July 25, 1911, squirt hose blew off; 1 injured.
- *August 5, 1911, squirt hose blew off; 1 injured.
- *September 5, 1911, water glass burst; 1 injured.

March 24, 1912, engine No. 355, blower pipe loose and leaking in front end, causing back draft; 1 injured.

Total accidents, 4; killed, 0; injured, 4.

WICHITA VALLEY RAILWAY:

- *August 19, 1911, injector broke; 1 injured.
- *November 17, 1911, washout plug blew out; 1 injured.
- *March 1, 1912, engine No. 1, injector broke; 1 injured.

March 22, 1912, engine No. 302, squirt hose blew off; not properly secured; 1 injured.

Total accidents, 4; killed, 0; injured, 4.

YAZOO & MISSISSIPPI VALLEY RAILROAD:

- *September 1, 1911, squirt hose disconnected; 1 injured.
- *October 14, 1911, water glass burst; 1 injured.
- *February 2, 1912, crown-sheet failure; 3 injured.
- *June 13, 1912, squirt hose blew off; 1 injured.

Total accidents, 4; killed, 0; injured, 6.

Classification of the foregoing accidents showing in each instance the number of accidents, number of deaths, and number of injuries resulting therefrom.

Nature or cause of accidents.	Number of accidents.	Killed.	Injured.
Shell explosions.....	3	27	41
Crown sheet failures due to low water (no contributory cause found).....	09	35	129
Crown sheet failures due to low water, where contributing defects were found.....	25	19	39
Defective blow-off cocks.....	23	2	22
Defective washout plugs.....	11	2	14
Burst water glasses.....	165	1	168
Burst flues.....	56	1	62
Steam leaks obscuring engineer's view.....	1	1	7
Defective steam pipe joints.....	7	2	11
Defective holler checks.....	11	1	49
Burst lubricator glasses.....	49	.....	245
Defective squirt hose and connections.....	243	.....	38
Defective injector steam pipes.....	31	.....	23
Arch tube failures.....	18	.....	47
Injector failures.....	46	.....	8
Defective water-glass cocks and appurtenances.....	8	.....	8
Flue plug failures.....	7	.....	13
Defective studs.....	12	.....	12
Defective lubricators.....	11	.....	10
Defective blower pipes.....	9	.....	11
Defective staybolts.....	9	.....	2
Defective dome caps.....	2	.....	3
Defective draft pipe and bracket.....	2	.....	4
Burst water bars.....	3	.....	3
Defective arch studs.....	2	.....	1
Defective threaded plug (flue sheet).....	1	.....	3
Defective ash-pan blowers.....	3	.....	1
Defective cap on branch pipe.....	1	.....	5
Defective valves.....	5	.....	1
Defective mud ring.....	1	.....	1
Defective patch bolt.....	1	.....	1
Defective whistle elbow.....	1	.....	4
Defective arch tube plugs.....	2	.....	2
Defective blower throttle bonnets.....	2	.....	1
Burst steam pipe in smoke arch.....	1	.....	1
Defective diaphragm plate.....	1	.....	1
Defective fusible plug.....	1	.....	4
Defective flue pockets.....	3	.....	4
Defective gauge cocks.....	4	.....	2
Defective heater pipes.....	2	.....	1
Defective superheater pipe.....	1	.....	1
Defective gasket handhole plate.....	1	.....	2
Defective flue sheet.....	2	.....	.....
Total.....	856	91	1,005

TABLES SHOWING NUMBER OF LOCOMOTIVES OWNED, INSPECTED, FOUND DEFECTIVE, AND ORDERED FROM SERVICE; AND NUMBER AND KIND OF DEFECTS.

(The ownership is generally in a railroad corporation and the abbreviation for railroad or railway is omitted in most cases. In designating other corporations the abbreviation "Co." is added.)

Defects.	Aberdeen & Ash.	Aberdeen & Rock.	Abilene & Sou.	Addyston & O. Riv.	Akron & Bar. Belt.	Alabama & Miss.	Alabama Central.	Ala., Tenn. & Nor.	Alcoliti.	Alderman Lbr. Co.	Alliquippa & Sou.	Amador Central.	Amer. En. Tile Co.	Amer. Sheet & T. P. Co.	Amer. Signal Co.
Stay bolts broken.....	1			2				2	1		2				
Rigid bolts leaking ¹											2				
Flexible bolts leaking ¹															
Telltails closed ¹				1					1						
Telltails stopped up ¹	1	3							1		5				
Stay bolts not drilled ²				1											
Crown sheet leaking.....															
Other sheets leaking.....				1					1						
Fire-box sheets bulged.....							3				1				
Flues leaking ¹									2		5				
Flues plugged.....	17					1									
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking.....									1						
Barrel leaking.....											1				
Dome leaking.....					1	1		1							
Throat sheet leaking.....															
Mod ring leaking.....				1					2						
Blow-off cock leaking.....											1				
Washout plugs leaking ¹			1	1							1				
Safety valve missing.....							2								
Safety valve stuck.....															
Safety valve leaking.....															
Gage location improper.....															
Gage incorrect.....															
Dial glass missing.....										1					
Siphon wrongly applied.....	2	1	2			1	2	1	2			1	1		
Siphon leaking.....															
Gage cocks wrongly located.....															
Gage cocks stopped up.....															
Gage cocks inoperative.....		2	3												
Gage cocks blowing.....		3		3		1		1	5	1	2				3
Gage-cock handle defective.....	1	1								1					
Gage-cock drip defective.....															
Drip pipe missing.....															
Nipples defective or missing.....															
Water glass missing.....				1			3	2	4	1	4		1	3	
Water glass stopped up.....															
Water-glass cocks defective.....		1													
Water-glass cock handle defective.....			1												
Water-glass blow-off cock defective.....		1	1				1								
Water-glass tube broken.....															
Lamp missing.....								3							
Water-glass shield missing.....															
Water-glass shield defective.....															
Water glass improperly located.....															
Lubricator shields missing.....	1	1	2	1			6	4	3	1				4	2
Lubricator shields defective.....															
Injector inoperative.....									2						
Injector-tank valve defective.....					1					1					
Injector-tank hose defective.....															
Injector feed pipe defective.....														2	
Injector throttle defective.....		3	2				1		2						
Injector steam pipe defective.....		1						1		1					
Injector delivery pipe defective.....			1	1						1					
Injector boiler check defective.....					1										
Cab card missing.....	3	1	3	1		1	3		3	1	2	2		3	
Badge plate missing.....	3	2		1			1	1	3		1			5	
Fire-box plug not secured.....						8		7							
Unclassified steam leaks.....		13	2	2	0	0	1	2	0	0	5	4	1	6	0
Number of defects.....	29	32	19	18	2	14	28	27	31	7	32	7	3	26	2
Locomotives owned.....	12	5	7	7	5	3	2	18	2	7	10	2	1	1	2
Locomotives inspected.....	9	27	0	1	7	1	0	1	1	1	7	2	1	2	2
Locomotives defective.....	5	13	4	1	1	3	0	3	2	1	7	2	1	7	2
Locomotives ordered from service.....	1	0	1	0	0	1	1	2	0	0	0	0	0	0	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Amer. Steel & W. Co.	Anderson & S. Riv.	Andrews Steel Co.	Angelina & Nec. R.	Ann Arbor.	Apalachicola Nor.	Appalachian.	Aracoma Coal Co.	Arcadia & Botsley R.	Ariz. & N. Mexico.	Ariz. Eastern.	Ariz. Copper Co.	Ariz. Southern.	Arkansas Central.	Ark., La. & Gulf.
Stay bolts broken	3				23	2				3	20				
Rigid bolts leaking ¹										1	7				
Flexible bolts leaking ¹											4				
Telltails closed ¹					3	3				5	22				
Telltails stopped up ¹					1					1	4	1			2
Stay bolts not drilled ²										3	5	2			
Crown sheet leaking											2				
Other sheets leaking											17				
Fire-box sheets bulged										3	4				
Flues leaking ¹					1						4				
Flues plugged											6				
Arch flues leaking ¹															
Arch plugs leaking ¹											3				
Fusible plug leaking			1								1				
Barrel leaking					4						1				
Dome leaking					4						1				
Throat sheet leaking						2									
Mud ring leaking					1						3				
Blow-off cock leaking					8						2	1			
Washout plugs leaking ¹			1		10						2	1			
Safety valve missing															
Safety valve stuck															
Safety valve leaking															
Gage location improper															
Gage incorrect															
Dial glass missing															
Siphon wrongly applied											4		1		
Siphon leaking						1									
Gage cocks wrongly located					2										
Gage cocks stopped up					4						3				
Gage cocks inoperative					4							3			
Gage cocks blowing		1			16	1		1							1
Gage-cock handle defective					3										
Gage-cock drip defective												2			
Drip pipe missing														1	
Nipples defective or missing															
Water glass missing		1													
Water glass stopped up															
Water-glass cocks defective										1	2	1			
Water-glass cock handle defective															
Water-glass blow-off cock defective											1			2	
Water glass tube broken						1									
Lamp missing															
Water-glass shield missing					2	1								1	
Water-glass shield defective	2				2			1					1	1	2
Water glass improperly located												1		1	
Lubricator shields missing				1	3	2		1	1						
Lubricator shields defective					1										
Injector inoperative			2												
Injector tank valve defective											6	1		1	
Injector tank hose defective					1										
Injector feed pipe defective					1	3									
Injector throttle defective						2	1				2				
Injector steam pipe defective						1		1							
Injector delivery pipe defective															1
Injector boiler check defective					2										1
Cab card missing	2	1			2	2					2				
Badge plate missing	2	1			2	4					1		1	2	
Fire-box plug not secured												5			
Water-glass drip missing						3						3		2	
Water-glass drip defective															
Water-glass drip wrongly located															
Gage-cock drip improperly located															
Fire-box sheets corroded						2									
Fire hose defective															
Unclassified steam leaks	0	0	0	0	14	5	0	1	0	6	36	4		9	
Number of defects	9	4	4	1	110	35	1	3	3	27	100	25	3	23	5
Locomotives owned	1	6		1	58	8	2	1	2	10	24		4	4	5
Locomotives inspected	2	1	2	1	58	5	1	1	2	8	24	5	1	7	2
Locomotives defective	2	1	2	1	28	5	1	1	2	7	24	5	1	6	2
Locomotives ordered from service	0	0	0	0	4	0	0	0	0	0	4	1	0	1	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Ark., Sh. L. Lbr. Co.	Artesian Belt.	Asherton & Gulf.	Ashland Coal & I. Co.	Ashland, Odannah & M.	Atch., Top., & Santa Fe.	Atlanta & St. And. Bay.	Atl. & W. Point.	Atl. Bfr. & Atl'c.	Atlanta Jt. Term.	Atlantic & Western.	Atlantic City.	Atlantic Coast Line.	Atlantic Nor. & Sou.	Augusta Northern.
Stay bolts broken.....				4		940	24	44	4			13	425		
Rigid bolts leaking ¹						146	1					1	11		
Flexible bolts leaking ¹						71							5		
Telltails closed ¹						71	3	4	1				14		
Telltails stopped up ¹						729	3	4	1				126		
Stay bolts not drilled ¹	1					170			11	2			7		
Crown sheet leaking.....				3		105			1				11		
Other sheets leaking.....						200		1	4			3	48		
Fire-box sheets bulged.....				1		60							13		
Flues leaking ¹						65		1	1	2			31		
Flues plugged.....				1		32	1		1				95		
Arch flues leaking ¹						1							3		
Arch plugs leaking ¹						125		1					41		
Fusible plug leaking.....															
Barrel leaking.....						42							4		
Dome leaking.....						62			1				7		
Throat sheet leaking.....						55		1					10		
Mud ring leaking.....						52	1		1				23		
Blow-off cock leaking ¹						389			1	1			9	45	
Washout plugs leaking ¹				1		335			5	1			5	29	
Safety valve missing.....						1					1				
Safety valve stuck.....															
Safety valve leaking.....						12							2		
Gage location improper.....						5									
Gage incorrect.....						17							1		
Dial glass missing.....						16									
Siphon wrongly applied.....				4		223	1		1		1	34	22		
Siphon leaking.....						55		1	3	1		18	18		
Gage cocks wrongly located.....				1		10							1		
Gage cocks stopped up.....					1	36		1					9		
Gage cock inoperative.....						129							11		
Gage cocks blowing.....				6		85			7	2		3	85		
Gage-cock handle defective.....				1		28							5		
Gage-cock drip defective.....				1		23			1				11		
Drip pipe missing.....						104							2		
Nipples defective or missing.....						101							1		
Water glass missing.....				25		3	3	13	17		3	63	58		1
Water glass stopped up.....						3							5		
Water-glass cocks defective.....						58							23		
Water-glass cock handle defective.....									1				4		
Water-glass blow-off cock defective.....	1			2		53	1	1	1	2			24		
Water-glass tube broken.....						12				2			13		
Lamp missing.....						46							1		
Water-glass shield missing.....				1		9							15		
Water-glass shield defective.....	2					91							10		
Water glass improperly located.....															
Lubricator shields missing.....		1		9		218	3	3	1	1	2	11	53		2
Lubricator shields defective.....						6							29		
Injector inoperative.....						9							11		1
Injector tank valve defective.....				1		95							11		
Injector tank hose defective.....				1		31		1					13		
Injector feed pipe defective.....						84			1				21		
Injector throttle defective.....				7		229	1	1	2				56		
Injector steam pipe defective.....				1		161			1				33		
Injector delivery pipe defective.....				1		48			2				16		1
Injector boiler check defective.....						44						2	14		
Cab card missing.....	1	1	10	1		34	2	2	1		1		27		2
Badge plate missing.....				2		20	2	8	3		1	13	13		2
Fire-box plug not secured.....						62							51		3
Water-glass drip missing.....						81		1	1				68		
Water-glass drip defective.....						11							5		
Water-glass drip wrongly located.....						2									
Gage-cock drip improperly located.....						15							4		
Fire-box sheets corroded.....						29			3				53		
Fire hose defective.....															
Unclassified steam leaks.....	4			5		1,630	1	2	11	1		5	202	2	12
Number of defects.....	8	2	1	91	2	7,045	10	97	128	18	12	227	1,029	2	12
Locomotives owned.....	2	2	2	8	7	2,409	0	31	45	2	21	759	1	2	2
Locomotives inspected.....	2	1	2	30	1	2,475	0	30	47	12	5	91	18	2	2
Locomotives defective.....	2	1	1	30	1	1,684	5	30	38	8	5	88	161	2	2
Locomotives ordered from service.....	0	1	0	0	0	84	0	1	1	0	0	0	28	0	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Augusta Southern.	Au Sable & N. W.	Baltimore & Ohio.	Balto., Ches. & Atl.	Bangor & Aroostook.	Bartlett Western.	Bauxite & Northern.	Hayfield Transfer.	Bay Point & Clayton.	Bay Terminal.	Bearden & Onaschita R.	Beaumont & Gt. Nor.	Beaumont-Sara-Trans.	Beaver Dam.	Bellefonte Central.
Stay bolts broken.....			831		16	7	1	55	1	2		1			
Rigid bolts leaking.....			77												
Flexible bolts leaking.....			67												
Telltails closed.....			82		1										
Telltails stopped up.....			98		4					1					
Stay bolts not drilled.....			21	5			1								2
Crown sheet leaking.....			143												2
Other sheets leaking.....			183	2											
Firebox sheets bulged.....			27												
Flues leaking.....			109												
Flues plugged.....			36	2										2	
Arch flues leaking.....			4												
Arch plugs leaking.....			42												
Fusible plug leaking.....															
Barrel leaking.....			137				1		1						
Dome leaking.....	1		214						1						
Throat sheet leaking.....			55												
Mud ring leaking.....			143						1						1
Blowoff cock leaking.....			123	1											
Washout plugs leaking.....			259		1										
Safety valve missing.....		2													
Safety valve stuck.....			1												
Safety valve leaking.....			78	3											
Gage location improper.....			1												
Gage incorrect.....			23									2			
Dial-glass missing.....			47												
Siphon wrongly applied.....	1		68	8		1						2			5
Siphon leaking.....	1		207									1			
Gage cocks wrongly located.....			2												
Gage cocks stopped up.....			28	1	2				1						2
Gage cocks inoperative.....			12	4											
Gage cocks blowing.....			469	2			1			2			1		1
Gagecock handle defective.....		1	13	2			1								
Gagecock drip defective.....			7												
Drip pipe missing.....			6	3											
Nipples defective or missing.....			1	4											
Water glass missing.....	4		84	6											1
Water glass stopped up.....			21												
Water-glass cocks defective.....			149	2											
Water-glass cock handle defective.....			7												
Water-glass blow-off cock defective.....			279	1					1						
Water-glass tube broken.....			30												
Lamp missing.....			20												
Water-glass shield missing.....		2	19					1		1	1	1	1		
Water-glass shield defective.....			26	2											
Water glass improperly located.....			13												
Lubricator shields missing.....		1	301	7	2	2		1		1	1	2	1		2
Lubricator shields defective.....			108	4											1
Injector inoperative.....			19					1							
Injector tank valve defective.....			6												1
Injector tank hose defective.....			86							2					
Injector feed pipe defective.....			104							1					1
Injector throttle defective.....			356	6								1			1
Injector steam pipe defective.....			303										1		1
Injector delivery pipe defective.....			171												
Injector boiler check defective.....			121	3					1				1		1
Cab card missing.....	1		49	3	1	1	1	1	1	1		1	1	1	1
Badge plate missing.....			214		1	1	1	1	1	1					2
Firebox plug not secured.....			7												4
Water-glass drip missing.....			13												
Water-glass drip defective.....			2												
Water-glass drip wrongly located.....			1												
Gage rock improperly located.....															
Firebox sheets corroded.....			3												
Fire hose defective.....															
Unclassified steam leaks.....			1,724	19			2					2			1
Number of defects.....	5	6	7,850	90	27	11	6	63	3	17	2	13	4	4	29
Locomotives owned.....	6	5	2,076	12	98	2	1	2	2	1	2	3	1	1	5
Locomotives inspected.....	4	3	2,802	21	59	3	1	3	2	3	2	3	1	2	8
Locomotives defective.....	4	2	2,029	18	18	3	1	3	1	2	1	3	1	1	8
Locomotives ordered from service.....	0	0	140	0	0	1	0	1	0	1	0	0	0	0	0

1 Number of locomotives reported with this defect.

2 Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Belt Ry. of Chicago.	Bennettsville & Cheraw.	Benwood & Wheel. Con.	Bessemer & Lake Erie.	Big Falls.	Big Sandy & Cumber.	Big S. Gap & P. Valley.	Bingham & Garfield.	Birmingham & Atlantic.	Birmingham & S. E.	Birmingham Belt.	Birming., Cols. & St. A.	Birmingham Southern.	Black Det. C. & M. Co.	Bloomsburg & Sullivan.
Stay bolts broken	13	5	5	17								5	3		1
Rigid bolts leaking ¹				1											
Flexible bolts leaking ¹				4											
Telltals closed ¹	3		1	4				1							
Telltals stopped up ¹	3		2	4											
Stay bolts not drilled ²	4														
Crown sheet leaking				3											
Other sheets leaking	2	1	1	15									1		
Firebox sheets bulged				1											
Flues leaking ¹	2			3								1			
Flues plugged		7													
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plugs leaking															
Barrel leaking			1	2											
Dome leaking			3	1											
Throat sheet leaking	1									1					
Mud ring leaking		1		5											
Blow-off cock leaking				8											
Washout plugs leaking ¹	1			14									1		
Safety valve missing															
Safety valve stuck															
Safety valve leaking				1											
Gage location improper								1							
Gage incorrect															
Dial glass missing			1												
Siphon wrongly applied	2	1											1		
Siphon leaking				9											
Gage cocks wrongly located								3							
Gage cocks stopped up	2			1											
Gage cocks inoperative	1														
Gage cocks blowing			1	2											
Gage-cock handle defective	1											1			
Gage-cock drip defective				1									1		
Drip pipe missing								1							
Nipples defective or missing															
Water glass missing		1	10		1				3	3			1	1	1
Water glass stopped up															
Water-glass cocks defective				1											
Water-glass cock handle defective															
Water-glass blow-off cock defective	1	1		1				1							
Water-glass tube broken															
Lamp missing															
Water-glass shield missing	1			3									2		
Water-glass shield defective	3	1		5											
Water glass improperly located															
Lubricator shields missing		3		1		1	2			1	1	2	2	1	
Lubricator shields defective															
Injector inoperative	1	1								1					
Injector tank valve defective	1														
Injector tank hose defective	1			1											
Injector feed pipe defective			2	2											
Injector throttle defective			2	4											
Injector steam pipe defective			7	1											
Injector delivery pipe defective			3												
Injector boiler check defective				2											
Cab card missing	4	2		1			2		1	2			1		
Badge plate missing	4	1		1	1		2	4	3	2			1	1	
Fire-box plug not secured		12										1	4		
Water-glass drip missing											1				
Water-glass drip defective				4											
Water-glass drip wrongly located															
Gage-cock drip improperly located															
Fire-box sheets corroded				2											
Fire hose defective															
Unclassified steam leaks	2		3	37		1		3		2					1
Number of defects	47	39	43	155	2	2	6	14	9	12	2	15	11	6	4
Locomotives owned		4	7	169	1	4	2	12	5	2	2	2	29	1	5
Locomotives inspected	52	8	33	91	1	2	2	4	3	3	1	2	11	1	3
Locomotives defective	21	5	23	66	1	2	2	4	3	3	1	2	3	1	1
Locomotives ordered from service	0	0	2	0	0	0	0	0	0	1	0	1	1	0	0

¹ Number of locomotives reported with this defect.
² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Blue Ridge.	Blythevl., B. & M. River.	Blytheville, L. & A. S.	Boca & Loyalton.	Bontee & Western.	Boston & Albany.	Boston & Maine.	Boyer City, G. & Alpena.	Branchville & Bowman.	Bridgton & Saco River.	Brimson Railway.	Bristol Railroad.	Brooksville Railroad.	Buffalo & Susquehanna.	Buffalo, Attca & Arc.
Staybolts broken.....	4		3			350	425	3			2			56	
Rigid bolts leaking ¹						2	1							2	
Flexible bolts leaking ¹			1			1	1							5	
Telltals closed.....	1					13	16							11	
Telltals stopped up ¹						6	13				2			2	
Stay bolts not drilled ²											1			11	
Crown sheet leaking.....														4	
Other sheets leaking.....						3	7		1		1			1	
Fire-box sheets bulged.....														4	
Flues leaking ¹	1					3	5							11	
Flues plugged.....							1							3	
Arch flues leaking ¹															
Arch plugs leaking ¹						13	4								
Fusible plug leaking.....						1									
Barrel leaking.....						2	3						1		
Dome leaking.....		1				1	6			1				2	
Throat sheet leaking.....						1	2								
Mud ring leaking.....						29	31						1	7	
Blow-off cock leaking.....						4	9				1			1	
Washout plugs leaking ¹	1					19	21				1	1	1	1	
Safety valve missing.....									1						
Safety valve stuck.....															
Safety valve leaking.....							2				1			1	
Gage location improper.....															
Gage incorrect.....															
Dial-glass missing.....						2	10								
Siphon wrongly applied.....	2	2	1	1	2				1						
Siphon leaking.....	1			1		3	13							6	
Gage-cocks wrongly located.....						2	4								
Gage cocks stopped up.....				1		6	27				2		2	1	
Gage cocks inoperative.....					1	16	8	2			1			1	
Gage cocks blowing.....	5					34	45		1		2		2		
Gage-cock handle defective.....			1		1	6					1				
Gage-cock drip defective.....						1	8								
Drip pipe missing.....				2		5	3								
Nipples defective or missing.....				3		1	2				3				
Water glass missing.....	6					6	6		1	4	4		1		
Water glass stopped up.....	1													1	
Water-glass cocks defective.....				2		8	2							2	
Water-glass cock handle defective.....			2			1	1								
Water-glass blow-off cock defective.....						11	13						1	12	
Water-glass tube broken.....	2						5				1				
Lamp missing.....															
Water-glass shield missing.....	1	2				2		1							
Water-glass shield defective.....		1	2			4	107	2		2		1		7	
Water glass improperly located.....							9								
Lubricator shields missing.....	2		2	7		3	36	4	1	3	2		1		2
Lubricator shields defective.....				2			1								
Injector inoperative.....							2				1		1		
Injector tank valve defective.....							1			3			1	1	
Injector tank hose defective.....						2	19						3	1	
Injector feed pipe defective.....	1						7				3			1	
Injector throttle defective.....						1	1						2	1	
Injector steam pipe defective.....				1		1	8		2		1			1	9
Injector delivery pipe defective.....	2						10								
Injector boiler check defective.....						1	3								
Cab card missing.....						6	35	2	1	1			1	2	
Badge plate missing.....	1			1		1	190		1		3	1	1	3	
Fire-box plug not secured.....	3			1									3		
Water-glass drip missing.....	1	3	1											3	
Water-glass drip defective.....						1	1								
Water-glass drip wrongly located.....															
Gage-cock drip improperly located.....							1								
Fire-box sheets corroded.....															
Fire hose defective.....															
Unclassified steam leaks.....	9	1		12		19	107		1	1	3		6	12	6
Number of defects.....	41	7	12	41	4	589	1,331	14	12	11	44	5	30	168	10
Locomotives owned.....	5	4	5	6	2	364	1,246	11	4	5	11	1	1	77	2
Locomotives inspected.....	17	3	5	3	3	306	1,012	12	1	10	13	2	2	51	4
Locomotives defective.....	12	2	4	3	3	246	562	5	1	7	11	2	2	43	2
Locomotives ordered from service.....	0	0	0	1	0	17	13	1	0	0	0	0	3	4	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Buffalo Creek.	Buffalo Creek & Gaul.	Buffalo, Roches, & Pgh.	Burr's Ferry, B. & C.	Butler County.	Butte, Anaconda & Pac.	Butte County.	Cache Valley.	Cadiz Railroad.	Calro & Kanawha.	Cambria Steel Co.	Campbells Creek.	Canadian Pacific.	Carland, J.C.(Const.Co.).	Carlton & Coast.
Stay bolts broken	4		128	3		9	1				4		13	8	1
Rigid bolts leaking ¹			1			1									
Flexible bolts leaking ¹															
Telltails closed ¹			15						3						
Telltails stopped up ¹			21			9		3			9				
Stay bolts not drilled ¹			4			2									
Crown sheet leaking			1			1								1	
Other sheets leaking			18		2	5					1				
Firebox sheets bulged						1									
Flues leaking ¹			2		1	3					1				
Flues plugged			1			5		2							
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking															
Barrel leaking			1			1									
Dome leaking			9								1	2			
Throat sheet leaking						2									
Mud ring leaking			13			1					1		1		
Blow-off cock leaking			1												
Washout plugs leaking ¹			5			1					1	1			
Safety valve missing										2					
Safety valve stuck															
Safety valve leaking			2												
Gage location improper															
Gage incorrect						2	1								
Dial-glass missing															
Siphon wrongly applied						2	1		1	1				1	1
Siphon leaking			3								2				
Gage cocks wrongly located															
Gage cocks stopped up			18						1				2		1
Gage cocks inoperative			13			3									
Gage cocks blowing			6			1		2							
Gage-cock handle defective			1					1					1		
Gage-cock drip defective			2												
Drip pipe missing									1						
Nipples defective or missing						3							10		
Water glass missing		1							2		3				
Water glass stopped up			2												
Water-glass cocks defective			5						2						
Water-glass cock handle defective			1			1				2					
Water-glass blow-off cock defective			9			2									
Water-glass tube broken									2		1				
Lamp missing															
Water-glass shield missing			1				1								
Water-glass shield defective			24					3					7		
Water glass improperly located															
Lubricator shields missing	1	1	10	2			2	1	1		8		1	2	1
Lubricator shields defective								4							
Injector inoperative			1												
Injector tank valve defective							1								
Injector tank hose defective		2	4												
Injector feed pipe defective	1		8			1									
Injector throttle defective			5			1									
Injector steam pipe defective			8			3		1							
Injector delivery pipe defective			2							1					
Injector boiler check defective			5								1				
Cab card missing			5			6		1	2	1			3	3	
Badge plate missing			6			3			2	1			6	3	2
Fire-box plug not secured															
Water-glass drip missing						1	1								
Water-glass drip defective															
Water-glass drip wrongly located															
Gage-cock drip improperly located															
Fire-box sheets corroded						2									
Fire hose defective															
Unclassified steam leaks	4		37		2	3	2	4		1	2	4			
Number of defects	6	8	398	5	5	73	10	4	24	11	31	10	50	18	6
Locomotives owned	12	2	294	3	2	27	7	3	2	3	35	3			3
Locomotives inspected	10	1	182	2	1	28	2	1	0	2	9	3	37	4	3
Locomotives defective	2	1	121	2	1	24	2	1	5	2	9	3	27	3	2
Locomotives ordered from service	0	0	18	0	0	0	0	0	0	0	0	0	1	1	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Carolina & N. W.	Carolina, Clin. & O.	Carroll & Worthvl.	Carriage & Copen.	Catskill Mountain.	Cazenovia & Sauk C.	Central Indiana.	Cent. of Georgia.	Cent. New England.	Cent. Ry. of Ark.	Cent. F. R. of N. J.	Cent. F. R. of Pa.	Central Vermont.	Charleston & W. Car.	Charleston Term.
Stay bolts broken.....	1	13		1	1		9	28	39		81		506	12	
Rigid bolts leaking ¹							1	1			1		3		
Flexible bolts leaking ¹							2	3			4		12	1	
Telltals closed ¹		5					3	3			4		12	1	
Telltals stopped up ¹	1	6			1	1	1	41		1	16		12	13	
Stay bolts not drilled ²							14	1			4	2	1		
Crown sheet leaking.....							1	3	1		4		6		1
Other sheets leaking.....							2	7	3		34		6		1
Firebox sheets bulged.....							2	1			4		1		1
Flues leaking ¹		1	1				1	12	2		16		4	1	1
Flues plugged.....	11	3									16		6	18	2
Arch flues leaking ¹								5					7		
Arch plugs leaking ¹														2	
Fusible plug leaking.....								1			9		3		1
Barrel leaking.....		3					1	1					3		1
Dome leaking.....													3	2	1
Throat sheet leaking.....				1			1	3			5		2		
Mud ring leaking.....	1	1	1					6	8		29		22		2
Blow-off cock leaking.....		6	1			1		4			17	1	2	1	
Washout plugs leaking ¹		2	1				2	13	1		17		10	2	
Safety valve missing.....															
Safety valve stuck.....											6		4		
Safety valve leaking.....		2													
Gage location improper.....															
Gage incorrect.....		1						1			1		2		
Dial-glass missing.....		1						1			36		16		
Siphon wrongly applied.....	6	1					4	2	1	1		3	13		
Siphon leaking.....	1	1						7	1		27		3	4	
Gage cocks wrongly located.....						1		1	2	3			4	3	
Gage cocks stopped up.....							1	1	2	2		7	16	3	
Gage cocks inoperative.....		1									63		16	3	
Gage cocks blowing.....		7	1	1			2	31	3		25		42	8	
Gage-cock handle defective.....								1			1		3	1	1
Gage-cock drip defective.....								3			8		1		
Drip pipe missing.....									1	1					
Nipples defective or missing.....													40		
Water glass missing.....	5	1	2				1	5			7			11	
Water glass stopped up.....								1					3	3	
Water-glass cocks defective.....							3	4		1	5			2	
Water-glass cock handle defective.....		2								1			1	1	1
Water-glass blow-off cock defective.....		1					3	5			18		15	2	1
Water-glass tube broken.....		1						10					6		
Lamp missing.....															
Water-glass shield missing.....							4								
Water-glass shield defective.....													2	2	
Water glass improperly located.....													5		
Lubricator shields missing.....	4	1					1	5	5		51		18		2
Lubricator shields defective.....											16				
Injector inoperative.....			1					1			2			1	
Injector tank valve defective.....								1			1		1		
Injector tank hose defective.....		1						2		1	10	1	6		
Injector feed pipe defective.....								7			12		3		
Injector throttle defective.....	1		3					6	9	2	2	16	12	2	
Injector steam pipe defective.....	1							2	2	1		17	1	25	2
Injector delivery pipe defective.....		3	1	1				1		1			8		
Injector boiler check defective.....		2						2	3		12		1		
Cab card missing.....	6	1		1		1		4		1		4	10	1	1
Badge plate missing.....	6						1	19	8	2	124	4	41	5	1
Fire-box plug not secured.....	11							28					38	33	
Water-glass drip missing.....							1						3		
Water-glass drip defective.....								1		1				1	3
Water-glass drip wrongly located.....															
Gage-cock drip improperly located.....															
Fire-box sheets corroded.....								7							
Fire hose defective.....															
Unclassified steam leaks.....	6	9					3	28	8	7	196	2	73	18	2
Number of defects.....	49	72	23	5	2	6	72	320	82	20	899	19	1,015	160	17
Locomotives owned.....	13	45	2	2	4	1	10	312	58	4	486	4	102	55	4
Locomotives inspected.....	19	23	3	2	7	2	27	172	66	4	507	12	262	66	6
Locomotives defective.....	10	22	3	2	2	2	21	122	34	4	349	8	223	47	6
Locomotives ordered from service.....	4	4	1	0	0	0	2	7	0	0	6	2	54	1	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Charlotte Har. & N.	Charlotte, Mon. & Col.	Chateaugay Ore & I.	Chattahoochee Valley.	Chesapeake & Ohio.	Ches. & Ohio of Ind.	Chesapeake Beach.	Chesapeake Western.	Chesterfield & Lan.	Chestnut Ridge.	Chgo., Anamosa & No.	Chicago & Alton.	Chicago & Calumet Riv.	Chicago & East. Ill.	Chgo. & Ill. Western.
Stay bolts broken.....				1	154	65						199		105	
Rigid bolts leaking ¹					10	2						13		8	
Flexible bolts leaking ¹					5	1						2		3	
Telltails closed ¹					33	3						9		3	
Telltails stopped up ¹	4			2	40	1	1		1			62		18	
Stay bolts not drilled ²					46	50						2		8	
Crown sheet leaking.....					5	10						11		4	
Other sheets leaking.....					43	7		1				27		9	1
Firebox sheets bulged.....					21	1						4		8	
Flues leaking ¹	1				19	6						9		5	
Flues plugged.....					21	1			3			168		25	
Arch flues leaking ¹															
Arch plugs leaking ¹					8	2	1							6	
Fusible plug leaking.....	1				1									1	
Barrel leaking.....					10	5						4		1	
Dome leaking.....					21	4						2		2	1
Throat sheet leaking.....					6	3	1					5		1	
Mud ring leaking.....			1		21	4						24		7	
Blow-off cock leaking.....					69	9						8		5	
Washout plugs leaking ¹					42	13	1					36		7	
Safety valve missing.....															
Safety valve stuck.....															
Safety valve leaking.....					6	16								1	
Gage location improper.....															
Gage incorrect.....					1							2			
Dial-glass missing.....					6							17			
Siphon wrongly applied.....		1	2		63	4	1					5		10	
Siphon leaking.....				1	31	3						3		3	
Gage cocks wrongly located.....												3			
Gage cocks stopped up.....					53	4						6	2	8	
Gage cocks inoperative.....					5	2						50		13	
Gage cocks blowing.....	2		1		179	59			2			29		12	
Gage-cock handle defective.....			1		4	2			2			9			
Gage-cock drip defective.....					8	1						2		2	
Drip pipe missing.....					2	2						18		2	
Nipples defective or missing.....					1										
Water glass missing.....			2		80	1			1			7			
Water glass stopped up.....					2	2									
Water-glass cocks defective.....	1				32	9						32		2	
Water-glass cock handle defective.....					8	1						2			
Water-glass blow-off cock defective.....	1				24	14						34		8	
Water-glass tube broken.....	2				24	7			2			1			
Lamp missing.....															
Water-glass shield missing.....		2			2	11				1			1	1	
Water-glass shield defective.....					19	36						9	2	7	2
Water glass improperly located.....												2		3	
Lubricator shields missing.....	1	2		1	88	20	2	1				1	2	3	
Lubricator shields defective.....					1	4						1			
Injector inoperative.....					14	1			3			9		2	
Injector tank valve defective.....	3				8										
Injector tank hose defective.....					45	1						12			
Injector feed pipe defective.....					22							19			
Injector throttle defective.....		1	1		74	8						19		4	
Injector steam pipe defective.....		1	1		160	19			1	1		18		2	
Injector delivery pipe defective.....	1	1			36	2						8		2	
Injector boiler check defective.....					22	10						10			
Cab card missing.....		2		1	17	2						27		2	2
Badge plate missing.....		1			19	19				2	1	36		19	2
Fire-box plug not secured.....					54									1	
Water-glass drip missing.....	1				11	2						29		1	
Water-glass drip defective.....					1	1									
Water-glass drip wrongly located.....															
Gage-cock drip improperly located.....						1									
Fire-box sheets corroded.....												12			
Fire hose defective.....															
Unclassified steam leaks.....			1	1	443	22		1	1			109		48	
Number of defects.....	18	11	7	10	2,038	513	1	8	17	2	3	1,046	8	75	9
Locomotives owned.....	10	2	3	3	715	39	4	4	5	1		258	4	36	3
Locomotives inspected.....	4	2	3	2	1,184	115	3	1	7	2		307	1	24	2
Locomotives defective.....	4	2	2	2	619	104	3	3	27	2		214	3	17	2
Locomotives ordered from service.....	0	0	0	0	43	22	0	0	0	0		15	0	23	0

