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INTERSTATE COMMERCE COMMISSION

FOURTEENTH ANNUAL REPORT
OF THE
CHIEF INSPECTOR
BUREAU OF LOCOMOTIVE INSPECTION
TO THE
INTERSTATE COMMERCE COMMISSION

FISCAL YEAR ENDED
JUNE 30, 1925



WASHINGTON
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1925

ANNUAL REPORT OF THE CHIEF INSPECTOR BUREAU OF LOCOMOTIVE INSPECTION

OCTOBER 1, 1925.

To the Interstate Commerce Commission:

In compliance with section 7 of the act of February 17, 1911, as amended March 4, 1915, and June 7, 1924, the Fourteenth Annual Report of the Chief Inspector covering the work of the Bureau of Locomotive Inspection during the fiscal year ended June 30, 1925, is respectfully submitted.

A synopsis is given, by railroads, of all accidents, showing the number of persons killed and injured due to the failure of parts and appurtenances of the locomotive and tender, including the boiler, as reported and investigated under section 8 of the locomotive inspection law, and those reported to the Bureau of Statistics under the accident report act of May, 1910, and not reported to this bureau as should have been.

The data contained herein cover all defects on all parts and appurtenances of the locomotive and tender, including the boiler, found and reported by our inspectors, arranged by railroads.

The tables show the number of accidents, the number of persons killed and number injured as a result of the failure of parts and appurtenances of the locomotive and tender, including the boiler.

Tables have been arranged so as to permit comparison with previous years as far as consistent and also show the number of locomotives inspected, the number and percentage of those inspected and found defective, the number for which written notices for repairs were issued withholding them from service because of being in violation of the law, and the total defects found and reported.

Number of accidents, number killed, and number injured caused by the failure of some part or appurtenance of the locomotive and tender, including the boiler, by comparison

	Year ended June 30—				
	1925	1924	1923	1922	1921
Number of accidents.....	690	1,005	1,348	622	735
Per cent increase or decrease from previous year.....	31.3	25.5	¹ 117	15.4	12.6
Number of persons killed.....	20	66	72	33	64
Per cent increase or decrease from previous year.....	69.7	8.3	¹ 118	48.4	3
Number of persons injured.....	764	1,157	1,560	709	800
Per cent increase or decrease from previous year.....	33.9	25	¹ 120	11.3	12.6

¹ Increase.

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Number of accidents, number killed, and number injured as a result of the failure of parts and appurtenances of the locomotive boiler to which the original act only applied

	Year ended June 30—				
	1925	1924	1923	1915	1912
Number of accidents.....	274	393	509	424	856
Number of persons killed.....	13	54	47	13	91
Number of persons injured.....	315	447	594	467	1,005

Number of persons killed and injured, classified according to occupations, during the fiscal years 1921-1925, inclusive

	1925		1924		1923		1922		1921	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
Members of train crews:										
Engineers.....	8	230	19	330	19	484	11	213	15	237
Firemen.....	6	300	22	434	16	597	10	277	25	360
Brakemen.....	2	84	9	102	12	137	7	66	13	64
Conductors.....	25	2	39	1	35	25	2	2	20	
Switchmen.....	23	1	29	2	32	1	13	3	15	
Roundhouse and shop employees:										
Boilermakers.....	6	1	24	3	19	1	10	1	7	
Machinists.....	13	1	9	2	14	9	1	1	3	
Foremen.....	1	1	6	1	6	2	1	1	3	
Inspectors.....	2	1	3	2	2	2	2	2	5	
Watchmen.....	1	3	5	1	6	3	3	3	4	
Boiler washers.....	5	2	5	1	9	1	1	1	7	
Hostlers.....	16	1	14	31	10	10	10	10	8	
Other roundhouse and shop employees.....	10	6	34	4	29	1	15	1	25	
Other employees.....	1	13	4	16	4	36	2	23	2	16
Nonemployees.....	2	34	1	107	6	123	41	41	21	
Total.....	20	764	66	1,157	72	1,560	33	709	64	800

Derailments due to defects in or failure of some part of the locomotive or tender, with the number of persons killed and injured as the result of such derailments

	Year ended June 30—				
	1925	1924	1923	1922	1921
Number of derailments.....	22	30	38	22	8
Number of persons killed.....	3	3	4	5	5
Number of persons injured.....	52	112	157	61	30

1 Only derailments reported by carriers as being caused by defect in or failure of parts of the locomotive or tender were investigated or counted.

Accidents and casualties resulting from failures of locomotives and tenders and their appurtenances

Part or appurtenance which caused accident	Year ended June 30—														
	1925			1924			1923			1922			1921		
	Accidents	Killed	Injured	Accidents	Killed	Injured	Accidents	Killed	Injured	Accidents	Killed	Injured	Accidents	Killed	Injured
Air reservoirs.....	4	4	2	2	6	7	3	3	1	1	1	1	1	1	1
Aprons.....	4	4	11	8	11	8	11	11	16	11	16	11	16	11	16
Arch tubes.....	3	5	5	8	11	17	4	5	5	5	5	5	5	5	5
Ash-pan blowers.....	3	3	9	9	19	19	7	7	7	7	7	7	7	7	7
Axles.....	8	24	10	16	6	7	5	17	5	17	5	17	5	17	5
Blow-off cocks.....	13	13	18	18	28	29	16	16	14	16	14	16	14	16	14
Boiler checks.....	8	8	8	8	12	12	4	4	7	4	7	1	7	1	7
Boiler explosions:															
A. Shell explosions.....									1		1				
B. Crown sheet; low water; no contributory causes found.....	9	5	18	20	19	19	24	27	13	15	23	20	19	26	
C. Crown sheet; low water; contributory causes or defects found.....	13	5	22	22	20	37	34	15	56	14	6	27	33	24	52
D. Firebox; defective staybolts, crownstays, or sheets.....	6	2	9	1	3	4	2	5	5	1	5	1	2		
Brakes and brake rigging.....	31	3	33	38	45	27	1	56	10	2	24	6	1	6	
Couplers.....	21	1	20	24	1	27	25	1	27	21	23	11	1	13	
Crank pin, collars, etc.....	8	10	12	13	12	13	12	13	10	6	3	8	4	4	
Crossheads and guides.....	3	3	11	13	10	10	4	4	4	4	4	4	4	4	
Cylinder cocks and rigging.....	3	3	8	8	11	11	3	3	3	3	3	3	3	3	
Cylinder heads and steam chests.....	2	2	8	14	8	8	3	3	3	3	3	3	3	3	6
Dome caps.....	2	3													
Draft appliances.....	4	8	4	5	13	14	6	9	8	1	9	8	1	9	
Draw gear.....	6	6	13	2	11	16	2	16	7	7	8	8	1	8	
Fire doors, levers, etc.....	12	12	16	16	26	26	2	2	2	2	2	2	2	2	8
Flues.....	36	42	41	1	54	44	59	28	32	32	1	35	1	35	
Flue pockets.....	11	11	1	2	2	5	1	1	1	1	1	1	1	1	
Footboards.....	11	11	24	24	36	1	35	11	10	8	3	5			
Gauge cocks.....	2	2													
Grease cups.....	7	7	8	1	7	6	1	6	3	7	7	7	7	7	
Grate shakers.....	57	57	96	97	138	138	49	85	85	85	85	85	85	85	
Handholds.....	13	13	21	1	20	34	2	32	12	1	19	19	20	20	
Headlights and brackets.....	5	5	6	2	4	8	8	2	2	2	2	2	2	2	6
Injectors and connections (not including injector steam pipes).....	20	20	35	1	36	33	33	21	24	15	2	13			
Injector steam pipes.....	12	15	16	20	40	46	9	9	15	17	17	17			
Lubricators and connections.....	16	16	12	12	22	22	9	9	12	12	12	12			
Lubricator glasses.....	6	6	5	5	10	10	3	3	3	3	3	3			
Patch bolts.....	4	4	2	3	3	3	3	3	3	3	3	3			
Pistons and piston rods.....	4	1	4	7	14	1	13	6	3	3	3	3			
Plugs, arch tube and washout.....	5	5	6	17	6	19	19	5	27	12	1	19	15	18	
Plugs in firebox sheets.....	49	49	83	83	100	100	53	53	65	65	65	65			
Reversing gear.....	1	1	7	8	5	8	8	8	8	8	8	8			
Rivets.....	23	1	25	21	1	21	53	3	57	23	27	18	4	5	
Rods, main and side.....	3	3	3	3	3	3	3	3	3	3	3	3			
Safety valves.....	3	3	5	5	4	4	4	4	4	4	4	4			
Sanders.....	25	1	26	19	1	18	25	2	25	10	1	9	3	3	
Side bearings.....	53	53	66	66	67	69	54	54	82	82	82	82			
Springs and spring rigging.....	5	6	2	3	7	8	6	8	8	8	8	8			
Squirt hose.....	5	6	23	1	27	19	19	9	11	9	9	9			
Stay bolts.....	7	8	15	16	1	16	6	6	6	6	6	6			
Steam piping and blowers.....	1	1	4	5	6	8	7	8	7	8	7	7			
Steam valves.....	3	3	4	6	10	15	1	15	3	1	1	1			
Studs.....	1	1	4	5	6	6	7	8	7	8	7	7			
Superheater tubes.....	3	3	4	6	10	15	1	15	3	1	1	1			
Throttle glands.....	1	1	1	1	1	1	1	1	1	1	1	1			
Throttle leaking.....	2	2	8	9	6	6	3	6	3	3	3	3			
Throttle rigging.....	10	10	13	14	19	19	2	19	5	5	5	5			
Trucks, leading, trailing, or tender.....	6	14	17	3	85	25	5	101	11	2	25	6	8		
Valve gear, eccentrics, and rods.....	16	16	27	27	59	2	59	18	18	10	10	10			
Water glasses.....	8	8	14	14	35	35	19	19	25	25	25	25			
Water-glass fittings.....	7	7	10	11	7	7	6	6	2	2	2	2			
Wheels.....	7	10	8	10	10	1	19	8	1	7	4	1	4		
Miscellaneous.....	101	1	101	124	133	170	1	179	61	61	91	2	117		
Total.....	690	20	764	1,005	66	1,157	1,348	72	1,560	622	33	709	735	64	800

INVESTIGATION OF ACCIDENTS

All accidents reported to this bureau as required by section 8 of the law and rules 55 and 162 promulgated thereunder were carefully investigated and report rendered as required and action taken so far as possible under the circumstances, which would tend to prevent recurrences. Copies of such reports were furnished interested parties wherever advisable for the purpose of acquainting them with the conditions disclosed, and in an endeavor to prevent accidents of a similar nature recurring.

A summary of all accidents and casualties to persons occurring during the year ended June 30, 1925, as compared with the previous year, covering the entire locomotive and tender and all of their parts and appurtenances shows a decrease of 31.3 per cent in the number of accidents, a decrease of 69.7 per cent in the number of persons killed, and a decrease of 33.9 per cent in the number injured during the year. There was also a substantial decrease in the percentage of locomotives, inspected by our inspectors, found defective as compared with the previous year. During the year 46 per cent of the locomotives inspected were found with defects or errors in inspection that should have been corrected before being put in use, while during the previous year 53.4 per cent of those inspected were found defective.

While there was a substantial decrease in the total number of accidents occurring during the year, our investigation shows that a still greater decrease should have resulted had the requirements of the law and rules been complied with, especially so with respect to parts and appliances which are sometimes considered unimportant. Especial attention is directed to the reduction in the number of boiler explosions caused by low water during the year. Boiler explosions are the most prolific source of serious and fatal accidents with which we have to deal, therefore, during the course of our regular work special attention has been given to conditions which contribute to such accidents. A great deal of consideration has been given to the action of the water in the boiler and its effect upon the water indicating appliances and the result of our study in this matter has been brought to the attention of those in charge of locomotive maintenance and operation as well as those actually operating locomotives. The reduction in the number of crown-sheet failures as shown is no doubt largely brought about as the result of our study with respect to the circulation of the water in the boiler and its effect upon water glasses and especially upon gauge cocks when screwed directly in the boiler, and to our action in insisting that water indicating appliances and other parts, which may contribute to such accidents, be maintained to a high degree of perfection so that they will perform their functions in a proper manner.

The table on page 3 shows the various parts and appurtenances of the locomotive and tender which through failure have caused serious and fatal accidents which if taken advantage of and proper inspections and repairs are made in accordance with the spirit and intent of the law and rules a large portion of such accidents can be avoided. The graphic chart on page 4 shows the relation between the percentage of defective locomotives and the number of accidents and casualties to persons resulting from failure thereof, and illustrates the effect of operating locomotives in a defective condition from the viewpoint of safety.

AUTOGENOUS WELDING

In our last annual report attention was directed to accidents investigated where welds made by the autogenous process were involved. During the year numerous other accidents of the same or similar nature have occurred, our investigation of which serves to establish the soundness of our recommendation, previously announced, that this process has not yet reached a state of development where it can be safely used on parts of the locomotive or tender where through failure of such parts accident and injury to persons might result. Especial attention is directed to pages 65 and 70.

PROSECUTIONS

Following is a brief summary of cases instituted and those disposed of during the year. Under the style of each case is shown the nature of the violations involved, number of counts, and status of the case.

U. S. v. Boston & Maine Railroad Co., northern district of New York, involves 27 counts for use of locomotive while in a defective condition, resulting in accident. Case pending.

U. S. v. Colorado & Southern Railway Co., district of Colorado, involved 12 counts for use of locomotives while overdue for monthly inspections. Plea of guilty was entered in 10 counts and fine of \$1,000 imposed. Two counts were dismissed.

U. S. v. Long Island Railroad Co., eastern district of New York. This case involved 28 counts for the use of one locomotive on 28 separate trips while arch tube was not properly belled or beaded. The tube blew out injuring fireman, engineer, and conductor. Defendant was found guilty in all counts and a fine of \$2,800 imposed.

U. S. v. Missouri-Kansas-Texas Railroad Company of Texas, eastern district of Texas, involved 2 counts for the use of locomotives while in a defective condition in that each of the locomotives had cracked side rods. Plea of guilty was entered in one count and a fine of \$100 imposed. One count was dismissed.

U. S. v. Missouri-Kansas-Texas Railroad Company of Texas, northern district of Texas, involved 5 counts for use of locomotives while in a defective condition. Defendant confessed judgment in 4 counts and a fine of \$400 was imposed. One count was dismissed.

U. S. v. Mobile & Ohio Railroad Co., southern district of Alabama, involved 10 counts charging the use of one locomotive on 10 separate trips while overdue

for flue removal. Defendant was found guilty in 5 counts and a fine of \$500 imposed.

U. S. v. Pennsylvania Railroad Co., District of Columbia, involved 4 counts charging the use of locomotives while in a defective condition. A plea of guilty was entered in all counts and a fine of \$400 imposed.

U. S. v. St. Louis-San Francisco Railway Co., western district of Texas, involves 16 counts for use of locomotive in violation of an inspector's Form 5 order. Case pending.

U. S. v. Seaboard Air Line Railway Co., southern district of Florida, involved 12 counts charging the use of locomotives while overdue for monthly inspections.

A plea of guilty was entered in 8 counts and a fine of \$800 imposed. Four counts were dismissed.

U. S. v. Wabash Railway Co., southern district of Illinois, involves 20 counts charging the use of one locomotive on 20 separate trips while in a defective condition. Case pending.

SENATE RESOLUTION NO. 438

In response to Senate Resolution No. 438, of February 26, 1923, we have been supplying information each month for Congress when in session, and when not in session for the President, showing the number of locomotives inspected, the number found defective, the percentage inspected found defective, number ordered out of service, and the number of accidents, killed and injured, by comparison with previous periods.