¹ Number of locomotives reported with this defect.
² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Number of locomotives reported with this defect.														
	Chgo. & Lake Superior.	Chgo. & North Western.	Chgo. & South Bend.	Chgo. & Wabash Valley.	Chicago & W. Ind.	Chgo., Burl. & Quincy.	Chgo. Great Western.	Chgo. Hts. Term. & T.	Chgo., Ind. & Southern.	Chgo., Indpls. & Lovil.	Chgo. Junction.	Chgo., Kalam. & Sag.	Chgo., Memphis & Gulf.	Chgo., Mil. & Gary.	Chgo., Mil. & Puget Sd.
Stay bolts broken.....	468				1	326	79	4	22	268	5	8	2	5	104
Rigid bolts leaking.....	41					23	2		1	8					4
Flexible bolts leaking ¹						2				2					
Telltails closed.....	18					24			1	14	1		1		3
Telltails stopped up.....	103					158	25	2	10	14	8		1		72
Stay bolts not drilled.....	12	2	4			15	9		18	60			1	1	2
Crown sheet leaking.....	9		1	1		23	4		2	8			1		2
Other sheets leaking.....	69				1	56	8		2	18			2		13
Firebox sheets bulged.....	16					5				6					4
Flues leaking.....	23					11	2		2	6					5
Flues plugged.....	219		1			11	4	1		50		1			9
Arch flues leaking ¹	5														1
Arch plugs leaking ¹	59					4	2		3	1					8
Fusible plug leaking.....															
Barrel leaking.....	24					15				9					9
Dome leaking.....	39					11			3	15					3
Throat sheet leaking.....	47					11									
Mud ring leaking.....	94	1	1			16	1		2	2		1	1		4
Blow-off cock leaking.....	1	97				51	11		2	15					
Washout plugs leaking ¹	97					63	11		8	17					15
Safety valve missing.....															
Safety valve stuck.....															
Safety valve leaking.....	2				1	7	2		4	28					1
Gage location improper.....	6														
Gage incorrect.....	4														
Dial glass missing.....	51					3							1		2
Siphon wrongly applied.....	36	2				106	4		4	12					10
Siphon leaking.....	25		1			24	1			6					14
Gage cocks wrongly located.....	19					19									
Gage cocks stopped up.....	52					19	12			15	2			3	10
Gage cocks inoperative.....	97					82	7			41	3				13
Gage cocks blowing.....	97	3				65	24	1		39	1		1	1	14
Gage-cock handle defective.....	13					7	2						1		2
Gage-cock drip defective.....	11					12	1			2					
Drip pipe missing.....	22					64	7								2
Nipples defective or missing.....															47
Water glass missing.....															
Water glass stopped up.....						2									
Water-glass cocks defective.....	2					23	6			11					11
Water-glass cock handle defective.....															1
Water-glass blow-off cock defective.....	27					63	17	2	7	11	1		1		11
Water-glass tube broken.....	4					2							1		
Lamp missing.....															
Water-glass shield missing.....	1	17	2	1		11	16			5		2			7
Water-glass shield defective.....	50	4	1			17	8	2	8	89		4	2		76
Water glass improperly located.....						1									2
Lubricator shields missing.....	9	3	2	1		279	47		3	10	1	2	2		9
Lubricator shields defective.....	2	4				22		1	1	30					
Injector inoperative.....	9					2	3		3	8					1
Injector-tank valve defective.....						1	2			4					
Injector-tank hose defective.....	18					20	5			6	2				
Injector feed pipe defective.....	7					67	14			2					6
Injector throttle defective.....	30					80	7		1	27					46
Injector steam pipe defective.....	18		1			82	4		1	15			1	1	3
Injector delivery pipe defective.....	7					9	4			6					1
Injector boiler check defective.....	24		1			14	2		3	26					3
Cab card missing.....	1	30	1	1		23	7	1	3	3			2		4
Badge plate missing.....	61	4	2	2		103	75	2	7	23	1		1		7
Fire-box plug not secured.....	27					13	4			52					18
Water-glass drip missing.....	195					86	14			1					6
Water-glass drip defective.....	19					12	1			1					2
Water-glass drip wrongly located.....															
Gage-cock drip improperly located.....						5				1					5
Fire-box sheets corroded.....	1					13	4								3
Fire hose defective.....															
Unclassified steam leaks.....	241	1	4			316	36		17	161	1			2	64
Number of defects.....	3,254	27	22	6	2,560	497	16	139	1,144	34	11	22	21		69
Locomotives owned.....	1,639	2	3	87	1,600	310	6	150	127	45	5	6	15		289
Locomotives inspected.....	2,497	7	6	2	1,727	309	7	139	224	72	9	6	22		255
Locomotives defective.....	1,420	7	6	2	953	219	3	74	197	16	4	6	8		175
Locomotives ordered from service.....	0	37	0	2	13	4	0	1	52	0	1	0	0		7

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Chgo., Mil. & St. Paul.	Chgo., Peoria & St. L.	Chgo. River & Indiana.	Chgo., Rock I. & Gulf.	Chgo., Rock I. & Pac.	Chgo., St. P., M. & O.	Chgo. Short Line.	Chgo., Terre H. & S. E.	Chgo. Union Transfer.	Choctaw, Newcast. & W.	Cincinnati & Westwood.	Cincinnati, Bluff. & C.	Cinti., Flemisbog. & S. E.	Cinti., Georgetown & P.	Cinti., Hamilton & Dayt.
Stay bolts broken.....	642	8	...	55	1,018	185	4	44	3	16	11	1	...	4	423
Rigid bolts leaking.....	60	...	...	9	135	4	...	1	...	...	...	...	...	...	19
Flexible bolts leaking.....	...	...	...	...	1	...	...	...	...	...	...	...	...	...	13
Telltails closed.....	48	...	...	2	32	10	...	2	2	...	1	...	...	2	40
Telltails stopped up.....	100	3	...	21	325	22	...	3	5	...	1	...	...	1	65
Stay bolts not drilled.....	67	3	...	...	52	33	...	4	1	...	...	...	...	2	57
Crown sheet leaking.....	11	2	...	4	55	5	...	6	...	...	1	...	...	2	29
Other sheets leaking.....	54	4	...	10	130	24	...	...	...	...	3	...	...	...	83
Fire-box sheets bulged.....	26	3	...	...	27	2	...	1	...	...	...	...	...	1	33
Flues leaking.....	11	1	...	5	70	20	...	7	...	2	...	...	...	1	22
Flues plugged.....	33	43	...	6	558	128	...	2	...	...	...	...	1	1	92
Arch flues leaking.....	2	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Arch plugs leaking.....	67	...	...	...	13	...	...	...	...	...	...	...	...	...	3
Fusible plug leaking.....	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Barrel leaking.....	14	...	...	...	5	1	...	...	...	...	...	...	2	...	17
Dome leaking.....	19	...	...	...	9	...	...	...	...	...	...	...	...	...	17
Throat sheet leaking.....	21	...	...	...	29	...	...	...	...	...	...	...	2	...	31
Mud ring leaking.....	42	2	...	2	75	3	...	1	...	1	3	1	2	...	26
Blow-off cock leaking.....	47	...	...	...	63	6	...	2	...	1	1	...	...	...	50
Washout plugs leaking.....	74	...	...	13	175	7	...	4	...	1	2	...	...	...	87
Safety valve missing.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Safety valve stuck.....	...	...	...	...	10	...	...	...	...	...	...	...	...	...	23
Safety valve leaking.....	1	...	...	...	2	...	...	...	...	...	...	...	...	...	...
Gage location improper.....	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gage incorrect.....	6	...	...	1	2	...	...	...	...	...	...	...	...	...	...
Dial glass missing.....	27	1	...	...	23	1	...	...	...	...	...	...	...	...	2
Siphon wrongly applied.....	228	1	...	5	144	11	...	...	1	...	1	...	...	...	15
Siphon leaking.....	6	...	...	...	43	2	...	4	...	...	...	...	...	...	31
Gage cocks wrongly located.....	...	...	...	...	27	...	...	...	...	...	...	...	...	...	1
Gage cocks stopped up.....	172	3	...	5	112	21	...	2	...	...	...	...	...	...	14
Gage cocks inoperative.....	126	1	1	6	69	7	...	1	...	...	...	...	...	...	12
Gage cocks blowing.....	127	9	...	9	79	7	...	6	...	8	...	...	1	...	141
Gage-cock handle defective.....	93	1	...	5	84	13	...	1	...	...	...	...	...	...	3
Gage-cock drip defective.....	11	...	...	1	6	2	...	...	...	...	...	...	...	...	3
Drip pipe missing.....	9	...	...	5	68	...	...	...	...	...	...	...	...	...	6
Nipples defective or missing.....	1	...	...	1	3	2	...	...	...	...	...	...	2	...	6
Water glass missing.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Water glass stopped up.....	1	...	...	...	1	1	...	1	...	...	...	...	...	...	...
Water-glass cocks defective.....	33	1	...	10	70	...	...	2	...	...	...	...	...	1	39
Water-glass cock handle defective.....	2	...	...	...	6	...	...	...	...	...	...	...	...	...	...
Water-glass blow-off cock defective.....	62	4	...	4	65	20	...	6	...	2	...	...	...	...	30
Water-glass tube broken.....	5	...	...	...	3	...	...	1	...	...	...	...	...	1	2
Lamp missing.....	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
Water-glass shield missing.....	19	2	...	...	116	...	...	1	...	1	2	1	...	...	72
Water-glass shield defective.....	253	...	...	16	326	5	2	8	...	1	4	...	...	2	150
Water glass improperly located.....	2	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Lubricator shields missing.....	294	12	...	2	211	24	...	6	...	1	2	2	...	...	60
Lubricator shields defective.....	161	...	...	2	113	5	...	6	...	1	5	...	...	...	52
Injector inoperative.....	12	1	...	...	19	1	...	4	...	1	...	...	...	...	4
Injector tank valve defective.....	...	...	...	...	8	1	...	1	...	...	...	...	...	...	2
Injector tank hose defective.....	12	...	...	...	24	...	...	2	...	...	...	...	...	...	16
Injector feed pipe defective.....	8	...	...	...	46	1	...	1	...	2	...	...	...	...	13
Injector throttle defective.....	18	...	...	14	105	1	...	7	...	1	3	1	2	...	104
Injector steam pipe defective.....	5	...	...	...	74	2	...	9	...	1	...	...	...	...	60
Injector delivery pipe defective.....	5	...	...	2	63	1	...	6	...	1	...	...	...	...	9
Injector boiler check defective.....	27	2	...	...	32	9	...	7	...	...	...	...	1	...	18
Cab card missing.....	58	3	...	5	107	9	...	1	...	1	1	1	2	1	76
Badge plate missing.....	141	2	...	4	214	14	...	1	...	1	...	5	2	...	16
Fire-box plug not secured.....	3	...	...	14	12	...	...	...	...	...	...	...	...	...	7
Water-glass drip missing.....	40	...	...	6	112	6	...	...	...	...	...	...	...	1	2
Water-glass drip defective.....	21	...	...	3	10	...	...	1	...	...	...	...	...	...	...
Water-glass drip wrongly located.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gage-cock drip improperly located.....	...	...	...	...	...	...	...	1	...	...	...	...	...	...	4
Fire-box sheets corroded.....	3	...	...	...	33	...	...	...	...	...	...	...	...	...	...
Fire hose defective.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Unclassified steam leaks.....	483	18	...	68	577	20	...	23	...	10	...	1	1	1	329
Number of defects.....	3,811	130	1	329	5,793	637	4	171	18	31	58	31	35	18	2,780
Locomotives owned.....	1,301	41	6	59	1,507	319	9	65	12	1	1	5	1	3	167
Locomotives inspected.....	2,388	42	2	58	1,771	190	1	28	9	5	11	1	1	1	311
Locomotives defective.....	1,539	31	1	59	1,423	259	2	42	9	3	11	1	1	1	328
Locomotives ordered from service.....	88	0	0	0	111	13	0	3	1	1	2	1	0	2	50

1 Number of locomotives reported with this defect.

2 Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Cinti., Lebanon & North.				Clev., Cinti. C. & St. L.	Cliffside.	Clinton & Okla. West.	Coal & Coke.	Colfax Northern.	Colo. & So.-Eastern.	Colo. & Southern.	Colo. & Wyoming.	Colo. Midland.	Colo. Spggs. & C. C. Dist.	Columbia, Newb., & J.
	Cinti. Northern.	Clarendon & Pittsford.	Clev., Akron & Cinti.	Clev., Cinti. C. & St. L.											
Stay bolts broken.....	8	120	9	19	1,125	4	55	69	6	5	3	2			
Rigid bolts leaking ¹	1	1			50	1		7	1	2	2				
Flexible bolts leaking ¹					16										
Telltails closed ¹		8	1		106		5	1	2	2	2				
Telltails stopped up ¹		18	3	1	179	1	3	9	2	2	2		13		
Stay bolts not drilled ²	1	5			157		1	21	2	2	2		8		
Crown sheet leaking.....		2			66			3					1		
Other sheets leaking.....	6	14		2	115		2	12	2	4	1		1		
Firebox sheets bulged.....					5			35	2	1	1		1		
Flues leaking ¹	3	5		2	42		1	2	1	1			1		
Flues plugged.....		4			11		10	3	66	5	5		5		
Arch flues leaking ¹										2					
Arch plugs leaking ¹					1		1								
Fusible plug leaking.....															
Barrel leaking.....		3	1		31		1	5	1	4	1		1		
Dome leaking.....	1	3		1	35		4	3	1	2	2				
Throat sheet leaking.....		2		1	19		2	2	2	1	1				
Mud ring leaking.....	1	4	3		113			5	5	1	1				
Blow-off cock leaking.....	2	3	1	2	249		5	7	2	1					
Washout plugs leaking ¹	5	8	2	1	200		2	23		4				1	
Safety valve missing.....															
Safety valve stuck.....															
Safety valve leaking.....	1		1		51		2	2		2			1		
Gage location improper.....										8			1		
Gage incorrect.....					1										
Dial glass missing.....		1			9										
Siphon wrongly applied.....					20				1			12		2	
Siphon leaking.....	2	3	1	1	54		7	5	6	2	2	2	2		
Gage cocks wrongly located.....		2						5	5	8	2				
Gage cocks stopped up.....		1			37		1	6	1	1	1		1		
Gage cocks inoperative.....					25		1	17	4	4	3		1		
Gage cocks blowing.....	6	15		4	363		8	27	1	15					
Gage-cock handle defective.....		2			13			1	5						
Gage-cock drip defective.....					15			2					6		
Drip pipe missing.....		1			34			6		23					
Nipples defective or missing.....					3			3	2	7	3		5		
Water glass missing.....			6				36	4	8						
Water glass stopped up.....					3										
Water-glass cocks defective.....	2	8		1	106		1	5		2					
Water-glass cock handle defective.....					8				5						
Water-glass blow-off cock defective.....	5			3	57		7	10	3	6	3		1		
Water-glass tube broken.....		1			5										
Lamp missing.....									2						
Water-glass shield missing.....				2	14				1	2	2	1			
Water-glass shield defective.....	1	27	1	1	464									1	
Water glass improperly located.....					2										
Lubricator shields missing.....		5	6	1	22	1	1	3	1	1	4	23	1	1	
Lubricator shields defective.....	1			3	73										
Injector inoperative.....					28		2	1	1						
Injector tank valve defective.....					4			1	2				1		
Injector tank hose defective.....	1		1	2	44		1	7	10	13					
Injector feed pipe defective.....		1			61			6	5						
Injector throttle defective.....	6	14		2	221		25	2	15	1	10	3			
Injector steam pipe defective.....		7			253		24	17	2	3			1		
Injector delivery pipe defective.....	1	3		1	58		19	4	1	1	2				
Injector boiler check defective.....		2			118		1	13	2	2	1				
Cab card missing.....		5			44	2	1	2	1	3	5				
Badge plate missing.....	1	5			183	2		1	33	4	1	6			
Fire-box plug not secured.....					4				31		3			6	
Water-glass drip missing.....					20				6	4	11	1			
Water-glass drip defective.....					13										
Water-glass drip wrongly located.....															
Gage-cock drip improperly located.....			1		3				1		1				
Fire-box sheets corroded.....										2					
Fire hose defective.....															
Unclassified steam leaks.....	23	47	6	21	994		3	56	1	196	42	128	23	1	
Number of defects.....	77	351	43	73	5,954	5	25	290	0	9	713	143	309	89	18
Locomotives owned.....	13	32	7		757	2	2	39	3	4	204	50	66		6
Locomotives inspected.....	14	39	7	74	1,410	2	2	67	3	2	208	34	87	25	8
Locomotives defective.....	13	35	7	28	1,054	2	2	56	2	2	173	26	67	24	7
Locomotives ordered from service.....	1	17	0	0	140	0	0	4	0	0	3	0	1	0	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Col. & Southern.	Colusa & Lake.	Concrete Mat. Co.	Cornwall & Lebanon.	Cornwall.	Cornwall Ore Banks.	Coshoct., Otsego & E.	Coudersport & Pt. Alle.	Cov., Cin. Trans. & B. Co.	Corvallis & Eastern.	Crane Iron Co.	Crane Railroad.	Crittenden.	Crooked Ck. R. R. & C. Co.	Crosbyton-South Plains.
Stay bolts broken	2			46	3			1	5			1			1
Rigid bolts leaking ¹	1														
Flexible bolts leaking ¹															
Telltails closed ¹															
Telltails stopped up ¹															
Stay bolts not drilled ¹	1				4	2					1	2			
Crown sheet leaking					6	2									
Other sheets leaking															
Fire-box sheets bulged															
Flues leaking ¹	1														
Flues plugged					3										
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking															
Barrel leaking				1											
Dome leaking						1									
Throat sheet leaking		1													
Mud ring leaking				18	1		1	1							
Blow-off cock leaking				2											
Washout plugs leaking ¹				10	1			1	2						
Safety valve missing													3		
Safety valve stuck															
Safety valve leaking								1							
Gage location improper															
Gage incorrect															
Dial glass missing															
Siphon wrongly applied	1		1					2		1			3	1	1
Siphon leaking				1	1				2						1
Gage cocks wrongly located															
Gage cocks stopped up													1		1
Gage cocks inoperative															
Gage cocks blowing	2				1	1		1	1						1
Gage-cock handle defective															
Gage-cock drip defective															
Drip pipe missing													1		
Nipples defective or missing															
Water glass missing	1			44	16	5					1				
Water glass stopped up															
Water-glass cocks defective		1						1	1						
Water-glass cock handle defective								1						1	
Water-glass blow-off cock defective								1	1					1	
Water-glass tube broken															
Lamp missing															
Water-glass shield missing	2							1						2	2
Water-glass shield defective	3							1	2						
Water glass improperly located															
Lubricator shields missing	1	2		8				2		3					2
Lubricator shields defective															
Injector inoperative															
Injector tank valve defective															
Injector tank hose defective								1							
Injector feed pipe defective															
Injector throttle defective									2						
Injector steam pipe defective	2							2	3						
Injector delivery pipe defective															
Injector boiler check defective															
Cab card missing	3			10	4	1	1				1		3		2
Badge plate missing	4			10	1	3		1					3	2	
Fire-box plug not secured															
Water-glass drip missing															
Water-glass drip defective															
Water-glass drip wrongly located															
Gauge-cock drip improperly located															
Fire-box sheets corroded															
Fire hose defective															
Unclassified steam leaks	1	1		1			1	2	10			1			1
Number of defects	13	20	2	169	34	16	7	27	31	1	1	3	21	7	8
Locomotives owned	3	3		12	11	2	1	7	2			1		2	2
Locomotives inspected	1	3	1	41	20	1	10	7	8		1		1	2	2
Locomotives defective	1	4	1	14	18	1	11	1	4					2	2
Locomotives ordered from service	2	0	0	4	0	1	1	1	0	0	0	0	0	0	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Crossett.	Crystal City & Uvalde.	Crystal River & S. J.	Cumberland & Penna.	Cumberland.	Cumberland Valley.	Duquesne Term. R.V. & U. D.	Dansville & Mt. Morris.	Danville & West-ern.	Dardanelle & Russv.	Dardanelle, Ola. & Sou.	Davenport, R. I. & N.-W.	Dayton & Union.	Day, Leb. & Cin. R. & T.	Delaware & Hud-son.
Stay bolts broken	7		1		2				18		14		60	12	164
Rigid bolts leaking					1								3	1	1
Flexible bolts leaking					1								2	1	1
Telltails closed					1			1					2		8
Telltails stopped up	1		1		1			6	1			1	1		28
Stay bolts not drilled						13		1					10		3
Crown sheet leaking				3		1									3
Other sheets leaking				7		4							4		63
Firebox sheets bulged	1	2				1		1					2		
Flues leaking						1		1				1			15
Flues plugged	1		7					20		1	1			2	
Arch flues leaking						1									1
Arch plugs leaking						1									2
Fusible plug leaking				1											
Barrel leaking	2			1							1				3
Dome leaking			2										2	1	13
Throat sheet leaking						1							1		15
Mud ring leaking													1	2	32
Blow-off cock leaking							1						2	1	4
Washout plugs leaking			1			3							1	3	37
Safety valve missing															
Safety valve stuck															
Safety valve leaking			1										2	1	8
Gage location improper															
Gage incorrect															2
Dial-glass missing	1	1		3	1				1	1	1	3		1	9
Siphon wrongly applied	1					2								1	39
Siphon leaking															1
Gage cocks wrongly located															2
Gage cocks stopped up	1								2			1	1		12
Gage cocks inoperative															25
Gage cocks blowing	3					1	1		2		2		16	7	59
Gage-cock handle defective	1										1				6
Gage-cock drip defective		1													2
Drip pipe missing		1						1							5
Nipples defective or missing															6
Water glass missing				2	2				4		1			3	1
Water glass stopped up															13
Water-glass cocks defective	1	1								1	1		2	1	11
Water-glass cock handle defective	2	2		1			1								1
Water-glass blow-off cock defective															1
Water-glass tube broken															
Lamp missing			1												
Water glass shield missing	2	1										6	1		4
Water-glass shield defective															
Water glass improperly located							1				2	10	3		4
Lubricator shields missing	1	1	2	3				1	5	1	1	5	5	2	15
Lubricator shields defective													4	4	2
Injector inoperative		1		1		1									3
Injector tank valve defective	1	1													3
Injector tank hose defective		2					1					1		1	5
Injector feed pipe defective															3
Injector throttle defective		2		1	2			3		1			4	2	15
Injector steam pipe defective								1	1	1			3		33
Injector delivery pipe defective					1		1								34
Injector boiler check defective								1							4
Cab card missing	2	2	2						2	1	1		6		4
Badge plate missing	1	2	2	2	3				1	2	4	5	1		4
Fire-box plug not secured									4						14
Water-glass drip missing															6
Water-glass drip defective															1
Water-glass drip wrongly located															
Gage-cock drip improperly located															11
Fire-box sheets corroded															
Fire hose defective															
Unclassified steam leaks			10		3	2	5		6	1	3	1	13	6	148
Number of defects	11	26	39	20	17	88	12	26	35	28	21	40	163	56	882
Locomotives owned	7	1	25	2	65	2	2	9	2	9	6	5	447		547
Locomotives inspected	2	5	14	4	30	3	4	34	4	2	19	22	11		565
Locomotives defective	2	4	2	0	4	26	3	2	17	3	2	13	21	7	363
Locomotives ordered from service	2	1	0	0	0	0	0	0	0	1	0	0	8	2	6

1 Number of locomotives reported with this defect.

2 Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Delaware & Northern.	Del., Laacka. & W.	Del., River & Union.	Delaware Valley.	Denver & Rio Grande.	Denver, Boulder & W.	Denver, Laramie & N.-Wn.	Denver, N.-Wn. & Pac.	Deque & Northern.	DeQueen & Eastern.	Dermott, Selma & No.	Des Moines Union.	Detroit & Mackinac.	Detroit & Toledo S. L.	Detroit, Bay City & W
Stay bolts broken.....		180	5		570		3		1			7		11	
Rigid bolts leaking ¹		23			51										
Flexible bolts leaking ¹		3			1										
Telltails closed ¹		27			12										
Telltails stopped up ¹		62	1		204	1	4				1				
Stay bolts not drilled ¹		6	1		123					1					
Crown sheet leaking.....		27			64								1		
Other sheets leaking.....	1	95			77				1						
Firebox sheets bulged.....					108	2				1					
Flues leaking ¹		20			48								6	11	
Flues plugged.....		51			751										
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking.....															
Barrel leaking.....		12			51										
Dome leaking.....		9			41										
Throat sheet leaking.....		22			9										
Mud ring leaking.....	1	92	3		104			1							
Blow-off cock leaking.....		19			60		1								
Washout plugs leaking.....		22			91								1	1	
Safety valve missing.....															
Safety valve stuck.....															
Safety valve leaking.....		1			11										
Gage location improper.....															
Gage incorrect.....					1										
Dial-glass missing.....		14			2										
Siphon wrongly applied.....		11			2	1				1					
Siphon leaking.....		45			34					1					
Gage cocks wrongly located.....															
Gage cocks stopped up.....		3			5	1						1			
Gage cocks inoperative.....		16			19	1	1								
Gage cocks blowing.....		39	1		79	1	1		2						
Gage-cock handle defective.....		2			7										
Gage-cock drip defective.....		4													
Drip pipe missing.....		24			15										
Nipples defective or missing.....					33										
Water glass missing.....		4			26									2	
Water glass stopped up.....		1													
Water-glass cocks defective.....		11			40	1									
Water-glass cock handle defective.....		1			3										
Water-glass blow-off cock defective.....		22			60			1							
Water-glass tube broken.....		12			1										
Lamp missing.....					12										
Water-glass shield missing.....		6			1				1			2			1
Water-glass shield defective.....		61	1		2					2					
Water glass improperly located.....		1													
Lubricator shields missing.....		56	1	1	10			1	1	1	3	14			1
Lubricator shields defective.....		7			6										
Injector inoperative.....		9			4	1									
Injector tank valve defective.....					82										
Injector tank hose defective.....		10			17	3	1								
Injector feed pipe defective.....		9			54				1						
Injector throttle defective.....	2	22			60	1	1	1							
Injector steam pipe defective.....		50			64	1	2								
Injector delivery pipe defective.....		6			20										
Injector boiler check defective.....		18	1	1	60	1									
Cab card missing.....		8	2		8					2				3	3
Badge plate missing.....		70	1		5	1				2		1			
Fire-box plug not secured.....		1			37						3				
Water-glass drip missing.....		3			44					1					
Water-glass drip defective.....		4													
Water-glass drip wrongly located.....															
Gage-cock drip improperly located.....		2			2										
Fire-box sheets corroded.....			1		12										
Fire hose defective.....															
Unclassified steam leaks.....		247	1		811	2	1	8	0				1		
Number of defects.....	4	1,465	21	4	4,014	12	13	20	3	14	9	17	37	3	17
Locomotives owned.....	8	759	2	1	280	6	7	42	1	3		7	33	10	4
Locomotives inspected.....	4	716	4	4	517	3	5	8	2	3	2	10	64	14	5
Locomotives defective.....	2	502	3	1	629	3	5	6	2	3	2	8	21	3	4
Locomotives ordered from service.....	0	32	0	0	35	0	0	0	1	0	0	0	0	1	0