EXTENSION OF TIME FOR REMOVAL OF FLUES

During the year ended June 30, 1925, 146 applications were filed for extension of time for removal of flues, as provided in rule 10. Our investigation disclosed that in 14 of these cases the conditions were such that no extension could properly be granted. Fourteen were in such condition that the full extension requested could not be authorized, but an extension for a shorter period of time was allowed. Nineteen extensions were granted after defects disclosed by our investigation had been repaired. Eighteen applications were canceled for various reasons. A total of 100 applications was granted for the full period requested.

SPECIFICATION CARDS AND ALTERATION REPORTS

In accordance with rule 54, there were filed 2,181 specification cards and 11,590 alteration reports necessary in determining the safe working pressure and other required data for the boilers represented. In order to determine whether or not the boilers covered by these reports were so constructed as to be in safe and proper condition for service and that the stresses were within the allowed limits, these specification cards and alteration reports were carefully checked and analyzed and corrective measures taken with respect to numerous discrepancies found.

APPEALS

No formal appeal was taken from the decisions of any inspector during the year.

AMENDMENT TO THE LAW

The act of June 7, 1924, further amending the locomotive inspection law extended our jurisdiction to all locomotives and tenders, their parts and appurtenances, used or permitted to be used on the line of a common carrier subject to the Interstate Commerce Act, which includes locomotives propelled by electricity, gasoline, compressed air, or other means, whereas prior to this amendment the law applied only to steam locomotives used by common carriers in the movement of interstate commerce. This amendment further brought within the purview of the law many steam locomotives operated by industrial concerns and lumber companies being used on the lines of common carriers subject to the law. The amendment of June 7, 1924, also provided for the appointment of 15 additional inspectors. Under date of November 5-6, 1924, the Civil Service Commission held an examination in accordance with that part of section 4 of the act of February 17, 1911, which provides:

" * * * Said inspectors shall be in the classified service and shall be appointed after competitive examination according to the law and the rules of the Civil Service Commission governing the classified service * * *."

for the purpose of supplying an eligible list from which this number of inspectors might be appointed. This number of inspectors was appointed and actively engaged in the performance of their duties for an average period of three months during the year ended June 30, 1925, as provided for in an urgency deficiency appropriation, which appropriated \$54,145 to pay the increase in salaries provided in the amendment of June 7, 1924, and to provide for the appointment of 15 additional inspectors for an average period of three months during the current fiscal year, including their allowance for office rent, etc., and traveling expenses.

The preparation of rules and instructions fixing minimum requirements for all locomotives other than those propelled by steam power is being pursued as diligently as conditions will permit and arrangements are being made to put into effect the additional requirements as soon as possible.

The carriers having failed to file their rules and instructions for the inspection and testing of locomotives other than steam within three months after the amendment of June 7, 1924, became effective, it became my duty to prepare rules and instructions not inconsistent with the purpose of the law, which I did, in connection with which it has been deemed advisable to have a conference with the parties

at interest for the purpose of coming to a common understanding so that the rules and instructions may be approved by the Interstate Commerce Commission as required by law.

APPROPRIATIONS

The amount appropriated to carry out the work of this bureau during the year was \$300,000, with a deficiency appropriation of \$54,145 to cover the salary increases provided for in the amendment and the employment of 15 additional inspectors for an average period of three months during the year.

RECOMMENDATIONS FOR BETTERMENT OF THE SERVICE

In my ninth to thirteenth annual reports, inclusive, recommendations were made, in accordance with section 7 of the act, for the application of automatic fire doors, power reverse gears, power grate shakers, automatic bell ringers, horizontal hand holds and stirrups on cabs, and water columns with water glass and gauge cocks attached, and the reasons therefor given. In order to conserve space in this report, I have refrained from repeating in detail the reasons therefor, however, they are respectfully renewed as being in the interest of safety.

Section 9 of the law provides in part that it shall be the duty of the chief inspector to give information to the proper United States attorney of all violations of the act coming to his knowledge. These requirements can not be carried out unless sufficient capable legal assistance and advice is provided. No provision was made in the act of February 17, 1911, nor the amendments prior to June 7, 1924, for legal assistance in this bureau. This deficiency was however recognized by the Congress in the act of June 7, 1924, wherein it is provided that the Interstate Commerce Commission shall provide such legal, technical, stenographic, and clerical help as the offices of the chief inspector and his said assistants may require. The necessity for legal assistance is made evident by the apparent disregard on the part of many carriers for the requirements of the law and the rules and regulations established in pursuance thereof until such time as the discrepancies are pointed out to them by this bureau.

A very large percentage of the accidents which we have investigated were caused by defects which could have been prevented had proper inspections and proper repairs been made at the proper time. Many locomotives are allowed to remain in use in apparent disregard for the requirements of the law sometimes until accidents occur and many times until our inspectors find them and order them out of service. We are daily writing many letters to various carriers calling

attention to their failure to comply with the requirements of the law, such as failure to make the required periodical inspections and tests and the failure to make proper repairs to defects which constitute violations of the law. With the large number of locomotives in service, scattered over such a wide area, it is apparent that Congress never intended that the law should be entirely enforced by our inspectors ordering locomotives out of service because of being in violation of the law. It is a physical impossibility for the 65 inspectors now provided to keep in sufficiently close touch with the number of locomotives coming under the jurisdiction of the law to know at all times that they are in condition to meet the requirements thereof.

Therefore, in the light of our experience, I most respectfully recommend that competent legal assistance be provided this bureau so that we may at all times have the benefit of such services in seeing that the law and the rules and regulations issued in pursuance thereof are complied with.

A. G. PACK,
Chief Inspector.

ACCIDENTS AND CASUALTIES RESULTING FROM THE FAILURE OF LOCOMOTIVES AND TENDERS AND THEIR APPURTENANCES DURING THE FISCAL YEAR ENDED JUNE 30, 1925, BY ROADS

[A star (*) indicates accidents taken from records of the Bureau of Statistics of the Interstate Commerce Commission. A double star (**) indicates accidents not properly reported, as required by rules 55 and 162. A complete investigation, therefore, could not be made, inasmuch as the bureau was not apprised of the accidents in sufficient time after they occurred to permit them to be properly investigated.]

ATCHISON, TOPEKA & SANTA FE RAILWAY SYSTEM:

July 25, 1924, locomotive 1875, Argentine, Kans. Headlight dynamo burst due to governor failing to function properly; dry pipe to headlight generator leaking. One injured.

*July 25, 1924, locomotive 2122, between Lemont and Romeo, Ill. Squirt hose came off pipe account of clamp becoming loose. One injured.

September 14, 1924, locomotive 548, Ellinwood, Kans. Crown sheet failure caused by overheating due to low water; no contributing causes found. One killed.

September 25, 1924, locomotive 3839, Goffs, Calif. Arch tube burst due to overheating. One injured.

*October 19, 1924, locomotive 1480, between Cherryvale and Independence Kans. Crank pin broke causing derailment. Three injured.

*January 6, 1925, locomotive 1826, Sand Creek, Kans. Air compressor inoperative. One injured.

*February 5, 1925, locomotive (G. C. & S. F.) 251, near Gravity, Tex. Insufficient clearance between reverse lever and sander pipe. One injured.

*March 21, 1925, locomotive 3825, Duoro, N. Mex. Grease cup plug blew out; plug applied cross-threaded. One injured.

Eight accidents, 1 killed, 9 injured.

ATLANTA & WEST POINT RAILROAD AND WESTERN RAILWAY OF ALABAMA:

January 15, 1925, locomotive (W. of A.) 350, Baldwin Farms, Ala. Flue broke off at safe end weld account of being burned and crystallized. Two injured.

One accident, 2 injured.

ATLANTA, BIRMINGHAM & ATLANTIC RAILWAY:

*February 17, 1925, locomotive 121, Westwood, Ga. Leading locomotive came uncoupled from locomotive 121 causing emergency application of brakes; coupler casting on locomotive 121 broken. One injured.

One accident, 1 injured.

ATLANTIC COAST LINE RAILROAD:

July 29, 1924, locomotive 819, near Komoka, Fla. Injector steam pipe collar broke off at turret; crew got off and engine ran five miles before stopping. Three injured.

July 31, 1924, locomotive 1042, Florence, S. C. Draw bar pin broke allowing locomotive to separate from tender and fireman to fall between; pin showed lamination at center and was badly crystallized; back hole in draw bar was at an angle allowing only the bottom of the bar to bear on the pin. One injured.

**August 11, 1924, locomotive 1131, Waycross, Ga. Sprinkler hose blew off. One injured.

August 12, 1924, locomotive 448, Hilton, N. C. Whistle valve would not seat account of foreign substance lodged under valve. One injured.

August 30, 1924, locomotive 712, Jacksonville, Fla. Plug in bottom water glass cock blew out; attempted to tighten under pressure. One injured.

October 28, 1924, locomotive 556, Jacksonville, Fla. Handrail loose at cab connection account of broken casting. One injured.

November 7, 1924, locomotive 8006, Jacksonville, Fla. Cylinder cock slide rod broke and caught in frog causing lever in cab to fly back striking engineer. One injured.

November 13, 1924, locomotive 916, Sebring, Fla. Handle of steam valve to air pump came off, allowing engineer to fall. One injured.

November 28, 1924, locomotive 824, Ramer, Ala. Crown sheet failure caused by overheating due to low water; lowest reading of water glass only $1\frac{5}{16}$ inches above highest point of crown sheet; bottom gauge cock only $2\frac{3}{4}$ inches above highest point of crown sheet. One injured.

**December 26, 1924, locomotive 1140, Jacksonville, Fla. Front end sill dropped down on rail due to angle irons being broken. One injured.

February 16, 1925, locomotive 433, Uceta, Fla. Slipped on cab apron due to apron not properly roughened. One injured.

**February 24, 1925, locomotive 155, Lakeland, Fla. Board in tender deck split when stepped on, causing employee to fall. One injured.

**May 9, 1925, locomotive 216, near Waycross, Ga. Air bell ringer failed to function; injured while trying to free bell cord from whistle lever. One injured.

June 19, 1925, locomotive 426, near Orient, Fla. Superheater flue broke off near front flue sheet; flue had been welded inside of sheet without removing flue from boiler by burning off end of flue with cutting torch and inserting a piece of flue and autogenously welding it to flue. One injured.

June 21, 1925, locomotive 1106, Columbia, S. C. Coupling blew off end of fire hose due to being insecurely applied. One injured.

June 24, 1925, locomotive 1218, Florence, S. C. Coupling blew off end of fire hose due to being insecurely applied. One injured.

Sixteen accidents, 18 injured.

BALTIMORE & OHIO RAILROAD:

**July 7, 1924, locomotive (S. I. R. T.) 21, Fort Wadsworth, N. Y. Derailment caused by rear axle on tender truck breaking due to old fracture covering approximately 20 per cent of cross-sectional area. Four injured.

July 16, 1924, locomotive 1016, Willard, Ohio. Tender derailed because of defective condition of springs in radial buffer which prevented locomotive and tender from taking curve; one of the buffer springs was broken into several pieces; left No. 2 tender truck wheel had flat spots and broken rim. One injured.

July 26, 1924, locomotive 6154, Wyoming, Ohio. Reflex type water glass broke. One injured.

**August 4, 1924, locomotive 5129, Washington, Ind. Steam heat valve at fountain leaking account of both seats in valve badly cut; "Grind in steam heat fountain cock" was reported on daily inspection report for August 1 and this report was approved by foreman with explanation "Will grind in car heater valve next trip when engine is in for washout." One injured.

August 6, 1924, locomotive 2023, Benwood Junction, W. Va. Sheet iron strip applied to give extra height to coal space gave way, allowing hostler to fall; strip badly corroded and not properly secured. One injured.

August 8, 1924, locomotive 2832, Newark, Ohio. Bull's-eye lubricator glass follower ring failed due to defective threads. One injured.

August 30, 1924, locomotive 2909, Parma, Ohio. Squirt hose burst. One injured.

September 28, 1924, locomotive 5116, Cincinnati, Ohio. Broken throat-brace stay blew out while being calked; stay showed evidence of having been broken for some time. One injured.

October 14, 1924, locomotive 2855, Cleveland, Ohio. Broken radial stay blew out due to defective threads and stay too small. One injured.

October 22, 1924, locomotive 1350, Baden, W. Va. Lubricator steam throttle valve bonnet blew out due to loose fit in valve body. One injured.

**October 29, 1924, locomotive 277, Pleasant Valley, Ohio. Main crank pin broke causing emergency application of brakes; pin showed 75 per cent old break. One injured.

November 8, 1924, locomotive 4855, Fairpoint, Ohio. Oil cup in air compressor blew out due to threads in compressor head and stem of oil cup worn and flat. One injured.

November 16, 1924, locomotive 1913, Benwood Junction, W. Va. Grate shaker bar slipped off post due to improper fit. One injured.

**November 17, 1924, locomotive 4291, Milford Junction, Ind. Shaker bar slipped off post due to improper fit. One injured.

November 18, 1924, locomotive 2386, Furman, Ill. Crown sheet failure caused by overheating due to low water; autogenously welded seam failed at front end of crown sheet for a distance of 50 inches. One injured.

November 25, 1924, locomotive 1350, Harris Ferry, W. Va. Crown sheet failure caused by overheating due to low water; gauge cocks were located on right side $5\frac{1}{2}$ feet from back head while water glass was located on back head

and not visible from usual and proper position of engineer; lowest readings of water glass and gauge cocks were $4\frac{1}{8}$ and $3\frac{3}{4}$ inches respectively, above the highest part of crown sheet. Specification filed under oath with this commission shows that they are both 5 inches above. Three injured.

**November 28, 1924, locomotive 7162, Sand Patch, Pa. Fire door closed due to pedal slipping off plunger piston, causing fireman's hand to be burned and bruised. One injured.

**December 11, 1924, locomotive 2640, Thrifton, Ohio. Main rod key came loose and flew out. One injured.

December 21, 1924, locomotive 5000, Washington, Ind. Tank hose blew off. One injured.

December 29, 1924, locomotive 5025, Sandusky, Ohio. Shaker bar broke due to old flaw covering approximately 55 per cent of the cross-sectional area. One injured.

January 4, 1925, locomotive 1137, Pittsburgh, Pa. Injector steam pipe spanner nut broke while being tightened under pressure, due to old defect at wrench-fit groove. One injured.

**January 7, 1925, locomotive 1409, Pleasant View, W. Va. Spring hanger broke due to old defects. One injured.

January 13, 1925, locomotive 1789, Baltimore, Md. Reverse lever became unlatched while locomotive was moving, causing a sudden jerk of the cars. One injured.

January 15, 1925, locomotive 4302, near Albion, Ind. Crown sheet was forced off of 18 radial stays due to defective threads in crown sheet affording insufficient strength to support sheet. One injured.

**January 22, 1925, locomotive 1316, Cleveland, Ohio. Gauge cock drip pipe and pan dropped down through cab floor and were struck by side rod and driven back into cab, striking engineer; drip pan insecurely fastened. One injured.

**January 30, 1925, locomotive 4842, Benwood Junction, W. Va. Reverse lever became unlatched account of notches in quadrant stopped up. One injured.

**February 27, 1925, locomotive 2460, East Dayton, Ohio. Brake rigging came down and struck front connection of side rod, breaking it. One injured.

March 22, 1925, locomotive 372, Baltimore, Md. Grate rigging connecting rod became disconnected, allowing shaker bar to go over against valve on back head. One injured.

April 2, 1925, locomotive 2719, Wheatland, Ind. Injector throttle valve packing nut came off due to threads on bonnet being stripped. One injured.

**April 9, 1925, locomotive 76, East Side, Pa. Air compressor throttle valve stem broke. One injured.

April 28, 1925, locomotive 1385, Holsopple, Pa. Driving spring hanger bolt broke. One injured.