¹ Number of locomotive reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

	Detroit, Toledo & I.	Diamond Alkali Co.	Diamond & Calder.	Domiphan, Kensett & S.	Donora Southern.	Dover & South Bound.	Drummond & S. Western.	Dry Fork.	Due West.	Duluth & Iron Range.	Duluth & N. Eastern.	Duluth, Missabe & N.	Duluth, Rainy L. & Win.	Duluth, S. S. & Allan.	Duluth Union D. & Tran.
Stay bolts broken.....	52				2	4		2							5
Rigid bolts leaking ¹	3														
Flexible bolts leaking ¹	11														
Telltails closed ¹	11														
Telltails stopped up.....	14				12	1				6	4	2		1	
Stay bolts not drilled ²	10						2								
Crown sheet leaking.....	15														
Other sheets leaking.....	10				1										
Firebox sheets bulged.....	4		1							1					
Flues leaking ¹	8				1										
Flues plugged.....	28				5		10			4					
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking.....															
Barrel leaking.....	6														
Dome leaking.....	14														
Throat sheet leaking.....	2														
Mud ring leaking.....	8				4										
Blow-off cock leaking.....	10														
Washout plugs leaking ¹	25				1										
Safety valve missing.....	1														
Safety valve stuck.....															
Safety valve leaking.....	4														
Gage location improper.....							2								
Gage incorrect.....															
Dial-glass missing.....															
Siphon wrongly applied.....	3		3	1	1	1				1	2	1		2	1
Siphon leaking.....	13			1	2					1					
Gage cocks wrongly located.....															
Gage cocks stopped up.....									1				1	3	
Gage cocks inoperative.....	5					1							2	1	
Gage cocks blowing.....	21				3										
Gage-cock handle defective.....	2										1		2		
Gage-cock drip defective.....															
Drip pipe missing.....	2														
Nipples defective or missing.....															
Water glass missing.....	8	1			10				2						
Water glass stopped up.....															
Water-glass cocks defective.....	16				1										
Water-glass cock handle defective.....											1				
Water-glass blow-off cock defective.....	14				1							4			
Water-glass tube broken.....					1										
Lamp missing.....															
Water-glass shield missing.....	6						1						1		
Water-glass shield defective.....	16										2				
Water glass improperly located.....															
Lubricator shields missing.....	13		3	1	6		2	2	2	9				2	1
Lubricator shields defective.....	7														
Injector inoperative.....	1	1			1										
Injector tank valve defective.....	1														
Injector tank hose defective.....	22			1											
Injector feed pipe defective.....	4								1						
Injector throttle defective.....	32				2			2							
Injector steam pipe defective.....	14				3				1						
Injector delivery pipe defective.....	11				3										
Injector boiler check defective.....	12				4										
Cab card missing.....	14		3	1		1	2				5	7	1	1	
Badge plate missing.....	6		3	1	3				2					1	
Fire-box plug not secured.....										4					
Water-glass drip missing.....	1														
Water-glass drip defective.....					1										
Water-glass drip wrongly located.....															
Gage-cock drip improperly located.....															
Fire-box sheets corroded.....															
Fire hose defective.....															
Unclassified steam leaks.....	88		4	2	11			2	2						
Number of defects.....	558	2	17	8	79	8	9	18	17	25	15	15	7	16	2
Locomotives owned.....	71	1	4	2	12	5	6	2	104	9	110	12	85		
Locomotives inspected.....	153	1	3	2	19	8	2	9	21	5	14	12	24		1
Locomotives defective.....	106	1	3	1	19	3	2	5	3	13	5	12	7	11	1
Locomotives ordered from service.....	7		0	0	2	0	0	0		0	0	0	4		0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects,	Dunkirk, Alleg. V. & P.	Durham & South Caro.	Durham & Southern.	East Berlin.	East Bd. Top R. R. & C.	East Carolina.	East Jordan & Sn.	East Tenn. & W. N. C.	Eastern Kentucky.	Eastern Ry. of N. Mex.	Edgmoor & Manetta.	El Dorado & Wesson.	Elgin, Joliet & E.	Elk & Little Kanawha.	Elkin & Allegheny.
Stay bolts broken.....			3				5	9		1			82	3	
Rigid bolts leaking ¹															
Flexible bolts leaking ¹															
Telltails closed ¹	1		1					4							
Stay bolts not drilled ²	1	2	4					7		5			11	11	
Crown sheet leaking.....					1										
Other sheets leaking.....										1			5		
Fire-box sheets bulged.....															
Flues leaking ¹								1					2		
Flues plugged.....								7	2				2		
Arch flues leaking ¹					1						5				
Arch plugs leaking ¹									2						
Fusible plug leaking.....									2						
Barrel leaking.....															
Dome leaking.....		2			1	1									
Throat sheet leaking.....															
Mud ring leaking.....													2		
Blow-off cock leaking.....															
Washout plugs leaking.....					1								3		
Safety valve missing.....														1	
Safety valve stuck.....															
Safety valve leaking.....													3		
Gage location improper.....															
Gage incorrect.....															
Dial glass missing.....															
Siphon wrongly applied.....	1					1			3	1		1	5	1	
Siphon leaking.....			1	1					1						
Gage cocks wrongly located.....													1		
Gage cocks stopped up.....											1		2		
Gage cocks inoperative.....										1			1		
Gage cocks blowing.....				1				1	1				3	1	
Gage-cock handle defective.....											1		1		
Gage-cock drip defective.....															
Drip pipe missing.....		1								2					
Nipples defective or missing.....													1		
Water glass missing.....	1							5			1				
Water-glass stopped up.....															
Water-glass cocks defective.....															
Water-glass cock handle defective.....														1	3
Water-glass blow-off cock defective.....															
Water-glass tube broken.....	1							2							1
Lamp missing.....	1														
Water-glass shield missing.....						1							1	1	
Water-glass shield defective.....						6						1	9		
Water-glass improperly located.....															
Lubricator shields missing.....	3		1	1	3		1	1	2	1			4		
Lubricator shields defective.....															1
Injector inoperative.....										2					
Injector tank valve defective.....															
Injector tank hose defective.....								1							
Injector feed pipe defective.....													1		
Injector throttle defective.....								2					2	1	
Injector steam pipe defective.....											1				
Injector delivery pipe defective.....															
Injector boiler check defective.....															1
Cab card missing.....					1	1	1	3	1		1	1	15	1	
Badge plate missing.....	1			2				3			1	1	28	1	
Fire-box plug not secured.....															
Water-glass drip missing.....										1		1			
Water-glass drip defective.....															2
Water-glass drip wrongly located.....															
Gage cock drip improperly located.....															
Fire-box sheets corroded.....															
Fire hose defective.....															
Unclassified steam leaks.....						1		5		12			11	13	
Number of defects.....	2	13	8	2	15	9	6	40	22	28	12	5	213	24	1
Locomotives owned.....		2	5	1	11	4	4	0	4		2	1	248	3	
Locomotives inspected.....	3	13	19	2	10	7	3	8	7		1	2	138	4	1
Locomotives defective.....	2	7	7	1	6	4	1	8	5		1	1	70	4	1
Locomotives ordered from service.....	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

INTERSTATE COMMERCE COMMISSION.

Defects.	El Paso & N. W. Sps.	Alwood Anderson & L.	Amportun & Rich V.	England & Clear Lake.	Enterprise.	Érte.	Evansville & Terre H.	Avansv. Subron. & N.	Farmer's Grain & Ship.	Ferdinand.	Fernwood & Gull.	Fitzgerald, Oralia & B.	Flint Riv. & N.-E.	Florence & Cripple C.	Florida, Alb. & Gulf.
Stay bolts broken	34					822	7							6	1
Rigid bolts leaking 1	6					21									
Flexible bolts leaking 1						8									
Telltails closed 1	1					71									
Telltails stopped up 1	78	1				136						1		8	
Stay bolts not drilled 2	22	3				84								1	
Crown sheet leaking	6			1		52									
Other sheets leaking	4					92									
Firebox sheets bulged				1		4						1			
Flues leaking 1	7					29									
Flues plugged			1			30						4			
Arch plugs leaking 1						7									
Fusible plug leaking						2									
Barrel leaking	1					44									
Dome leaking	1		1			55									
Throat sheet leaking						11									
Mud ring leaking						129									
Blow-off cock leaking	3					73									
Washout plugs leaking 1	3			1		39									
Safety valve leaking						34									
Gage location improper						2				1					
Gage incorrect	1					6							1		
Dial glass missing						37									
Siphon wrongly applied	2		1			16						1			2
Siphon leaking	11		1			88								3	
Gage cocks wrongly located	1					5									
Gage cocks stopped up	2		1	1		39				3				1	
Gage cocks inoperative	5					98		1							
Gage cocks blowing	7					177									
Gage-cock handle defective	1			1		22				2					
Gage-cock drip defective						6									
Drip pipe missing	1					66		1						1	
Nipples defective or missing	22					7								1	
Water glass missing						3		2				1	1	3	1
Water glass stopped up						1									
Water-glass cocks defective	5			1		33				1					
Water-glass cock handle defective	2					6									
Water-glass blow-off cock defective	2		1			34		1						2	1
Water-glass tube broken	1					5									
Lamp missing						1									
Water-glass shield missing			1	1	1	5					1				
Water-glass shield defective	14	2				6									
Water glass improperly located						1									
Lubricator shields missing	1		2	1		38		3		1	1			4	
Lubricator shields defective						21								2	
Injector inoperative						1									
Injector tank valve defective	14					20							1		
Injector feed hose defective	2			1		30									
Injector throttle defective	11		1			86		1						1	
Injector steam pipe defective	3					111				1			1	3	
Injector delivery pipe defective						21		1							
Injector boiler check defective						69				1					
Cab card missing	2		1	1	1	11		1							
Badge plate missing	1	2	1	1	1	384		1				1	1	3	1
Fire-box plug not secured	154					6				2					
Water-glass drip missing	6					4								1	
Water-glass drip defective						5									
Gage-cock drip im properly located						5									
Unclassified steam leaks	121		4	1		844		3		2			1	33	
Number of defects	558	8	17	12	2	4,074	7	14	1	14	2	9	6	73	6
Locomotives owned	157	2	2	1		1,403		3	3	1	2	2	2	31	
Locomotives inspected	112	5	5	1	1	1,422	5	3	1	2	3	1	1	29	2
Locomotives defective	109	5	4	1	1	1,076	1	2	1	2	1	1	1	24	2
Locomotives ordered from service	3	0	0	0	0	95	4	0	0	2	0	0	2	0	0

1 Number of locomotives reported with this defect.
 2 Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Florida Central.	Florida East Coast.	Florida Ry.	Fonda, Johnstown & G.	Forlyce & Princeton.	Fl. Smith & Western.	Fl. Street U. Depot.	Fl. Worth & Denver C.	Fl. Worth & Rio G.	Fl. Worth Belt.	Fouche R. Val. & I. T.	Franklin & Abbeville.	Frederick.	Freeo Valley.	Gainesville Midland.
Stay bolts broken		56	17	17	7	60	1	3	1				1	5	
Rigid bolts leaking ¹		3		1											
Flexible bolts leaking ¹		2													
Telltails closed ¹		2												1	
Telltails stopped up ¹	2	13	5	6	1	20		2	1					3	
Stay bolts not drilled ²															
Crown sheet leaking		2			5										
Other sheets leaking															
Firebox sheets bulged															
Flues leaking ¹		5												1	
Flues plugged					1	1		4	5	4	1				
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking															
Barrel leaking															
Dome leaking	2			1				4	2						
Throat sheet leaking						6									
Mud ring leaking		11							1						
Blow-off cock leaking		1							17	1					
Washout plugs leaking ¹		2				8		10	2	2	1			1	
Safety valve missing															
Safety valve stuck															
Safety valve leaking		5				2		1							
Gage location improper															
Gage incorrect															
Dial-glass missing		1							1				1		
Siphon wrongly applied	1			1				3	5	1		1	2		
Siphon leaking		2				1		4	2					1	
Gage cocks wrongly located								2	2						
Gage cocks stopped up		5				2		8		1				1	
Gage cocks inoperative	1	1				9		11	3	4					
Gage cocks blowing		5	1			4		5		1				4	
Gage-cock handle defective		3				4	1	2							
Gage-cock drip defective								1	1						
Drip pipe missing					1	2		7	3	2					
Nipples defective or missing															
Water glass missing	1		3												
Water glass stopped up		1													
Water-glass cocks defective		9						3							
Water-glass cock handle defective															
Water-glass blow-off cock defective		6				2		1	3					1	
Water-glass tube broken	1													2	
Lamp missing									1						
Water-glass shield missing									2	4				1	
Water-glass shield defective					1	1		12	1					1	
Water glass improperly located															
Lubricator shield missing	1	1	2	1	1			3	3	2	1	1	2	1	
Lubricator shields defective															
Injector inoperative								2							
Injector tank valve defective	1	1	1					1							
Injector tank hose defective		1	2			2			1	1				3	
Injector feed pipe defective		4				4									
Injector throttle defective		13	1			6		5		1					
Injector steam pipe defective	1	1	1	1	1	10		3	1	2	1				
Injector delivery pipe defective		1				2		1	1						
Injector boiler check defective								2							
Cab card missing	1	3	5	2	7	1	2	3	1	1	1	1		1	
Badge plate missing	1	17	2	7	7	3	1	2	1					1	
Fire-box plug not secured															
Water-glass drip missing						5								1	
Water-glass drip defective								2		1					
Water-glass drip wrongly located															
Gage-cock drip improperly located						1									
Fire-box sheets corroded		8													
Fire hose defective															
Unclassified steam leaks		41	2	3	29	61	2	2	3					7	
Number of defects	13	225	9	31	14	151	8	282	59	35	11	4	5	9	11
Locomotives owned	3	89	4	7	1	19	2	88	13	9	1	9	5	1	1
Locomotives inspected	2	94	5	12	4	53	1	108	12	2	2	7	3	2	17
Locomotives defective	2	71	3	9	2	36	1	81	12	1	2	1	3	2	10
Locomotives ordered from service	9	9	0	1	1	2	0	10	0	1	0	0	0	1	1

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Galesburg & Great E.	Galveston, Hrsb. & S. A.	Galveston, Houst. & H.	Galveston Wharf Co.	Genesee & Wyoming.	Georges Creek & Cum.	Georgetown & Western.	Georgia & Florida.	Georgia Coast & Pied.	Georgia, Fla. & Ala.	Georgia Northern.	Georgia R. R.	Georgia Sn. & Fla.	Georgia S.-W. & Gulf.	Orlando & N. Island.
Stay bolts broken.....		114		1	3		21	1	3	12	4	54	17		
Rigid bolts leaking ¹		14								2			3		
Flexible bolts leaking ¹		3													
Telltails closed ¹	1	1							1			2			
Telltails stopped up ¹		33	2	8	2		1	4	5	4	1	10	8		
Stay bolts not drilled ¹		2										1			
Crown sheet leaking.....		22			1							1	2		
Other sheets leaking.....		18								2		2	1		
Firebox sheets bulged.....		2										1	1		
Flues leaking ¹		14	1	1	1	1			1	17	8	4	2		
Flues plugged.....		7				1	1		5	1		4	5		
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking.....		5													
Barrel leaking.....		5												1	
Dome leaking.....		1					1				3				
Throat sheet leaking.....															
Mud ring leaking.....					2								2		
Blow-off cock leaking.....		5		1	1							1	5		
Washout plugs leaking ¹		2			1		2		1	3		3	9		
Safety valve missing.....															
Safety valve stuck.....															
Safety valve leaking.....												1			
Gage location improper.....															
Gage incorrect.....		3										1	1		
Dial-glass missing.....		4											1	1	
Siphon wrongly applied.....						2	1	4		1		11		2	
Siphon leaking.....		10					1			1		8	5		1
Gage cocks wrongly located.....	1	2													
Gage cocks stopped up.....		3											2		1
Gage cocks inoperative.....		11													1
Gage cocks blowing.....		31				2		1	2	1	14	17	1		1
Gage-cock handle defective.....		1						2		1					1
Gage-cock drip defective.....		1													
Drip pipe missing.....							1						1		
Nipples defective or missing.....		4													
Water glass missing.....							1	5	5	7	6	5	13	4	
Water glass stopped up.....															
Water-glass cocks defective.....		3						2	4			1	8		
Water-glass cock handle defective.....							1								
Water-glass blow-off cock defective.....		2		1			2					13	8		
Water-glass tube broken.....							4	1				3	2		
Lamp missing.....															
Water-glass shield missing.....															1
Water-glass shield defective.....	1	1			4										
Water glass improperly located.....	1	12													
Lubricator shields missing.....		4			1	2	1	4	2	1	1	10	5	3	1
Lubricator shields defective.....	1														
Injector inoperative.....	1						1			1		2	2		
Injector tank valve defective.....															
Injector tank hose defective.....		1										2	1		
Injector feed pipe defective.....		3						1	3		2	2	4		
Injector throttle defective.....		14						3	2	3	1	22			
Injector steam pipe defective.....	1	4					1			1	5	2	2		
Injector delivery pipe defective.....							1		3	2		3	2		
Injector boiler check defective.....		3						1				2	3		
Cab card missing.....	1	12					5	3		2	2	9	3		2
Badge plate missing.....	1	22		8			5	2	2	3	4	3	10	4	2
Fire-box plug not secured.....		14			1			5	2		7	3		6	
Water-glass drip missing.....		1											5		
Water-glass drip defective.....															
Water-glass drip wrongly located.....															
Gage-cock drip improperly located.....		1													
Fire-box sheets corroded.....								2		4			10		
Fire hose defective.....															
Unclassified steam leaks.....		88					2	6	7	19	5	22	37		
Number of defects.....	9	503	3	18	18	6	45	52	50	67	44	206	223	20	10
Locomotives owned.....	2	285	12	8	3	10	15	29	7	17	8	76	61	6	6
Locomotives inspected.....	2	198	19	15	7	2	16	17	9	13	14	93	67	5	2
Locomotives defective.....	1	147	2	9	5	2	13	13	9	13	13	70	63	5	2
Locomotives ordered from service.....	0	31	0	0	0	0	0	9	1	4	5	3	0	0	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Glenfield & Western.	Goethals Stone Co.	Gould Southwestern.	Grand Rapids & Ind.	Grand Trunk Ry. Sys.	Gran. C. & E. St. L. Term.	Graysonia Nashv. Lbr. Co.	Great Northern.	Great Southern.	Great Western.	Green Bay & Western.	Greene County.	Greenville & Knoxville.	Griffin, Magnolia & W.	Gulf. & Inters. of Tex.
Stay bolts broken.....				2	161			947		1	13		1		
Rigid bolts leaking ¹					5			2			1				
Flexible bolts leaking ¹					2			2							
Telltails closed ¹					2			26			1				
Telltails stopped up.....	1			3	38			236	1	1	1		4		
Stay bolts not drilled ²				11	4			26			5				1
Crown sheet leaking.....				1	1			18							
Other sheets leaking.....					3			33							
Fire-box sheets bulged.....								55					1		
Flues leaking ¹					1			22							
Flues plugged.....				3				35							
Arch flues leaking ¹															
Arch plugs leaking ¹				1	7			1							
Fusible plug leaking.....															
Barrel leaking.....					5			31							
Dome leaking.....								6							
Throat sheet leaking.....					2			2							
Mud ring leaking.....					6	1		8			3				
Blow-off cock leaking.....				2	1		1	13							
Washout plugs leaking ¹				3	8			52			1				
Safety valve missing.....			1												
Safety valve stuck.....															
Safety valve leaking.....				7											
Gage location improper.....								1							
Gage incorrect.....					1			2							
Dial glass missing.....					2			18							
Siphon wrongly applied.....						1		49			2		1		
Siphon leaking.....					1		1	30					1		
Gage cocks wrongly located.....															
Gage cocks stopped up.....								23							
Gage cocks inoperative.....					1			7							
Gage cocks blowing.....		2		1	2			20			5	1	2		
Gage-cock handle defective.....					2			8			1				
Gage-cock drip defective.....								4							
Drip pipe missing.....					3			32						1	
Nipples defective or missing.....								80							
Water glass missing.....													2		
Water glass stopped up.....															
Water-glass cocks defective.....							1	10					1	1	
Water-glass cock handle defective.....								17							
Water-glass blow-off cock defective.....	1			1	1			55			4				
Water-glass tube broken.....								1							
Lamp missing.....															
Water-glass shield missing.....			2		8		1	10	1	2			2	2	
Water glass shield defective.....	1	1			10	1		7			7		1		
Water glass improperly located.....					3										
Lubricator shields missing.....			2	3	24		1	13	1		19		3	2	
Lubricator shields defective.....		1			3			1							
Injector inoperative.....					2			1							
Injector tank valve defective.....			1										1		
Injector tank hose defective.....							1						2		
Injector feed pipe defective.....								18							
Injector throttle defective.....					1			156						1	
Injector steam pipe defective.....					2			8							
Injector delivery pipe defective.....							1	2							
Injector boiler check defective.....								12			1		1		
Cab card missing.....			2		50		1	30					3		
Badge plate missing.....	1	1	2	3	21		1	19		1			4		
Fire-box plug not secured.....		2						59					4		
Water-glass drip missing.....					2			121							
Water-glass drip defective.....					2			3							
Water-glass drip wrongly located.....															
Gage-cock drip improperly located.....								16							
Fire-box sheets corroded.....								4							
Fire hose defective.....															
Unclassified steam leaks.....				5	23		3	20		1	3		13	1	1
Number of defects.....	3	11	11	17	109		3	12	2,351	3	0	70	2	30	7
Locomotives owned.....	3		2	92			1	1,022	2	7	27	1	2		4
Locomotives inspected.....	1	3	2	26	319		1	214	1	30	78	1	9	3	3
Locomotives defective.....	1	1	2	27	171	1	1	78	1	2	57	1	7	2	2
Locomotives ordered from service.....	0	1	0	0	12		0	72	0	0	0	0	0	0	0

¹ Number of locomotives reported with this defect.
² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Gulf & Sabine River.	Gulf & Ship Island.	Gulf, Colo. & S. F.	Gulf Line.	Gulf, Texas & Western.	Hampton & Branchville.	Harriman & N. E.	Hannibal Connecting.	Hearne & Brazos Val.	Helena Parkin & N.	Hicks Run.	Hillsboro & N. E.	Hocking Valley.	Holston Valley.	Holton Interurban.
Stay bolts broken	3	48	5	1			1		1			3	66		2
Rigid bolts leaking ¹		5											3		
Flexible bolts leaking ¹			6										1		
Telltails closed ¹		39		3			1	2					3		2
Telltails stopped up ¹		9											11		2
Stay bolts not drilled ²		21		1									4		1
Crown sheet leaking		22											36		1
Other sheets leaking		2		1									1		1
Fire-box sheets bulged		6											26	1	1
Flues leaking ¹	3	3		1					2			1	10		1
Flues plugged															
Arch flues leaking ¹				1											
Arch plugs leaking ¹													2		
Fusible plug leaking															
Barrel leaking		4											6		1
Dome leaking		1											12		1
Throat sheet leaking		2		1									2		1
Mud ring leaking		2											18		
Blow-off cock leaking	1	18											12		
Washout plugs leaking ¹		14											31		
Safety valve missing															
Safety valve stuck															
Safety valve leaking														3	
Gage location improper															
Gage incorrect		3		1											
Dial glass missing		2													
Siphon wrongly applied	2	80										6	1		1
Siphon leaking		7										1	16		
Gage cocks wrongly located								1					2		
Gage cocks stopped up	1	1											1		
Gage cocks inoperative	3	15		1				1					1		1
Gage cocks blowing	1	11		1				4		1			46		1
Gage-cock handle defective		2						2			1		2		1
Gage-cock drip defective													1		
Drip pipe missing		12													1
Nipples defective or missing		6													
Water glass missing	1			4				4					1	2	
Water glass stopped up															
Water-glass cocks defective		1	2										30		1
Water-glass cock handle defective	1												1		
Water-glass blow-off cock defective	1	3		1				1					5		1
Water-glass tube broken		1		3									1		
Lamp missing															
Water-glass shield missing		4										1	3	2	
Water-glass shield defective		1			3										
Water glass improperly located															
Lubricator shields missing	2		23	4		1		6		1	5	2	28	2	2
Lubricator shields defective															
Injector inoperative		1											1		1
Injector tank valve defective															
Injector tank hose defective		2										1	16		
Injector feed pipe defective		1											18		
Injector throttle defective		16		1				1	2				43		2
Injector steam pipe defective		2		1									37		
Injector delivery pipe defective		4		1									14		
Injector boiler check defective		8										1	16		
Cab card missing	1	13		4		1		6		1			5	2	
Badge plate missing				6	3			6		1		1	53		3
Fire-box plug not secured				9											
Water-glass drip missing		1		1											1
Water-glass drip defective															
Water-glass drip wrongly located															
Gage-cock drip in improperly located															
Fire-box sheets corroded				1											
Fire hose defective															
Unclassified steam leaks		25		5	1		1	3	1	1	1		155	1	4
Number of defects	10	11	448	49	11	2	3	37	6	6	21	8	748	8	34
Locomotives owned	12	48	277	7	6	2	2	6	1		6	2	145	3	3
Locomotives inspected	4	28	248	7	5	7	1	6	1	1	6	6	277	2	3
Locomotives defective	4	8	175	7	3	1	1	6	1	1	6	4	186	2	3
Locomotives ordered from service	1	6	4	0	0	0	0	0	1	0	2	0	13	0	1

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Hoesea Tunnel & W.	Houston & Texas Cen.	Houston Belt & Term.	Houston E. & W. Texas.	Huntingdon & B. T. Min.	Idaho & Wash. N.	Idaho Southern.	Illinois Central.	Illinois Const. Co.	Illinois Northern.	Illinois Southern.	Illinois Terminal.	Independence & Mom.	Indiana Harbor Belt.	Indiana Northern.
Stay bolts broken.....	188	12	34			2		823		1	6		2	1	1
Rigid bolts leaking ¹	15	6						14							
Flexible bolts leaking ¹								9							
Telltails closed ¹		3	2					32							
Telltails stopped up ¹	1	27	13	4				231		4					1
Stay bolts not drilled ²		8	1	1	5			34							2
Crown sheet leaking.....	35	2	2	2				30		1					
Other sheets leaking.....	25	3	1	1				50							
Fire-box sheets bulged.....	14		1	1				19	2						
Flues leaking ¹	22	3	1					61							
Flues plugged.....	94	4	2	10				184							
Arch flues leaking ¹															
Arch plugs leaking ¹								1							
Fusible plug leaking.....	2							15		1					
Barrel leaking.....	6		1					31							
Dome leaking.....	1							21							
Throat sheet leaking.....	6							29		1					
Mud ring leaking.....	8				2			30						1	
Blow-off cock leaking.....	11	2	2					83							
Washout plugs leaking ¹	8														
Safety valve missing.....															
Safety valve stuck.....															
Safety valve leaking.....	1							6							1
Gage location improper.....															
Gage incorrect.....	2		1					5							
Dial-glass missing.....	2							38							
Siphon wrongly applied.....	44	4						173			2		1		1
Siphon leaking.....	7	1	1			1		42							
Gage cocks wrongly located.....															
Gage cocks stopped up.....	4	1						75							1
Gage cocks inoperative.....	11	1						75							
Gage cocks blowing.....	5	2		1				182							6
Gage-cock handle defective.....	1	5	1					22	2						
Gage-cock drip defective.....	1							10							
Drip pipe missing.....		3						17							
Nipples defective or missing.....						2									
Water glass missing.....	1				5										
Water glass stopped up.....								4							
Water-glass cocks defective.....	2	1	1					23							
Water-glass cock handle defective.....	2							2							
Water-glass blow-off cock defective.....	1	5						118							
Water-glass tube broken.....								2							
Lamp missing.....								6							
Water-glass shield missing.....	8	1	1					192	1	4			2		1
Water-glass shield defective.....	4	1						355				2	1		2
Water-glass improperly located.....	3							22							
Lubricator shields missing.....	34	2	5	2				197	1	1			2		2
Lubricator shields defective.....	2							161					1		2
Injector inoperative.....	4		2					21							
Injector tank valve defective.....								4							
Injector tank hose defective.....	3							8							
Injector feed pipe defective.....	3		1					9							
Injector throttle defective.....	13	3	2	1				28							1
Injector steam pipe defective.....	4	9	6					35							
Injector delivery pipe defective.....	3		1	2				21							
Injector boiler check defective.....	2		1					31							1
Cab card missing.....	1	18	2	1	3			218	1						1
Badge plate missing.....		5	1	5				250	1		2	1	2		1
Fire-box plug not secured.....		4		1				16							
Water-glass drip missing.....								27							
Water-glass drip defective.....								2		1					
Water-glass drip wrongly located.....															
Gage-cock drip improperly located.....															
Fire-box sheets corroded.....	1														
Fire hose defective.....															
Unclassified steam leaks.....	37	12	4	1		2	278								4
Number of defects.....	4 710	94	77	38	5	3	4 301	8	14	10	5	14	2	28	
Locomotives owned.....	6 96	5	17	22	14	3	1 410	12	18	6	3	16	2	8	
Locomotives inspected.....	1 270	25	34	16	10	1	1 901	1	19	8	0	3	2	8	
Locomotives defective.....	1 475	25	24	12	4	1	1 868	1	7	5	2	3	2	8	
Locomotives ordered from service.....	0 46	3	0	0	0	0	33	0	1	3	1	0	0	0	

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Indianapolis Union.	Indian Creek Valley.	International & G. N.	Interstate.	Ironton.	Iowa Central.	Iron Mount. & Greenb.	Island Creek.	Island Creek Fuel Co.	Ironville & Mill C. V.	Jacksonville Terminal.	Jamestown, Chau. & L. E.	Jonesboro, Lake C. & E.	Kalamazoo, L. S. & C.	Kanawha & Michigan.
Stay bolts broken.....	58	4	117			25				1	13	1	3	6	24
Rigid bolts leaking ¹						1				2	1				1
Flexible bolts leaking ¹			4			2									4
Telltails closed ¹	1		3	1						2					2
Telltails stopped up.....	2		27	3	2	11				1	1	1			5
Stay bolts not drilled ²	11		2			2				1	1				4
Crown sheet leaking.....	2		8			1						1			1
Other sheets leaking.....	5		11	1	1	1				2	2	3	4		3
Fire-box sheets bulged.....						1									
Flues leaking ¹	1					1									
Flues plugged.....	2		1			132					2	4	2		6
Arch flues leaking ¹															
Arch plugs leaking ¹						2									
Fusible plug leaking.....			1												
Barrel leaking.....			5												12
Dome leaking.....		2						1							10
Throat sheet leaking.....			2			1									
Mud ring leaking.....	2	1	1			3				2		1	1		3
Blow-off cock leaking.....	2		3							2					10
Washout plugs leaking ¹	7		5			2				2	2	1	3		20
Safety valve missing.....															
Safety valve stuck.....															
Safety valve leaking.....	9													1	
Gage location improper.....															4
Gage incorrect.....															
Dial glass missing.....						1									
Siphon wrongly applied.....		2		1		16			1				2		
Siphon leaking.....	1		8	2						3					11
Gage cocks wrongly located.....															
Gage cocks stopped up.....			1			1						8	3		2
Gage cocks inoperative.....	1		8			5						3			2
Gage cocks blowing.....	16		2			4			1	3	3		2		8
Gage-cock handle defective.....						2	1			1					7
Gage-cock drip defective.....												1			
Drip pipe missing.....			4												
Nipples defective or missing.....															
Water glass missing.....					3				1						
Water glass stopped up.....															
Water-glass cocks defective.....	2							1		3	1	1	1		5
Water-glass cock handle defective.....		1													2
Water-glass blow-off cock defective.....	1		6			7					2		1		1
Water-glass tube broken.....		1						1							
Lamp missing.....						1									
Water-glass shield missing.....			6			6		3		1			2	1	
Water-glass shield defective.....	13		1							7		1	2		
Water glass improperly located.....						1									
Lubricator shields missing.....		2	11	1		6				2		4	2	4	20
Lubricator shields defective.....	4									2					
Injector inoperative.....										1		1	1		3
Injector tank valve defective.....															
Injector tank hose defective.....						1		2			1				24
Injector feed pipe defective.....			3			1				1					34
Injector throttle defective.....	4		3	1						8	1				11
Injector steam pipe defective.....	1		2					3		1			2		28
Injector delivery pipe defective.....						1		1		1					17
Injector boiler check defective.....		1	3			1				1		1			26
Cab card missing.....		3	3			3	1	4	1	2	2		5		31
Badge plate missing.....	9	2	27		5	15		1	1	2		2	2		58
Fire-box plug not secured.....						6									
Water-glass drip missing.....				1									2		
Water-glass drip defective.....												2			
Water-glass drip wrongly located.....															
Gage-cock drip improperly located.....															
Fire-box sheets corroded.....											1				
Fire hose defective.....															
Unclassified steam leaks.....	23	1	14			15	1	7	3	11	5	6	7		107
Number of defects.....	177	20	294	11	11	278	3	24	8	63	38	41	47	13	470
Locomotives owned.....	21	3	165	5	11		1	4	1	3	4	5	10	7	67
Locomotives inspected.....	40	0	109	12	7	61	1	0	1	9	14	13	7	11	165
Locomotives defective.....	36	5	73	7	6	52	1	4	1	8	10	9	6	5	134
Locomotives ordered from service.....	8	1	7	0	0	2	0	0	0	0	2	3	1	1	2

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Kanawha & W. V.	Kanawha Central.	Kanawha, Glen J. & E.	Kane & Elk.	Kanona & Praterburgh.	Kansas City & Memphis.	Kans. C., Clinton & Spedid.	Kans. C., Mex. & Orient.	Kansas City Southern.	Kansas City Terminal.	Kansas Southern western.	Kaul & Hall Lumber Co.	Kaul Lumber Co.	Keesville, A. C. & L. C.	Kelly's Creek.
Stay bolts broken						1	27	115	9	1			6		
Rigid bolts leaking ¹							4	3	2						
Flexible bolts leaking ¹								1							
Telltals closed ¹								27	4	1					
Telltals stopped up			3	1	2		8	2	1	1					
Stay bolts not drilled ²							1	2	1						
Crown sheet leaking						1	5	2	2						
Other sheets leaking							28	4	1						
Fire-box sheets bulged							6	4							
Flues leaking ¹	1				1		4	8					1		
Flues plugged					43		4	39							
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking															
Barrel leaking		1						1							1
Dome leaking								1							1
Throat sheet leaking							2								
Mud ring leaking					1		12	5		1			1		
Blow-off cock leaking							13	18							
Washout plugs leaking							9	22	2		1		1		
Safety valve missing										1					
Safety valve stuck															
Safety valve leaking															
Gage location improper															
Gage incorrect		1			1										
Dial-glass missing					1		1	1							
Siphon wrongly applied		1		1		2		7		1	3	1			1
Siphon leaking	3						3	7	2						
Gage cocks wrongly located							2	1							1
Gage cocks stopped up						1		4				1			
Gage cocks inoperative					1		2	31							
Gage cocks blowing	2			2			5	13			1				
Gage-cock handle defective					2			1							
Gage-cock drip defective															
Drip pipe missing					1	1	1	11							
Nipples defective or missing															
Water glass missing													1		
Water glass stopped up															
Water-glass cocks defective							3	9	2		1				
Water-glass cock handle defective															
Water-glass blow-off cock defective	1		1	1			1	5	1						
Water-glass tube broken	1	1	1		1		1	1							
Lamp missing															
Water-glass shield missing								3							
Water-glass shield defective						1		11							
Water glass improperly located	1							1							
Lubricator shields missing	1	1	4	1		1		8		1	3	1			
Lubricator shields defective															
Injector inoperative							2								
Injector tank valve defective								2							
Injector tank hose defective					1		1	3	5						
Injector feed pipe defective	1						5	5							
Injector throttle defective	1	2	1			1	5	8	2			1	1		
Injector steam pipe defective	1						2	7			2		1		
Injector delivery pipe defective							10								
Injector boiler check defective				1	1		2								
Cab card missing		1		1	3		6	15	3			1			
Badge plate missing			1	1	2		3	24	1		3	1			1
Fire-box plug not secured															
Water-glass drip missing			1				3	7							
Water-glass drip defective								1							
Water-glass drip wrongly located															
Gage-cock drip improperly located															
Fire-box sheets corroded															
Fire hose defective															
Unclassified steam leaks	3	5	1			2	91	35	1		6		1		
Number of defects	14	14	11	7	2	65	8	279	47	39	3	21	3	12	5
Locomotives owned	3	1	5	5	1	6	12	75	165	32	7		1	1	3
Locomotives inspected	7	1	13	1	2	7	2	88	150	43	1	3	1	7	1
Locomotives defective	6	1	9	1	1	5	9	55	116	10	1	3	1	1	1
Locomotives ordered from service	1	0	0	0	0	1	0	1	14	0	0	0	0	0	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Kelly's Creek N. W.	Kennebec Central.	Kentucky & Ind. Term.	Kentucky & Tenn.	Kentucky Highlands.	Kentucky Midland.	Kentwood & Eastern.	Kentwood Greenb. & S. W.	Koocook & Ham. Water P.	Kingsdale Lumber Co.	Kinston & Snow Hill.	Kinston, Carolina.	Kishacoquillas Valley.	Knoxville, Sevierville & E.	Lacy, D. B. Con. Co.
Stay bolts broken.....	2		6	1							6	5		2	1
Rigid bolts leaking ¹												2			
Flexible bolts leaking ¹															
Telltails closed ¹			1	1											
Telltails stopped up ¹			2	3											
Stay bolts not drilled ²		2	1			1							1		
Crown sheet leaking.....												1			
Other sheets leaking.....															
Fire-box sheets bulged.....															
Flues leaking ¹				1			1				1				1
Flues plugged.....						1						2			
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking.....															
Barrel leaking.....	1														
Dome leaking.....	1														
Throat sheet leaking.....															1
Mud ring leaking.....															
Blow-off cock leaking.....			2												
Washout plugs leaking ¹															
Safety valve missing.....															
Safety valve stuck.....															
Safety valve leaking.....															
Gage location improper.....															
Gage incorrect.....															
Dial-glass missing.....							1								
Siphon wrongly applied.....			1										1		
Siphon leaking.....			2												1
Gage cocks wrongly located.....															
Gage cocks stopped up.....							4						1	2	
Gage cocks inoperative.....						1				1					
Gage cocks blowing.....			1	3		1	1								1
Gage-cock handle defective.....													1		
Gage-cock drip defective.....															
Drip pipe missing.....															
Nipples defective or missing.....															
Water glass missing.....		2		1						2		1			
Water glass stopped up.....															
Water-glass cocks defective.....			1	2											
Water-glass cock handle defective.....				1											
Water-glass blow-off cock defective.....				1			4					1			
Water-glass tube broken.....	2			1											1
Lamp missing.....															
Water-glass shield missing.....													3	1	
Water-glass shield defective.....						2	1	1							
Water-glass improperly located.....			1												
Lubricator shields missing.....	2					1	5	1		1		4	4	2	
Lubricator shields defective.....						2									1
Injector inoperative.....					1									1	
Injector tank valve defective.....															
Injector tank hose defective.....	2		1							1			1	1	
Injector feed pipe defective.....			1												
Injector throttle defective.....			2				1				2				1
Injector steam pipe defective.....			2												
Injector delivery pipe defective.....			1												
Injector boiler check defective.....			1	1											
Cab card missing.....	2			2			5		2	2	2		2	1	
Badge plate missing.....	2	2								1					
Fire-box plug not secured.....															
Water-glass drip missing.....															
Water-glass drip defective.....															
Water-glass drip wrongly located.....															
Gage-cock drip improperly located.....															
Fire-box sheets corroded.....															
Fire hose defective.....															1
Unclassified steam leaks.....	1		3	3	3							2			
Number of defects.....	15	6	29	21	4	12	24	2	4	8	12	18	14	19	2
Locomotives owned.....	2	2	14	6	1	1	14	7	10		2	2	2	2	
Locomotives inspected.....	2	2	7	6	1	3	22	3	2	2	6	6	4	4	1
Locomotives defective.....	2	2	6	6	1	3	10	2	2	2	3	6	4	4	1
Locomotives ordered from service.....	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	La Crosse & S. E.	Lake Champl. & Moriah.	Lake Charles & N.	Lake Erie, All. & W.	Lake Erie & Ft. Wayne.	Lake Erie & West-ern.	Lake Shore & M. S.	Lakeside & Mar-blehead.	Lake Sup. Term. & T.	Lake Tahoe R. & Trans.	Lake Terminal.	Launcester & Ches-ter.	Launcester, Oxford & S.	Laue, C. W., & Co.	Laramie, Hahns P. & P.
Stay bolts broken		2		5		122	428	11	10		2				
Rigid bolts leaking ¹						7	12								
Flexible bolts leaking ¹						1	13								
Telltails closed ¹		1	1	1		9	11		1			1			
Telltails stopped up ¹						20	99		2		9				1
Stay bolts not drilled ²						77	35		5						
Crown sheet leaking						6	4		1						1
Other sheets leaking						25	37		1						
Firebox sheets bulged						8	3								
Flues leaking ¹						3	5		2			1			
Flues plugged							17				1				
Arch flues leaking ¹						21	45								
Arch plugs leaking ¹						1	17		2		1				
Fusible plug leaking						2	33		1		1				
Barrel leaking						1	12		1		1				
Throat sheet leaking	1					1	41	1	1		1	1			
Mud ring leaking				1		3	41	1	1						
Blow-off cock leaking				2		36	48								
Washout plugs leaking ¹				3		47	134	1	1						
Safety valve missing							30	17							
Safety valve stuck															
Safety valve leaking															
Gage location improper															
Gage incorrect												1			
Dial glass missing															
Siphon wrongly applied															
Siphon leaking						2	4		2						
Gage cocks wrongly located															
Gage cocks stopped up						8	1	1	2						
Gage cocks inoperative						2	4		2						
Gage cocks blowing						17	46		5			3			
Gage-cock handle defective						1	2	1	2						
Gage-cock drip defective									1						
Drip pipe missing						18	6								
Nipples defective or missing															
Water glass missing												1	2	1	
Water glass glass stopped up															
Water-glass cocks defective						11	7		5						1
Water-glass cock handle defective							1								
Water-glass blow-off cock defective				1		4	22		7			1			
Water glass tube broken						1	3								
Lamp missing															
Water-glass shield missing							1	4	3						
Water-glass shield defective			2	1		68	41								
Water glass improperly located										1					
Lubricator shields missing	1			1				2	3			2			
Lubricator shields defective				1										1	
Injector inoperative							4		2			1			
Injector tank valve defective							4								
Injector tank hose defective				1		1	9		1						2
Injector feed pipe defective				1		3	6					1			
Injector throttle defective						21	13								1
Injector steam pipe defective			3			8	12								
Injector delivery pipe defective						3	9	1							
Injector boiler check defective						7	31		3						1
Cab card missing						2	2	8	3	8		2	2	1	2
Budge plate missing	1				1	44	38	3	1	4		2		3	1
Fire-box plug not secured															
Water-glass drip missing							3								
Water-glass drip defective						4	1								
Water-glass drip wrongly located															
Gage-cock drip improperly located							1								
Fire-box sheets corroded															
Fire hose defective															
Unclassified steam leaks		1	5	2		96	152	1	9	4	1				2
Number of defects	3	3	7	20	8	740	1,454	31	81	9	15	19	6	8	12
Locomotives owned	3	8		19	1	1,430	907	4	14	4	18	3	3		7
Locomotives inspected	2	4	5	43	2	331	1,069	8	51	4	31	9	2	2	2
Locomotives defective	2	1	3	12	2	145	562	6	30	4	12	7	2	2	2
Locomotives ordered from service	0	0	0	0	0	10	57	1	4	0	0	0	0	0	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Las Vegas & Tonopah.	Laurel Fork.	Laurel.	Laurinburg & Southern.	Lawnside Ry. & Indus.	Leesville East & West.	Lehigh & Hudson R.	Lehigh & New England.	Lehigh Valley.	Lexington & Eastern.	Lewisburg & Ronc. El.	Liberty-White.	Licking River.	Ligonier Valley.	Litchfield & Madison.
Stay bolts broken	3	1					70	11	161	22					8
Rigid bolts leaking ¹	1								1						
Flexible bolts leaking ¹									15						
Telltals closed ¹									52						
Telltals stopped up ¹	3	2		4			7	7	33	5					
Stay bolts not drilled ²	2	2					2	2	10	3			1		
Crown sheet leaking							2	1	33	2					
Other sheets leaking	1						4	3	95	1					
Fire-box sheets bulged									45						
Flues leaking ¹							8	3	45					2	
Flues plugged									70		3	1		26	19
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking															
Barrel leaking									47						
Dome leaking						1			8						
Throat sheet leaking									1						
Mud ring leaking							10	1	79					1	1
Blow-off cock leaking	1						1	1	6	2					
Washout plugs leaking ¹							12	2	68	2			1		
Safety valve missing													4		
Safety valve stuck															
Safety valve leaking							1	1	1						
Gage location improper															
Gage incorrect				2					2	2			1		
Dial-glass missing							5	2	82						
Siphon wrongly applied	1	2			2		1	1	1	1	3	2	2	4	
Siphon leaking			1				7	2	65	2				1	3
Gage cocks wrongly located															
Gage cocks stopped up									6				1		
Gage cocks inoperative					1				6						2
Gage cocks blowing							5	6	52		1	1	1	1	
Gage-cock handle defective			1	2					4	1		1	1		
Gage-cock drip defective															
Drip pipe missing												2	1		
Nipples defective or missing															
Water glass missing					1			2	114	4		12	2	2	
Water glass stopped up									5						
Water-glass cocks defective							5		29						
Water-glass cock handle defective							1		7				1	1	
Water-glass blow-off cock defective							4	2	15				1	3	1
Water-glass tube broken			4						13						
Lamp missing									2						
Water-glass shield missing									2						
Water-glass shield defective	1					3			8				4	1	
Water glass improperly located							1		7		1			1	
Lubricator shields missing	2	1		1	2		1	1	28	2		9	6	4	
Lubricator shields defective							1		19						
Injector inoperative							1		11				1		
Injector tank valve defective															
Injector tank hose defective															
Injector feed pipe defective							1	1	13					1	
Injector throttle defective							1	3	33						
Injector steam pipe defective							7	4	22	2			1		
Injector delivery pipe defective	2						1	1	30						
Injector boiler check defective	1						4		32					2	
Cab card missing	1			3	2				19				2	1	
Badge plate missing									22		2	1			
Fire-box plug not secured					2			1	112					8	
Water-glass drip missing			1						38					8	
Water-glass drip defective									2						
Water-glass drip wrongly located														1	2
Gage-cock drip improperly located															
Fire-box sheets corroded															
Fire hose defective															
Unclassified steam leaks	2					3	21	16	377	8			14	11	5
Number of defects	18	5	4	17	8	9	175	76	1,862	60	7	32	49	81	46
Locomotives owned	14	2	6	3		3	46	26	890	15		9	5	6	5
Locomotives inspected	3	2	4	4	2	3	69	34	751	28	2	15	7	29	7
Locomotives defective	3	2	1	4	2	3	47	26	533	21	2	15	7	16	4
Locomotives ordered from service	0	0	1	0	0	0	6	2	44	9	0	0	3	0	1

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Little Falls & Dolge.	Little River.	Little River Valley.	Little Rock, M. & W.	Live Oak, Perry & Gulf.	Livingston & S.-E.	Long Island.	Lomain & South-ern.	Lorain Railroad.	Louisiana & Ar-kansas.	Louisiana & N. W.	Louisiana & Pa-cific.	Louisiana & Pine B.	Louisiana Central.	La. Ry. & Nav. Co.
Stay bolts broken	5	2			3		33			9					1
Rigid bolts leaking ¹					1		1								
Flexible bolts leaking ¹							1								
Telltals closed ¹							4							1	
Telltals stopped up ¹		3			4		2			6	1			1	5
Stay bolts not drilled ²							4								
Crown sheet leaking															1
Other sheets leaking	1						9								
Fire-box sheets bulged		1													
Flues leaking ¹					2		3			1					
Flues plugged						1									24
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking															
Barrel leaking															
Dome leaking							2								
Throat sheet leaking					1						1			1	
Mud ring leaking	1				1		12								1
Blow-off cock leaking							6								
Washout plugs leaking ¹		1					31								
Safety valve missing															
Safety valve stuck															
Gage location improper															
Gage incorrect															
Dial-glass missing			1				2		1					1	
Siphon wrongly applied		1	1		6			3		1		1		3	1
Siphon leaking							7			1					1
Gage cocks wrongly located															1
Gage cocks stopped up					1					1					
Gage cocks inoperative	1						1			2			1	1	3
Gage cocks blowing	1						7			2					2
Gage-cock handle defective			1		2	1				2			1		1
Gage-cock drip defective							1						1		
Drip pipe missing															
Nipples defective or missing															
Water glass missing		1			6				4						
Water glass stopped up		1					4								
Water-glass cocks defective	3	1					6			2					
Water-glass cock handle defective							2						1	1	1
Water-glass blow-off cock defective	1					1	9			2		2			6
Water-glass tube broken			1				3								
Lamp missing															
Water-glass shield missing						1	3	1		2	1	1	1		6
Water-glass shield defective		1					1					1	2		19
Water glass improperly located															
Lubricator shields missing		2			4	1	6	1	4	3	1		2	3	7
Lubricator shields defective															
Injector inoperative					2		2								1
Injector tank valve defective													2		
Injector tank hose defective				1			3	1	2						
Injector feed pipe defective							7			1					7
Injector throttle defective	2				2	1	4			5			2		7
Injector steam pipe defective	4						10	1							1
Injector delivery pipe defective	3						2								
Injector boiler check defective		1	1			1	5								1
Cab card missing			1	1	1	1		3	2	2	2	1	1		9
Badge plate missing		1		1	2		7		5	5					
Fire-box plug not secured					19										
Water-glass drip missing				1											
Water-glass drip defective															
Water-glass drip wrongly located															
Gage-cock drip improperly located															
Fire-box sheets corroded															1
Fire hose defective															
Unclassified steam leaks	7	2		2	4		58		1	8		1	4		4
Number of defects	29	17	6	0	01	9	258	2	23	56	6	7	10	13	103
Locomotives owned	3	6	3	2	7	2	181	1	3	28	11	11	13	10	49
Locomotives inspected	5	8	1	1	9	1	149	2	5	34	2	5	5	3	57
Locomotives defective	5	8	1	1	8	1	100	1	5	34	2	5	5	3	64
Locomotives ordered from service	0	0		0	0	1	7	0	0	0	2	0	0	1	7

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Louisiana South-ern.	Louisiana West-ern.	Louisville & Atl.	Louisville & J. B. Co.	Louisville & Nashl.	Louisville & Wad-ley.	Louisville, H. & St. L.	Louisville, N. A. & C.	Lowville & Beaver R.	Lusk Lumber Co.	McCloud River.	McKeesport Con-nect.	McKeesport Ter-minal.	Macomb & West-ern Ill.	Macon, Dublin & Sav.
Stay bolts broken			3	3	248		19				2	1		20	12
Rigid bolts leaking					5										
Flexible bolts leaking					3										
Telltals closed					47		2								1
Telltals stopped up					68	1	2				1				3
Stay bolts not drilled					25		1	2			1				
Crown sheet leaking					9										
Other sheets leaking				1	29		2								
Firebox sheets bulged					1		2								
Flues leaking					12		1				1				
Flues plugged					5		3				2			7	
Arch flues leaking															
Arch plugs leaking					2										
Fusible plug leaking															
Barrel leaking			1		13		1								
Dome leaking					13										
Throat sheet leaking					10										
Mud ring leaking			1		6								1	1	
Blow-off cock leaking			1	1	23										
Washout plugs leaking			2		60		1								
Safety valve missing															
Safety valve stuck															
Safety valve leaking					19										
Gage location improper															
Gage incorrect					25										
Dial-glass missing					11										
Siphon wrongly applied			2		39			1			3	2			
Siphon leaking		1	1	1	37					1	1	1			1
Gage cocks wrongly located															
Gage cocks stopped up					6										1
Gage cocks inoperative					5		1								
Gage cocks blowing		1			161		1					1			
Gage-cock handle defective					7		1					3			
Gage-cock drip defective					3										
Drip pipe missing					1						1				
Nipples defective or missing											3				
Water glass missing			2		182		1			1	3				9
Water glass stopped up					3										
Water-glass cocks defective					8		1								
Water-glass cock handle defective					1										
Water-glass blow-off cock defective			1		129		3								
Water-glass tube broken															
Lamp missing															
Water-glass shield missing					1		1								
Water-glass shield defective															
Water glass improperly located		1													
Lubricator shields missing	2				9		2	1		1					
Lubricator shields defective					48		1								
Injector inoperative					11										
Injector tank valve defective					1						3				
Injector tank hose defective					4										
Injector feed pipe defective					5						1				
Injector throttle defective		2	3		52										
Injector steam pipe defective					19										
Injector delivery pipe defective			2		31										
Injector boiler check defective					20										
Cab card missing					6		1				1			1	1
Badge plate missing					1										
Fire-box plug not secured					28										
Water-glass drip missing					2		1								
Water-glass drip defective					2										
Water-glass drip wrongly located															
Gage-cock drip improperly located															
Fire-box sheets corroded															
Fire hose defective															
Unclassified steam leaks		3	2	1	250	1	6		6	4	21	1			
Number of defects	2	8	21	7	1,715	2	54	4	6	10	30	9	1	29	28
Locomotives owned	6	31	10		991	2	30	2	2		15	15	1	2	11
Locomotives inspected	2	5	5	4	695	2	15	3	1	1	19	23	1	1	14
Locomotives defective	2	4	5	2	528	2	10	2	1	1	11	7	1	1	11
Locomotives ordered from service	0	0	0	0	33	0	3	0	0	0	1	0	0	2	0

1 Number of locomotives reported with this defect.

2 Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Macapin County.	Maine Central.	Malvern & Freeo Val.	Mammoth Cave.	Manchester & Oneida.	Maine & Grand R.	Maine & N.-E.	Maine & Lake S.	Maine Ry. & Trans.	Manufacturers Jet.	Marcellus & Otisco L.	Marianna & Bloomstown.	Marietta, Cos. & Clew.	Marietta & W. 7 Tomahawk & W. 7	Marion & Rye Valley.
Stay bolts broken.....	8	145					5	2							2
Rigid bolts leaking 1.....		1													
Flexible bolts leaking 1.....		1													
Telltails closed 1.....		6													
Telltails stopped up 1.....	1	7								1		1			
Stay bolts not drilled 2.....													3	1	
Crown sheet leaking.....															
Other sheets leaking.....		2						2		1					
Firebox sheets bulged.....	1														
Flues leaking 1.....										1	1				
Flues plugged.....						1			2		20		13		
Arch flues leaking 1.....															
Arch plugs leaking 1.....															
Fusible plug leaking.....															
Barrel leaking.....	1														
Dome leaking.....													1		
Throat sheet leaking.....	1		1												
Mud ring leaking.....	1	1													1
Blow-off cock leaking.....	1	1							1						
Washout plugs leaking 1.....		2													
Safety valve missing.....															
Safety valve stuck.....															
Safety valve leaking.....															
Gage location improper.....															
Gage incorrect.....									1						
Dial-glass missing.....				1					1						
Siphon wrongly applied.....		1	2		3			1	1			1		2	
Siphon leaking.....															
Gage cocks wrongly located.....		4													
Gage cocks stopped up.....		1													
Gage cocks inoperative.....								2		1					
Gage cocks blowing.....		3											2		
Gage-cock handle defective.....								2	1			1			
Gage-cock drip defective.....															
Drip pipe missing.....															
Nipples defective or missing.....															
Water glass missing.....		4		3								2	7		
Water glass stopped up.....	1														
Water-glass cocks defective.....			3												
Water-glass cock handle defective.....									2						
Water-glass blow-off cock defective.....		2	2					1	1		1				
Water-glass tube broken.....															
Lamp missing.....									1						
Water-glass shield missing.....	1			1	2	1	4		1	1					
Water-glass shield defective.....	1	14	4	1		1	1		1	3	2				
Water glass improperly located.....															
Lubricator shields missing.....	1	12	1	2	3	1	3	2	1	1			3		
Lubricator shields defective.....				1											
Injector inoperative.....													1		
Injector tank valve defective.....														2	
Injector tank hose defective.....	1	1							1						
Injector feed pipe defective.....	1														
Injector throttle defective.....		1							3						
Injector steam pipe defective.....		2													
Injector delivery pipe defective.....		1	1												
Injector boiler check defective.....	1														
Cab card missing.....	3	2	4	2	1	1	1			2	1	1			1
Badge plate missing.....	21	2			2					2		2	1		1
Fire-box plug not secured.....							1					3			
Water-glass drip missing.....															
Water-glass drip defective.....										1					
Water-glass drip wrongly located.....															
Gage-cock drip improperly located.....															
Fire-box sheets corroded.....															
Fire hose defective.....															
Unclassified steam leaks.....	7	6	0				1				1	3	2		
Number of defects.....	24	241	31	13	12	5	16	12	17	14	26	15	34	3	6
Locomotives owned.....	8	214	6	2	1	7	16	5	1	4	2	2	4	5	3
Locomotives inspected.....	7	119	5	0	3	6	18	4	3	8	4	3	14	2	2
Locomotives defective.....	4	79	4	5	3	2	7	3	2	7	3	2	8	2	2
Locomotives ordered from service.....	0	11	0	0	0	0	0	0	1	0	0	0	0	0	0

1 Number of locomotives reported with this defect.
 2 Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Marion S. Shovel Co.	Mark Mfg. Co.	Marmet-Haim Coal & C.	Marshall & East Tex.	Maryland & Penna.	Maryland, Del. & Vir.	Maryland Electric Rys.	Meadville & Summerville.	Memphis, Dallas & Gulf.	Mercer Valley	Michigan Central.	Middle Tennessee.	Midland Terminal.	Midland Valley.	Milltown Air Line.
Stay bolts broken.....			3		2				6		161	1		108	
Rigid bolts leaking 1.....											2			1	
Flexible bolts leaking 1.....											9			1	
Telltails closed 1.....			1								6	1			
Telltails stopped up 1.....			1						1		20	1		1	
Stay bolts not drilled 2.....	3		2			4					15				1
Crown sheet leaking.....			2								4				
Other sheets leaking.....											14			3	1
Fire-box sheets bulged.....								1			2	1			
Flues leaking 1.....											6	2		2	
Flues plugged.....			12								2	10		2	
Arch flues leaking 1.....											2				
Arch plugs leaking 1.....											8				
Fusible plug leaking.....	1														
Barrel leaking.....											5				1
Dome leaking.....								1			3			2	
Throat sheet leaking.....											3	1		4	
Mud ring leaking.....	2										17			3	
Blow-off cock leaking.....	2							2			23			8	
Washout plugs leaking 1.....											31	1		11	
Safety valve missing.....	1		1												
Safety valve stuck.....															
Safety valve leaking.....			1		1				1					1	
Gage location improper.....															
Gage incorrect.....											3				1
Dial-glass missing.....											8				
Siphon wrongly applied.....	1			1	2		1		2			1	3	1	
Siphon leaking.....				1	1									3	
Gage cocks wrongly located.....															
Gage cocks stopped up.....								1			8				
Gage cocks inoperative.....				1				3			27		2		
Gage cocks blowing.....	2	2						1			15			12	
Gage-cock handle defective.....					1									2	
Gage-cock drip defective.....					1						1				
Drip pipe missing.....								2			1			1	
Nipples defective or missing.....													1		
Water glass missing.....	1				3	4		1				1			2
Water glass stopped up.....															
Water-glass cocks defective.....			1					2			2			2	
Water-glass cock handle defective.....								2							
Water-glass blow-off cock defective.....	1							1			15	1		3	
Water-glass tube broken.....			1									1			
Lamp missing.....															
Water-glass shield missing.....	2	1						1	5		4		3		
Water-glass shield defective.....			1					4			20				
Water glass im properly located.....						1	1								
Lubricator shields missing.....	1	1	2		5	4	2		5	1	12	2	1	1	1
Lubricator shields defective.....						1					2				
Injector inoperative.....	1		2											2	
Injector tank valve defective.....								1						1	
Injector tank hose defective.....			1					1			1			8	3
Injector feed pipe defective.....														1	6
Injector throttle defective.....	1	1	1			5	2		3		4			18	
Injector steam pipe defective.....									3					1	6
Injector delivery pipe defective.....	1										5			17	
Injector boiler check defective.....	1										14	1		4	
Cab card missing.....	3		2					1	11		4		3	7	
Badge plate missing.....	3	3	2			1		1	3		11		3	2	
Fire-box plug not secured.....															
Water-glass drip missing.....								3							
Water-glass drip defective.....								3			1	1		3	
Water-glass drip wrongly located.....															
Gage-cock drip im properly located.....															
Fire-box sheets corroded.....															
Fire hose defective.....															
Unclassified steam leaks.....	2		2		2	12		9			35	2	3	74	1
Number of defects.....	26	11	36	2	16	35	6	3	73	6	531	30	21	305	20
Locomotives owned.....	3	2	2	7	12	9	4	3	9	15	651	3	7	38	1
Locomotives inspected.....	3	3	2	8	9	13	4	2	16	35	634	4	4	42	2
Locomotives defective.....	3	3	2	2	6	7	2	1	11	5	215	4	4	42	2
Locomotives ordered from service.....	0	0	2	0	0	0	0	0	2	0	12	1	0	11	0