April 29, 1925, locomotive 1903, New Concord, Ohio. Handle came off grate shaker post due to nut losing off; bolt too short to permit cotter key or lock nut to be used. One injured.

**May 1, 1925, locomotive 4573, Hoytsville, Ohio. Driver brake beam hanger broke. One injured.

May 4, 1925, locomotive 2746, Washington, Ind. Reverse lever counter-balance spring bracket broke. One injured.

May 19, 1925, locomotive 2785, near Washington, Ind. Squirt-hose valve worked open due to packing nut to valve stem not being connected to valve. One injured.

May 20, 1925, locomotive 1449, Avalon, Md. Flue broke off in prosser groove at back flue sheet due to being very thin. One injured.

May 21, 1925, locomotive 5047, Shenandoah Junction, W. Va. Stop lug broken from drifting valve and handle inverted making valve inoperative. One injured.

June 1, 1925, locomotive 365, Baltimore, Md. Power reverse oil cup blew off due to threads in oil cup entirely stripped. One injured.

June 1, 1925, locomotive 4557, Broad Ford, Pa. Locomotive parted from train due to low coupler on rear of tender being $2\frac{5}{8}$ inches below minimum required height; bolts securing rear carrier iron were loose allowing carrier to drop; plate spot welded to top of carrier to raise coupler to standard height lost off. One injured.

June 9, 1925, locomotive 1666, Newark, Ohio. Spanner nut to injector delivery pipe failed due to being fractured by use of chisel in tightening. One injured.

**June 19, 1925, locomotive 4234, Wheeling, W. Va. Insufficient clearance between reverse lever and stoker elevator. One injured.

June 29, 1925, locomotive 1162, Canton, Ohio. Driving spring saddle broke letting locomotive down in front and catching footboard on crossing plank; old flaw covering 90 per cent of cross-sectional area of plate in fillet of bend at inside edge of spring seat. One injured.

Forty-two accidents, 47 injured.

BELT RAILWAY OF CHICAGO:

July 30, 1924, locomotive 76, Argo, Ill. Grate lever became disconnected account of bolt working out at vertical shaft connection. One injured.

August 13, 1924, locomotive 95, South Chicago, Ill. Grate shaker connecting rod became disconnected. One injured.

September 11, 1924, locomotive 102, Chicago, Ill. Squirt hose blew off nipple due to not being properly secured. One injured.

Three accidents, 3 injured.

BOSTON & ALBANY RAILROAD:

December 30, 1924, locomotive 314, Brookline, Mass. Steam pipe in front end burst due to being of insufficient thickness. One injured.

April 18, 1925, locomotive 953, Natick, Mass. Crown sheet failure caused by overheating due to low water; top and bottom water glass openings stopped up with broken glass and parts of rubber gasket; gauge cock drip and pipe stopped up; injector steam ram and overflow leaking; tank very dirty with accumulation of dirt, coal and scale; hole in tank hose strainer. Two injured.

Two accidents, 3 injured.

BOSTON & MAINE RAILROAD:

July 21, 1924, locomotive 2692, Petersburg Junction, N. Y. Superheater damper steam pipe stripped away from collar. One injured.

July 21, 1924, locomotive 1460, Beaver Brook, Mass. Fireman was struck by flag box which fell due to not being properly secured to back board of cab. One injured.

August 9, 1924, locomotive 210, South Lawrence, Mass. Uncoupling rod at front of locomotive became disconnected at pin-lifter bracket due to bolt missing from rod bracket; bolt reported missing on August 6 prior to locomotive being held for repairs but was not replaced. One injured.

August 29, 1924, locomotive 930, Shirley Hill, N. H. Slipped on cab apron account of tender deck being too low; defective condition of tender reported on August 22, 26, and 27 and apparently no repairs made. One injured.

**September 6, 1924, locomotive 2658, East Fitchburg, Mass. Rear driver brake safety hanger dropped down and caught in driving wheel; hanger reported loose on August 25, 26, and 30. Two injured.

**September 21, 1924, locomotive 3205, Bridgewater, N. H. Engine parted from baggage car causing sudden stop which resulted in injury to passenger; insufficient slack in the knuckle lock lifter chain on engine. One injured.

*October 1, 1924, locomotive 303, Holyoke, Mass. Spring hanger broke. One injured.

October 3, 1924, locomotive 3669, South Ashburnham, Mass. Both bonnets blew out of double check valve. One injured.

**January 2, 1925, locomotive 3007, near North Adams, Mass. Engine derailed account of tire coming loose and partly off. One injured.

January 24, 1925, locomotive 3214, Reading, Mass. Insufficient clearance between end of reverse lever and automatic-brake valve. One injured.

**January 28, 1925, locomotive 1435, near Milford, N. H. Eccentric blade broke causing reverse lever to go into corner, catching engineer's hand between lever and gauge-cock dripper. One injured.

February 3, 1925, locomotive 203, Dover, N. H. Lubricator glass broke; shield missing. One injured.

*February 12, 1925, locomotive 3200, Boston, Mass. Insufficient clearance between reverse lever and boiler backhead. One injured.

Thirteen accidents, 14 injured.

BUFFALO, ROCHESTER & PITTSBURGH RAILWAY:

*August 30, 1924, locomotive 708, B. & S. Junction, Pa. Squirt hose blew off. One injured.

May 29, 1925, locomotive 351, Echo, Pa. Blow-off cock nipple blew out; nipple screwed into throat sheet only $\frac{1}{2}$ inch and threads on nipple and in throat sheet fitting almost entirely wasted away. One injured.

*June 4, 1925, locomotive 502, Punxsutawney, Pa. Handrail bracket stud broke, causing handrail to give away. One injured.
Three accidents, 3 injured.

CANADIAN NATIONAL RAILWAYS:

**October 18, 1924, locomotive (G. T. W.) 1713, Detroit, Mich. Driving spring hanger and pin broke allowing engine to drop in front and footboard to strike rail and bend under; old flaw in pin. One injured.
One accident, one injured.

CENTRAL OF GEORGIA RAILWAY:

October 10, 1924, locomotive 1677, East Thomas, Ala. Washout plug blew out when struck with hammer to see if it was loose; plug applied cross-threaded and did not enter sheet far enough; threads on plug defective and threads in hole had not been properly tapped. Two injured.

November 26, 1924, locomotive 1857, Mizell, Ga. Equalizer hanger broke. One injured.

Two accidents, 3 injured.

CENTRAL RAILROAD COMPANY OF NEW JERSEY:

** September 12, 1924, locomotive 4212, Winslow Junction, N. J. Reverse-lever latch stuck in quadrant. One injured.

** October 16, 1924, locomotive 903, Allentown, Pa. Foot caught by power grate-shaker lever due to sufficient space not being provided in front of seat box for engineer's feet and legs. One injured.

November 19, 1924, locomotive 651, Wanamie, Pa. Whistle connection blew out of auxiliary dome permitting steam and hot water to blow back, breaking cab window and entering cab; threads on whistle connection stripped and threads in steam dome defective. One injured.

* February 5, 1925, locomotive 804, near Pennington, N. J. Main crank pin broke due to old flaw. One injured.

May 17, 1925, locomotive 161, Jersey City, N. J. Shaker bar slipped off lever due to improper fit. One injured.

May 24, 1925, locomotive 96, Bayonne, N. J. Shaker bar slipped off lever due to improper fit. One injured.

Six accidents, 6 injured.

CHARLESTON & WESTERN CAROLINA RAILWAY:

June 25, 1925, locomotive 288, Beldoc, S. C. Grease plug bushing blew out account of being too small for grease cup. One injured.

One accident, 1 injured.

CHESAPEAKE & OHIO RAILWAY:

August 27, 1924, locomotive 476, near Economy, Ind. Front brake beam on rear tender truck dropped and caught on guard rail, tearing guard rail out which struck two track employees. One killed, 1 injured.

September 16, 1924, locomotive 1115, Utopia, Ky. Crown sheet failure due to crown sheet being without proper support; radial stay holes were threaded for only about one-third of the thickness of the sheet. No signs of overheating. Two injured.

September 30, 1924, locomotive 1116, Riverton, Ky. Crown sheet failed caused by being without proper support due to poor threads in radial stay holes, and sheet corroded and wasted away around radials from original thickness of $\frac{3}{8}$ to $\frac{1}{2}$ inch. Two injured.

* December 10, 1924, locomotive 871, Barboursville, W. Va. Steam leaking from crack in cylinder approximately 8 inches long, caused employee to miss engine step which was obscured. One injured.

Four accidents, 1 killed, 6 injured.

CHICAGO & EASTERN ILLINOIS RAILWAY:

** November 1, 1924, locomotive 3645, Yard Center, Ill. Injector steam-ram bonnet blew out due to loose fit in body. One injured.

May 21, 1925, locomotive 826, near Hopkins Park, Ill. Grate shaker operating lever broke through both sides at bolt hole, due to old fractures. One injured.

Two accidents, 2 injured.

CHICAGO & NORTHWESTERN RAILWAY:

* July 4, 1924, locomotive 1513, Oshkosh, Wis. Tender truck axle broke at journal, causing derailment of tender and eight passenger cars. Four injured.

** July 8, 1924, locomotive 2210, between Wilmette and Kennilworth, Ill. Reverse lever went into forward corner; stop pin missing from front of quadrant. One injured.

July 29, 1924, locomotive 2601, Proviso, Ill. Shaker bar slipped off lever due to improper fit; excessive slack in grate rigging due to connecting rod holes badly worn. One injured.

** September 1, 1924, locomotive 2421, Winona, Minn. Engine truck derailed caused by spring over right front truck box being broken which prevented truck from curving properly. Two injured.

September 13, 1924, locomotive 2623, Chicago, Ill. Oil plug blew out of top head of fire door air cylinder, allowing fire door to close on fireman's hand. One injured.

September 14, 1924, locomotive 160, Brookings, S. Dak. Insufficient clearance between reverse lever and brake valve due to brake valve improperly located. One injured.

September 16, 1924, locomotive 2079, Chicago, Ill. Grate shaker handle fouled on end of jacket stud caused by excessive lost motion in shaker rigging and connecting rod of improper length. One injured.

September 18, 1924, locomotive 1715, Chicago, Ill. Hinges securing manhole cover broke, causing fireman to fall into tank. One injured.

September 20, 1924, locomotive 486, Crowell, Nebr. Headlight failed account of defective armature; bars in commutator loose; injured while placing hand lantern in headlight case. Had headlight not failed because of defective condition, accident would not have occurred. One injured.

September 24, 1924, locomotive 2430, West Chicago, Ill. Blow-off cock leaking and had been so reported eight times just preceding the accident but proper repairs were not made. One injured.

** September 30, 1924, locomotive 1452, Marshfield, Wis. Reverse lever difficult to operate account of not properly counterbalanced. One injured.

October 9, 1924, locomotive 1819, Milwaukee, Wis. Handrail became disconnected at splice account of rivet securing the two parts together missing. One injured.

October 9, 1924, locomotive 2029, Chicago, Ill. Front footboard caught on rail and bent back under beam; footboard $1\frac{1}{4}$ inch below limit in height. One injured.

** November 1, 1924, locomotive 2605, Proviso, Ill. Burned by discharge from lubricator drain account of drain valve improperly applied with outlet pointing upward. One injured.

November 7, 1924, locomotive 2519, Flagg, Ill. Shaker bar slipped off post due to improper fit. One injured.

* November 11, 1924, locomotive 1119, near Two Rivers, Wis. Brake shoe head defective, allowing key and piece of iron with brake shoe to come down on rail, causing derailment of locomotive, tender and forward trucks of combination car. One injured.

November 14, 1924, locomotive 2703, Jefferson Park, Ill. Nut securing piston head to piston rod failed, causing cylinder head to be knocked out. One injured.

November 25, 1924, locomotive 1543, Elroy, Wis. Slipped on ice which had formed on gangway step, caused by tank hose connection leaking. One injured.

November 28, 1924, locomotive 2328, Wyeville, Wis. Grate shaker rod became disconnected. One injured.

December 15, 1924, locomotive 1665, near Woodstock, Ill. Air compressor lubricator oil pipe broke. One injured.

* December 22, 1924, locomotive 2629, Chicago, Ill. Draw bar broke off engine allowing locomotive to separate from cars and air hose to become detached and strike brakeman who was riding footboard. One injured.

**December 24, 1924, locomotive 2219, Chicago, Ill. Whistle rod became disconnected. One injured.

**December 31, 1924, locomotive 1174, Wisconsin Rapids, Wis. Injured while shaking grates account of grates defective. One injured.

January 15, 1925, locomotive 2466, West Chicago, Ill. Grates became disconnected account of pin coming out of bottom end of lever. One injured.

January 19, 1925, locomotive 2432, Cutler, Wis. Splinter from piece of wood securing back edge of cab curtain entered employee's arm; wood was pine in splintery condition. One injured.

February 10, 1925, locomotive 2033, Chicago, Ill. Ash pan slide operating lever slipped off of shaft causing fireman to fall; brake equipment fouled on ash pan slide operating equipment when brakes were applied, making ash pan very hard to open and close. One injured.

**February 18, 1925, locomotive 1796, Chicago, Ill. Washout plug blew out. One injured.

February 20, 1925, locomotive 1194, Norrie, Wis. Right main steam pipe burst in smoke box due to thin and worn condition. One injured.

March 3, 1925, locomotive 169, Crystal Lake, Ill. Grates became disconnected caused by pin working out of connecting rod due to split key working out of pin. One injured.

March 12, 1925, locomotive 2181, Chicago, Ill. Shaker bar slipped off lever; bar fit on lever below standard size and in badly worn and mutilated condition. One injured.

**April 20, 1925, locomotive 1085, between Milwaukee and Green Bay, Wis. Counterbalance spring broken rendering reverse lever very difficult to operate; engine was reported hard to reverse on April 10, 11 and 12. One injured.

June 25, 1925, locomotive 2907, Council Bluffs, Iowa. Handle of ash pan operating lever broke due to being of too light construction. One injured.

June 29, 1925, locomotive 1643, Belle Plaine, Iowa. Defective reversing gear; valves and cylinders dry account of poor lubrication; counterbalance spring rod connection has excessive lost motion due to spring rod, connecting pin and holes in fulcrum on reverse shaft being badly worn. One injured.

Thirty-three accidents, 37 injured.

CHICAGO, BURLINGTON & QUINCY RAILROAD:

July 14, 1924, locomotive 3194, Chicago, Ill. Front end of reverse lever reach rod became disconnected, forcing reverse lever out of quadrant and causing injury to fireman; bolt worked off reach rod due to cotter key coming out. One injured.

*July 15, 1924, locomotive 1632, Fort Madison, Iowa. Fell over bolt protruding from tender footboard. One injured.

*July 26, 1924, locomotive 4990, Lockridge, Iowa. Foot pedal broken off air fire door opener. One injured.

*August 2, 1924, locomotive 2180, Pepin, Wis. Shaker bar slipped off post due to improper fit. One injured.

August 11, 1924, locomotive 5323, Cameron Junction, Mo. Handhold gave away causing engineer to fall to ground, due to cab board cracking which permitted head of bolt securing handhold in place to pull through. One injured.

**August 19, 1924, locomotive 4948, Clyde, Ill. Water glass burst; cut by flying glass. One injured.

*September 8, 1924, locomotive 1957, East Dubuque, Ill. Driving wheel tire came off. One injured.

**November 5, 1924, locomotive 3110, Centralia, Ill. Boiler check stuck open and when fireman attempted to open fire hose valve to relieve the pressure on delivery pipe, valve bonnet came out due to being loose in fit. One injured.

December 17, 1924, locomotive 2838, Ballenger, Iowa. Main driving wheel tire came off of wheel center causing derailment of locomotive, mail and baggage cars. One injured.