1 Number of locomotives reported with this defect.

2 Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Mineral Point & N.	Minneapolis & R. River.	Minneapolis & St. L.	Minneapolis East-ern.	Minneapolis, Red L. & M.	Minn., St. Paul & S. S. M.	Minneapolis West-ern.	Minnesota & In-ternat.	Minn. & N. Wis.	Minn., Dakota & West.	Minnesota Trans-fer.	Miss., Ark. & Western.	Mississippi Cen-tral.	Miss. Riv. & B. Ter.	Missouri & Loui-siana.
Stay bolts broken.....	4	1	98			48		4		5			2	6	1
Rigid bolts leaking.....	1		2			6									
Flexible bolts leaking ¹			2			14									
Telltails closed.....			2			3									
Telltails stopped up.....			1			31		2			7		4		
Stay bolts not drilled ¹		2	2	1	1	4			1						
Crown sheets leaking.....			1												
Other sheets leaking.....			4			5									
Fire-box sheets bulged.....	2	2	10												
Flues leaking.....						1						1			
Flues plugged.....	1		17								1				
Arch flues leaking ¹															
Arch plugs leaking ¹						2									
Fusible plug leaking.....															
Barrel leaking.....			1												
Dome leaking.....			1												
Throat sheet leaking.....			2			11									
Mud ring leaking.....	6					4									
Blow-off cock leaking.....	1		4			1									
Washout plugs leaking ¹			3			9									
Safety valve missing.....															
Safety valve stuck.....															
Safety valve leaking.....															
Gage location improper.....															
Gage incorrect.....															
Dial glass missing.....						2									
Siphon wrongly applied.....	1	8	3			23		9		1	1			5	1
Siphon leaking.....						1								2	
Gage cocks wrongly located.....															
Gage cocks stopped up.....	1	1	13	1		8	1	2		1	3			1	
Gage cocks inoperative.....			6			4					2				
Gage cocks blowing.....	4		4			7						1	2		
Gage-cock handle defective.....			2					1			1				
Gage-cock drip defective.....						4									
Drip pipe missing.....			1												
Nipples defective or missing.....															
Water glass missing.....															
Water glass stopped up.....															
Water-glass cocks defective.....						1								1	1
Water-glass cock handle defective.....						3									
Water-glass blow-off cock defective.....		1	3			19		3		1	5	1	1		
Water-glass tube broken.....															
Lamp missing.....															
Water-glass shield missing.....			1						1						
Water-glass shield defective.....	4	9	10	1		5					2	1	11	1	
Water glass improperly located.....						1		1							
Lubricator shields missing.....	8	2	11	2		1		18	1	2	4		2		
Lubricator shields defective.....													1		
Injector inoperative.....						1									
Injector-tank valve defective.....															
Injector-tank hose defective.....						2									
Injector feed pipe defective.....												1			
Injector throttle defective.....						4						1	2		
Injector steam pipe defective.....			2									1	1		
Injector delivery pipe defective.....													1		
Injector boiler check defective.....						2									
Cab card missing.....	2	4	3			2		9		1	15	1			2
Badge plate missing.....	6	6	21			53		4			6				
Fire-box plug not secured.....						26									
Water-glass drip missing.....			9					1				1			
Water-glass drip defective.....						4									
Water-glass drip wrongly located.....															
Gage-cock drip improperly located.....															
Fire-box sheets corroded.....															
Fire hose defective.....															
Unclassified steam leaks.....	1		22			13		1					1	2	
Number of defects.....	37	35	261	5	1	323	1	55	2	11	10	0	25	10	3
Locomotives owned.....	3	11	219	2	3	195	1	22	3	4	16	3	17	22	11
Locomotives inspected.....	10	14	267	2	1	242	1	22	1	7	51	1	31	21	4
Locomotives defective.....	10	10	192	3	1	215	1	20	1	3	27	1	10	8	2
Locomotives ordered from service.....	3	0	11	0	0	3	0	0	0	0	1	0	0	0	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Missouri & N. Ark.	Missouri, Kans. & Tex.	Missouri, Okla. & Gulf.	Missouri Pacific.	Missouri Southern.	Mobile & Ohio.	Monongahela Con-nect.	Monongahela.	Mont., Wyo. & S.	Montour.	Montpelier & W. Riv.	Morehead & North Fork.	Morenci Southern.	Morgan's La. & Texas.	Morgantown & Kingwood.
Stay bolts broken	40	182	35	461	6	136	8	17			1	5	1	33	5
Rigid bolts leaking		62	1	74										1	
Flexible bolts leaking		28												1	
Telltails closed		9		13		11		2					1		1
Telltails stopped up	4	74	3	161	1	52	1		2			1			
Stay bolts not drilled	2	10	2	27	2	1	1			1			5		
Crown sheet leaking		37	1	55		3									
Other sheets leaking	1	96	10	98		9		1				1	1		1
Fire-box sheets bulged		6	2	37	2	3		1							
Flues leaking		59	1	34		3	4					1		2	
Flues plugged		104	151	8	1	41	32			8		2	1	2	
Arch flues leaking						7									
Arch plugs leaking				3											
Fusible plug leaking															
Barrel leaking		6		33		1								1	
Dome leaking	1	1		20		5						2		1	
Throat sheet leaking	1	11	4	26					1					1	
Mud ring leaking		51	2	54			8	1		2					
Blow-off cock leaking	1	63	3	63		9	8	1							
Washout plugs leaking	1	138	5	130		2						1			
Safety valve missing															
Safety valve stuck				20											
Safety valve leaking	1		1	1											
Gage location improper		1													
Gage incorrect		1				1									
Dial glass missing		2		14											
Siphon wrongly applied		6	4	15	1	4	9	4	1	1		1	4		
Siphon leaking	1	29	2	40		11	2	3				1		1	
Gage cocks wrongly located		12		6									3		
Gage cocks stopped up		10		48	1	3								3	
Gage cocks inoperative	2	32	3	63		10		3						1	
Gage cocks blowing		54	4	46		23	9					6		4	1
Gage-cock handle defective		3	1	15		7									
Gage-cock drip defective		1		8											
Drip pipe missing		3	9	179											
Nipples defective or missing		7		1											
Water glass missing				1		20	23				2		2		
Water glass stopped up															
Water-glass cocks defective		9		51		3		1				1		1	
Water-glass-cock handle defective		1		7		2									2
Water-glass blow-off cock defective		36	8	36	1	20		1		1		2	1	1	1
Water-glass tube broken		3		4		12									1
Lamp missing						13									1
Water-glass shield missing		1	3	116		3						1	2	3	
Water-glass shield defective	7	5		64		3		5	2		3		1	4	1
Water glass improperly located				11									1	3	1
Lubricator shields missing	1	15	7	162		23	11	1		1	1	2	6	3	
Lubricator shields defective		11		5		15	4								
Injector inoperative	1	6	8	1		3						3			
Injector tank valve defective				3		2								1	
Injector tank hose defective	2	13	2	30		1	1					4			
Injector feed pipe defective		32	9	36		11	1								
Injector throttle defective	6	56	6	50		8	3	1				4	1	5	2
Injector steam pipe defective	1	69	9	45		4						1		1	
Injector delivery pipe defective		34	12	29		8		1							
Injector boiler check defective	1	11	9	16		4	3		1			2	1	1	
Cab card missing		32	9	81		18	1					2			2
Badge plate missing	1	75	4	260		33	3	4	1			2	2	3	
Fire-box plug not secured		1				228								3	
Water-glass drip missing	3	3	6	39		20							1		
Water-glass drip defective	1			2		1									
Water-glass drip wrongly located															
Gage-cock drip improperly located				11		1									
Fire-box sheets corroded		12	1	49											
Fire hose defective															
Unclassified steam leaks	5	359	40	295	1	38	4	5			2	8	11	8	
Number of defects	84	1,881	378	3,189	16	845	139	52	6	16	9	51	47	84	17
Locomotives owned	20	517	27	1,161	4	259	34	34	3	5	10	5	5	65	14
Locomotives inspected	28	696	37	1,629	4	407	25	36	2	3	6	5	7	50	5
Locomotives defective	24	540	34	852	4	264	25	15	2	2	5	4	7	30	5
Locomotives ordered from service	3	30	6	39	0	7	3	2	0	2	0	4	0	5	0

1 Number of locomotives reported with this defect.

* Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Morristown & Erie.	Moehassuck Valley.	Mt. Hope Mineral.	Mt. Jewett, Kin. & Rit.	Muncie Belt.	Munising, Marq. & S. E.	Muscantine, North & S.	Nacogdoches & S. E.	Napierville Junction.	Narragansett Pier.	Nash, Chatta. & St. L.	Natchez, Col. & Mobile.	Natchez, Uraulia & Rus.	Nat'l. Mailable C. Co.	Nelson & Albe- marla.
Stay bolts broken					11	4					91	9			
Rigid bolts leaking ¹							1				3				
Flexible bolts leaking ¹											36				
Telltals closed ¹					1			1			45				
Telltals stopped up ¹					1						3				
Stay bolts not drilled ²	1				4	2									
Crown sheet leaking.															
Other sheets leaking.							1				10				
Firebox sheets bulged.											2		1		
Flues leaking ¹	2				1						15				
Flues plugged.										2		5			
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking.					1						3				
Barrel leaking.											1				
Dome leaking.											1				
Throat sheet leaking.							1				1				
Mud ring leaking.					4						4				
Blow-off cock leaking.									1		1				
Washout plugs leaking ¹											14				
Safety valve missing.															
Safety valve stuck.											2				
Safety valve leaking.															
Gage location improper.															
Gage incorrect.															
Dial-glass missing.															
Siphon wrongly applied.					3		4				2	1			1
Siphon leaking.	1										4				
Gage cocks wrongly located.				2											
Gage cocks stopped up.															
Gage cocks inoperative.					2		1								
Gage cocks blowing.	2				1		1				16				
Gage-cock handle defective.					1										
Gage-cock drip defective.															
Drip pipe missing.															
Nipples defective or missing.															
Water glass missing.	2	2	2								127				2
Water glass stopped up.															
Water-glass cocks defective.				1	1										
Water-glass cock handle defective.												1	1		
Water-glass blow-off cock defective.				1											
Water-glass tube broken.															
Lamp missing.							1								
Water-glass shield missing.							3	1				4	1		
Water-glass shield defective.		1			6										
Water glass improperly located.															
Lubricator shields missing.	1		1		1	3	1						1		2
Lubricator shields defective.					7										
Injector inoperative.															
Injector tank valve defective.											1				
Injector tank hose defective.	1														
Injector feed pipe defective.						3					4				
Injector throttle defective.	1				1		1				1				
Injector steam pipe defective.															
Injector delivery pipe defective.											3				
Injector boiler check defective.											3				
Cab card missing.	2	3				1	1	1			1	4	1	2	1
Badge plate missing.	5	3	4		1		1				3				1
Fire-box plug not secured.											2				
Water-glass drip missing.															
Water-glass drip defective.					1										
Water-glass drip wrongly located.															
Gage-cock drip improperly located.															
Fire-box sheets corroded.															
Fire hose defective.	3														
Unclassified steam leaks.					15		2				70				
Number of defects	22	9	7	5	64	11	16	4	1	2	449	24	4	2	7
Locomotives owned.	4	2	2	6	2		5	2	1	2	264	9	2	1	3
Locomotives inspected.	7	3	8	1	12		7	12	1	1	106	4	1	2	9
Locomotives defective.	5	2	4	1	12		3	8	1	1	112	1	1	2	4
Locomotives ordered from service.	0	0	0	1	4		0	0	0	0	1	0	0	0	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Nevada, Cal. & Oreg.	Nev. County Nar-row G.	Newark & Marlon.	New Berlin & Winfield.	Newburgh & Southshore.	New Castle & Ohio Riv.	N. J., Ind. & Ill.	New Orleans & Gt. No.	N. Orleans, Mo-bile & Chl.	N. Orleans, Nat. & N.	New Orleans Ter-minal.	N. Orleans, Tex. & Mex.	New Park & Fawn Grove	Newport & Sher-man's V.	New River, Hol-iston & W.
Stay bolts broken				1	47		11	2			4	4			7
Rigid bolts leaking ¹															
Flexible bolts leaking ¹															
Telltails closed ¹						1	1				1				
Telltails stopped up ¹					6			2	2		4	9			
Stay bolts not drilled ¹	2	4		1		2	4						1	1	
Crown sheet leaking								2							
Other sheets leaking											2				
Fire-box sheets bulged															
Flues leaking ¹															
Flues plugged				4							6	6			
Arch flues leaking ¹						1			2						
Arch plugs leaking ¹															
Fusible plug leaking															
Barrel leaking															
Dome leaking				1		1						1			1
Throat sheet leaking				2											
Mud ring leaking					2										
Blow-off cock leaking	1										2	1			
Washout plugs leaking ¹				1				1							
Safety valve missing				1	1									1	1
Safety valve stuck		1													
Safety valve leaking											2				
Gage location improper															
Gage incorrect															
Dial glass missing								1							
Siphon wrongly applied				2		3		2	2			2	1	1	
Siphon leaking	1														
Gage cocks wrongly located							1								
Gage cocks stopped up	1		1												
Gage cocks inoperative						2	1						1		
Gage cocks blowing				1	4		2	7	3		1				
Gage-cock handle defective						2									
Gage-cock drip defective		1									1				
Drip pipe missing	2							2							
Nipples defective or missing															
Water glass missing				1		1		26					1	1	
Water glass stopped up															
Water-glass cocks defective								1							
Water-glass cock handle defective															
Water-glass blow-off cock defective	2				1				1			2			
Water-glass tube broken				1											
Lamp missing															
Water-glass shield missing	1				6	1			3						
Water-glass shield defective	3								3	7					
Water glass improperly located							1								
Lubricator shields missing	1	6			1	2		1		3	4		1		1
Lubricator shields defective															
Injector inoperative						1									
Injector tank valve defective	1														
Injector tank hose defective							2		2				1		
Injector feed pipe defective	1												1		
Injector throttle defective	2	1				6		3	3		2	3			
Injector steam pipe defective	1			1				3	4		3	3			
Injector delivery pipe defective						1		1							
Injector boiler check defective	2				1			1							
Cab card missing					17	3				5	4	1	1	2	1
Badge plate missing	1	2		1	1	2				1			1		
Fire-box plug not secured	6						6	8							
Water-glass drip missing								2		1	2				
Water-glass drip defective															
Water-glass drip wrongly located															
Gage-cock drip improperly located															
Fire-box sheets corroded															
Fire hose defective															
Unclassified steam leaks	11	4	5	3	5	12		4	5		1	1			2
Number of defects	43	15	10	17	93	41	28	28	61	18	47	38	7	16	2
Locomotives owned	12	5	1	3	19	2	2	32	45	10	15	62	1	3	2
Locomotives inspected	15	6	2	3	44	8	6	18	40	7	33	27	1	7	2
Locomotives defective	10	6	2	3	26	0	5	9	30	6	21	18	1	5	2
Locomotives ordered from service	0	0	0	0	4	0	3	0	0	0	5	2	0	1	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	New York & Penn.	N. Y., Auburn & L.	New York Cent. & H. R.	New York, C. & St. L.	New York, N. H. & H.	New York, Ontario & W.	New York, Phila. & N.	New York, Susq. & W.	Niagara Junction.	Nittany Valley.	Norfolk & Portsmouth B. L.	Norfolk & Western.	Norfolk Southern.	N. & S. Carolina.	N'htpton & Bath.
Stay bolts broken.....	4	1,488	340	1,745	88	26	2	8	156	75	...	...	...	...	...
Rigid bolts leaking ¹.....	...	13	7	...	...	2	4	1	16	4	...	...	...	...	...
Flexible bolts leaking ¹.....	...	5	3	...	...	4	...	...	20	...	...	...	...	...	...
Telltails closed ¹.....	...	65	23	47	7	1	1	1	21	...	...	...	...	...	...
Telltails stopped up ¹	3	220	26	11	5	...	...	...	27	20	...	...	...	...	...
Stay bolts not drilled ².....	...	7	46	1	1	1	1	1	29	...	...	...	...	...	...
Crown sheet leaking.....	...	19	10	2	1	1	2	1	16	2	...	...	...	...	...
Other sheets leaking.....	1	118	21	17	22	6	...	1	132	8	...	...	...	...	...
Firebox sheets bulged.....	...	...	...	...	...	...	...	...	5	...	...	...	...	...	...
Flues leaking ¹.....	...	44	4	6	9	3	2	1	66	2	...	...	...	...	...
Flues plugged.....	...	3	9	1	...	1	...	...	15	...	...	...	...	...	...
Arch flues leaking ¹.....	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
Arch plugs leaking ¹.....	...	75	13	1	12	...	...	...	...	...	...	...	...	...	...
Fusible plug leaking.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Barrel leaking.....	1	28	1	...	1	3	...	...	24	...	...	...	...	...	...
Dome leaking.....	...	59	13	3	...	1	1	...	21	2	...	...	...	...	...
Throat sheet leaking.....	...	9	5	3	4	1	...	...	5	...	...	...	...	...	...
Mud ring leaking.....	...	103	16	13	13	2	4	1	26	4	...	...	...	...	...
Blow-off cock leaking.....	...	72	11	4	9	1	1	2	21	...	...	...	...	...	...
Washout plugs leaking ¹.....	...	151	26	1	15	2	5	...	81	1	...	...	...	...	...
Safety valve missing.....	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Safety valve stuck.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Safety valve leaking.....	2	7	...	...	...	...	...	...	11	...	...	...	...	...	...
Gage location improper.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gage incorrect.....	1	...	...	...	...	...	...	...	20	...	...	...	...	...	...
Dial-glass missing.....	10	2	2	15	3	...	...	...	16	...	...	...	...	...	...
Siphon wrongly applied.....	...	6	...	...	...	...	...	...	23	4	1	...	...	...	...
Siphon leaking.....	1	14	1	2	11	1	5	...	90	...	...	...	...	...	...
Gage cocks wrongly located.....	...	6	1	...	...	...	...	...	...	...	...	...	...	...	...
Gage cocks stopped up.....	...	11	2	80	...	1	...	...	17	2	...	...	...	...	...
Gage cocks inoperative.....	1	72	6	30	...	6	...	...	59	3	...	...	...	...	...
Gage cocks blowing.....	2	98	14	78	20	6	4	...	167	19	...	...	...	...	...
Gage-cock handle defective.....	...	6	6	...	3	1	1	...	8	2	...	...	...	...	...
Gage-cock drip defective.....	...	7	3	9	4	1	...	...	21	3	...	...	...	...	...
Drip pipe missing.....	...	72	1	2	14	...	...	...	17	...	...	...	...	...	...
Nipples defective or missing.....	...	21	...	1	2	...	...	...	19	...	...	...	...	...	...
Water glass missing.....	...	...	...	...	...	5	...	1	1	...	...	...	...	...	...
Water glass stopped up.....	...	1	...	3	1	...	...	...	1	...	...	...	...	...	...
Water-glass cocks defective.....	1	43	6	7	2	...	...	1	22	1	1	...	...	...	...
Water-glass cock handle defective.....	...	...	...	...	...	...	...	...	1	5	...	...	...	...	...
Water-glass blow-off cock defective.....	...	53	4	23	3	1	1	1	41	9	1	...	...	...	...
Water-glass tube broken.....	1	3	...	3	...	2	...	1	1	...	...	...	...	...	...
Lamp missing.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Water-glass shield missing.....	1	...	6	...	3	...	...	...	1	...	...	...	...	...	...
Water-glass shield defective.....	2	72	28	...	5	...	...	...	2	...	...	...	...	...	...
Water glass improperly located.....	...	5	...	12	1	...	...	...	1	...	...	...	...	...	...
Lubricator shields missing.....	1	2	6	13	63	2	...	2	92	4	1	...	...	...	...
Lubricator shields defective.....	...	...	6	...	...	...	...	...	39	...	...	...	...	...	...
Injector inoperative.....	1	5	1	...	2	...	...	...	4	3	...	...	...	...	...
Injector tank valve defective.....	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...
Injector tank hose defective.....	1	10	...	10	...	5	...	...	28	...	...	...	...	...	...
Injector feed pipe defective.....	...	29	2	8	4	3	...	1	17	...	...	...	...	...	...
Injector throttle defective.....	...	69	4	9	11	7	...	...	87	6	...	...	...	...	...
Injector steam pipe defective.....	...	94	3	6	22	1	12	2	119	1	...	...	...	...	...
Injector delivery pipe defective.....	...	64	...	3	8	2	...	...	15	3	...	...	...	...	...
Injector boiler check defective.....	1	15	5	10	6	2	...	...	21	7	...	...	...	...	...
Cab card missing.....	1	56	3	20	9	2	...	...	8	...	...	...	...	...	...
Badge plate missing.....	...	8	15	186	26	20	2	1	15	7	...	...	...	...	...
Fire-box plug not secured.....	...	43	16	4	...	8	...	...	6	...	...	...	...	...	...
Water-glass drip missing.....	...	2	...	6	1	...	...	...	18	...	...	...	...	...	...
Water-glass drip defective.....	...	2	...	...	1	...	...	...	1	...	...	...	...	...	...
Water-glass drip wrongly located.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gage-cock drip improperly located.....	...	1	...	2	...	...	...	...	...	...	...	...	...	...	...
Fire-box sheets corroded.....	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...
Fire hose defective.....	...	...	...	4	...	...	...	...	...	...	...	...	...	...	...
Unclassified steam leaks.....	4	257	97	85	96	1	30	1	473	20	...	...	...	...	...
Number of defects.....	18	18	3,729	831	2,533	463	40	162	6	13	27	3,140	213	4	1
Locomotives owned.....	5	5	1,913	248	1,236	214	38	101	2	2	8	993	69	5	19
Locomotives inspected.....	5	8	1,782	458	1,733	308	71	48	17	1,093	171	1,093	171	7	3
Locomotives defective.....	3	5	1,170	238	1,092	100	26	42	12	12	8	824	62	3	1
Locomotives ordered from service.....	0	0	106	44	43	5	0	8	0	1	1	31	0	0	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Northampton & Hert.	Northern Alabama.	Northern Central.	Northern Pacific.	Northwestern Coal.	Northwest. R. R. of S. C.	Northwestern Pacific.	Ocala Northern.	Ocean Shorr.	Ocella Southern.	Ohio & Kentucky.	Ohio Electric.	Ohio River & Western.	Oklahoma Central.	Oregon & S.-East-ern.
Stay bolts broken			3	625		21	12		23			1	4	13	
Rigid bolts leaking ¹			1				2		1						
Flexible bolts leaking ¹			1												
Telltails closed ¹			1	21			2		3			1			
Telltails stopped up ¹				211		2	11		6					7	
Stay bolts not drilled ²	1		12	38	2			1							
Crown sheet leaking				9					2					1	
Other sheets leaking	1		4	30			1		1					5	
Fire-box sheets bulged				17			5								
Flues leaking ¹	1		1	22			2				1				
Flues plugged			3	47		9	6		9				1	3	
Arch flues leaking ¹			1	1									1		
Arch plugs leaking ¹			3	16											
Fusible plug leaking				12											
Barrel leaking				7											
Dome leaking															
Throat sheet leaking			1					1						1	
Mud ring leaking	2		3	6										5	
Blow-off cock leaking			1	18					1				1		
Washout plugs leaking ¹			7	59			2		1					4	
Safety valve missing															
Safety valve stuck															
Safety valve leaking			1												
Gage location improper															
Gage incorrect															
Dial glass missing				3											
Siphon wrongly applied			2	48		5	7	1	3		1		2		
Siphon leaking				27			3						1	2	
Gage cocks wrongly located				2						1					
Gage cocks stopped up			1	25		2	3		1						
Gage cocks inoperative	2			52				1	2	2	2			2	
Gage cocks blowing			2	21					1				1	2	
Gage-cock handle defective			5	28				2		3					
Gage-cock drip defective			1	6				2	2						
Drip pipe missing				59			2								
Nipples defective or missing				78			3								
Water glass missing	1					11				3					
Water glass stopped up	1														
Water-glass cocks defective			2	5										1	
Water-glass cock handle defective															
Water-glass blow-off cock defective				117			1							1	
Water-glass tube broken	1			1							1				
Lamp missing									1						
Water-glass shield missing				26	1		3		4						2
Water-glass shield defective				49	1	2					1	1			
Water glass improperly located				2											
Lubricator shields missing			1	246	2	6	4		4	3	1		2		
Lubricator shields defective		2		6											
Injector inoperative			1	5						1					
Injector tank valve defective			1	4											
Injector tank hose defective	1			5						1	2		1	2	
Injector feed pipe defective				27				1						3	
Injector throttle defective			2	86			2	2	1		2	1		2	
Injector steam pipe defective				11			3			1					
Injector delivery pipe defective			4	4		1	1							2	
Injector boiler check defective				6											
Cab card missing	2		1	19	2	7	2	1	9	2			4	3	
Badge plate missing	3			362		7		1	5	2					2
Fire-box plug not secured				26		9			9		3				
Water-glass drip missing				118				1						1	
Water-glass drip defective				35											
Water-glass drip wrongly located															
Gage-cock drip improperly located				17											
Fire-box sheets corroded				3					2						
Fire hose defective															
Unclassified steam leaks	2		10	172			31	2	16	6	5		2	8	2
Number of defects	18	2	75	2,834	8	82	108	14	108	25	19	4	19	68	6
Locomotives owned	1	10		1,464		7	6	5	12	4	5	13	12	10	2
Locomotives inspected	4	2	59	1,517	2	21	33	5	11	3	2	2	32	14	2
Locomotives defective	4	2	35	978	2	18	17	2	11	3	2	2	14	14	2
Locomotives ordered from service	0	0	0	47	0	3	1	0	2	1	1	0	2	2	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Oregon Short Line.	Oreg. Wash. R. R. & Nav.	Otto Marmet Coal & M.	Onachita & N.-Western.	Ouchita Valley.	Overton County.	Pacific & Eastern.	Pacific Coast.	Pac. Ry. & Nav. Co.	Fajaro Valley Consol.	Panther Creek.	Paragonid S-Eastern.	Paris & Mt. Pleasant.	Pecos & Northern Tex.	Pellham & Havana.
Stay bolts broken	305	74					1		2		2			4	
Rigid bolts leaking ¹	11	4												3	
Flexible bolts leaking ¹															
Telltails closed ¹	7	2													
Telltails stopped up ¹	80	11						4		2	5		1	4	
Stay bolts not drilled ¹	19	8													1
Crown sheet leaking	13	3												2	
Other sheets leaking	17	21								1				1	
Fire-box sheets bulged	1	6				3									
Flues leaking ¹	40	5				1		1			2				
Flues plugged	63	2				4				11			1		2
Arch flues leaking ¹	2	2													
Arch plugs leaking ¹	21	13												1	
Fusible plug leaking	2	2													
Barrel leaking	25	9												1	1
Dome leaking	20	7													
Throat sheet leaking	1	4							1						
Mud ring leaking	38	4												1	
Blow-off cock leaking	24	10												2	
Washout plugs leaking ¹	21	2				1			1				1	6	
Safety valve missing															
Safety valve stuck								2							
Safety valve leaking	1	1													
Gage location improper															
Gage incorrect	1	1													
Dial glass missing	21	4									1				
Siphon wrongly applied	3	12											1	7	2
Siphon leaking	32	31				1		1							
Gage cocks wrongly located	5	7													
Gage cocks stopped up	58	7						1	1						
Gage cocks inoperative	69	10				1	1						2	2	
Gage-cock blowing	54	30												4	2
Gage-cock handle defective	3	1				1	1								1
Gage-cock drip defective	2	1												1	
Drip pipe missing	52	5					1	7		5				4	
Nipples defective or missing	56	29							1						
Water glass missing	1	1	1								9				
Water glass stopped up	5	1						1						1	
Water-glass cocks defective	9	3												1	
Water-glass cock handle defective	2	1				1									
Water-glass blow-off cock defective	10	15							1					4	2
Water-glass tube broken															3
Lamp missing															
Water-glass shield missing	1	1	1	1	3					2					
Water-glass shield defective	1	1						1		2		1	1		
Water glass im properly located	8														
Lubricator shields missing	10		1	1	2	1	3		10			1	2	2	2
Lubricator shields defective															
Injector inoperative	2									2					
Injector tank valve defective	9							5							
Injector tank hose defective	1									1					1
Injector feed pipe defective	12														1
Injector throttle defective	19	17		1						2	1			2	3
Injector steam pipe defective	25	9						1			1			2	1
Injector delivery pipe defective	8	1													
Injector boiler check defective	44	14			2									1	1
Cab card missing	76	6	1		2		5		1				1	6	2
Badge plate missing	55	29				2	2		7	5				2	4
Fire-box plug not secured	4	2													
Water-glass drip missing	10	1						1							
Water-glass drip defective	3							1							
Water-glass drip wrongly located															
Gage-cock drip im properly located	6	1													
Fire-box sheets corroded															2
Fire hose defective															
Unclassified steam leaks	416	204				1	1	10	1	18	4			2	2
Number of defects	1,791	627	2	2	5	22	8	66	66	67	39	2	17	94	32
Locomotives owned	293	275		9	2	2	3	5	3	7	17	4	2		2
Locomotives inspected	383	333	1	1	2	3	4	8	6	11	9	1	5	10	5
Locomotives defective	269	211	1	1	2	3	2	8	3	10	9	1	5	10	5
Locomotives ordered from service	29	4	0	1	0	2	0	0	0	0	0	0	0	1	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Pemberton & Hightstown, Pencoyd & Philadelphia. Penn. Iron & Coal Co.	Penna. Lines W. of P.	Pennsylvania R. R.	Pennsylvania Southern.	Pennsylvania State C.	Pennsylvania Steel Co.	Pennsylvania Terminal.	Pensacola, Ala. & Tenn.	Peoria & Tokin Union.	Peoria Ry. Terminal.	Pere Marquette.	Philadelphia & Reading.	Perth Northern.
Stay bolts broken	2	259	25				6		21		115	154	
Rigid bolts leaking ¹		19	23						9		8	10	
Flexible bolts leaking ¹		25	67								13		
Telltails closed ¹		33	4					1				8	
Telltails stopped up ¹		29		2				5	1		29	33	
Stay bolts not drilled ²		90	3			4						12	
Crown sheet leaking		20	2								9	4	
Other sheets leaking		93	151				1		1		22	97	
Fire-box sheets bulged		10						1	1		1	1	
Flues leaking ¹	1	51	126	3							3	30	
Flues plugged		152	62	3		8			2		20	29	
Arch flues leaking ¹		10	40								1		
Arch plugs leaking ¹													
Fusible plug leaking						1	1						
Barrel leaking		49	34						1		14	16	
Dome leaking		63	40						1		10	4	
Throat sheet leaking		15	16	2		1	1				6	1	
Mud ring leaking		99	176	1		1	3		2		17	56	
Blow-off cock leaking		79	127	2			1				7	7	
Washout plugs leaking ¹	1	169	288				2		4	1	20	174	
Safety valve missing													
Safety valve stuck		47	9									6	
Gage location improper													
Gage incorrect		1									1	22	
Dial glass missing		6	4								2	300	
Siphon wrongly applied		9	12	2	1				4	1		11	2
Siphon leaking		67	75	1		1				1	1	210	
Gage cocks wrongly located													
Gage cocks stopped up	1	10	82			1					16		
Gage cocks inoperative		39	27	1					4		82		
Gage cocks blowing	1	301	261	5		8		3			11	27	
Gage-cock handle defective	1	24	14							1	7	1	
Gage-cock drip defective		13	10			2		4				1	
Drip pipe missing		12	2									3	
Nipples defective or missing			1									4	
Water glass missing			1			3		2				723	
Water glass stopped up		2	4		1								
Water-glass cocks defective		53	39	1							3	1	
Water-glass cock handle defective		17	8				2						
Water-glass blow-off cock defective	2	74	264	1				2	1	2	5	5	
Water-glass tube broken	2	4	2					1				3	
Lamp missing		2	7										
Water-glass shield missing	1	131	7	1			2					9	
Water-glass shield defective		28	2	1					1		23		2
Water glass improperly located		3	5										
Lubricator shields missing		221	80				1	3			37	99	2
Lubricator shields defective		52									4	327	
Injector inoperative		11	17	1				1			5	2	
Injector tank valve defective		2	8										
Injector tank hose defective		39	23	1			1				8	2	
Injector feed pipe defective		63	42								3	28	
Injector throttle defective	1	259	57			5	1				1	17	
Injector steam pipe defective	2	68	52								2	37	
Injector delivery pipe defective		75	112				2				2	22	
Injector boiler check defective		57	81	1							11	24	
Cab card missing	1	7	17	2		4		4	12	3	9	6	2
Badge plate missing	1	130	75	5	1	3		4	10		2	265	1
Fire-box plug not secured		10	11	8								4	
Water-glass drip missing		27	4										
Water-glass drip defective		6	57								1		
Water-glass drip wrongly located													
Gage-cock drip improperly located													
Fire-box sheets corroded													
Fire hose defective													
Unclassified steam leaks	3	5	895	664	5		15		9	5	48	173	
Number of defects	6 8 14	4,030	3,329	49	3	24	58	19	94	13	593	3,051	9
Locomotives owned	3 3 2	1,953	3,621	4		4	7	5	33	0	443	1,026	3
Locomotives inspected	2 7 1	2,011	2,455	5	1	4	8	4	38	7	618	1,299	2
Locomotives defective	2 4 1	1,148	1,523	6	1	4	5	4	26	5	234	1,140	2
Locomotives ordered from service	0 0 0	35	25	1	0	1	3	0	0	0	21	7	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Peru, La Salle & Deer P.	Phila. & Read. C. & I.	Phila. Balt. & Wash.	Pickens.	Piedmont.	Pittsburg & Lake Erie.	Pittsburg & Susq.	Pittsb. Alle. & McK. R.	Pittsb. Lisbon & West.	Pittsburg, Shawmut & N.	Pittsb. Westmore. & S.	Plymouth Coal & M. Co.	Poplar Bluff & Dan Riv.	Portland, Eugene & E.	Portland Termi-nal.
Stay bolts broken.....	5					47			1	6					44
Rigid bolts leaking 1.....			3			10									
Flexible bolts leaking 1.....							5								
Telltails closed 1.....															
Telltails stopped up 1.....	1					20				4					
Stay bolts not drilled 2.....	2	6				1	2								
Crown sheet leaking.....	2					7									
Other sheets leaking.....		3				19				1					
Firebox sheets bulged.....															
Flues leaking 1.....		4				12				2					
Flues plugged.....		9					1			1					
Arch flues leaking 1.....															
Arch plugs leaking 1.....															
Possible plug leaking.....															
Barrel leaking.....		1				1				1					
Dome leaking.....		1				1					2				1
Throat sheet leaking.....															
Mud ring leaking.....						14	1	1		1					
Blow-off cock leaking.....		2				3									2
Washout plugs leaking 1.....	1	1				10		1		2					
Safety valve missing.....													1		
Safety valve stuck.....															
Safety valve leaking.....		1								1					
Gage location improper.....															
Gage incorrect.....										1					
Dial glass missing.....		1													
Siphon wrongly applied.....		1	1				2	3				1	1		
Siphon leaking.....		5				11		1		1					1
Gage cocks wrongly located.....															
Gage cocks stopped up.....		6								2				1	
Gage cocks inoperative.....		6													
Gage cocks blowing.....		5				16		3			1				
Gage-cock handle defective.....		2								1					
Gage-cock drip defective.....		1				2									
Drip pipe missing.....						1									
Nipples defective or missing.....															
Water glass missing.....	2	9		1			1					1			
Water glass stopped up.....						1									
Water-glass cocks defective.....		6				1				1					
Water-glass cock handle defective.....		3													
Water-glass blow-off cock defective.....		4				4		6							2
Water-glass tube broken.....															1
Lamp missing.....							1								
Water-glass shield missing.....						5	1				1			1	
Water-glass shield defective.....					1	16		1			1				3
Water glass im properly located.....		1													
Lubricator shields missing.....	1	2	1	1		18	3	3	1	1	1			1	
Lubricator shields defective.....			2		1	8									
Injector inoperative.....		1						1			1				
Injector tank valve defective.....				1							2				
Injector tank hose defective.....						3				2					
Injector feed pipe defective.....							2	1							
Injector throttle defective.....		1				12	2	1		1					
Injector steam pipe defective.....						1	1	3			3				1
Injector delivery pipe defective.....						4				1	2				
Injector boiler check defective.....		2				2				3					
Cab card missing.....	1	6		1											
Badge plate missing.....	2	5		1	1		3	4	2	1	3				16
Fire-box plug not secured.....				6	3						11				
Water-glass drip missing.....															
Water-glass drip defective.....						1									
Water-glass drip wrongly located.....															
Gage-cock drip im properly located.....															
Fire-box sheets corroded.....															
Fire hose defective.....															
Unclassified steam leaks.....		1	16			57	4	12	2	7	5				
Number of defects.....	6	32	95	12	6	314	22	40	6	37	40	3	3	2	71
Locomotives owned.....	1	3		2	2	228	4	10	4	27	2	2	2		15
Locomotives inspected.....	2	13	230	2	1	190	4	15	2	31	9	1	1	1	69
Locomotives defective.....	2	10	38	1	1	142	3	11	2	14	5	1	1	1	34
Locomotives ordered from service.....	0	0		0	0	4	0	0	0	1	0	0	0	0	1