December 19, 1924, locomotive 1235, Eustis, Nebr. Steam heat valve bonnet blew out due to very loose fit in valve body account of threads in valve body being badly worn and damaged. Two injured.

January 7, 1925, locomotive 4964, Riverside, Ill. Squirt hose blew off. One injured.

January 20, 1925, locomotive 2105, near Elsberry, Mo. Defective shoveling sheet. One injured.

February 22, 1925, locomotive 1200, Cumberland, Iowa. Eye cut by piece of brass which broke off tank hose nut while tightening nut with hammer; lugs on nut badly battered due to frequent use of hammer in removing the nut. One injured.

March 24, 1925, locomotive 2001, Vermont, Ill. Front driver spring hanger broke at two places in loop at top end, allowing forward end of locomotive to drop and pilot to strike rail, throwing brakeman off pilot step; spring hanger fractured at one place and badly worn at the other; hanger reported hooked over cross-brace on March 4 and 19 and repairs indicated made, at which times the defective condition of hanger should have been detected. One killed.

*March 24, 1925, locomotive 2075, Albia, Iowa. Pilot caught on guard rail; pilot below the required height. One injured.

June 4, 1925, locomotive 511, West Frankfort, Ill. Blow-off cock stuck open. One injured.

Sixteen accidents, 1 killed, 16 injured.

CHICAGO GREAT WESTERN RAILROAD.

*August 31, 1924, locomotive 322, Parnell, Mo. Tender brake shoe on leading locomotive came off and fell on rail, causing second locomotive and twenty cars to be derailed. Three injured.

One accident, 3 injured.

CHICAGO, MILWAUKEE & ST. PAUL RAILWAY:

July 13, 1924, locomotive 2821, near Burnett Junction, Wis. Right back up eccentric rod broke due to old flaw; valve and reverse gear badly worn. One injured.

August 2, 1924, locomotive 7238, Ponia, Iowa. Collar on injector steam pipe broke at injector connection due to improper brazing. One injured.

September 8, 1924, locomotive 5571, Oconomowoc, Wis. Blow-off cock leaking around operating stem. One injured.

**September 18, 1924, locomotive 3131, near Sun Prairie, Wis. Valve gear link block pin broke. One injured.

**October 10, 1924, locomotive 1220, Milwaukee, Wis. Blow-off cock discharge pipe broke at nipple due to nipple badly worn. One injured.

October 25, 1924, locomotive 8648, Voltz, Wis. Squirt hose burst due to being badly deteriorated. One injured.

November 1, 1924, locomotive 8068, Roxbury, Ill. Excessive lateral in grate shaker lever allowed shaker bar handle to strike on back of cab. One injured.

November 7, 1924, locomotive 8080, Harlowton, Mont. Main crank pin broke due to old flaw extending over approximately 50 per cent of cross-sectional area. One injured.

December 15, 1924, locomotive 7107, Milwaukee, Wis. Board in platform under left seat box tipped account of being improperly secured, causing fireman to fall. One injured.

*December 25, 1924, locomotive (N. P.) 102, Green Bay, Wis. Coupler pin broke and struck brakeman. One injured.

February 5, 1925, locomotive 1512, Milwaukee, Wis. Crown sheet failure caused by overheating due to low water; many of the flat hammered head stays from which sheet pulled off had very small heads—three of these had practically no heads. One injured.

April 28, 1925, locomotive 1197, Kansas City, Mo. Insufficient clearance between brake valve handle and reverse lever. One injured.

May 12, 1925, locomotive 2275, Monticello, Iowa. Squirt hose blew off nipple due to not being properly clamped; nipple applied to extend straight out instead of being turned downward toward deck. One injured.

*May 20, 1925, locomotive 5535, Kittredge, Ill. Spring hanger broke. One injured.

*May 27, 1925, locomotive 2821, South Bryon, Wis. Left back equalizer broke causing engine to drop down on left side. One injured.

*May 30, 1925, locomotive 9520, Neva, Idaho. Both front side rods broke. One injured.

June 23, 1925, locomotive 1187, Milwaukee, Wis. Handrail on back slope of tender failed causing fireman to fall to ground; handrail not properly secured at "Y" fitting. One injured.

June 25, 1925, locomotive 1279, Milwaukee, Wis. Throttle lever latch connection became disconnected while throttle was open due to cotter key missing from pin securing connection to latch handle. Crew were unable to stop locomotive which continued for a distance of one mile and collided with another train. One injured.

Eighteen accidents, 18 injured.

CHICAGO, PEORIA & ST. LOUIS RAILROAD:

June 1, 1925, locomotive 70, Peoria, Ill. Blow-off cock broke off through brass nipple connection to boiler. One injured.
One accident, 1 injured.

CHICAGO, ROCK ISLAND & PACIFIC RAILWAY:

**July 9, 1924, locomotive 93, Peoria, Ill. Spring hanger pin broke allowing front end of engine to drop and catch on crossing plank, throwing switchman under the locomotive. One injured.

*August 5, 1924, locomotive 2101, Oklahoma City, Okla. Squirt hose came off nipple. One injured.

**August 19, 1924, locomotive 3020, near Cameron, Mo. Squirt hose blew off due to not being properly clamped to pipe. One injured.

**August 25, 1924, locomotive 847, McCreanor, Ark. Driving spring hanger failed at defective weld which extended only about one-half way through cross-sectional area. One injured.

**September 3, 1924, locomotive 1914, Pratt, Kans. Squirt hose parted at splice due to not being clamped or otherwise fastened. One injured.

September 19, 1924, locomotive 224, South Chicago, Ill. Spring hanger broke; old flaw in hanger. One injured.

October 30, 1924, locomotive 2524, near Leslie, Mo. Train parted between tender and first car account of low coupler on rear of tender. One injured.

**November 11, 1924, locomotive 1854, El Dorado, Ark. Headlight failed account of wires grounded where coming through cab to handrail. One injured.

**November 17, 1924, locomotive 1686, Manly, Iowa. Spring pocket to left front driving spring hanger broke causing the reverse lever to unlatch and be thrown into forward motion. One injured.

December 7, 1924, locomotive 147, South Chicago, Ill. Cross-equalizer hanger broke. One injured.

December 17, 1924, locomotive 2053, near Weatherby, Mo. Main rod broke due to old fractures. One injured.

December 18, 1924, locomotive 252, Herington, Kans. Hand caught between cab handhold and tender deck due to insufficient clearance on a very sharp curve. One injured.

**February 1, 1925, locomotive 709, Sigourney, Iowa. Grate shaker slipped off fulcrum lever. One injured.

*February 1, 1925, locomotive 2570, Haileyville, Okla. Jacket band sticking out caused injury to employee. One injured.

**March 17, 1925, locomotive 3004, Kansas City, Kans. Throttle very difficult to open account of being improperly balanced; throttle reported on February 21, 24, and 27 and March 7, 10, 13, 14, 17, and 19. One injured.

April 6, 1925, locomotive 93, Peoria, Ill. Reverse lever latch spring bolt broke off releasing reverse lever which flew back and struck engineer. One injured.

**April 15, 1925, locomotive 2563, Cedar Falls, Iowa. Defective shoveling sheet. One injured.

April 29, 1925, locomotive 2134, near Owensville, Mo. Counter balance spring rod broke allowing reverse lever to suddenly jerk to front corner. One injured.

**May 24, 1925, locomotive 2604, Casey, Iowa. Grate shaker did not clear light bracket. One injured.

June 17, 1925, locomotive 2044, Dalhart, Tex. Throttle stem packing nut blew off account of threads on nut and in stuffing box badly worn and nut excessively loose. One injured.

Twenty accidents, 20 injured.

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA RAILWAY:

October 19, 1924, locomotive 303, Wilder, Minn. Slat fell out of coal gate account of being too short. One injured.

December 10, 1924, locomotive 200, near Washburn, Wis. Main crank pin broke due to old flaw in material covering approximately one-half of cross-sectional area. One injured.

December 21, 1924, locomotive 307, Omaha, Nebr. Ash pan key slipped off staff account of improper fit; ash pan staff badly worn. One injured.

January 16, 1925, locomotive 4, Sioux City, Iowa. Flue defective account of hole $\frac{1}{2}$ x $\frac{3}{8}$ inch pitted through. One injured.

Four accidents, 4 injured.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS RAILWAY:

*January 9, 1925, locomotive 150, Windsor, Ill. Whistle valve stuck open. One injured.

March 1, 1925, locomotive 6767, Mt. Carmel, Ill. Boiler check valve stuck up. One injured.

April 9, 1925, locomotive 6108, Ernst, Ill. Oil cut-out valve and bonnet blew out of lubricator. One injured.

**May 17, 1925, locomotive 170, Hill Siding, Ohio. Stepped into stoker coal crusher which was unprotected. One injured.

May 20, 1925, locomotive 7442, Mattoon, Ill. Pin worked out of equalizer hanger causing hanger to break and forward end of locomotive to drop so low that footboard caught on crossing plank; pin reported on May 16 and 18. One injured.

Five accidents, 5 injured.

COLORADO & SOUTHERN RAILWAY:

*November 13, 1924, locomotive 312, Sheppard, Colo. Attempted to operate blow-off cock when threads stripped and stem pulled out of valve, allowing steam to escape. One injured.

January 26, 1925, locomotive 603, near Broomfield, Colo. Crown sheet failure caused by overheating due to low water; both water glass cocks shut off. Two killed.

Two accidents, 2 killed, 1 injured.

DELAWARE & HUDSON COMPANY:

August 2, 1924, locomotive 1066, Carbondale, Pa. Rung of ladder on tender gave way causing brakeman to fall; one end of rung had been broken for some time. One injured.

September 13, 1924, locomotive 445, Troy, N. Y. Spanner nut stripped off collar at coupling on injector steam pipe due to threads on collar defective and spanner nut too large. One injured.

September 27, 1924, locomotive 1061, Mayfield, Pa. Flue failed at safe end weld; overheated in welding. One injured.

October 24, 1924, locomotive 1062, Olyphant, Pa. Flue failed at safe end weld due to defective welding. One injured.

February 14, 1925, locomotive 600, Colonie, N. Y. Water column steam pipe collar broke off at shoulder due to old crack while attempting to tighten spanner nut under steam pressure. The joint had previously been reported leaking and a copper gasket was applied without remedying the defect. Two injured.

March 17, 1925, locomotive 537, Sanitaria Springs, N. Y. Water glass cock bonnet broke off due to old fracture approximately one-half of circumference. One injured.

May 14, 1925, locomotive 604, Fort Edward, N. Y. Flue failed at safe end weld caused by use of welding mandrel which was too small. One injured.

Seven accidents, 8 injured.

DELAWARE, LACKAWANNA & WESTERN RAILROAD:

August 8, 1924, locomotive 893, West Paterson, N. J. Crown sheet failure caused by overheating due to low water; no contributory causes found. Three injured.

October 5, 1924, locomotive 1029, Hoboken, N. J. Insufficient clearance between reverse lever and air pipe to sand trap due to air pipe not properly applied. One injured.

*April 9, 1925, locomotive 94, Syracuse, N. Y. Fire hose burst. One injured.

June 12, 1925, locomotive 895, Dover, N. J. Eyebolt of safety chain at gangway between locomotive and tender gave way due to old fracture, causing trainman to fall to ground. One injured.

Four accidents, 6 injured.

DENVER & RIO GRANDE WESTERN RAILROAD:

**July 3, 1924, locomotive 784, Floy, Utah. Squirt hose burst. One injured.

August 23, 1924, locomotive 3407, near Salida, Colo. Throttle valve closed unusually hard due to defective stem packing. One injured.

**October 9, 1924, locomotive 1522, Grand Valley, Colo. Water glass burst. One injured.

October 20, 1924, locomotive 1004, Glenwood Springs, Colo. Metal equipment box located on top of tender, back of fuel space, defective account of

hinges being broken allowing the cover to slip from under fireman when he stepped upon it. One injured.

January 7, 1925, locomotive 344, Gunnison, Colo. Water glass burst and flying glass struck fireman in the face; water glass was so dirty that engineman had to get face very close to glass to read the water level. One injured.

January 17, 1925, locomotive 1209, Green River, Utah. Auxiliary steam operating valve to stoker leaking. One injured.

** March 16, 1925, locomotive 1006, near Gordon, Colo. Reverse lever latch disengaged; latch spring weak and quadrant bracket loose. One injured.

** June 7, 1925, locomotive 1022, Burnham, Colo. Pin lifter lever defective. One injured.

Eight accidents, 8 injured.

DETROIT, TOLEDO & IRONTON RAILROAD:

* January 15, 1925, locomotive 314, Greenfield, Ohio. Reverse lever latch worked out. One injured.

One accident, 1 injured.

DULUTH, SOUTH SHORE & ATLANTIC RAILWAY:

October 11, 1924, locomotive 708, Marquette, Mich. Squirt hose burst due to being worn. One injured.

One accident, 1 injured.

ELGIN, JOILET & EASTERN RAILWAY:

* February 25, 1925, locomotive 46, Joilet, Ill. Handle to blow-out valve came loose and escaping steam scalded engineer. One injured.

One accident, 1 injured.

ERIE RAILROAD:

* December 6, 1924, locomotive 2450, Gowanda, N. Y. Locomotives separated due to couplers slipping by account of low coupler on second locomotive. One injured.

March 28, 1925, locomotive 4003, near Harding, Ohio. Main driving wheel axle broke due to old fracture. One injured.

May 1, 1925, locomotive 2733, Rathbone, N. Y. Piston rod key sheared off allowing piston to knock out cylinder head. Two injured.

June 11, 1925, locomotive 1675, Bippus, Ind. Superheater flue collapsed and broke at safe end weld due to flue being worn to $\frac{1}{8}$ -inch in thickness. One injured.

June 24, 1925, locomotive 2519, North Collins, N. Y. Defective street ell in sprinkler hose connection broke off. One injured.

Five accidents, 6 injured.

FLORIDA EAST COAST RAILWAY:

February 24, 1925, locomotive 143, Buena Vista, Fla. Water glass broke. One injured.

June 6, 1925, locomotive 79, near Pigeon Key, Fla. Crown sheet failure caused by overheating due to low water. Boiler was blown into the ocean and appurtenances lost or destroyed so that their previous condition could not be determined; autogenously welded fire box seams failed. Two killed, 1 injured.

Two accidents; 2 killed, 2 injured.

FORT WORTH & DENVER CITY RAILWAY:

June 23, 1925, locomotive 258, near Hartley, Tex. Wooden tread on gangway step badly worn at outside edge rendering foothold unsafe. One injured.

One accident, 1 injured.

FRESNO INTERURBAN RAILWAY:

August 30, 1924, locomotive (A. T. & S. F.) 396, Bartel, Calif. Crown sheet failure caused by overheating due to low water. One injured.

One accident, 1 injured.

GALVESTON, HOUSTON & HENDERSON RAILROAD:

September 9, 1924, locomotive 14, Galveston, Tex. Crown sheet failure caused by overheating due to low water; gauge cock dripper so constructed and gauge cock nipples so located that discharge from first and second cocks could not be seen. One injured.

One accident, 1 injured.

GEORGIA RAILROAD:

** March 1, 1925, locomotive 323, Buckhead, Ga. Squirt hose valve stuck open. One injured.

One accident, 1 injured.

GREAT NORTHERN RAILWAY:

September 18, 1924, locomotive 1921, Leavenworth, Wash. Nuts on bolts securing tender gangway step loose, allowing step to tilt and cause injury to engineer. One injured.

September 25, 1924, locomotive 1140, near Zena, Wash. Nut worked off of knuckle pin account of cotter key missing and pin came out and caught on hub of left main driving wheel, stripping side rods on that side. One injured.

December 5, 1924, locomotive 1132, Duluth, Minn. Clevis connecting coupler locking block and pin lifter missing. One injured.

December 7, 1924, locomotive 3211, Fortine, Mont. Hinges of cover to tool box on tender were broken, causing cover to tip and cause injury to fireman. One injured.

December 10, 1924, locomotive 3301, Big Sandy, Mont. Drawbar at rear of tender pulled out due to old defect in pull rod eye which allowed key to slip out. One injured.

December 18, 1924, locomotive 506, Tintah, Minn. Engineer slipped from tender sill step account of step covered with ice; boiler check stuck open and leak through overflow pipe caused ice to accumulate on step and handhold. One injured.

** January 3, 1925, locomotive 1456, near Waverly, Minn. Tire came off engine truck wheel, causing derailment of truck. One injured.

February 8, 1925, locomotive 381, Whitefish, Mont. Tender brake beam came down; brake rigging reported defective 12 times since January 1—five of these reports being within the 5 days just preceding the accident. One injured.

** March 8, 1925, locomotive 463, Marcus, Wash. Jacket stud on back boiler head fouled on reverse lever. One injured.

March 27, 1925, locomotive 3204, near Brookston, Minn. Cushion valve missing from power-operated fire door allowing door to close violently. One injured.

April 11, 1925, locomotive 1712, Stonehill, Mont. Pin came out of bottom rod to front tender truck brake rigging allowing it to drop down and drag on ties. One injured.

May 14, 1925, locomotive 1102, Chiwaukum, Wash. Reverse lever unlatched and went into extreme forward gear with sufficient force to knock quadrant stud out of boiler; stud screwed into boiler only $2\frac{1}{2}$ threads; improperly applied and maintained quadrant bracket, bolts and fittings; link saddle pin was loose. One injured.

Twelve accidents, 12 injured.

GULF & SHIP ISLAND RAILROAD:

March 27, 1925, locomotive 51, Collins, Miss. Crown sheet failure caused by overheating due to low water; lowest gauge cock $2\frac{7}{8}$ inches above highest point of crown sheet; water glass had broken en route and locomotive was being operated with water-glass cocks closed. Two injured.

One accident, 2 injured.

HUNTINGDON & BROAD TOP MOUNTAIN RAILROAD & COAL COMPANY:

November 13, 1924, locomotive 36, Bedford, Pa. Wrench slipped off grease-cup plug and struck engineer across the eyes; corners of hexagon plug badly worn. One injured.

One accident, 1 injured.

ILLINOIS CENTRAL RAILROAD COMPANY:

August 16, 1924, locomotive 1509, Kankakee, Ill. Grate shaker bar slipped off post; holes in shaker bar did not line up with holes in post so that safety pin could be used. One injured.

August 23, 1924, locomotive 236, Mounds, Ill. Shaker bar slipped off post due to socket being too small for fit on post and post battered on end. One injured.

September 10, 1924, locomotive 1718, Springfield, Ill. Shaker bar slipped off post due to improper fit. One injured.

** September 23, 1924, locomotive 1875, Pinckneyville, Ill. Insufficient clearance between shaker bar and oil-can tray; shaker rigging not applied according to standard. One injured.

**October 7, 1924, locomotive 1409, Chicago, Ill. Squirt hose blew off. One injured.

November 11, 1924, locomotive 1578, Gilman, Ill. Grate shaker bar broke due to having been burned and wasted away at point of failure. One injured.

**December 11, 1924, locomotive 2318, Ethel, Miss. Wrist pin broke. One injured.

**January 14, 1925, locomotive 2927, Clinton, Ill. Front end of side rod came down. One injured.

**January 22, 1925, locomotive 1108, Effingham, Ill. Tank box cover broke off. One injured.

**February 27, 1925, locomotive 1509, Matteson, Ill. Sliver from fire scoop handle stuck into fireman's hand. One injured.

March 30, 1925, locomotive 1073, Freeport, Ill. Lubricator sight glass blew out. One injured.

May 7, 1925, locomotive 1078, Canton, Miss. Lubricator glass broke. One injured.

June 13, 1925, locomotive 1566, Clinton, Ill. Broken rivet blew out of door sheet while being caulked under pressure. One injured.

Thirteen accidents, 13 injured.

INDIANA HARBOR BELT RAILROAD:

September 13, 1924, locomotive 30, Gibson, Ind. Bonnet blew out of air compressor throttle valve due to not having been properly applied. One injured.

September 20, 1924, locomotive 162, Burnham, Ill. Shaker bar slipped off post; bar badly worn causing improper fit. One injured.

December 8, 1924, locomotive 404, Bellwood, Ill. Squirt hose blew off of pipe due to being insecurely attached; pipe opening not turned downward and boiler check leaking. One injured.

Three accidents, three injured.

INTERNATIONAL-GREAT NORTHERN RAILROAD:

**July 22, 1924, locomotive 307, Mart, Tex. Nipple to blow-off valve in dome cap blew out. One injured.

August 3, 1924, locomotive 74, Overton, Tex. Cotter key and pin worked out of top of clevis of lift chain and allowed cut lever to disconnect from the front coupler. One injured.

**August 29, 1924, locomotive 110, Navasota, Tex. Boiler check seat blew out account of hole in valve body being worn too large for seat to fit; valve disk missing from end of stop valve stem. One injured.

**September 14, 1924, locomotive 249, Houston, Tex. Insufficient clearance between edge of cab apron and plank on back portion of tender deck. One injured.

December 15, 1924, locomotive 235, Mineola, Tex. Drain cock blew out of main reservoir account of very defective threads on drain cock bushing and in hole in reservoir. One injured.

**June 21, 1925, locomotive 418, Mart, Tex. Squirt hose burst. One injured.

Six accidents, six injured.

KANSAS CITY, MEXICO & ORIENT RAILWAY:

*October 12, 1924, locomotive 131, Hamlin, Tex. Bull's-eye blew out of lubricator account of defective threads on bushing. One injured.

*April 27, 1925, locomotive 210, San Angelo, Tex. Blow-off cock turned in sleeve. One injured.

Two accidents, two injured.

KANSAS CITY SOUTHERN RAILWAY:

September 10, 1924, locomotive 532, Shreveport, La. Squirt hose burst due to being badly worn. One injured.

October 25, 1924, locomotive 558, near Poteau, Okla. Forward reverse lever quadrant stop plate insufficiently secured permitting reverse lever to go too far ahead. One injured.

Two accidents, two injured.

KANSAS, OKLAHOMA & GULF RAILWAY:

August 29, 1924, locomotive 221, Fairland, Okla. Squirt hose blew off nipple connection due to clamp not being tightened properly. One injured.

One accident, one injured.

KENTUCKY & TENNESSEE RAILWAY:

August 15, 1924, locomotive 7, Comargo, Ky. Autogenously welded crack 19 inches long in top part of boiler back head suddenly failed for its entire length; when the weld failed the crack extended 3 inches on left side and 6 inches on right side making a total length of opening 28 inches; when failure occurred engineer was blown from cab and engine ran away and collided with 12 cars loaded with coal. Two killed, 1 injured.

One accident, two killed, one injured.

LEHIGH & HUDSON RIVER RAILWAY:

March 1, 1925, locomotive 54, near Franklin, N. J. Crown sheet failure caused by overheating due to low water; top valve to water glass found closed. One killed, 2 injured.

One accident, one killed, two injured.

LEHIGH VALLEY RAILROAD:

**October 3, 1924, locomotive 468, Oliver Mills, Pa. Throttle difficult to close account of nut becoming wedged in bell crank and throttle lever inside of boiler. One injured.

*October 28, 1924, locomotive 3158, Easton, Pa. Both main brake hanger pins defective. One injured.

November 2, 1924, locomotive 1629, Easton, Pa. Bell which had stuck, suddenly released, catching fireman's finger. One injured.

November 17, 1924, locomotive 1140, Auburn, N. Y. Injured due to reverse lever being hard to operate. One injured.

February 7, 1925, locomotive 2119, Meshopen, Pa. Valve bonnet came out of auxiliary lubricator account of not being properly screwed into body. One injured.

**March 31, 1925, locomotive 1615, Ithaca, N. Y. Engine and tender uncoupled from train due to cotter key in coupler on rear of tender being bent and about 1 inch too long, which prevented locking pin from engaging coupler knuckle. One killed.

May 5, 1925, locomotive 2021, Sayre, Pa. Arm rest on window sill gave way, due to being insecurely applied. One injured.

May 29, 1925, locomotive 962, Kohinoor Junction, Pa. Shovel caught on nail protruding from tank floor. One injured.

Eight accidents, one killed, seven injured.

LONG BELL LUMBER Co.:

May 28, 1925, locomotive 8, Quitman, Miss. Squirt hose blew off nipple. One injured.

One accident, one injured.

LOS ANGELES & SALT LAKE RAILROAD:

*August 11, 1924, locomotive (U. P.) 3164, Barstow, Calif. Side rod broke. One injured.

One accident, one injured.

LOUISIANA & ARKANSAS RAILWAY:

April 16, 1925, locomotive 302, Alexandria, La. Crown sheet failure caused by overheating due to low water; rubber gasket squeezed over the top end of the water glass, greatly restricting the opening; autogenously welded seam between crown and side sheet failed for a distance of 16 inches. Two injured, one of which died as a result of injury eight days later. Two injured.

One accident, two injured.

LOUISVILLE & NASHVILLE RAILROAD:

**July 2, 1924, locomotive 1246, near Louisville, Ky. Reverse lever unlatched and caught engineer's foot between lever and air pipe; stop block missing from front of quadrant. One injured.

*July 7, 1924, locomotive 2504, Gentry, Ky. Insufficient clearance between sander valve and reverse lever. One injured.

August 17, 1924, locomotive 1537, Wilhite, Ala. Squirt hose valve leaking. One injured.

August 22, 1924, locomotive 701, Howell, Ind. Washout plug blew out while attempting to tighten under pressure. One injured.

September 10, 1924, locomotive 1588, Radnor, Tenn. Squirt hose burst due to being badly worn. One injured.

September 24, 1924, locomotive 1242, Lebanon Junction, Ky. Bolt came out of top end of vertical handhold on inside edge of left rear cab wall, allowing handhold to swing outward, throwing fireman to ground. One injured.

September 27, 1924, locomotive 1266, near Cave City, Ky. Ash pan slide fouled head of driving brake adjusting screw account of adjusting rod being bent. One injured.

**October 23, 1924, locomotive 615, Montgomery, Ala. Injured due to defective shovel sheet. One injured.

November 7, 1924, locomotive 144, Dundee, Ky. Main driving axle broke, due to old flaw covering approximately 60 per cent of cross-sectional area. One injured.

November 18, 1924, locomotive 1256, Rowletts, Ky. Handle to lubricator control valve broke, permitting packing nut and gland which had worked loose to be forced off and hot oil from lubricator to strike engineer. One injured.

November 27, 1924, locomotive 1205, Wilcox, Ala. Roof boards of cab broke, causing fireman to fall. One injured.

December 7, 1924, locomotive 1079, near Munfordsville, Ky. Main driving axle broke on both sides, badly damaging the locomotive; old flaws on both ends of axle inside wheel fit; daily inspection reports for November 3, 7, 15, 16, 17, 17, 21, and 26 showed locomotive pounding in rods and driving boxes and reports were approved without explanation, indicating repairs had been made. Three injured.

December 7, 1924, locomotive 1466, Loyall, Ky. Pipe bushing blew out of main air reservoir head due to threads being badly corroded and wasted away. One injured.

**December 21, 1924, locomotive 391, Garden City, Ala. Ash pan slide shaft broke while fireman was trying to open slides, causing him to fall backward. One injured.

**December 26, 1924, locomotive 1229, Garland, Ala. Lubricator drain pipe stopped up. One injured.

December 27, 1924, locomotive 767, Sloan, Ky. Slipped off front tank step which was covered with ice caused by leak from packing nuts in top of tank bulkhead; excessive steam leaks around cylinders obstructed view of tank step and ice was not noticed. One injured.

January 26, 1925, locomotive 787, Caryville, Fla. Intermediate side rod broke at defective weld. One injured.

February 3, 1925, locomotive 857, Montgomery, Ala. Lubricator drain valve broke off at connection to lubricator. One injured.

February 4, 1925, locomotive 1254, Wallsend, Ky. One bolt broken and other bolt loose in the right back pilot step brace, permitting the brace to turn over and catch in frog. One injured.

February 18, 1925, locomotive 1421, Chenowee, Ky. Locomotive parted from train account of both bolts in left side of rear draft gear carrier iron breaking. One injured.

*February 19, 1925, locomotive 1070, Shawanee, Tenn. Cylinder head knocked out. One injured.

March 16, 1925, locomotive 2124, Loyall, Ky. Injector steam ram yoke blew out due to not being properly tightened. One injured.

April 7, 1925, locomotive 2121, Corbin, Ky. Throttle flew open account of throttle lever latch teeth being too short and not of proper contour to engage teeth of quadrant; latch improperly bolted; throttle reported defective on April 3, 4, 5, and 6. One injured.

**June 8, 1925, locomotive 2119, De Coursey, Ky. Brake hanger broke. One injured.

Twenty-four accidents, 26 injured.

LOUISVILLE, HENDERSON & ST. LOUIS RAILWAY:

*December 29, 1924, locomotive 42, Strawberry, Ky. Pin dropped out of piston of air operated fire door. One injured.

January 9, 1925, locomotive 6, Indian Lake, Ky. Reverse lever counterbalance spring lug on tumbling shaft broke due to old flaw in stem and stem of too light construction. One injured.

Two accidents, 2 injured.

MIAMI MINERAL BELT RAILROAD:

**September 18, 1924, locomotive 121, near Picher, Okla. Bottom brake rod under back tender truck broke; locomotive moved off while engineer was under tender making repairs. One killed.

One accident, 1 killed.

MICHIGAN CENTRAL RAILROAD:

**July 30, 1924, locomotive 8317, near East Gary, Ind. Main driving axle broke causing derailment of locomotive, tender and six cars of passenger train. Nine injured.

August 7, 1924, locomotive 8830, Kensington, Ill. Piece of pipe applied to end of squirt hose to be used as nozzle blew off account of not being clamped. One injured.

**August 28, 1924, locomotive 7883, Jackson Junction, Mich. Squirt hose blew off nipple due to loose clamp; nipple pointed directly across cab and steam and hot water struck engineer seated in his usual position. One injured.

October 4, 1924, locomotive 8814, Kalamazoo, Mich. Body of middle gauge cock handle broke off at threaded section. One injured.

October 24, 1924, locomotive 7911, Detroit, Mich. Injector steam pipe collar broke off due to old flaw approximately one-half way around pipe. One injured.

April 19, 1925, locomotive 7966, Jackson, Mich. Smoke box inspection hole plate pulled out due to being improperly fastened. One injured.

Six accidents, 14 injured.

MIDLAND VALLEY RAILROAD:

February 1, 1925, locomotive 71, Muskogee, Okla. Reflex type water glass burst. One injured.

One accident, 1 injured.

MINNEAPOLIS & ST. LOUIS RAILROAD:

July 9, 1924, locomotive 322, Ft. Dodge, Iowa. Washout plug blew out due to not being properly tightened in sheet. One injured.

*November 13, 1924, locomotive 156, Palmer, Minn. Grate connecting rod broke; metal crystallized. One injured.

Two accidents, 2 injured.

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

**November 8, 1924, locomotive 101, near Rexton, Mich. Tender sill step missing. One injured.

December 12, 1924, locomotive 204, Grenville, S. Dak. Insufficient clearance between ash pan lever and side rod crank pin. One injured.

March 29, 1925, locomotive 469, near Pembine, Wis. Driving spring hanger broke. One injured.

Three accidents, 3 injured.