1 Number of locomotives reported with this defect.

2 Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Portsmouth Steel Co.	Potomac, Fred. & Pled.	Prescott & N.-West.	Pub. Bat R. R. of N. O.	Quannah, Acme, & Pacific.	Quebec, Montreal & S.	Queen & Cres. (N. D.)	Queen & Cres. (S. D.)	Quincy, Omaha & K. C.	Rahway Valley.	Ry. Transp. of Minneap.	Raleigh & Charleston.	Raleigh & Southport.	Raleigh, Charlotte & S.	Randolph & Cumberland.
Stay bolts broken					6		163	17	5						
Rigid bolts leaking ¹				1	1		4	2	1						
Flexible bolts leaking ¹							6								
Telltails closed ¹							20								
Telltails stopped up ¹					1	1	29	28	4				1		
Stay bolts not drilled ²							20								
Crown sheet leaking							5	1	1						
Other sheets leaking							28								
Fire-box sheets bulged							21	2		1					
Flues leaking ¹		2	1				6	7							
Flues plugged															
Arch flues leaking ¹							3								
Arch plugs leaking ¹															
Fusible plug leaking							12								
Barrel leaking					2		6					1		1	
Dome leaking					2	1									
Throat sheet leaking							8	2	1						
Mud ring leaking							20								
Blow-off cock leaking							20								
Washout plugs leaking ¹					1		38			1					
Safety valve missing										1					
Safety valve stuck							12		1						
Safety valve leaking															
Gage location improper															
Gage incorrect															
Dial-glass missing							1								
Siphon wrongly applied	1	1					3		2			5	1		
Siphon leaking							10	2					1		
Gage cocks wrongly located															
Gage cocks stopped up							10	4			2		2	1	
Gage cocks inoperative		1					8	9	1				1		
Gage cocks blowing		1	3	1			57	12				2	2	5	
Gage-cock handle defective							3	2	2				1	1	
Gage-cock drip defective							5	1							
Drip pipe missing							2								
Nipples defective or missing							2								
Water glass missing	1														1
Water glass stopped up				1			2								
Water-glass cocks defective							14	1	1						1
Water-glass cock handle defective				1			1						1		1
Water-glass blow-off cock defective				1	1	1	50	6					1	1	
Water-glass tube broken							1	1					1	1	2
Lamp missing															
Water-glass shield missing	1														
Water-glass shield defective			2	1				4	1			1			
Water glass improperly located															
Lubricator shields missing	1	2		1	3		6	4	1	1		3		2	
Lubricator shields defective							10	4							
Injector inoperative							2						1		
Injector tank valve defective							3								
Injector tank hose defective							9	2							
Injector feed pipe defective							7	1	6						
Injector throttle defective			2		1		42	4							
Injector steam pipe defective			1				11	7	1						
Injector delivery pipe defective							15		1						
Injector boiler check defective					1		15			1		1			
Cab card missing	2		2	1			15	5			1	2	1		1
Badge plate missing	2		1			1	2		3	1		2			2
Fire-box plug not secured							32	15							
Water-glass drip missing			1				9	2							
Water-glass drip defective															
Water-glass drip wrongly located															
Gage-cock drip improperly located							2								
Fire-box sheets corroded							3		1						
Fire hose defective															
Unclassified steam leaks			5				174	8	5	4		1		1	
Number of defects	8	5	17	10	19	5	926	153	40	11	4	21	14	17	4
Locomotives owned	5	3	9	7	7	15	344	131	24	3	4	4	9	8	3
Locomotives inspected	2	4	3	4	7	5	253	156	14	3	4	9	17	42	4
Locomotives defective	3	2	2	2	4	3	186	82	13	2	2	7	8	11	2
Locomotives ordered from service	0	0	0	0	0	0	23	7	3	0	0	0	0	1	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Raritan River.	Register & Glen-ville.	Reynoldsville & F. C.	Richmond, Fred. & Pot.	Rio Grande.	Rio Grande Southern.	Roanoke River.	Roaring Fork.	Robinson Clay Prod. Co.	Rockingham.	Rock Island Co.	Rock Island & Darl'l.	Rock Island Southern.	Rome & Northern.	Roper, J. L., Lum-ber Co.
Stay bolts broken	2			11							3		3		6
Rigid bolts leaking ¹									1						3
Flexible bolts leaking ¹															
Telltails closed ¹				3											
Telltails stopped up ¹				9						1	7	1	1		
Stay bolts not drilled ¹						2									
Crown sheet leaking								2							
Other sheets leaking				1							2				1
Fire-box sheets bulged						3									1
Fines leaking ¹	1			2											1
Fines plugged									1						1
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking															
Barrel leaking								2	1						
Drum leaking															
Throat sheet leaking															
Mud ring leaking	2										1				
Blow-off cock leaking															
Washout plugs leaking ¹															1
Safety valve missing															
Safety valve stuck															
Safety valve leaking															
Gage location improper		1													
Gage incorrect															
Dial glass missing															
Siphon wrongly applied						1			1		2	1			
Siphon leaking			3											1	1
Gage cocks wrongly located			1												
Gage cocks stopped up		1						1			1				
Gage cocks inoperative							1				2				
Gage cocks blowing				5					1		1			2	10
Gage-cock handle defective			1								1				
Gage-cock drip defective				1							1				
Drip pipe missing															
Nipples defective or missing															
Water glass missing				30					1						
Water glass stopped up															
Water-glass cocks defective				1											
Water-glass cock handle defective				2							1				
Water-glass blow-off cock defective							1	2			1				
Water-glass tube broken															1
Lamp missing															
Water-glass shield missing		1	2								1		2		
Water-glass shield defective											5		1		
Water glass impropely located															
Lubricator shields missing		1		8					1	1	1		1		
Lubricator shields defective											3				
Injector inoperative											1				
Injector tank valve defective						1									
Injector tank hose defective						5									3
Injector feed pipe defective											1				
Injector throttle defective				1		1		1	1		1	1		1	
Injector steam pipe defective			1								1				2
Injector delivery pipe defective	2										1				
Injector boiler check defective				1							1			1	
Cab card missing		1									1				
Badge plate missing			2				1	1	1		1		1		
Fire-box plug not secured				44											
Water-glass drip missing															
Water-glass drip defective															
Water-glass drip wrongly located															
Gage-cock drip impropely located															
Fire-box sheets corroded															
Fire hose defective															
Unclassified steam leaks	4		3	2		10		2	2		1	2	4	1	9
Number of defects	11	4	13	121	1	22	4	14	11	1	39	6	17	6	39
Locomotives owned	6	4	3	49	3	17	1	3	1	2	43	2	8	2	5
Locomotives inspected	7	4	5	150	1	6	1	3	1	1	17	1	1	2	7
Locomotives defective	3	2	3	58	1	5	1	3	1	1	11	1	1	3	6
Locomotives ordered from service	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Roscoe Snyder & Pac.														
	Rutland.	St. Clair Terminal.	St. Johns River Term.	St. Joseph & Grand I.	St. Joseph Belt.	St. Joseph Term.	St. Joseph Valley.	St. Louis & Hannibal.	St. Louis & O'Fallon.	St. Louis & San Fran.	St. Louis, Browns. & M.	St. Louis, I. M. & S.	St. L., Ken. & S. E.	St. L., R. Mt. & P.	
Stay bolts broken	3	47	18	1	9	2	2	12	629	4	272	6			
Rigid bolts leaking ¹	1	2	1	1	2				76		20				
Flexible bolts leaking ¹									17		2				
Telltails closed ¹	1	1	1	1	1				4		1			1	
Telltails stopped up ¹		3	2	2	5	1	2	1	102	4	39			1	
Stay bolts not drilled ¹									16		14				
Crown sheet leaking			3	1	2			2	25		14				
Other sheets leaking	1		7		2				128		54				
Fire-box sheets bulged				1	1				45		20				
Flues leaking ¹	1			1	1			1	58	1	19				
Flues plugged				6	22				50		4	2			
Arch flues leaking ¹															
Arch plugs leaking ¹									12		1				
Fusible plug leaking															
Barrel leaking	1														
Dome leaking	2								41		23				
Throat sheet leaking	2				1				27		17				
Mud ring leaking	6		2	1					42		3			1	
Blow-off cock leaking	2		1		1			1	52		8			1	
Washout plugs leaking ¹	2		1		3		1	1	68	2	12			1	
Safety valve missing									107	1	37				
Safety valve stuck															
Safety valve leaking			1				2		17		1				
Gage location improper															
Gage incorrect	1										1				
Dial glass missing	1								12	1	11				
Siphon wrongly applied			8			2			54		13	3			
Siphon leaking			2					2	51		42				
Gage cocks wrongly located	1								1		6				
Gage cocks stopped up	3				2		1		24	1	69				
Gage cocks inoperative	4							1	45	1	27				
Gage cocks blowing	6				1			2	67	6	84				
Gage-cock handle defective									19	1	9	1			
Gage-cock drip defective									7		4				
Drip pipe missing	2				1				103		79				
Nipples defective or missing	1								2					2	
Water glass missing				2											
Water glass stopped up															
Water-glass cocks defective	3	1						2	48	2	23				
Water-glass cock handle defective							1		6		1	1			
Water-glass blow-off cock defective	2	1		1		1			180	1	84				
Water-glass tube broken									2		3				
Lamp missing			3												
Water-glass shield missing					1	1			6	4	26	3			
Water-glass shield defective		16						1	24		65			2	
Water glass improperly located											4				
Lubricator shields missing	2		8		1	1	1	1	70		27	3			
Lubricator shields defective					1				9						
Injector inoperative	1			1					4		6				
Injector tank valve defective				1					4		6			1	
Injector tank hose defective	1								38		17				
Injector feed pipe defective	1	1			1				78		8				
Injector throttle defective	1	2			1				154	3	103			2	
Injector steam pipe defective	1	1							62	1	69			1	
Injector delivery pipe defective	1	1							102		16				
Injector boiler check defective									21		12				
Cab card missing	2	1	2		2	2			17		12				
Badge plate missing		10	4		3	2	2	4	162	5	95	2			
Fire-box plug not secured											4				
Water-glass drip missing		6			1				140		130				
Water-glass drip defective		1							10		4				
Water-glass drip wrongly located															
Gage-cock drip improperly located											7				
Fire-box sheets corroded			2		3				40		1				
Fire hose defective															
Unclassified steam leaks		13	5	6	3	1		3	2	4	647	8	227	8	
Number of defects	9	145	81	23	71	12	9	20	31	6	3,733	57	1,883	15	26
Locomotives owned	2	86	8	2	25		4	9	3	1,019	29		4	7	
Locomotives inspected	2	89	10	4	24	3	3	4	5	3	1,156	28	772	4	2
Locomotives defective	2	49	10	4	19	3	3	4	5	3	926	17	606	3	2
Locomotives ordered from service	0	3	4	0	1	0	0	0	1	0	78	8	39	0	1

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	St. Louis S. W.	St. Louis, Troy & East.	St. Marys & Kingsland.	St. Paul & K. C. S. L.	St. Paul B. & Term.	St. Paul Union D. Co.	Saginaw & Onachita Riv.	Salem, Falls C. & West.	Saline River.	Salt Lake & Log A.	San Ant. & Aransas P.	San Ant., Uvalde & G.	Sandersville.	San Diego & Arizona.	San Diego & Cuyamaca.
Stay bolts broken.....	134	4	1	1					2		13				
Rigid bolts leaking ¹	4		1												
Flexible bolts leaking ¹	3										1				
Telltails closed ¹	5														
Telltails stopped up ¹	28										3			1	
Stay bolts not drilled ¹	4				1	5				2	1				3
Crown sheet leaking.....	1										2				
Other sheets leaking.....	8		1	1							3				
Fire-box sheets bulged.....													1		
Flues leaking ¹	8							1			5				
Flues plugged.....	4			4			4				18				
Arch flues leaking ¹															
Arch plugs leaking ¹	1										2				
Possible plug leaking.....											1				
Barrel leaking.....	3														
Dome leaking.....	3								2						
Throat sheet leaking.....	2							1			1				
Mud ring leaking.....	5														
Blow-off cock leaking.....	7										4				
Washout plugs leaking ¹	5	1													1
Safety valve missing.....			1												
Safety valve stuck.....															
Safety valve leaking.....	1														
Gage location improper.....															
Gage incorrect.....	1														
Dial glass missing.....	1								1		1				
Siphon wrongly applied.....	9		1	3					2		3				2
Siphon leaking.....	13										1				
Gage cocks wrongly located.....															
Gage cocks stopped up.....	2								3						3
Gage cocks inoperative.....	23						1		4		2				
Gage cocks blowing.....	17										3				
Gage-cock handle defective.....				2											
Gage-cock drip defective.....				2											
Drip pipe missing.....	1														
Nipples defective or missing.....															1
Water glass missing.....			1				1		1				2		
Water glass stopped up.....															1
Water-glass cocks defective.....	6								1		2				1
Water-glass cock handle defective.....	1														
Water-glass blow-off cock defective.....	7														
Water-glass tube broken.....											2				
Lamp missing.....									1					1	
Water-glass shield missing.....		1		4				2	2		2				1
Water-glass shield defective.....	85	1									1				
Water glass improperly located.....															
Lubricator shields missing.....	13		1	4		2	1	2	2	1	14	1			1
Lubricator shields defective.....															
Injector inoperative.....	1					1									
Injector tank valve defective.....									1						
Injector tank hose defective.....	2					1					1	1			
Injector feed pipe defective.....	1										1				
Injector throttle defective.....	6										2				
Injector steam pipe defective.....	3								3						
Injector delivery pipe defective.....	1								1			1			
Injector boiler check defective.....	9								1						
Cab card missing.....	3		1						3	2		1	4		4
Badge plate missing.....	41	1	1	2	2		1	2	3	2	5	2	2	2	1
Fire-box plug not secured.....			3								3				3
Water-glass drip missing.....	3						1		1						
Water-glass drip defective.....	4														
Water-glass drip wrongly located.....															
Gage-cock drip improperly located.....															
Fire-box sheets corroded.....	1														
Fire hose defective.....															
Unclassified steam leaks.....	47	1					3	3	6	1					4
Number of defects.....	527	9	10	24	3	9	12	10	41	8	109	10	7	3	32
Locomotives owned.....	294	4	1	17	5	3	4	4	3	3	81	8	2	2	12
Locomotives inspected.....	288	3	1	13	5	8	4	3	3	3	72	4	1	1	4
Locomotives defective.....	226	2	1	10	3	6	1	3	3	2	38	4	1	1	4
Locomotives ordered from service.....	5	0	0	0	0	2	0	0	1	0	2	1	0	0	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	San Diego & E. E.	San Diego South-ern.	Sandy Riv. & Rang. Lakes.	Samford & Ever-plades.	San Pedro, L. A. & S. L.	Santa Fe, Pres-ent & P.	Santa Fe, Raton & East.	Savannah & Statesboro.	Sawyer & Austin.	Schobarie Valley.	Seaboard Air Line.	Semut-Solway.	Sewell Valley.	Shannon Arizona.	Sharon Steel Hoop Wa.
Stay bolts broken.....	2	.....	1	3	339	14	7	3	.....	.....	274	.....	.....	.....	.....
Rigid bolts leaking 1.....	1	.....	.....	.....	52	2	1	.....	.....	.....	6	.....	.....	.....	.....
Flexible bolts leaking 1.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	5	.....	.....	.....	.....
Telltals closed 1.....	.....	.....	.....	.....	16	10	.....	.....	.....	.....	21	.....	.....	.....	.....
Telltals stopped up 1.....	1	1	.....	.....	122	14	1	1	.....	.....	82	.....	.....	1	.....
Stay bolts not drilled 1.....	.....	3	.....	.....	59	9	.....	.....	.....	.....	2	.....	.....	.....	.....
Crown sheet leaking.....	1	.....	.....	.....	28	2	.....	.....	.....	.....	5	.....	.....	.....	.....
Other sheets leaking.....	1	1	.....	.....	75	3	.....	2	.....	.....	35	.....	.....	.....	.....
Fire-box sheets bulged.....	.....	2	.....	.....	41	4	.....	.....	.....	.....	3	.....	.....	.....	.....
Flues leaking 1.....	2	.....	.....	.....	48	1	.....	.....	1	.....	28	.....	.....	1	.....
Flues plugged.....	.....	.....	.....	.....	96	7	.....	.....	1	.....	09	.....	.....	.....	.....
Arch flues leaking 1.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	2	.....	.....	.....	.....
Arch plugs leaking 1.....	.....	.....	.....	.....	3	1	.....	.....	.....	.....	17	.....	.....	.....	.....
Fusible plug leaking.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Barrel leaking.....	.....	.....	.....	.....	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dome leaking.....	.....	.....	.....	.....	9	.....	.....	.....	.....	.....	11	.....	.....	.....	.....
Throat sheet leaking.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mud ring leaking.....	1	.....	.....	.....	52	.....	.....	.....	.....	.....	14	.....	.....	.....	.....
Blow-off cock leaking.....	.....	.....	.....	.....	13	.....	.....	.....	.....	.....	5	.....	.....	.....	.....
Washout plugs leaking 1.....	1	.....	.....	.....	18	2	.....	.....	.....	.....	15	.....	.....	.....	.....
Safety valve missing.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Safety valve stuck.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Safety valve leaking.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
Gage location improper.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gage incorrect.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
Dial-glass missing.....	.....	.....	.....	.....	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Siphon wrongly applied.....	1	.....	2	1	8	5	.....	1	.....	.....	30	.....	.....	5	.....
Siphon leaking.....	.....	.....	2	.....	19	2	.....	1	.....	.....	6	.....	.....	.....	.....
Gage cocks wrongly located.....	.....	.....	.....	.....	22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gage cocks stopped up.....	.....	.....	.....	.....	5	.....	.....	.....	.....	.....	11	.....	.....	.....	.....
Gage cocks inoperative.....	.....	.....	.....	.....	18	3	1	.....	.....	.....	19	.....	.....	.....	.....
Gage cocks blowing.....	.....	.....	.....	.....	32	1	.....	5	2	.....	45	1	.....	.....	.....
Gage-cock handle defective.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....
Gage-cock drip defective.....	.....	.....	.....	.....	6	.....	.....	.....	.....	.....	8	.....	.....	.....	.....
Drip pipe missing.....	.....	.....	.....	.....	24	.....	.....	1	.....	.....	2	.....	.....	.....	.....
Nipples defective or missing.....	.....	.....	.....	.....	47	5	.....	2	.....	.....	10	.....	.....	.....	.....
Water glass missing.....	.....	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....
Water glass stopped up.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8	.....	.....	.....	.....
Water-glass cocks defective.....	1	.....	.....	.....	13	2	1	.....	.....	1	24	.....	.....	.....	.....
Water-glass cock handle defective.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	2	.....	.....	.....	.....
Water-glass blow-off cock defective.....	.....	.....	1	.....	9	2	.....	.....	.....	.....	47	.....	.....	1	.....
Water-glass tube broken.....	.....	.....	.....	.....	3	.....	.....	7	.....	.....	2	1	1	.....	.....
Lamp missing.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
Water-glass shield missing.....	.....	.....	.....	.....	5	.....	.....	.....	.....	.....	2	.....	.....	.....	.....
Water-glass shield defective.....	.....	3	5	.....	5	.....	1	.....	.....	.....	3	.....	.....	.....	.....
Water glass improperly located.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lubricator shields missing.....	1	.....	.....	.....	4	.....	.....	.....	1	.....	14	3	.....	2	.....
Lubricator shields defective.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Injector inoperative.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	5	.....	.....	.....	.....
Injector tank valve defective.....	.....	.....	.....	.....	16	.....	.....	.....	.....	.....	8	.....	.....	.....	.....
Injector tank hose defective.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	7	.....	.....	.....	.....
Injector feed pipe defective.....	.....	.....	1	.....	16	.....	.....	.....	.....	.....	8	.....	.....	.....	.....
Injector throttle defective.....	.....	.....	.....	.....	22	3	.....	2	.....	.....	46	.....	.....	.....	.....
Injector steam pipe defective.....	.....	.....	.....	.....	40	2	2	1	.....	.....	15	.....	.....	.....	.....
Injector delivery pipe defective.....	4	.....	.....	.....	3	1	1	.....	.....	.....	2	.....	.....	.....	.....
Injector boiler check defective.....	.....	.....	.....	.....	18	2	.....	.....	.....	.....	6	.....	.....	.....	.....
Cab card missing.....	1	.....	1	.....	23	1	.....	2	2	2	15	1	2	.....	1
Badge plate missing.....	.....	.....	1	.....	16	2	.....	2	2	2	62	3	.....	.....	.....
Fire-box plug not secured.....	.....	.....	.....	.....	.....	28	.....	.....	.....	.....	39	.....	.....	.....	.....
Water-glass drip missing.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Water-glass drip defective.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Water-glass drip wrongly located.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gage-cock drip improperly located.....	.....	.....	.....	.....	8	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fire-box sheets corroded.....	.....	.....	.....	.....	7	2	.....	.....	.....	.....	23	.....	.....	.....	.....
Fire hose defective.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unclassified steam leaks.....	9	.....	1	.....	273	15	7	3	.....	.....	127	.....	.....	.....	.....
Number of defects.....	27	14	17	6	1,690	147	22	38	14	3	1,244	11	9	5	1
Locomotives owned.....	12	12	17	.....	150	26	2	5	.....	2	445	3	3	2	1
Locomotives inspected.....	5	3	13	1	294	26	3	16	2	2	1,030	3	6	2	1
Locomotives defective.....	5	3	9	1	327	25	3	12	2	2	478	3	6	2	1
Locomotives ordered from service.....	0	0	0	0	33	2	1	0	0	0	61	0	0	0	0

1 Number of locomotives reported with this defect.

2 Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Sharpsville.	Shearwood.	Sheffield & Tionesta.	Sibley, L. Bist. & S.	Sierra Ry. of Cal.	Sioux City Terminal.	Skaneateles.	South Buffalo.	South Carolina Western.	South Dakota Central.	S. Ga. Ry. & W. Coast.	Sh. Iron & Equip. Co.	Southern Ry.	Southern Ry. in Miss.	Southern Pacific.
Stay bolts broken	2		6		4	1	1						380		1,544
Rigid bolts leaking ¹											1		7		265
Flexible bolts leaking ¹													2		20
Telltails closed ¹					1								51		775
Telltails stopped up ¹	3				2		3		1	1	3		229		206
Stay bolts not drilled ²													20		129
Crown sheet leaking	1										1		49		196
Other sheets leaking							1						5		395
Fire-box sheets bulged					1								9		258
Flues leaking ¹											1		5		283
Flues plugged					24		20				10		28		1,129
Arch flues leaking ¹													10		1
Arch plugs leaking ¹													4		10
Fusible plug leaking													14		52
Barrel leaking													14		22
Dome leaking				1				1					2		8
Throat sheet leaking									1				2		16
Mud ring leaking	2										1		15		98
Blow-off cock leaking													16		90
Washout plugs leaking ¹	1									2	1		31		152
Safety valve missing															1
Safety valve stuck															20
Safety valve leaking													2		16
Gage location improper													1		38
Gage incorrect													6		12
Dial gage missing													83		305
Siphon wrongly applied	2		1							2	3	1	28		129
Siphon leaking			1										8		16
Gage cocks wrongly located													47		165
Gage cocks stopped up	1		3			1				2			39		200
Gage cocks inoperative									1	3			129		168
Gage cocks blowing	2	1			1					1	1	1	9		17
Gage-cock handle defective			2										9		43
Gage-cock drip defective													3		50
Drip pipe missing													8		34
Nipples defective or missing													3		3
Water glass missing											3		116	8	12
Water glass stopped up			1										10		72
Water-glass cocks defective											1		16		4
Water-glass cock handle defective										2			16		87
Water-glass blow-off cock defective	1						1						134		2
Water-glass tube broken									1				14		5
Lamp missing													3		4
Water-glass shield missing			1	2			3								10
Water-glass shield defective	1						1	4		7			3		156
Water glass improperly located													28	7	72
Lubricator shields missing	1		2	2	5	1	5	1		2	2		107	8	21
Lubricator shields defective	1												9		75
Injector inoperative		1											5		10
Injector tank valve defective									1				11		31
Injector tank hose defective			1										7		165
Injector feed pipe defective													49		65
Injector throttle defective	1		1								1		27		41
Injector steam pipe defective							1				1		13		42
Injector delivery pipe defective													9		249
Injector boiler check defective		1					1						21	4	289
Cab card missing			2				2						67	3	197
Badge plate missing	1										1		24	1	3
Fire-box plug not secured	3										3		1		5
Water-glass drip missing															12
Water-glass drip defective													1		7
Water-glass drip wrongly located															
Gage-cock drip improperly located													1		
Fire-box sheets corroded											1				
Fire hose defective															
Unclassified steam leaks		2			13		2						138		3,112
Number of defects	23	3	24	5	31	3	41	5	3	29	38	3	5,288	44	11,504
Locomotives owned	2	2	3	3	10	4	8	62	4	14	10		1,033	31	1,328
Locomotives inspected	5	1	4	2	8	2	8	0	0	10	7		1,208	31	2,014
Locomotives defective	5	1	3	2	5	2	4	3	0	7	6		1,046	26	1,600
Locomotives ordered from service	1	0	2	0	1	0	0	0	0	1	0		26	0	111

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Southern Utah.	Southwestern.	Spokane International.	Spokane, Port. & Seat.	Standard & Hermandito.	Standard Steel Car Co.	Staten I. Rapid Trans.	Statenville.	Stephenville, N. & S. Tex.	Stirling Mountain.	Stewartstown.	Strasburg.	Stuttgart & Rice Belt.	Sugarland.	Sumpter Valley.
Stay bolts broken.....	6	10	23	14	10	54								1	
Rigid bolts leaking ¹	1							1	1			1			
Flexible bolts leaking ¹			3												
Telltals closed ¹			3	1	2	2		1						2	
Telltals stopped up ¹	1		3					1							
Stay bolts not drilled ²		1	6									1			
Crown sheet leaking.....							1								
Other sheets leaking.....	1	2					2		1			1			
Firebox sheets bulged.....														1	
Flues leaking ¹	1		2				6								
Flues plugged.....			1			3		12	1						
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking.....															
Barrel leaking.....	2		3					2						2	
Dome leaking.....							1								
Throat sheet leaking.....															
Mud ring leaking.....	2						12								
Blow-off cock leaking.....	2														
Washout plugs leaking ¹	1		1				2	1							
Safety valve missing.....															
Safety valve stuck.....															
Safety valve leaking.....															
Gage location improper.....			1												
Gage incorrect.....			1												
Dial-glass missing.....			1				3								
Siphon wrongly applied.....	2		2					1				2		3	1
Siphon leaking.....			3					1							
Gage cocks wrongly located.....			1			1									
Gage cocks stopped up.....		1				2	1								
Gage cocks inoperative.....				7	2			1				5			
Gage cocks blowing.....														1	
Gage-cock handle defective.....															
Gage-cock drip defective.....															
Drip pipe missing.....			6												
Nipples defective or missing.....			36												
Water glass missing.....				1				1				2			
Water glass stopped up.....															
Water-glass cocks defective.....			1				2								
Water-glass cock handle defective.....			1												
Water-glass blow-off cock defective.....			7				2						1		
Water-glass tube broken.....															
Lamp missing.....															
Water-glass shield missing.....														1	1
Water-glass shield defective.....			10			2									
Water glass improperly located.....															
Lubricator shields missing.....	1		1					1	2			2		6	8
Lubricator shields defective.....								1							
Injector inoperative.....	2														
Injector tank valve defective.....															
Injector tank hose defective.....			2												
Injector feed pipe defective.....			2												
Injector throttle defective.....			5				1						1		
Injector steam pipe defective.....			1				3		2						
Injector delivery pipe defective.....	1	1					1								
Injector boiler check defective.....			3				1								
Cab card missing.....	3		1					1			1	2		6	
Badge plate missing.....	3	2	4	2		2	12	2		1					7
Fire-box plug not secured.....													8		
Water-glass drip missing.....			3												
Water-glass drip defective.....							1								
Water-glass drip wrongly located.....															
Gage-cock drip improperly located.....															
Fire-box sheets corroded.....															
Fire hose defective.....															
Unclassified steam leaks.....	3		24				19	3	7						1
Number of defects.....	29	9	15	160	18	24	130	27	14	1	1	26	2	23	18
Locomotives owned.....	4	2	15	98	3	2	42	2	2	2	2	1	2	5	15
Locomotives inspected.....	4	2	10	57	1	2	46	2	2	2	2	1	2	10	11
Locomotives defective.....	3	2	6	45	1	2	37	2	2	1	1	2	1	7	0
Locomotives ordered from service.....	0	0	0	1	1	0	7	1	0	0	0	1	1	1	0