MINNESOTA TRANSFER RAILWAY:

July 12, 1924, locomotive 7, St. Paul, Minn. Injector overflow pipe disconnected permitting hot water to escape in cab. One injured.

One accident, 1 injured.

MISSOURI-KANSAS-TEXAS LINES:

*August 7, 1924, locomotive 732, Lindale, Mo. Coupler on rear tank air hose caught in frog, causing severe jolt which threw brakeman off footboard; bracket holding train line pipe not properly fastened which allowed hose to hang too low. One injured.

**October 13, 1924, locomotive 748, near Mound Valley, Kans. Reverse lever unlatched and flew forward; quadrant worn. One injured.

November 22, 1924, locomotive 229, near Tulsa, Okla. Autogenously welded seam, covered with jacket, failed, without indication of previous weakness, for a distance of 34½ inches, seriously scalding engineer and fireman and compelling them to leave the cab without applying the brakes, while hauling a passenger train at an estimated speed of 35 miles per hour. After accident occurred the fireman made his way over cab to front end of locomotive, opened angle cock and stopped the train. Two injured.

**November 25, 1924, locomotive 298, Hico, Tex. Draw bar pulled out of engine account of draft bolts holding coupler to end sill broken inside buffer beam, causing air to be set in emergency and train to make sudden stop. One injured.

**November 27, 1924, locomotive 753, Lindale, Mo. Brake beam came down due to hanger pin breaking. One injured.

**December 18, 1924, locomotive 65, Kansas City, Kans. Drain cock to injector delivery pipe broke off. One injured.

January 7, 1925, locomotive 393, Muskogee, Okla. Step hanger at side of pilot beam broke off due to old fracture. One injured.

**April 6, 1925, locomotive 541 (place not given). Squirt hose became disconnected. One injured.

Eight accidents, 9 injured.

MISSOURI PACIFIC RAILROAD:

**July 8, 1924, locomotive 147, Prairie Du Rocher, Ill. Lost motion in grate shaker and dump grate fulcrum shaft allowing drop grate reach rod to foul on shaker bolt. One injured.

*July 10, 1924, locomotive 1701, Auburn, Nebr. Squirt hose burst. One injured.

July 23, 1924, locomotive 2320, Cedarvale, Kans. Left delivery pipe leaking at boiler check connection due to threads on spanner nut badly worn; attempted to tighten with hammer and chisel when nut came loose and dropped down on pipe. One injured.

*August 22, 1924, locomotive 6451, St. Louis, Mo. Squirt hose blew off. One injured.

September 10, 1924, locomotive 1245, De Soto, Mo. Reverse lever latch slipped out of quadrant notches and lever struck engineer; reverse lever quadrant bracket bolts loose. One injured.

*September 25, 1924, locomotive 427, Reed's Spur, Mo. Stop missing from quadrant allowed insufficient clearance between reverse lever and cab. One injured.

October 9, 1924, locomotive 1275, Poplar Bluff, Mo. Shaker bar slipped off post due to improper fit. One injured.

*October 12, 1924, locomotive 1437, Blackville, Ark. Arm rest came loose. One injured.

**October 13, 1924, locomotive 1317, Chamois, Mo. Union connecting discharge pipe to ash pan blow-off cock nipple was loose which permitted hot water to come into cab of locomotive when blow-off cock was opened. One injured.

*October 20, 1924, locomotive 5310, Bismarck, Mo. In shaking grates, fireman struck hand against back of cab; shaker not provided with off set to clear cab. One injured.

*December 30, 1924, locomotive 129, Boonville, Mo. Reverse lever slipped out of quadrant, striking engineer. One injured.

*January 13, 1925, locomotive 9537, Omaha, Nebr. Cab window fell out of its fastenings. One injured.

*January 16, 1925, locomotive 2332, Wauneta, Kans. Flue burst. One injured.

**April 1, 1925, locomotive 1814, McGehee, Ark. Sheet iron plate over left front corner of tender water leg bent down making insecure footing caused firemen to fall to ground. One injured.

**April 8, 1925, locomotive 2326, North Rosboro, Ark. Fire door roller pin missing. One injured.

*April 9, 1925, locomotive 431, Glenmora, La. Plug worked out of fire door air cylinder, allowing door to close suddenly. One injured.

May 3, 1925, locomotive 154, Hoxie, Ark. Burned by hot water escaping through hole in squirt hose. One injured.

May 17, 1925, locomotive 2349, near Jerome, Ark. Crown sheet failure caused by overheating due to low water. Two killed, 2 injured.

June 7, 1925, locomotive 1473, Pleasant Hill, Mo. Grate shaker bar slipped off fulcrum lever. One injured.

Nineteen accidents, 2 killed, 20 injured.

MOBILE & OHIO RAILROAD:

July 24, 1924, locomotive 544, Electric Mills, Miss. Defective union nut on blower pipe failed and blower pipe became disconnected while blower valve was open filling the cab with steam. Two injured.

August 26, 1924, locomotive 326, Corinth, Miss. Ash pan slide lever broke due to defective weld. One injured.

March 4, 1925, locomotive 409, Perry, Tenn. Shaker bar slipped off lever due to im proper fit. One injured.

*April 15, 1925, locomotive 548, Escatawpa, Ala. Ash pan rake broke. One injured.

June 13, 1925, locomotive 418, near Rutherford, Tenn. Shaker bar slipped off lever due to improper fit. One injured.

Five accidents, six injured.

NASHVILLE, CHATTANOOGA & ST. LOUIS RAILWAY:

*April 20, 1925, locomotive 396, Rocky Face, Ga. Crosshead key sheared, bending piston. One injured.

One accident, 1 injured.

NEW YORK CENTRAL—EAST:

July 27, 1924, locomotive 3844, De Witt, N. Y. Spanner nut at boiler check broke due to use of improper tools in tightening. One injured.

August 6, 1924, locomotive 4099, Solvay, N. Y. Flexible staybolt sleeve broke off due to old fracture. One injured.

August 28, 1924, locomotive 797, Buffalo, N. Y. Smoke box door came off both hinges due to four rivet heads being completely worn off allowing rivets to pull through. One injured.

September 26, 1924, locomotive 3178, Hudson, N. Y. Grates became disconnected due to bolt working out. One injured.

**September 27, 1924, locomotive 905, Level, Pa. When unlatched reverse lever flew back and struck engineer; piece of cast iron approximately 1½ by 2½ inches was found in right valve chamber. One injured.

October 7, 1924, locomotive 272, De Witt, N. Y. Squirt hose blew off nipple; squirt hose not clamped and standard squirt hose casting not used. One injured.

October 10, 1924, locomotive 2915, Keating, Pa. Grate shaker bar slipped off post due to improper fit. One injured.

November 3, 1924, locomotive 2662, Sullivan, N. Y. End of throat sheet brace blew out due to being broken and defective threads. Two injured.

November 15, 1924, locomotive 2118, near Sterlingville, N. Y. Crown sheet failure caused by overheating due to low water. Two injured.

**December 16, 1924, locomotive 3979, Solvay, N. Y. Shaker bar slipped off post due to improper fit. One injured.

December 22, 1924, locomotive 1455, Kingston, N. Y. Bonnet blew out of headlight generator throttle valve. One injured.

December 27, 1924, locomotive 5102, Elmira, N. Y. Grate shaker post broke off through autogenous weld. One injured.

January 17, 1925, locomotive 5134, Cloe, Pa. Throttle flew open causing engine to slip; engineer was tightening main rod key and was struck by wrench. One injured.

January 25, 1925, locomotive 2966, Snow Shoe, Pa. Reverse lever unlatched and flew back striking engineer due to latch spring being broken. One injured.

April 2, 1925, locomotive 3403, Solvay, N. Y. Driving wheel brake adjusting rod broke due to old flaw. One injured.

April 10, 1925, locomotive 3709, Iona Island, N. Y. Grate shaker bar slipped off post due to improper fit. One injured.

April 20, 1925, locomotive 3581, Oriskany, N. Y. Tender truck journal broke due to old fracture covering about 95 per cent of cross sectional area causing derailment of helper locomotive. Seven injured.

April 24, 1925, locomotive 4863, Buffalo, N. Y. Autogenously welded seam in left side sheet failed for a distance of 94 inches without previous indications of weakness. One injured.

*June 6, 1925, locomotive 319, Buffalo, N. Y. Locomotive 319 uncoupled from leading locomotive and later collided with it. One injured.

Nineteen accidents, 27 injured.

NEW YORK CENTRAL—WEST:

**July 27, 1924, locomotive 2645, Chesterton, Ind. Piece of iron flew from coal pick and struck fireman in the eye; old flaw in head of pick. One injured.

November 23, 1924, locomotive 5949, near Streator, Ill. Blower valve bonnet blew out; bonnet lock nut having 16 threads per inch was applied to valve body having but 11 threads per inch. One injured.

**December 21, 1924, locomotive 118, Dunkirk, N. Y. Union in discharge pipe to air compressor broke off causing emergency application of brakes; pipe not in proper alignment and weak union. One injured.

January 9, 1925, locomotive 5908, Archbold, Ohio. Arch tube burst due to being overheated account of accumulation of mud and scale; tube not of uniform thickness. One injured.

February 1, 1925, locomotive 5978, Toledo, Ohio. Running board handrail pulled out of column causing employee to fall to ground; back section of handrail was too short and rear column loose on stud. One injured.

February 13, 1925, locomotive 48, Madison, Ohio. Side rod broke at old flaw approximately 75 per cent of cross-sectional area of rod and punched hole in throat and bottom flue sheet. One killed, 2 injured.

March 12, 1925, locomotive 5154, Dunn, Ind. Catch springs in elevator pawl shifter of stoker defective and did not hold shifter in neutral position. One injured.

May 4, 1925, locomotive 117, Air Line Junction, Ohio. Lubricator glass blew out. One injured.

May 15, 1925, locomotive 720, Elkhart, Ind. Grab iron in cab gave way account of nut working off of bolt securing it. One injured.

**June 18, 1925, locomotive 2590, Waterloo, Ind. Ash pan lever became disconnected account of connecting pin losing out. One injured.

Ten accidents, 1 killed, 11 injured.

NEW YORK, CHICAGO & ST. LOUIS RAILROAD:

October 12, 1924, locomotive 491, near Ambia, Ind. Main rod broke due to old crack. One injured.

December 2, 1924, locomotive 382, LaFayette, Ind. Reverse lever unlatched and flew forward striking engineer. One injured.

Two accidents, 2 injured.

NEW YORK, NEW HAVEN & HARTFORD RAILROAD:

**July 12, 1924, locomotive 269, East Providence, R. I. Curtain rod fell and struck fireman on head, causing him to fall against boiler head. One injured.

**July 26, 1924, locomotive 1531, Middleboro, Mass. Struck by shaker bar while shaking grates due to grates being disconnected. One injured.

October 11, 1924, locomotive 1016, New Britain, Conn. Hand sand lever broke at coupling connection causing engineer to fall; sand lever not properly connected. One injured.

October 22, 1924, locomotive 2456, Providence, R. I. Bottom connection to sand pipe worked loose permitting sand pipe to be out of line with rail. One injured.

**November 11, 1924, locomotive 481, Hartford, Conn. Right go-ahead eccentric blade broke at bolt hole in clevis end and link saddle pin sheared off; clevis pin reported loose on November 1, 3, 3, 4, and 8. One injured.

*November 25, 1924, locomotive 1091, South Bellingham, Mass. Coal slide on tank dropped out due to being insecurely fastened. One injured.

**December 9, 1924, locomotive 1386, Madison, Conn. Crank pin worked out of wheel center. One injured.

December 11, 1924, locomotive 3006, near Berlin, Conn. Flue broke off at defective safe end weld. One injured.

January 29, 1925, locomotive 215, Hartford, Conn. Grate shaker connecting rod became disconnected due to pin working out, causing fireman to be thrown out of gangway to the ground. One injured.

February 13, 1925, locomotive 2538, New Bedford, Mass. Insufficient clearance between reverse lever and boiler backhead. One injured.

**March 11, 1925, locomotive 2443, Springfield, Mass. Dry pipe leaking caused reverse lever to fly back throwing engineer against cab; dry pipe reported leaking on March 2, 4, 9, and 10. One injured.

**March 28, 1925, locomotive 3339, Shelton, Conn. Shaker bar slipped off lever due to improper fit. One injured.

April 12, 1925, locomotive 2448, Boston, Mass. Top water glass packing nut leaking due to being loose. One injured.

April 17, 1925, locomotive 530, Dedham, Mass. Back up eccentric blade broke at bolt hole allowing reverse lever to fly back and strike engineer; old fracture found on one side of bolt hole though bolts had been reported loose on April 11, 13, and 14 and locomotive held for repairs on April 15 and 16. One injured.

April 21, 1925, locomotive 970, Burnside, Conn. Brazing nipple on lubricator steam pipe broke off. One injured.

April 29, 1925, locomotive 1328, Meriden, Conn. Flue failed due to defective safe end weld. One injured.

**May 10, 1925, locomotive 1386, New London, Conn. Cellar pin lost out engine truck allowing cellar to drop away from journal, causing journal to run hot. One injured.

May 14, 1925, locomotive 398, Holmes, N. Y. Equalizer spring in tumbling shaft was not long enough for proper adjustment, causing reverse lever to work hard. One injured.

May 23, 1925, locomotive 222, Framingham, Mass. Draw bar and safety chains between locomotive and tender broke due to old fracture in draw bar and flaw and defective weld in safety chains. One injured.

**June 16, 1925, locomotive 1209, South Boston, Mass. Insufficient clearance between reverse lever and back of cab. One injured.

June 30, 1925, locomotive 2448, South Boston, Mass. Clevis on uncoupling lever broke. One injured.

Twenty-one accidents, 21 injured.

NORFOLK & WESTERN RAILWAY:

July 13, 1924, locomotive 2034, Lurick, Va. Flue broke off at defective safe end weld. One injured.

One accident, 1 injured.

NORFOLK SOUTHERN RAILROAD:

*April 11, 1925, locomotive 216, Wilson, N. C. Squirt hose became disconnected. One injured.

One accident, 1 injured.

NORTHERN PACIFIC RAILWAY:

*July 1, 1924, locomotive 1023, Duluth, Minn. Drop seat came loose where secured to side of cab and dropped when engineer sat upon it, causing him to fall. One injured.

**August 20, 1924, Locomotive 2153, St. Paul, Minn. Blow-off cock stuck open. One injured.

**August 21, 1924, locomotive 1527, Butte, Mont. Piston rod key sheared off and rod pulled out of crosshead, knocking out front cylinder head; emergency application of brakes caused train to part between first and second cars; piston rod was not pulled into crosshead by key as far as it should have been. One killed.

**September 14, 1924, locomotive 1572, Lincoln, Minn. Insufficient clearance between reverse lever and air pipes. One injured.

**November 14, 1924, locomotive 1728, Whitehall, Mont. Grates stuck account of raised letters on center bar so located as to cause interference. One injured.

November 18, 1924, locomotive 2256, Logan, Mont. Blow-off cock leaking. One injured.

January 4, 1925, locomotive 2341, Forsyth, Mont. Steam turbine end of headlight generator dynamo burst and flying pieces struck engineer. One injured.

February 18, 1925, locomotive 570, White Bear, Minn. Side rod broke; metal coarse grained with evidence of crystallization. One injured.

*April 6, 1925, locomotive 1782, Seattle, Wash. Cylinder cock stuck open. One injured.

May 28, 1925, locomotive 1165, Dilworth, Minn. Ash pan hopper door and shaft connection badly worn, permitting ash pan operating lever to move forward and come in contact with back end of main rod. One injured.

Ten accidents, 1 killed, 9 injured.

OREGON SHORT LINE RAILROAD:

**April 17, 1925, locomotive 616, Lima, Mont. Air compressor governor excess pressure head was inoperative; locomotive was going on first trip since annual inspection at which time it would appear that condition of governor should have been noted and repairs made. One injured.

One accident, 1 injured.

OSAGE RAILWAY:

December 22, 1924, locomotive (M. V.) 14, Leps, Okla. Crown sheet failure caused by overheating due to low water; no contributing causes found; appurtenances lost or damaged to such extent that their previous condition could not be determined. Three injured.

One accident, 3 injured.

PENNSYLVANIA RAILROAD SYSTEM:

**July 9, 1924, locomotive 1626, Harrisburg, Pa. Lubricator drain cock broke off. One injured.

**July 9, 1924, locomotive 2779, Greensburg, Pa. Struck by steam hose connection which flew from passing locomotive. One injured.

**July 13, 1924, locomotive 608, Thompsettown, Pa. Flue broke at defective safe-end weld. One injured.

July 13, 1924, locomotive 9866, Cleveland, Ohio. Trailer equalizer hanger broke due to old flaw and metal crystallized and dropped down on track. Two injured.

July 14, 1924, locomotive 9428, near Clifton, Pa. Injured due to defective shoveling sheet; sheet was in two pieces and back sheet was raised above level of front sheet, causing injury to fireman when shovel struck this obstruction. One injured.

July 18, 1924, locomotive 3333, Lindenwold, N. J. Engine truck safety-chain clevis was cast from passing train and struck track employee who was standing along right of way; safety-chain clevis became detached from fastening due to clevis pin not having been properly secured. One injured.

**July 19, 1924, locomotive 3758, Rosemont, Pa. Grease cup lid flew off and struck employee; threads stripped. One injured.

July 19, 1924, locomotive 4321, Crestline, Ohio. Squirt hose parted at splice due to not being clamped. One injured.

**July 22, 1924, locomotive 3243, Pittsburgh, Pa. Cap covering draw-bar pin missing, allowing fireman to step into hole in deck of cab, spraining his ankle. One injured.

July 23, 1924, locomotive 8659, Cleveland, Ohio. Burned account of injector steam ram leaking; this defect reported on July 22, 23 (two times) and 24 before repairs were made. One injured.

July 23, 1924, locomotive 1568, Cresson, Pa. Injector steam-ram bonnet blew out, due to threads on bonnet badly stripped. One injured.

July 28, 1924, locomotive 1902, Derry, Pa. Splice blew off squirt hose. One injured.

August 9, 1924, locomotive 7541, Chicago, Ill. Water glass gasket blew out; arm rest gave away, due to being insecurely supported while fireman was leaning out window to avoid the escaping steam and hot water, causing him to fall to ground. One injured.

August 10, 1924, locomotive 7776, near Wanatah, Ind. Studs securing cross-head arm to crosshead sheared off. One injured.

August 10, 1924, locomotive 7169, Pittsburgh, Pa. Coupler on shop switching locomotive 7169 was 3 inches lower than minimum requirement, allowing it to nose under chafing iron pocket casting on locomotive 7548, being pushed, decreasing the space between the locomotives to 5 inches and crushing an employee so severely that he died 30 hours later. One injured.

August 12, 1924, locomotive 9933, Cleveland, Ohio. Lost motion in tender deck-shoveling sheet and left cast-iron sill step caused injury to fireman; two bolts in top tender-sill step missing and three bolts in tender deck-shoveling sheet at feed-water tank connection were missing; these defects had been reported on August 2, 3, 6, 7, 9, and 10. One injured.

August 22, 1924, locomotive 1596, Collier, W. Va. Shaker bar slipped off. One injured.

August 22, 1924, locomotive 1161, Conemaugh, Pa. Threads stripped on nut on injector steam pipe while being tightened under pressure; threads on nut and joint in poor condition prior to accident. One injured.

August 24, 1924, locomotive 3010, near Ridgeway, Pa. Valve gear on right side failed, due to pin losing out of right union link connection to combination lever; daily inspection report for August 23 showed "Union link bolts worn both sides" followed by notation indicating that bolts were examined and considered serviceable by the foreman notwithstanding bolt failed within 79 miles after locomotive left terminal. One injured.

*August 24, 1924, locomotive 9376, Orrville, Ohio. Water-glass gasket blew out. One injured.

August 25, 1924, locomotive 9914, Dinsmore, Pa. Reverse lever kicked back and caught engineer's arm on a piece of boiler head jacket which was not in place and reduced the clearance between reverse lever and boiler head. One injured.

September 3, 1924, locomotive 7032, Cleveland, Ohio. Shovel caught on rough edge of hole 10 inches in diameter worn through shoveling sheet, resulting in fireman's wrist being badly sprained; shovel sheet reported defective on August 19, 20, and 31 and locomotive continued in service without repairs. One injured.

September 12, 1924, locomotive 8811, Bicknell, Ind. Locomotive derailed, due to broken rail having been improperly repaired and tire having been improperly set; tires measured back to back $52\frac{1}{8}$ inches and diametrically opposite $53\frac{1}{4}$ inches; two days prior to accident engineer reported "Gauge flanges on back drivers, engine don't stay on track backing up" and report was approved by foreman without explanation. One injured.

**September 14, 1924, locomotive 7162, Canal Fulton, Ohio. Left front driving tire came off of wheel causing locomotive to derail and turn over on its side; tire reported loose on September 4, 5, 6, 7, 8, 10, 12, and 13. Three injured.

**September 15, 1924, locomotive 3017, Salamanca, N. Y. Lubricator oil pipe blew out of air-compressor steam line, due to threads being stripped. One injured.

September 20, 1924, locomotive 72, Petersburg, Pa. Superheater flue failed at defective safe-end weld. One injured.

September 26, 1924, locomotive 3345, Bellwood, Pa. Nuts worked off five of the six bolts securing lift pipe to smokestack, permitting lift pipe to swing out of position and cause back-draft; threads on bolts slightly undersize, permitting nuts to turn freely; lift pipe not central with exhaust nozzle. Two injured.

September 28, 1924, locomotive 1126, Cassandra, Pa. Reverse gear bracket stud blew out, due to threads on plug and in sheet badly worn; insufficient lubrication of right valve caused it to stick in cylinder, breaking radius rod, kinking reach rod, and throwing severe strain on reverse gear-bracket studs. One injured.

October 1, 1924, locomotive 3541, Delano Junction, Pa. Lift pipe in smoke box disconnected between upper and lower sections, causing back draft; heads of all rivets on inside of lift pipe worn off; lift pipe not central with exhaust nozzle. Four injured.

**October 1, 1924, locomotive 1530, near Greensburg, Pa. Piece of driver brake shoe flew from passing locomotive and struck track employee; brake shoe not standard and did not have same contour as tire. One injured.

October 2, 1924, locomotive 4447, Keating Summit, Pa. Reflex type water glass burst. One injured.

October 3, 1924, locomotive 7030, Wellsville, Ohio. Elbow to blow-off cock pipe blew out, account of threads being corroded and wasted away and insufficient clamping to hold blow-off pipe. One injured.

October 3, 1924, locomotive 2782, Trenton, N. J. Brakeman's foot caught between storm door and apron, account of storm-door guide missing. One injured.

October 5, 1924, locomotive 5073, Wolcottville, Ind. Whistle rope broke or became unfastened at arm on whistle. One injured.

**October 6, 1924, locomotive 258, Machias Junction, N. Y. Air pipe to distributing valve broke off at brazed sleeve. One injured.

October 7, 1924, locomotive 8852, Columbus, Ind. Scalded by water escaping at connection of overflow pipe to injector due to boiler check valve not seating properly. One injured.

**October 8, 1924, locomotive 577, Portage, Pa. Flue burst, due to thinning and pitting. One injured.

October 11, 1924, locomotive 7927, Hilliards, Ohio. Shaker bar slipped off post, due to improper fit. One injured.

October 15, 1924, locomotive 4312, Braddock, Pa. Stoker conveyor trough cover plate worked out, due to stop blocks missing and fell to depot platform, striking prospective passenger. One injured.

October 16, 1924, locomotive 8738, Bruceville, Ind. Reverse lever bound on quadrant, due to quadrant being too low; defect reported September 28 and 29 and October 1, 3, 5, and 8 and each report indicated repairs made. One injured.

**October 17, 1924, locomotive 823, Cincinnati, Ohio. Seat box cushion worn, allowing spring to protrude. One injured.

October 19, 1924, locomotive 3645, Edgewood, Pa. Flue broke off at front flue sheet, due to being wasted away and thin. One injured.

October 19, 1924, locomotive 3436, Durward, Pa. Brackets supporting flag box became loose where attached to cab roof, due to nuts working off bolts, allowing flag box to fall and strike employee. One injured.

October 24, 1924, locomotive 2399, Malvern, Ohio. Engineer's drop seat fell, account of screws securing it to side of cab pulling out. One injured.

October 26, 1924, locomotive 2916, Chicago, Ill. Flue failed at bead in back flue sheet; bead partly burned off and in bad condition; flues reported leaking on October 6, 12, 16, 21, and 22. One injured.

November 1, 1924, locomotive 1287, Taylor, N. J. Brake beam strut on tender truck broke, due to old cracks allowing brake rigging to drop down, striking track and causing brake lever coupling rod to be thrown from tender, striking passenger in a coach; strut had been reported cracked on October 18 and 22 and tender returned to service without repairs being made. One killed.

November 7, 1924, locomotive 4299, Johnstown, Pa. Squirt hose valve worked open. One injured.

November 8, 1924, locomotive 9396, Jessups, Ind. Pin lost out of back end of grate shaker connecting rod. One injured.

November 10, 1924, locomotive 6502, Delmar, Del. Lubricator drain valve body broke off at threads with steam pressure on lubricator; valve body cracked 50 per cent through. One injured.

November 13, 1924, locomotive 2099, Ryde, Pa. Brass bearing came off piston rod extension and flew back into the cab by breaking through cab door. One injured.

**November 21, 1924, locomotive 8545 (no place given). Toe board on rear tender footboard broken. One injured.

November 22, 1924, locomotive 8376, Big Walnut, Ohio. Bolt in stoker drive shaft connection dropped out account of cotter key missing. One injured.

**November 22, 1924, locomotive 9930, Cleveland, Ohio. Shovel caught on corner of shovel sheet due to same being loose, resulting in injury to fireman. One injured.

November 28, 1924, locomotive 1335, Shire Oaks, Pa. Flue broke off at defective safe end weld. One injured.

November 29, 1924, locomotive 1264, Wilmore, Pa. Flue burst due to being badly pitted and thinned. One injured.

December 1, 1924, locomotive 488, Wyside, Pa. Back cab door moved toward center or closed position, striking fireman, account of cab door fastening missing. One injured.

*December 1, 1924, locomotive 9102, Butler, Ind. Reverse lever latch stuck in quadrant. One injured.

*December 4, 1924, locomotive 7379, Edenburg, Pa. Eccentric rod strap broke. One injured.

December 10, 1924, locomotive 8673, near Van Wert, Ohio. Grease cup plug blew out when contents of fusee was put in cup account of pin running hot. One injured.

December 13, 1924, locomotive 9794, Columbus, Ohio. Throttle lever latch stuck when throttle was opened full. One injured.

*December 16, 1924, locomotive 7223, Freedom, Pa. Shaker bar slipped off lever, due to improper fit. One injured.

December 22, 1924, locomotive 8729, Greenup, Ill. Improper location of air pipes on boiler head and feed valve on automatic brake valve to allow sufficient clearance for reverse lever when in full forward motion. One injured.

**December 22, 1924, locomotive 8147, Straughn, Ind. Air-operated fire door became stuck and closed suddenly, catching employee's hand. One injured.

January 1, 1925, locomotive 2203, Bentleyville, Pa. Crown sheet failure caused by overheating, due to low water; gauge cocks applied directly in boiler back head. One killed, 1 injured.

*January 4, 1925, locomotive 7142, Woods Run, Pa. Coal gate on tender swung shut account of stay chain missing. One injured.

January 6, 1925, locomotive 1471, Tipton, Pa. Flue failed at defective safe end weld. Two injured.

January 6, 1925, locomotive 3717, Cassandra, Pa. Flue failed, due to being badly pitted and thinned. One injured.

January 7, 1925, locomotive 3509, Altoona, Pa. Locomotive parted from tender account of broken center channels at front of tender frame; old breaks in side channels had existed for some time; channel irons reported broken on January 5 and this condition called to the attention of the foreman three times on January 6 without repairs being made and the dangerous condition of tender was not called to the attention of the succeeding foreman, who approved the work report without making sufficient examination to determine if repairs had been made to defects reported. One injured.

January 8, 1925, locomotive 1582, Stockdale, Pa. Flue burst, due to being badly pitted at front end. Two injured.

January 10, 1925, locomotive 9713, Woodville, Ohio. Side rod broke due to old defect on inside edge of bottom flange; side rod bushings worn and engine out of tram; driving boxes reported pounding on December 22 and 30 and January 4, 5, 7 (two times), 8, and 9 (two times). One injured.

January 10, 1925, locomotive 4292, East Palestine, Ohio. Flue broke off at defective safe end weld. One injured.

**January 14, 1925, locomotive 9431, Canton, Ohio. Fire door pedal worn smooth and bent allowing fireman's foot to slip off and fire door to close on his hand; slides of door were broken, rollers and guides badly worn, cylinder loose and valve controlling cushioning feature was lost which allowed door to close violently. One injured.

January 16, 1925, locomotive 9032, Wooster, Ohio. Injector steam pipe burst account of being badly distorted and cracked due to improper bending; pipe evidently had not been annealed for a long time. One injured.

January 19, 1925, locomotive 7007, Cleveland, Ohio. Elbow in discharge pipe blew out of blow-off cock; threads in blow-off cock almost entirely wasted away and operating handle had been disconnected; blow-off cock reported leaking on January 4, 6, 7, 9, 10, 11, and 14. One injured.

*January 19, 1925, locomotive 8284, near Newcomerstown, Ohio. Tender brake rigging came down account of connecting rod pin losing out. One injured.

January 27, 1925, locomotive 3762, Merion, Pa. Side rod knuckle pin worked out account of dowel pin securing pin nut lost out; knuckle pin reported loose on January 10, 13, 15, 19, 20, and 24. One injured.

January 28, 1925, locomotive 3311, Hecla, Pa. Flue broke off at defective safe end weld; this and three other flues stopped up by accumulation of foreign matter cemented solid by leakage through broken welds. One injured.

January 29, 1925, locomotive 7495, Cleveland, Ohio. Nail protruded above shoveling sheet and caught fireman's shovel. One injured.

**January 30, 1925, locomotive 3810, Mechanicsburg, Pa. Right forward motion eccentric broke. One injured.

February 3, 1925, locomotive 2236, Pittsburgh, Pa. Flue broke off at defective safe end weld; this and three other flues stopped up by accumulation of foreign matter cemented solid by leakage through broken welds; swing type fire-door latch was defective and would not hold door closed. One injured.

**February 3, 1925, locomotive 3800, Manhattan Transfer, N. J. Bolts missing from manhole cover hinges allowed cover to tip and cause employee to fall. One injured.

**February 4, 1925, locomotive 2648, Jersey City, N. J. Water glass gasket blew out. One injured.

February 5, 1925, locomotive 7082, Toledo, Ohio. Center arch tube pulled out of inside throat sheet due to not having been belled or beaded. Three injured.

February 5, 1925, locomotive 1342, Althom, Pa. Flue broke off at safe end weld; overheated in welding. One injured.

*February 8, 1925, locomotive 1596, Fernwood, Ohio. Side rod broke. One injured.