¹ Number of locomotives reported with this defect.² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Sumpter & Choe-taw.	Sunday Creek.	Superior & South-east.	Surrey, Sussex & S.	Susquehanna & Buffalo.	Susquehanna & New York.	Susquehanna, Bloomburg & P.	Susquehanna, Riv. & West.	Swannanoa.	Sylvauga & Wetumpka.	Sylvania & Gl-rard.	Talbotton.	Tal-lasse & Mont-rom.	Tallah Falls.	Tampa & Gulf Coast.
Stay bolts broken				1		2		2							3
Rigid bolts leaking ¹														1	
Flexible bolts leaking ¹															
Tell-tales closed ¹															
Tell-tales stopped up ¹															1
Stay bolts not drilled ²			2		1	5	2								
Crown sheet leaking															
Other sheets leaking											1				
Fire-box sheets bulged			2												
Flues leaking ¹															
Flues plugged															
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking															
Barrel leaking		1				2									
Dome leaking		2													
Throat sheet leaking			1												
Mud ring leaking		1				4									
Blow-off cock leaking						1									
Washout plugs leaking ¹											1				
Safety valve missing	3	1													
Safety valve stuck															
Safety valve leaking															
Gage location improper														1	
Gage incorrect															
Dial-glass missing	1														
Siphon wrongly applied	3	1	1			1		1					3	2	1
Siphon leaking														3	
Gage cocks wrongly located				1										1	
Gage cocks stopped up									1					2	
Gage cocks inoperative										1				2	
Gage cocks blowing		2								1	2				
Gage-cock handle defective															2
Gage-cock drip defective															
Drip pipe missing															
Nipples defective or missing															
Water glass missing	8	2		4		7				1	3	1	3	7	
Water glass stopped up															
Water-glass cocks defective															
Water-glass cock handle defective															
Water-glass blow-off cock defective															
Water-glass tube broken															
Lamp missing							1								
Water-glass shield missing							2		1						
Water-glass shield defective															
Water glass improperly located															
Lubricator shields missing	4	2			1	4							1	1	1
Lubricator shields defective															
Injector inoperative	1						1				1			3	
Injector tank valve defective															
Injector tank hose defective						2									1
Injector feed pipe defective	1					1	2								
Injector throttle defective	2		1			3	1								1
Injector steam pipe defective		1													1
Injector delivery pipe defective					1		2								
Injector boiler check defective						1									
Cab card missing	4	2		4						1	2	1	1		
Badge plate missing	8	1			1	2	2	1	2	1	2	1	2	1	1
Fire-box plug not secured															
Water-glass drip missing															
Water-glass drip defective															
Water-glass drip wrongly located															
Gage-cock drip improperly located															
Fire-box sheets corroded															
Fire hose defective		3		1	1	5	2							3	3
Unclassified steam leaks															
Number of defects	35	19	6	12	5	35	20	4	6	4	14	4	10	25	15
Locomotives owned	0	2	4	14	2	15	9	2	1	7	2	1	1	4	2
Locomotives inspected	9	2	3	4	1	17	10	4	2	1	5	1	3	8	3
Locomotives defective	8	2	3	4	1	13	8	3	2	1	4	1	3	7	1
Locomotives ordered from service	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Tampa & Jacksonville.	Tampa Northern.	Tavares & Gulf.	Tenn. & Cumberland River.	Tenn. & N. C.	Tenn., Ala. & Ga.	Tennessee Central.	Tennessee.	Tenn. R. R. Ass. of St. L.	Texasiana & Ft. Smith.	Texas & Gulf.	Texas & New Orleans.	Texas & Pacific.	Texas Central.	Texas City Terminal.
Stay bolts broken	4	1				1		62	1	2	34	292	19	19	1
Rigid bolts leaking ¹				1						1			15	1	
Flexible bolts leaking ¹													3		
Telltails closed ¹					1		5					4	17	2	
Telltails stopped up ¹		1			1		5	2	1	2	1	13	87	1	
Stay bolts not drilled ²		1											3		
Crown sheet leaking													3		
Other sheets leaking	2						3	10	1				4	22	2
Fire box sheets bulged													1	19	
Flues leaking ¹	2			1	1		3	2	2		1	1	16	2	1
Flues plugged							2		9				65	1	
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking															
Barrel leaking								4					5		
Dome leaking						1		3	1			2	6		
Throat sheet leaking	3											1	3	1	2
Mud ring leaking				1				12					7	1	
Blow-off cock leaking								3				4	24		
Washout plugs leaking ¹	3						5	10	1			2	13	1	
Safety valve missing															
Safety valve stuck															
Safety valve leaking													3		
Gage location improper															
Gage incorrect						1						1	2		
Dial glass missing													1		
Siphon wrongly applied	1	1		1	1	1	3	1	6		1	2	21	1	2
Siphon leaking								4				3	9		
Gage cocks wrongly located													4		
Gage cocks stopped up					1		2					2	3	1	
Gage cocks inoperative	1		1								2	1	3	19	1
Gage cocks blowing				4	2		6	3	2		2	2	41		1
Gage-cock handle defective	1			1								2	2		
Gage-cock drip defective													1		
Drip pipe missing										1					
Nipples defective or missing													6		
Water glass missing	4	1	1	1		3		6					4		
Water glass stopped up					3		1								
Water-glass cocks defective		2										4	16		
Water-glass cock handle defective														1	
Water-glass blow-off cock defective				1			1		1				44		
Water-glass tube broken	2				1		1						1		
Lamp missing															
Water-glass shield missing								1			1		17	2	
Water-glass shield defective							7		8				34		
Water glass improperly located												2			
Lubricator shields missing	3		1	1	1			7	22	1	2	3	54	1	2
Lubricator shields defective							6						1		
Injector inoperative	1				1		1	1				2	1		
Injector tank valve defective													3		
Injector tank hose defective													4		
Injector feed pipe defective								3				2	4		
Injector throttle defective							2					8	17		
Injector steam pipe defective	1	1					1		4	1			3	23	
Injector delivery pipe defective													5		
Injector boiler check defective					1			2	3	2		2	16	3	1
Cab card missing		1	1	1					3			2	22	5	1
Badge plate missing	4						1		15			2	30	1	2
Fire-box plug not secured	3											1	24		
Water-glass drip missing	1						1		1				12		
Water-glass drip defective													1		
Water-glass drip wrongly located															
Gage-cock drip improperly located															
Fire-box sheets corroded															
Fire hose defective															
Unclassified steam leaks	4	3					8	1	26	4		10	162	2	
Number of defects	49	12	4	17	10	4	68	28	231	22	7	130	1,259	49	13
Locomotives owned	4	6	3	1	2	7	32	4	98	2	2	44	300	31	7
Locomotives inspected	8	5	1	3	4	3	19	7	86	3	4	76	343	17	7
Locomotives defective	8	5	1	3	4	3	17	7	61	3	3	53	253	8	4
Locomotives ordered from service	2	0	0	0	0	0	4	1	1	0	0	3	27	7	5

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Texas-Mexican.	Texas Midland.	Texas Short Line.	Texas Southeastern.	Texas State.	Thornton & Alexandria.	Tide water & Western.	Tifton Terminal.	Tioga & Southeastern.	Tionesta Valley.	Timpson & Henderson.	Toledo & Ohio Central.	Toledo, Peoria & West.	Toledo, St. Louis & West.	Toledo Terminal.
Stay bolts broken.....	1	29	12				1					62	21	105	
Rigid bolts leaking ¹		1										6	2	3	
Flexible bolts leaking ¹												3		1	
Telltails closed ¹												1		4	
Telltails stopped up ¹	1	1	2	3			2					3	4	3	
Stay bolts not drilled ²												11	1	16	
Crown sheet leaking.....												9		2	
Other sheets leaking.....												29	2	8	
Fire-box sheets bulged.....	2							1						1	
Flues leaking ¹	4	1												5	
Flues plugged.....	1	3										13	3	13	
Arch flues leaking ¹		3													
Arch plugs leaking ¹															
Fusible plug leaking.....													1		
Barrel leaking.....													2		
Dome leaking.....													6		
Throat sheet leaking.....														2	
Mud ring leaking.....								2		1					
Blow-off cock leaking.....	2									1					
Washout plugs leaking ¹	1	2											31	13	
Safety valve missing.....													36	7	1
Safety valve stuck.....										1					
Safety valve leaking.....															
Gage location improper.....													10		6
Gage incorrect.....								1	1						
Dial glass missing.....															
Siphon wrongly applied.....	2	6						4	2	5			1	2	
Siphon leaking.....	1	1						1					13	1	4
Gage cocks wrongly located.....	1														
Gage cocks stopped up.....	1	1							1				3	1	3
Gage cocks inoperative.....	2	2		1	1			1	1	4			1	1	
Gage cocks blowing.....	3	1						1	1	1			24	1	12
Gage-cock handle defective.....					1			2	2	3			1		1
Gage-cock drip defective.....	1												1		
Drip pipe missing.....	1						1								
Nipples defective or missing.....															
Water glass missing.....								3		7					
Water glass stopped up.....															
Water-glass cocks defective.....													16	2	10
Water-glass cock handle defective.....					1					1					
Water-glass blow-off cock defective.....	1	1	1					2	2	1	1		2	1	7
Water-glass tube broken.....								2							
Lamp missing.....															
Water-glass shield missing.....	1		1			1								1	
Water-glass shield defective.....	2		1							1					3
Water glass improperly located.....															
Lubricator shields missing.....	1	4	1				3	3		7			7	3	2
Lubricator shields defective.....													4		4
Injector inoperative.....			3					2		1			1		
Injector tank valve defective.....										1					
Injector tank hose defective.....	1	1	2	1			1		2				11		1
Injector feed pipe defective.....				1									6		
Injector throttle defective.....			1	2	1			1		1			21		6
Injector steam pipe defective.....	3	1						1					15		2
Injector delivery pipe defective.....			1		1								4	1	
Injector boiler check defective.....										1			16		3
Cab card missing.....	7		2	1	1	1	2	2		1	1		4		
Badge plate missing.....	7	1	1					4		2			29	1	27
Fire-box plug not secured.....															4
Water-glass drip missing.....						1	1								
Water-glass drip defective.....															
Water-glass drip wrongly located.....															
Gage-cock drip improperly located.....															
Fire-box sheets corroded.....															
Fire hose defective.....															
Unclassified steam leaks.....	6	7		1	2			3	2	3			97	2	15
Number of defects.....	25	72	45	11	9	6	9	37	11	46	2	509	53	327	4
Locomotives owned.....	12	17	2	4	2	4	8	4	5	13	1	126	29	106	11
Locomotives inspected.....	13	26	5	4	2	6	10	5	2	19	1	249	26	141	15
Locomotives defective.....	9	15	5	4	1	1	9	7	2	19	1	141	16	96	2
Locomotives ordered from service.....	0	3	2	0	0	0	0	0	1	0	0	2	1	0	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Tombigbee Valley.	Tonopah & Tule-water.	Tooele Valley.	Toronto, Ham. & Buffalo.	Trinity & Brazos Val.	Trinity Val. Southern.	Tuckerton.	Tuscarora Valley.	Tyrone & St. Fran. Riv.	Utah.	Uster & Delaware.	Unadilla Valley.	Unicoi.	Union & Glenn Springs.	Union R. R.
Stay bolts broken	83	1			5		3			3	6			1	10
Rigid bolts leaking ¹															
Flexible bolts leaking ¹															
Telltails closed ¹		1									1			1	
Telltails stopped up ¹		3		1	5		4			2	2			3	4
Stay bolts not drilled ²			3					1							
Crown sheet leaking										2					
Other sheets leaking	1				3						1				
Fire-box sheets bulged	5				1					9					
Flues leaking ¹				1					1		2				2
Flues plugged	5				1	9		1		2			4		
Arch flues leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking															
Barrel leaking										1	1				
Dome leaking															
Throat sheet leaking															1
Mud ring leaking							1								4
Blow-off cock leaking					2		1								
Washout plugs leaking ¹	1				1									2	
Safety valve missing									2						
Safety valve stuck															
Safety valve leaking															
Gage location improper															
Gage incorrect											1				
Dial glass missing															
Siphon wrongly applied	1						2	1	2				2		
Siphon leaking		1			1		1			2	1			1	
Gage cocks wrongly located															
Gage cocks stopped up						2								1	
Gage cocks inoperative					1										
Gage cocks blowing					2		1	2	1	2			1		2
Gage-cock handle defective									2						
Gage-cock drip defective															
Drip pipe missing					1				1	3					
Nipples defective or missing		3													
Water glass missing	2							1		10					
Water glass stopped up															
Water-glass cocks defective											4			1	4
Water-glass cock handle defective														1	
Water-glass blow-off cock defective														1	1
Water-glass tube broken							1				1			3	1
Lamp missing														2	
Water-glass shield missing						1							4		
Water-glass shield defective					1									1	
Water glass improperly located										1					
Lubricator shields missing	1						6	4					2		1
Lubricator shields defective															
Injector inoperative										1					
Injector tank valve defective	2	2													
Injector tank hose defective														3	
Injector feed pipe defective														1	2
Injector throttle defective		1								3	1			1	1
Injector steam pipe defective										2				1	1
Injector delivery pipe defective								1				1		1	1
Injector boiler check defective												1			1
Cab card missing	1					1						1	2	2	2
Badge plate missing	2		3		1		2	1	2	2					1
Fire-box plug not secured		5													
Water-glass drip missing									2	6					
Water-glass drip defective															
Water-glass drip wrongly located															
Gage-cock drip improperly located															
Fire-box sheets corroded	1														
Fire hose defective															
Unclassified steam leaks		4			2			1		24	1	1		1	4
Number of defects	105	21	6	2	27	14	22	13	17	85	18	3	16	27	41
Locomotives owned	8	2	26	59	1	3	0		11	29	2	2	2	2	118
Locomotives inspected	7	3	4	24	2	9	5	2	10	24	1	4	9	15	
Locomotives defective	7	3	1	9	1	8	5	2	9	9	1	4	7	12	
Locomotives ordered from service	2	2	0	0	1	1	0	0	0	0	0	0	1	0	4

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Union Ry. (Memphis).	Union Carbide Co.	Union Pacific.	Union Stock Yards Co.	Union Trans. Co.	United Verde & Pac.	Upper Merion & Plym.	Ursina & North Fork.	Valdosta, Mount. & W.	Valley.	Valley Connecting.	Vandalia.	Va. & Carolina So.	Va. & Ky.	Va. Southwestern.
Stay bolts broken			1,100	50		5						58			33
Rigid bolts leaking ¹			52									1			1
Flexible bolts leaking ¹			15									1			
Telltale closed ¹			29												12
Telltale stopped up ¹			250	3		3						10	1		18
Stay bolts not drilled ²			16		3			1				37			1
Crown sheet leaking			49	1		2						4			1
Other sheets leaking			142				2					9			3
Fire-box sheets bulged			18									1	2		
Flues leaking ¹	1		28	1	1	1						5			3
Flues plugged			108	36											
Arch flues leaking ¹			1												
Arch plugs leaking ¹			12												
Fusible plug leaking			1			2									
Barrel leaking			41			1						1			2
Dome leaking			26			1							1	1	
Throat sheet leaking			22									1			1
Mud ring leaking			38			1						9	1		1
Blow-off cock leaking			31									6			2
Washout plugs leaking ¹			77		2	2						8			4
Safety valve missing															
Safety valve stuck															
Safety valve leaking			8									5			1
Gage location improper															
Gage incorrect			1												
Dial glass missing			9												
Siphon wrongly applied			2					1				4	1	2	
Siphon leaking			43												
Gage cocks wrongly located	1		29												
Gage cocks stopped up			37												
Gage cocks inoperative			161	1	1										1
Gage cocks blowing	3		163					3	2			28		1	24
Gage-cock handle defective			6												
Gage-cock drip defective			13										1		
Drip pipe missing			17												
Nipples defective or missing			1			3									
Water glass missing					2		2	1	2						15
Water glass stopped up			2										1		
Water-glass cocks defective	1		33			1						3			
Water-glass cock handle defective			1												
Water-glass blow-off cock defective	1		26			2						2	2		1
Water-glass tube broken									1						
Lamp missing															
Water-glass shield missing				1								13	1		
Water-glass shield defective	2														
Water glass improperly located	1		5									3			
Lubricator shields missing			42		3	2	2	1		1		25	2	1	
Lubricator shields defective	1		25									3			
Injector inoperative			10										1		3
Injector tank valve defective			14										1		
Injector tank hose defective			39					1						1	
Injector feed pipe defective			17		1				1	1		1			
Injector throttle defective	1		116					1				10	2		3
Injector steam pipe defective	1		32						1			1	1	1	2
Injector delivery pipe defective			21									4			3
Injector boiler check defective			39			1						2			
Cab card missing	1	2	40												
Badge plate missing			158	1	4		2	1	2		2	33	2		2
Fire-box plug not secured			14		1	2		1		1		4			
Water-glass drip missing			9			2									
Water-glass drip defective			2												
Water-glass drip wrongly located															
Gage-cock drip improperly located			2												
Fire-box sheets corroded			30												
Fire hose defective								1	1	1				1	2
Unclassified steam leaks	4		640	4	12	2		1	1	1		48	1	1	2
Number of defects	18	2	3,857	98	30	33	8	11	11	6	2	343	23	8	138
Locomotives owned	4	1	768	12	3	8		2	2	4	2	234	4	1	29
Locomotives inspected	11	2	1,965	29	9	30	2	1	4	1	2	191	7	2	54
Locomotives defective	7	2	795	14	9	4	2	1	3	1	2	154	6	2	43
Locomotives ordered from service	0	0	64	1	0	1	0	0	0	0	0	0	0	0	3

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Va. & Truckee.	Va.-Carolina.	Virginian.	Wabash.	Wabash, Chester & W.	Wabash-Pittsburg Term.	Wadley Southern.	Ware Shoals.	Warren & Onuch-Ha Val.	Warren, Johnson & S. Riv.	Warrenton.	Washington & Cheocaw.	Washington, Pot. & Ches.	Washington Run.	Washington Southern.	
Stay bolts broken		1	24	560	1		7									1
Rigid bolts leaking ¹			3	26												
Flexible bolts leaking ¹				8												
Telltails closed ¹	1			14												
Telltails stopped up ¹			15	109		2										9
Stay bolts not drilled ²	1	1	2	53		3	3		1							1
Crown sheet leaking	1		1	24												
Other sheets leaking		1	3	58		1										1
Fire-box sheets bulged				9												
Flues leaking ¹			5	10		1			1							
Flues plugged			13	214								7				
Arch flues leaking ¹				9												
Arch plugs leaking ¹			1													
Fusible plug leaking				18								1				
Barrel leaking			1	16		1										
Throat sheet leaking				21												
Mud ring leaking			3	17		1										
Blow-off cock leaking			4	32									1			
Washout plugs leaking ¹	1			85		1	1									3
Safety valve missing																
Safety valve stuck	2															
Safety valve leaking				5												
Gage location improper																
Gage incorrect				1												
Dial-glass missing				4												
Siphon wrongly applied					1	3							1			
Siphon leaking				8												2
Gage cocks wrongly located				2												
Gage cocks stopped up		3		14												1
Gage cocks inoperative		2		12		1										
Gage cocks blowing		14		50												7
Gage-cock handle defective				4						1						
Gage-cock drip defective		2		4												
Drip pipe missing	1			22												
Nipples defective or missing				5												
Water glass missing								1				1				11
Water glass stopped up				3												
Water-glass cocks defective		2		15		1										
Water-glass cock handle defective				1												
Water-glass blow-off cock defective				24	1											
Water-glass tube broken				2								1				
Lamp missing																
Water-glass shield missing				46	1											
Water-glass shield defective				81					3							
Water glass improperly located				1												
Lubricator shields missing	1	1		157	1	4		1		1	1	1		1	1	1
Lubricator shields defective				31												
Injector inoperative				15												
Injector tank valve defective																
Injector tank hose defective	1			7		1						1				
Injector feed pipe defective			1	17												
Injector throttle defective			7	33		2										
Injector steam pipe defective			5	55					2							
Injector delivery pipe defective			1	10		1			1							
Injector boiler check defective			3	18		1										1
Cab card missing		1	13	57		1			3	1		1				
Badge plate missing			4	77								1				1
Fire-box plug not secured	7			47												
Water-glass drip missing		1		21												
Water-glass drip defective			1	2												
Water-glass drip wrongly located				1												
Gage-cock drip improperly located				1												
Fire-box sheets corroded				42												
Fire hose defective																
Unclassified steam leaks	8		8	238	1	4							1	1		9
Number of defects	24	6	141	2,416	7	28	11	2	11	3	1	14	3	3		48
Locomotives owned	10	3	82	645	6	17	4	1	3	3	1	4	1	1		10
Locomotives inspected	14	8	124	765	3	9	5	1	4	1	1	3	1	1		19
Locomotives defective	11	4	70	555	2	9	4	1	4	1	1	3	1	1		17
Locomotives ordered from service	1	0	6	66	0	1	0	0	0	0	0	1	0	0		0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Waterloo, C. Falls & N.	Waukegan & Miss. Val.	Waupaca - Green Bay.	Waucross & Southern.	Waycross - West-ern.	Waynesburg & Wash.	Weatherford, M. W & N. W.	Wellington & Powellsv.	West-ern Alle-gheny.	West-ern Mary-land.	Western Pacific.	West Virginia & So.	West Va. Mid-land.	West Va. North-ern.	Wharton & North-ern.
Stay bolts broken		5	4				1	1	3	93	398				4
Rigid bolts leaking ¹										5	16				
Flexible bolts leaking ¹										4					
Telltails closed ¹										21					
Telltails stopped up ¹			1	2		2	1	2		39	66				1
Stay bolts not drilled ²										18	8	1			1
Crown sheet leaking.			1		1					2	5				
Other sheets leaking.			1							1	32				
Firebox sheets bulged.										1	2				
Fines leaking ¹					1					1	14	1			
Fines plugged					5			6	4	3	55				2
Arch fines leaking ¹															
Arch plugs leaking ¹															
Fusible plug leaking											7				
Barrel leaking		1								8			1		
Dome leaking										5					
Throat sheet leaking				1	1						1				
Mud ring leaking			2			1			2	10	16				
Blow-off cock leaking.					1				1	2	31	1			1
Washout plugs leaking ¹					1				1	18	13			1	1
Safety valve missing													2		
Safety valve stuck															
Safety valve leaking.						2				4					
Gage location improper.											45				
Gage incorrect.										3					
Dial glass missing										4					
Siphon wrongly applied.	2			1		1	1	1	2	5	2		6		
Siphon leaking						1	1			24	10				
Gage cocks wrongly located											12				
Gage cocks stopped up											8				
Gage cocks inoperative											24				
Gage cocks blowing.							1	1		30	16				2
Gage-cock handle defective.	2										2				
Gage-cock drip defective.											3				
Drip pipe missing.											8				
Nipples defective or missing.											33				
Water glass missing.					3			3		40		2	3	1	1
Water glass stopped up.										2					
Water-glass cocks defective										1	20				
Water-glass cock handle defective.											1				
Water-glass blow-off cock defective.			4			2	2			5	29				
Water-glass tube broken.				2									1		
Lamp missing.											1				
Water-glass shield missing.	6					1				3	4				
Water-glass shield defective.		1								2	1				
Water glass improperly located.															
Lubricator shields missing.	6		3	1	2	3		4	2	21	1	2	3		2
Lubricator shields defective.															
Injector inoperative.											3				
Injector tank valve defective			1								1				
Injector tank hose defective							1		1		2				1
Injector feed pipe defective.			1		2						7				1
Injector throttle defective.									2	19	21				
Injector steam pipe defective.					1			1	1	9	19	3			1
Injector delivery pipe defective.										3	3	2			
Injector boiler check defective.								1	10		28				
Cab card missing.	3		4	1				7		1	25	1	4		1
Badge plate missing.	6	1	1	1	2			5	2	22	10	2			2
Fire-box plug not secured.											23				
Water-glass drip missing											4				
Water-glass drip defective.											2				
Water-glass drip wrongly located.															
Gage-cock drip improperly located.											4				
Fire-box sheets corroded.				2	1										
Fire hose defective															
Unclassified steam leaks.		2		2	2	3			10	70	183	2		1	2
Number of defects	25	8	19	15	22	18	8	33	37	522	1,264	17	20	3	23
Locomotives owned	6	2	2	5	2	6	3	4	6	182	115	2	6	3	3
Locomotives inspected	6	1	4	3	3	15	7	7	8	230	251	2	17	1	6
Locomotives defective	6	1	4	3	3	8	4	7	5	157	216	2	9	1	5
Locomotives ordered from service.	0	1	0	0	0	0	0	0	3	1	30	0	1	0	2

¹ Number of locomotives reported with this defect.
² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Wheeling & Lake Erie.	Wheeling Terminal.	White Deer & Logan.	White Deer Lumber Co.	White Oak.	Wichita Falls & N.-W.	Wichita Valley.	Wiggins Ferry.	Williams, H. D., Co.	Williams & N. Branch.	Winifrede.	Winston-Salem S. Bond.	Wisconsin, W. & F.	Wise Terminal.	Woodstock.
Stay bolts broken	121	11				13	5	2		2	4	1			
Rigid bolts leaking	1					3									
Flexible bolts leaking	1					3									
Telltails closed	26	1					2								
Telltails stopped up	7	1				7	3	5					1		
Stay bolts not drilled	3		2	2						2					
Crown sheet leaking	5					2				2					
Other sheets leaking	8					3		5							
Firebox sheets bulged	3					2									
Flues leaking	6				1	1									
Flues plugged	27					9									
Arch flues leaking											2				
Arch plugs leaking															
Fusible plug leaking.															
Barrel leaking	4														
Dome leaking	10							2							
Throat sheet leaking	3					2									
Mud ring leaking	16					4									
Blow-off cock leaking	8				1	5	1								
Washout plugs leaking	19					3		2							
Safety valve missing			2	3					2						
Safety valve stuck															
Safety valve leaking	6						1								
Gage location improper.															
Gage incorrect.															
Dial-glass missing							1	1							
Siphon wrongly applied			1		1		6	1	1	2	1			1	
Siphon leaking	3					1		2							
Gage cocks wrongly located															
Gage cocks stopped up	2													1	
Gage cocks inoperative	1					6	3					1			
Gage cocks blowing	14	1		3		1							6		
Gage-cock handle defective				1										1	
Gage-cock drip defective															
Drip pipe missing						1	1								
Nipples defective or missing															
Water glass missing										2	1		3		
Water-glass stopped up															
Water-glass cocks defective	5	1		2		3		2							
Water-glass cock handle defective	1														
Water-glass blow-off cock defective	6			1		1	1					3			
Water-glass tube broken															
Lamp missing															
Water-glass shield missing	9		2	3			2								
Water-glass shield defective															
Water glass improperly located									3			1			1
Lubricator shields missing	22	2		3	2		2	4	1	3	3			2	
Lubricator shields defective															
Injector inoperative	1														
Injector tank valve defective															
Injector tank hose defective	12														
Injector feed pipe defective	3					1									
Injector throttle defective	16	2				2						1			
Injector steam pipe defective	2					1						1			
Injector delivery pipe defective	4	2				1								1	
Injector boiler check defective	1					1									
Cab card missing	3						1								
Badge plate missing	16		2	2	1		2	4		3	1	1	2		1
Fire-box plug not secured							4								
Water-glass drip missing						1									
Water-glass drip defective															
Water-glass drip wrongly located															
Gage-cock drip improperly located															
Fire-box sheets corroded															
Fire hose defective															
Unclassified steam leaks	71	4	4	3		20	2	3		1	2	2	2	2	
Number of defects	466	25	13	23	6	92	39	35	7	18	14	12	14	8	2
Locomotives owned	199	6	2	2	2	21	16	23		5	3	6	7	1	3
Locomotives inspected	286	11	2	3	3	28	16	10	3	7	3	9	4	3	1
Locomotives defective	155	8	2	3	3	22	10	8	3	7	3	7	4	3	1
Locomotives ordered from service	15	1	0	0	0	0	0	0	0	0	0	0	0	0	0

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

Defects.	Woodville.	Woodworth & La. Cent.	Wrightsv. & Tennille.	Wyandotte & S.-E.	Wyoming & N. W.	Yazoo & Miss. Valley.	Yosemite Valley.	Youngstown & Ohio Riv.	Yreka.	Zanesville & Western.	Zwolle & Eastern.	Total defects.
Stay bolts broken.....			1		7					1		31,156
Rigid bolts leaking ¹										1		1,816
Flexible bolts leaking ¹												456
Telltails closed ¹					1							1,828
Telltails stopped up ¹						9	3					7,771
Stay bolts not drilled ²												2,476
Crown sheet leaking.....												1,591
Other sheets leaking.....						1						4,434
Fire-box sheets bulged.....							2		3			1,160
Flues leaking ¹					1					1		2,271
Flues plugged.....	1					4						6,579
Arch flues leaking ¹												32
Arch plugs leaking ¹												826
Fusible plug leaking.....												88
Barrel leaking.....										2		1,221
Dome leaking.....										3		1,305
Throat sheet leaking.....												774
Mud ring leaking.....												2,844
Blow-off cock leaking.....						2				1		2,975
Washout plugs leaking ¹						1				2		4,790
Safety valve missing.....						1						43
Safety valve stuck.....												9
Safety valve leaking.....										1		680
Gage location improper.....												99
Gage incorrect.....												270
Dial glass missing.....						1						1,088
Siphon wrongly applied.....						20	1					2,811
Siphon leaking.....	1					1				3		2,425
Gage cocks wrongly located.....					1							258
Gage cocks stopped up.....		1				2			1			1,891
Gage cocks inoperative.....	1											2,068
Gage cocks blowing.....			2			8				3		6,085
Gage-cock handle defective.....	1			1								787
Gage-cock drip defective.....									1			411
Drip pipe missing.....					1	1						1,524
Nipples defective or missing.....												837
Water glass missing.....	1		2								1	2,474
Water glass stopped up.....												152
Water-glass cocks defective.....										6		1,722
Water-glass cock handle defective.....												236
Water-glass blow-off cock defective.....	1				1	3						3,276
Water-glass tube broken.....												352
Lamp missing.....												147
Water-glass shield missing.....	1	1		1	15							1,390
Water-glass shield defective.....						10						3,616
Water glass improperly located.....												335
Lubricator shields missing.....		1		1		7			2	5	1	5,197
Lubricator shields defective.....						4						1,678
Injector inoperative.....						2				1		528
Injector tank valve defective.....				1								480
Injector tank hose defective.....					1					1		1,081
Injector feed pipe defective.....										1		1,451
Injector throttle defective.....										2		4,251
Injector steam pipe defective.....						2	1			1		3,113
Injector delivery pipe defective.....										2		1,525
Injector boiler check defective.....										4		1,678
Cab card missing.....	1		1		10			3		7		2,878
Badge plate missing.....	1		1						2	9		6,637
Fire-box plug not secured.....							3					2,525
Water-glass drip missing.....				1		5						1,654
Water-glass drip defective.....						1						304
Water-glass drip wrongly located.....												4
Gage-cock drip improperly located.....												165
Fire-box sheets corroded.....												448
Fire hose defective.....												4
Unclassified steam leaks.....						6			4	23		25,932
Number of defects.....	7	5	5	8	6	123	10	3	13	80	2	173,321
Locomotives owned.....	1	10	1		106	5	3	2	21	3		62,074
Locomotives inspected.....	1	3	1	4	90	4	5	2	34	1		74,234
Locomotives defective.....	1	2	1	3	58	3	3	2	31			48,768
Locomotives ordered from service.....	0	0	0	0	2	0	0	0	1	0		3,377

¹ Number of locomotives reported with this defect.

² Number of locomotives reported with this defect. Also includes stay bolts not properly drilled.

³ Under the boiler-inspection law all locomotives were required to be equipped with water glasses before July 1, 1912.

In the preceding tables the number of locomotives owned has been omitted in a number of cases where the railroad is part of a system; in these instances the number is given under the system with which the road is identified, as follows:

Belt Railway of Chicago, included in Chicago & Western Indiana. Cleveland, Akron & Cincinnati, included in Pennsylvania lines west of Pittsburgh. Colorado Springs & Cripple Creek District, included in Florence & Cripple Creek. Dardanelle, Ola & Southern, included in Rock Island & Dardanelle. Dunkirk, Allegheny Valley & Pittsburgh, included in Lake Shore & Michigan Southern. Evansville & Terre Haute, included in Chicago & Eastern Illinois. Iowa Central, included in Minneapolis & St. Louis. Northern Central and Philadelphia, Baltimore & Washington, included in Pennsylvania Railroad. Raleigh & Southport, included in Raleigh, Charlotte & Southern. St. Louis, Iron Mountain & Southern, included in Missouri Pacific System. Tombigbee Valley, included in Alabama, Tennessee & Northern.

Ordered out of service.—In addition to those shown in the preceding tabulation, there were other locomotives ordered out of service on certain roads upon which no Government inspection had been made, they having been ordered out of service through the office of the chief inspector from information shown on inspection reports filed by the railroads.—These are as follows: Adirondack & St. Lawrence R. R. Co., 3 owned, 1 ordered out of service. Allegheny & South Side Ry. Co., 3 owned, 1 ordered out of service. Arkansas, Oklahoma & Western R. R. Co., 1 ordered out of service. Buckeye Steel Casting Co., 1 ordered out of service. Chicago, Minneapolis & St. Louis R. R. Co., 1 ordered out of service. Detroit Union R. R. Depot & Station Co., 1 ordered out of service. Durham & Charlotte R. R. Co., 4 owned, 2 ordered out of service. Fore River R. R., 3 owned, 1 ordered out of service. Grafton & Upton R. R. Co., 3 owned, 1 ordered out of service. National Lumber Co., 2 ordered out of service. Peoria & Eastern Ry. Co., 77 owned, 1 ordered out of service. Pittsburg & Moon Run R. R. Co., 1 ordered out of service. San Benito & Rio Grande R. R. Co., 1 ordered out of service. Sandy Valley & Elk Horn R. R. Co., 1 ordered out of service.

No defects.—In a number of instances locomotive boilers owned by certain companies were examined and found to be without defects. These companies are not listed in the preceding tables, but are given below, with the number of locomotives owned and inspected.

Alicia Mines, 1 inspected. Ashland & Western Ry. Co., 3 owned, 2 inspected. Carnegie Steel Co., 9 owned, 10 inspected. Hampshire Southern R. R. Co., 3 owned, 1 inspected. La Salle & Bureau County

R. R. Co., 1 owned, 1 inspected. Lima Locomotive Works, 1 owned, 17 inspected. Mountain Central Ry., 5 owned, 4 inspected. Northern Pacific Terminal Co., 11 owned, 7 inspected. Owasco River Ry., 4 owned, 7 inspected. Pascagoula Northern R. R. Co., 4 owned, 2 inspected. Rio Grande & Eagle Pass Ry. Co., 4 owned, 6 inspected. Sardis & Delta R. R. Co., 1 owned, 1 inspected. Scott Lumber Co., 1 inspected. South Manchester R. R. Co., 2 owned, 2 inspected. Tuskegee R. R. Co., 2 owned, 1 inspected. Washington Terminal Co., 10 owned, 3 inspected.

PLATES ILLUSTRATING LOCOMOTIVE
BOILER EXPLOSIONS.

EXPLOSION DUE TO DEFECTIVE DOME. (See Plate I.)

Radial stay boiler. Working steam pressure 145 pounds per square inch. The third course of barrel, on which was located the dome, ruptured and was blown entirely away from the boiler. An examination, after the accident occurred, showed that a crack had opened at the base of the whistle boss on the cast-iron dome cap, and this crack had extended into a flaw in the interior of the casting, thus weakening the cap to such an extent that failure took place, resulting in the rupture of the third course of the barrel.



PLATE I.—Explosion due to defective dome.

EXPLOSION DUE TO DEFECTIVE BRACING OF CROWN SHEET. (See
Plate II.)

Crown bar boiler. Working pressure 160 pounds per square inch. Twelve crown bar braces were defective on account of seven pins missing; four pins broken and one brace broken. Scale was found in the crowfoot holes, where pins should have been, showing that pins had been out for some time. Boiler was blown 222 feet by the explosion.

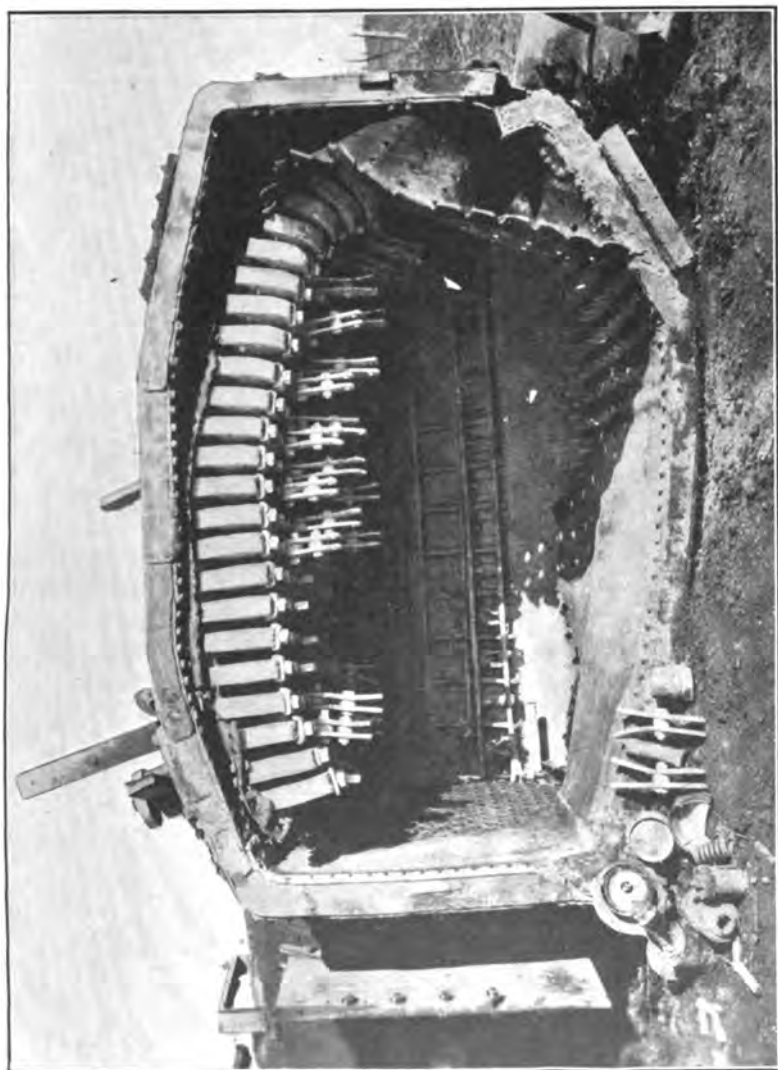


PLATE II.—Explosion due to defective bracing of crown sheet.

EXPLOSION DUE TO LOW WATER. (See Plate III.)

Wooten boiler. Working pressure 180 pounds per square inch. At time of explosion the level of the water was $3\frac{1}{2}$ inches below the highest part of the crown sheet. About 10 months prior to this accident the crown sheet had been overheated on account of low water and the boiler was repaired by renewing a number of radial stays.

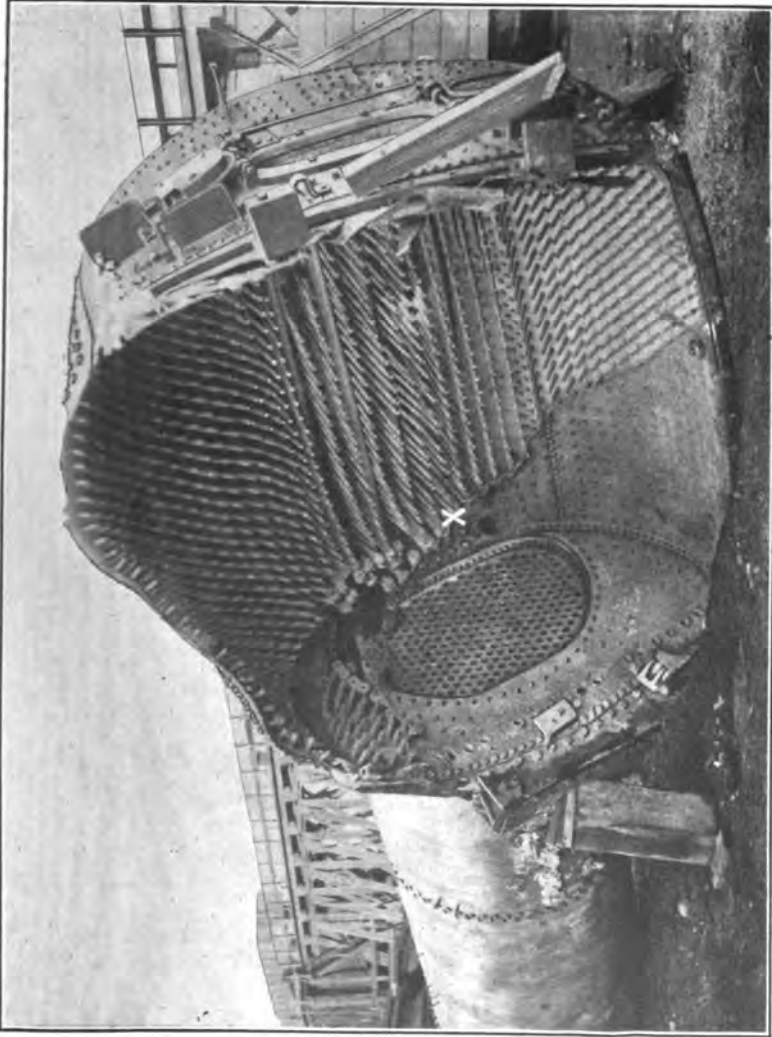


PLATE III.—Explosion due to low water.

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EXPLOSION DUE TO DEFECTIVE BARREL. (See Plate IV.)

Crown bar boiler. Built 1887. Working steam pressure 165 pounds per square inch. In May, 1905, a patch, three-eighths inch thick, 48 inches wide and 118 inches long, was applied to the belly of the boiler. This patch covered the lower portion of three courses of the barrel. Practically the entire barrel was torn from the boiler. The explosion was so violent that a driving-wheel axle was broken and a barrel sheet about 12 by 14 feet, weighing approximately 2,600 pounds, was blown about 1,200 feet from the scene of the explosion. An examination of the large patch indicated that the sheet ruptured along the seam on right side of boiler and also through the line of rivet holes in front flue sheet. The large patch was found to be pitted in a large number of places and grooved along edge of longitudinal seam. The plate was also found to be very brittle.

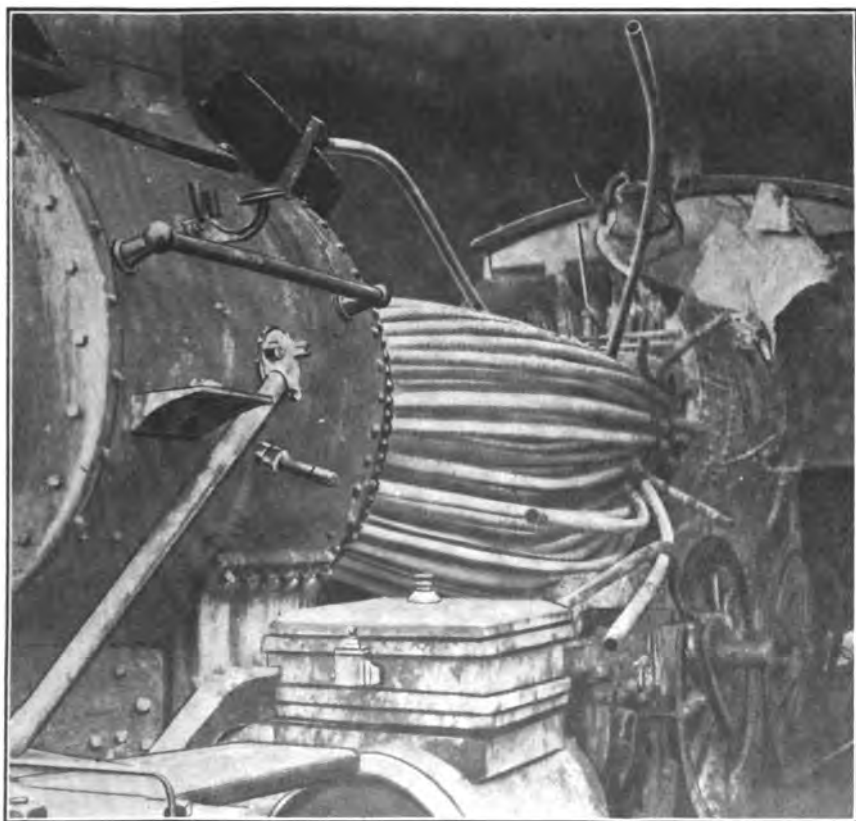


PLATE IV.—Explosion due to defective barrel.

EXPLOSION DUE TO EXCESSIVE PRESSURE. (See Plates V and VI.)

Working steam pressure, 200 pounds per square inch. Crown sheet supported by T bars. Oil used for fuel. Locomotive had just received heavy repairs and steam pressure was being raised preparatory to putting locomotive into service. An employee of the railroad company was engaged in setting the safety valves at the time of the explosion. An examination of the safety valves indicated that the adjusting screws had been screwed down more than five-eighths of an inch, which allowed a steam pressure to accumulate. It is probable that the steam gauge did not indicate the correct pressure. The explosion completely destroyed the locomotive and badly damaged the surrounding buildings. One part of the boiler, weighing about 16,000 pounds, was blown a distance of about 1,200 feet. Another part, weighing about 900 pounds, was blown a distance of about 2,250 feet. Tests made of various parts of the boiler indicated that the steam pressure at the time of explosion must have been greatly in excess of the working pressure.

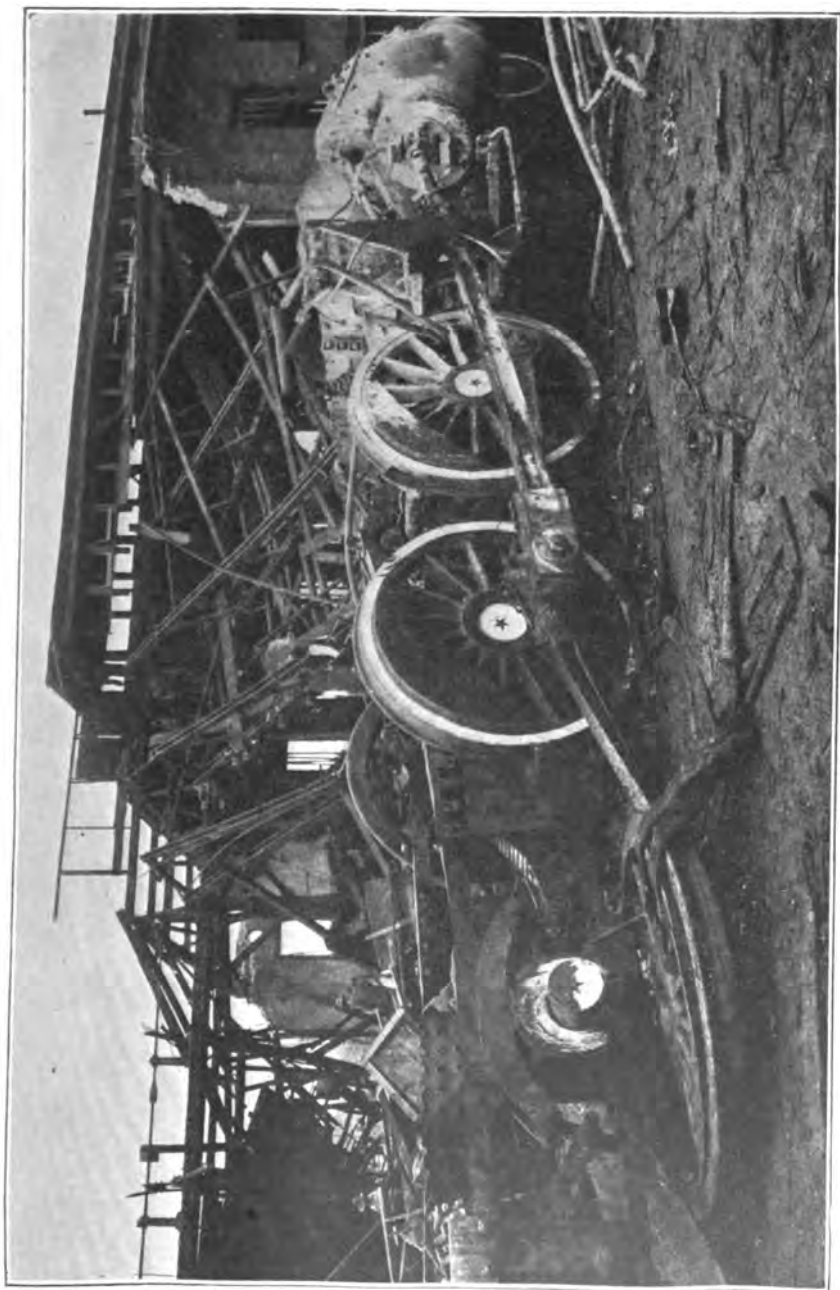


PLATE V.—Explosion due to excessive pressure.

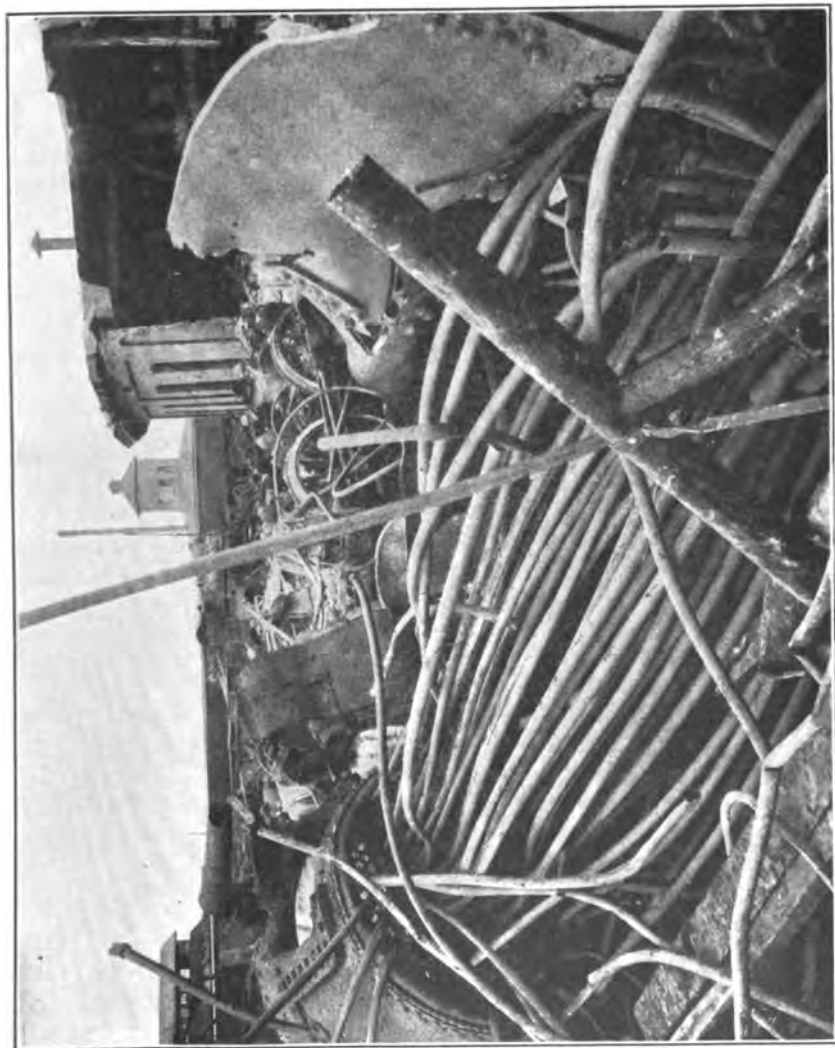


PLATE VI.—Explosion due to excessive pressure.

EXPLOSION DUE TO LOW WATER. (See Plates VII and VIII.)

Radial stay boiler. Steam pressure, 225 pounds to the square inch. The water-glass cocks were shut off just before accident occurred to enable a machinist to repair the water glass. The upper water-glass cock was probably left closed after the repairs were made, as it was found closed immediately after accident occurred. The closing of this cock would cause a false indication of the water level.

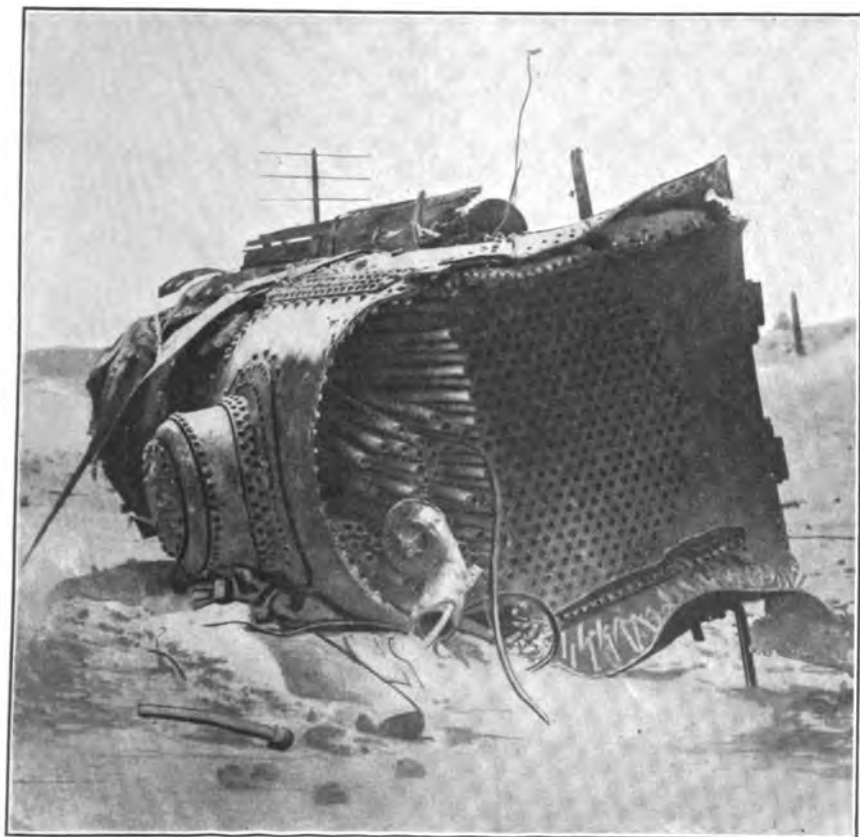


PLATE VII.—Explosion due to low water.



PLATE VIII.—Explosion due to low water.

EXPLOSION DUE TO EXCESSIVE PRESSURE AND DEFECTIVE BARREL.
(See Plate IX.)

Radial stay boiler. Working steam pressure, 165 pounds per square inch. Boiler built in 1887. The plate which failed was applied in 1905 and was three-eighths inch thick. Circumferential seams were single-riveted lap joints. Longitudinal seams were double-riveted lap joints. Locomotive was equipped with two old-style Richardson open-spring safety valves. On day prior to explosion the steam gauge siphon pipe was reported leaking and the safety valves blowing at a pressure exceeding the working pressure. At the time of accident an employee was engaged in setting the safety valves. After the accident occurred the safety valves were tested up to 300 pounds pressure per square inch, but the valves failed to open. The first and second courses of the barrel were ruptured and blown away. An examination of the longitudinal seams of the first course showed that there was an old crack 40 inches long at the edge of seam. The crack was five-sixteenths inch deep for 8 inches and from one-eighth to three-sixteenths inch deep for 32 inches. The explosion was so violent that the front axle of the locomotive was broken.

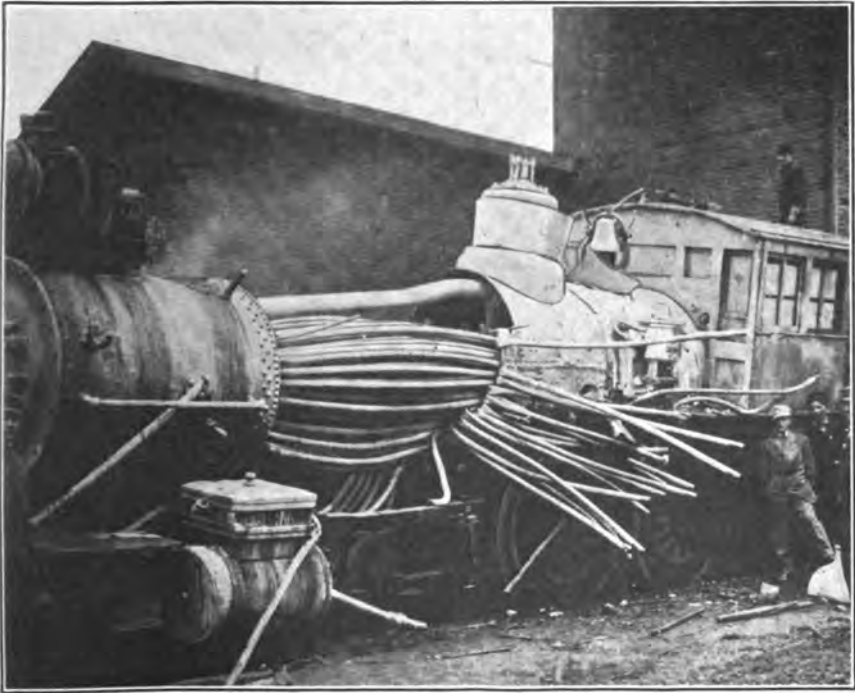
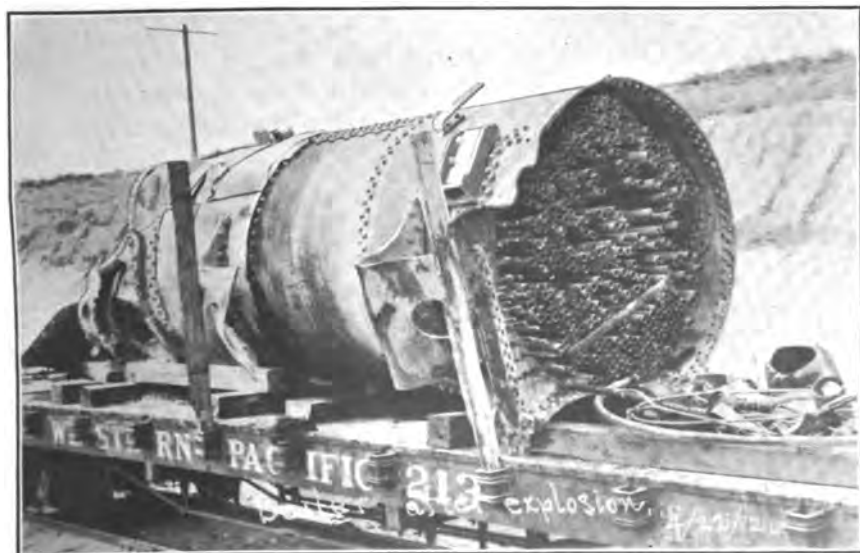
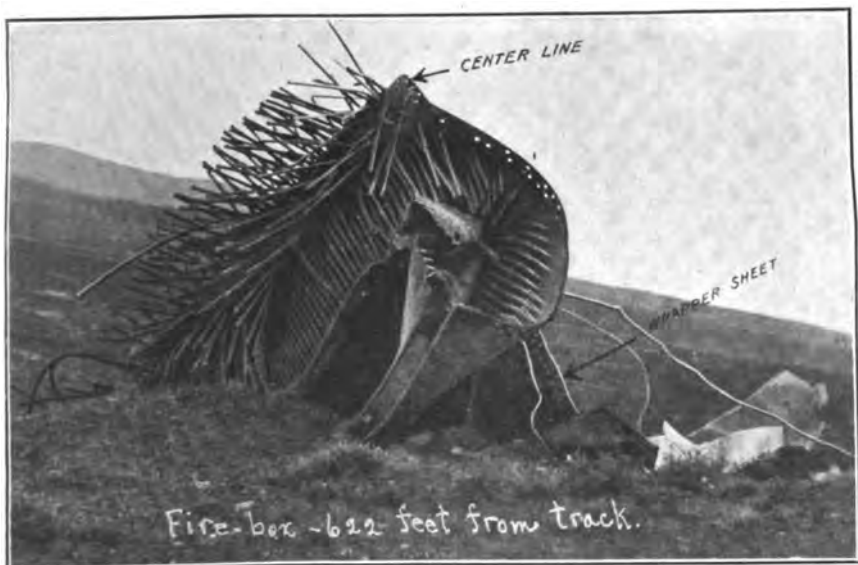


PLATE IX.—Explosion due to excessive pressure and defective barrel.

EXPLOSION CAUSED BY OVERHEATING OF FIREBOX SIDE SHEETS,
DUE TO FOAMING OF WATER. (See Plates X and XI.)

Radial stay boiler. Working steam pressure, 200 pounds per square inch. Safety valves were set without testing steam gauge. Firebox was torn from barrel and the larger part of box was thrown 622 feet from the track. Barrel of boiler was blown 280 feet from point of explosion. Firebox right-side sheet was so hot that it set fire to sage brush after having been blown 150 feet. The water in the boiler was analyzed and pronounced unfit for boiler purposes owing to the large amount of solids.



PLATES X and XI.—Explosion caused by overheating firebox side sheets, due to foaming water.

EXPLOSION DUE TO DEFECTIVE BARREL. (See Plate XII.)

Narrow firebox, radial stay boiler. Diameter of boiler, 52 inches. Working steam pressure, 120 pounds per square inch. Locomotive was equipped with two $2\frac{1}{2}$ -inch old-style Richardson open-spring safety valves. An interior inspection had not been made for seven years. The second course of barrel was ruptured. The upper half of the sheet with the dome was blown 1,000 feet from point of explosion. This sheet was seven-sixteenths inch thick and was badly pitted. The longitudinal seams on either side were double-riveted lap joints. This sheet was cracked at the edge of the longitudinal seams on both right and left side, almost through the sheet. The depth of crack varied from one-fourth to three-eighths inch deep. The sheet was also badly cracked at circumferential seam between the first and second courses.

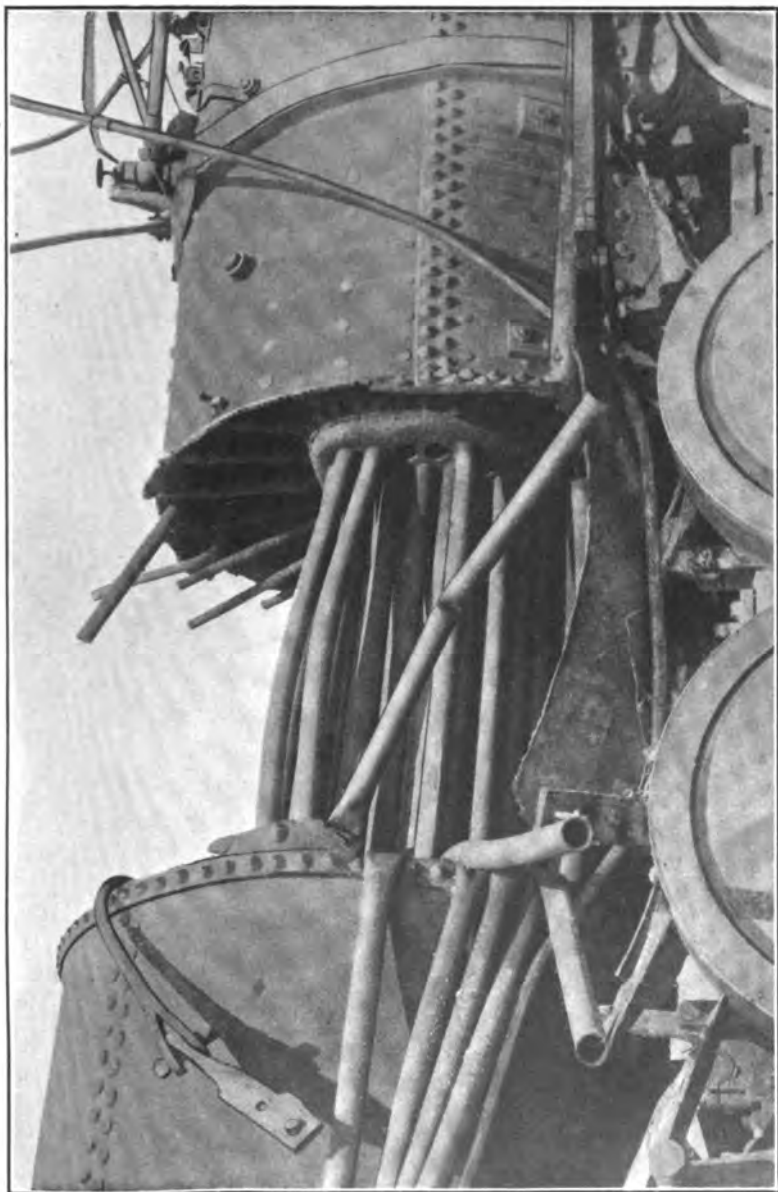


PLATE XII.—Explosion due to defective barrel.

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