February 10, 1925, locomotive 4580, Spartansburg, Pa. Feed hose connection nut came off and allowed hose to become disconnected due to threads in nut being wasted away until nut would slip entire depth of threaded portion without turning or threads having any holding power. Tank hose connection had been reported leaking previous trip and reports marked "Serviceable" by foreman. One killed.

February 11, 1925, locomotive 6009, Haddonfield, N. J. Brake hanger broke and a piece of brake shoe was cast from locomotive, striking a pedestrian who was standing near crossing; hanger showed old fractures and metal was crystallized. One injured.

*February 15, 1925, locomotive 7793, Orrville, Ohio. Slide of curtain came loose account of bolt coming out. One injured.

February 18, 1925, locomotive 3609, East Altoona, Pa. Flue failed at safe end weld due to deterioration caused by leakage through defective safe end weld. One injured.

February 18, 1925, locomotive 7048, East St. Louis, Ill. Trailing wheel tire broke into several pieces, one of which lodged under truck of first car causing it to derail and sideswipe yard engine on adjacent track. Two injured.

February 21, 1925, locomotive 4319, Canton, Ohio. Squirt hose blew off nipple account of being insecurely fastened; squirt hose nipple extended upward in vertical position through cab floor. One injured.

February 23, 1925, locomotive 4489, Roxton, Pa. Flue broke off at safe end weld; weld defective for approximately 80 per cent of its circumference. Three injured.

February 25, 1925, locomotive 1195, near Altoona, Pa. Flue burst near front flue sheet due to being badly deteriorated. One injured.

February 28, 1925, locomotive 8826, Ben Davis, Ind. Cab window fell out account of being too narrow for proper fit in guides. One injured.

March 2, 1925, locomotive 4500, Canton, Ohio. Lubricator drain plug broke off at nipple; metal in brass nipple porous. One injured.

March 3, 1925, locomotive 4215, Northumberland, Pa. Flue failed due to being cracked and pitted. One injured.

*March 4, 1925, locomotive 7162, Orrville, Ohio. Injector overflow pipe union became disconnected. One injured.

**March 4, 1925, locomotive 57, Homewood, Pa. Tank filling hole cover fell due to hinge being broken, striking employee; hinge reported broken on previous trip and repairs not made. One injured.

March 9, 1925, locomotive 4689, Freedom, Pa. Inside link trunnion was broken off allowing radius rod to drop to full forward motion when link block slipped by broken trunnion. One injured.

**March 13, 1925, locomotive 9986, Rome City, Ind. Tender sill step missing. One injured.

**March 20, 1925, locomotive 8570, Xenia, Ohio. Handle pulled off air compressor steam valve stem; threaded end of stem holding keeper nut had broken off prior to accident and handle was placed back on stem loose and would pull off if taken hold of. One injured.

**March 22, 1925, locomotive 7948, Dayton, Ohio. Side rod broke due to old defect covering approximately 75 per cent of cross-sectional area. One injured.

March 25, 1925, locomotive 7389, Waynesburg, Ohio. Bolt in cab apron hinge came out allowing apron to tilt, causing fireman to fall between engine and tank. One injured.

March 30, 1925, locomotive 2849, Ludlow, Pa. Flue broke off due to being badly pitted and grooved. One injured.

**March 31, 1925, locomotive 7928, Terre Haute, Ind. Reverse lever stuck in corner account of throttle sector broken where bolted to throttle rod. One injured.

March 31, 1925, locomotive 8509, Marion, Ohio. Headlight improperly fastened to smokebox came loose and fell striking employee. One injured.

April 1, 1925, locomotive 9986, Crestline, Ohio. Lubricator drain plug broke off at nipple due to old flaw approximately 80 per cent of cross-sectional area of threaded portion of nipple. One injured.

April 2, 1925, locomotive 2915, Marwood, Pa. Brake lever connecting rod on rear tender truck broke and dropped down, causing derailment of locomotive, tender and eight cars. One injured.

April 2, 1925, locomotive 3583, West Morrisville, Pa. Bonnet of lubricator control valve failed due to old fracture covering approximately 50 per cent of its cross-sectional area. One injured.

**April 4, 1925, locomotive 7211, Sewickley, Pa. Set screw on right side rod key block broke and head was thrown from locomotive, striking a prospective passenger who was waiting on station platform. One injured.

April 4, 1925, locomotive 5184, Baltimore, Md. Spring hanger broke. One injured.

April 7, 1925, locomotive 8861, Ben Davis, Ind. Crown sheet failure caused by overheating due to low water. Three injured.

April 10, 1925, locomotive 2175, Parnassus, Pa. Eccentric blade clevis bolt came out due to nut working off, allowing blade to strike road bed breaking off; parts also struck blow-off cock causing it to open. One injured.

April 10, 1925, locomotive 4562, Hillside, Pa. Injector delivery pipe joint separated; spanner nut engaged only about two threads due to heavy gasket having been used and nut had been applied with threads crossed. Feed water pump had failed just prior to injector being used. One injured.

April 13, 1925, locomotive 315, Lyons, Ind. Burned by steam and hot water from injector overflow when injector broke; overflow pipe pointed directly toward gangway step; main fountain not equipped with dry pipe. One injured.

April 17, 1925, locomotive 4266, Wellsville, Ohio. Spring hanger broke at old defect. One injured.

April 18, 1925, locomotive 8225, Steubenville, Ohio. Injured while closing throttle which had stuck on quadrant. One injured.

April 24, 1925, locomotive 8406, Logansport, Ind. Washout cap blew off while attempting to tighten under pressure; boiler shell flange too small allowed cap to slip off at a point one full turn from seating. One injured.

April 26, 1925, locomotive 5346, Iselin, N. J. Safety guard to engine truck brake lever was thrown from locomotive due to being improperly secured. One injured.

**April 30, 1925, locomotive 7763, Louisville, Ohio. Eccentric arm dropped to track striking track employee. One injured.

*May 2, 1925, locomotive 1725, Washington, D. C. Squirt hose disconnected account of splice improperly applied. One injured.

May 2, 1925, locomotive 2445, New Brunswick, N. J. Flange broke off rear driving brake shoe and a piece was thrown from locomotive traveling at estimated speed of 70 miles per hour, striking a lady standing on station platform; driver

brake shoe and head not properly applied to maintain them in line with driving wheel. One injured.

May 14, 1925, locomotive 3669, Radebaugh, Pa. Flue broke off at front flue sheet due to being badly pitted and thinned. One injured.

May 14, 1925, locomotive 5729, Leetsdale, Pa. Grate shaker rigging became disconnected account of pin working out. One injured.

May 17, 1925, locomotive 2022, Uniontown, Pa. Spring hanger broke. One injured.

May 18, 1925, locomotive 3316, Royston, Pa. Coupler pocket pulled off front end of locomotive due to studs securing pocket to casting being screwed in only 1½ inches and threads in holes very poor. One injured.

May 19, 1925, locomotive 9910, Carnegie, Pa. Cab handhold gave way at top end allowing fireman to fall; one of the two bolts securing handhold at top end was missing and nut on other bolt missing. One injured.

*May 20, 1925, locomotive 48, Pittsburgh, Pa. Nut on bottom of reverse lever reach rod bolt was binding, making reverse lever difficult to operate. One injured.

May 22, 1925, locomotive 9413, Canton, Ohio. Board in coal gate gave way. One injured.

**May 26, 1925, locomotive 4691, Wooster, Ohio. Air pipe broke off causing emergency application of brakes. Two injured.

**May 28, 1925, locomotive 3891, Lancaster, Pa. Air compressor reversing valve plate bolts loose rendering brakes inoperative, resulting in collision with draft of cars. One injured.

**June 1, 1925, locomotive 7306, near Hudson, Ohio. Reverse lever quadrant dropped down account of bolt being loose allowing reverse lever to unlatch and strike engineer. One injured.

June 2, 1925, locomotive 4457, Blairsville, Pa. Stoker engine broke off at rack housing due to old crack 6 inches in length and bolts fastening stoker to locomotive being loose increasing the strain on housing; housing of too light construction. One injured.

**June 2, 1925, locomotive 3737, Florin, Pa. Brake rod guard broke through bolt hole and a piece was thrown from engine, striking section foreman. One injured.

June 4, 1925, locomotive 8134, Logansport, Ind. Squirt hose parted at splice; hose not properly clamped. One injured.

*June 5, 1925, locomotive 8765, Terre Haute, Ind. Brake rod caught brake-man's foot and caused him to fall from footboard. One injured.

*June 6, 1925, locomotive 2125, Manhattan Transfer, N. J. Engine truck frame fouled on engine frame, preventing truck from turning properly and causing derailment of engine and two coaches. One injured.

June 6, 1925, locomotive 7285, Columbus, Ohio. Squirt hose became disconnected. One injured.

*June 7, 1925, locomotive 4587, Gallitzen, Pa. Brake beam came down. One injured.

**June 9, 1925, locomotive 2569. (Place not given.) Bolt securing brake chain to shaft broke. One injured.

June 10, 1925, locomotive 207, Edgeworth, Pa. Flue broke off at safe end weld; overheated in welding. Two injured.

June 12, 1925, locomotive 8193, Cincinnati, Ohio. Reverse lever unlatched and flew back, striking engineer; teeth in quadrant partially stopped up with dirt and back end of quadrant loose. One injured.

**June 14, 1925, locomotive 5183, Clayton, Del. Squirt hose pipe union became loose, causing a bad leak at that point. One injured.

June 19, 1925, locomotive 7279, Burgettstown, Pa. Squirt hose valve worked open. One injured.

**June 19, 1925, locomotive 2629, Cleveland, Ohio. Fire door chain broke away from fire door account of wire securing it to fire door breaking. One injured.

June 23, 1925, locomotive 4414, Beatty, Pa. Defective stoker elevator cut-out mechanism. One injured.

June 24, 1925, locomotive 3032, Scotch Valley, Pa. Portion of right front cylinder head was knocked off due to main rod of improper length, allowing piston to strike cylinder head. One injured.

One hundred and forty-seven accidents, 3 killed, 163 injured.

PITTSBURGH & LAKE ERIE RAILROAD:

**November 17, 1924, locomotive 9131, Becks Run, Pa. Throttle lever unlatched and moved back, striking brakeman; dry pipe leaking at stand-pipe joint and throttle-valve stem bent, causing undue strain on throttle rigging. One injured.

December 18, 1924, locomotive 9554, Youngstown, Ohio. Handrail came out of column on front end of locomotive causing engineer to fall to ground; handrail columns were loose and handrail was too short. One injured.

Two accidents, 2 injured.

READING COMPANY:

July 11, 1924, locomotive 289, George School, Pa. Right side rod on a 4-4-0 locomotive broke due to old fracture, causing left side rod to break and otherwise causing serious damage. One injured.

August 20, 1924, locomotive 1607, Buck Mountain, Pa. Drawbar and safety chains failed permitting locomotive to separate from tender and caused fireman to be dropped down on track between the rails; drawbar failed through rear pin hole; metal badly crystallized. One injured.

November 17, 1924, locomotive 1324, Mogeess, Pa. Left front crank-pin collar plate worked out of place and allowed side rod to foul on guide, bending side rod. One injured.

February 15, 1925, locomotive 411, Pottsville, Pa. Whistle rope broke; ferrule missing from whistle-rope hole in front end of cab permitting rope to come in contact with metal cab plate. One injured.

**April 30, 1925, locomotive 261, Guyencourt, Del. Reverse lever unlatched and flew ahead; latch defective. One injured.

Five accidents, 5 injured.

ST. LOUIS-SAN FRANCISCO RAILWAY:

July 24, 1924, locomotive 715, near Middleton, Okla. Injector steam ram bonnet blew out due to bonnet being too small for proper fit. One injured.

September 7, 1924, locomotive 666, Keighley, Kans. Flue broke off at safe-end weld; overheated in welding. One injured.

**September 19, 1924, locomotive 579, Fayette Junction, Ark. Water glass burst; cut by flying glass. One injured.

December 18, 1924, locomotive 755, Muskogee, Okla. Flue broke off at safe end weld; overheated in welding. One injured.

**December 27, 1924, locomotive 3706, Memphis, Tenn. Bolt head extended above tread of footboard, causing employee to slip and fall. One injured.

February 5, 1925, locomotive 797, Springdale, Ark. Shaker bar slipped off of fulcrum lever due to improper fit; shaker bar not standard for this class of locomotive. One injured.

**March 7, 1925, locomotive 1295, Waites, Miss. Coupler pocket casting pulled off of front buffer beam. One injured.

**April 10, 1925, locomotive 1614, Birmingham, Ala. Main rod broke in two where autogenous welding had been applied for the purpose of building up the rod. One injured.

May 8, 1925, locomotive 1047, Willow Springs, Mo. Injured while making coupling due to front coupler being too high and striking chafing plate; coupler was $1\frac{1}{8}$ inches higher than maximum standard height fixed for couplers. One injured.

May 25, 1925, locomotive 627, Aberdeen, Miss. Ash pan doors failed to operate properly due to too much slack in door rigging, rods bent and square on shaker lever too large for shaft causing it to slip off while fireman was closing the pan. One injured.

May 27, 1925, locomotive 697, Cresson, Tex. Crank pin broke due to old fractures, causing side rod to strike lifting arm of valve gear and release reverse lever. One injured.

June 9, 1925, locomotive 3679, Memphis, Tenn. End of throttle lever fulcrum broke out, rendering throttle inoperative. One injured.

Twelve accidents, 12 injured.

ST. LOUIS SOUTHWESTERN RAILWAY:

December 20, 1924, locomotive 567, Bassetts, Tex. Crown sheet failure; low water; water glass broke en route and locomotive was continued in service without a water glass. Two injured.

One accident, 2 injured.

SAN ANTONIO & ARANSAS PASS RAILWAY:

*July 3, 1924, locomotive 301, West Point, Tex. Boiler check broke. One injured.

One accident, 1 injured.

SEABOARD AIR LINE RAILWAY:

July 31, 1924, locomotive 210, Lemon Springs, N. C. Locomotive, tender, and 4 cars derailed due to left front engine-truck wheel climbing rail at switch point account of flange having a flat vertical surface 1 inch from tread, and flange $\frac{1}{8}$ inch thick at a point $\frac{3}{8}$ inch from tread. Three injured.

August 11, 1924, locomotive 721, Rich Square, N. C. Cap to right boiler check cage blew off due to being too small; attempted to tighten under pressure. One injured.

February 27, 1925, locomotive 918, near Hamlet, N. C. Reverse lever unlatched and flew forward catching engineer's foot between lever and boiler back head; notches in quadrant badly worn and excessive lost motion in tumbling shaft boxes and valve gear; stop block missing from quadrant. One injured.

Three accidents, 5 injured.

SOUTHERN RAILWAY:

July 1, 1924, locomotive 787, Grassland, Ill. Engine moved backward catching fireman between water spout and coal board; pieces of split keys in throttle stand-pipe caused throttle bell crank to foul and at times hold valve off seat; air pipe broke off at distributing valve. One injured.

July 9, 1924, locomotive 6576, Oakdale, Tenn. Squirt hose not equipped with valve and temporarily repaired by applying a blank washer in union which blew out, scalding fireman. One injured.

July 9, 1924, locomotive 1704, Atlanta, Ga. Spark cap of smoke box fell off, striking switchman who was riding on pilot beam; cap not properly applied before locomotive went on run. One injured.

**July 11, 1924, locomotive 88, Arden, N. C. Board in sub floor, laid on tank deck and end sill to raise height of shovel sheet, broke due to being deteriorated. One injured.

July 14, 1924, locomotive 5038, Bridgewater, N. C. Ash-pan blower pipe was broken about three-fourths of its circumference; burned by escaping steam. One injured.

July 16, 1924, locomotive 6583, Bessemer, Ala. Throttle lever struck on bottom gauge cock when being closed mashing operator's hand. One injured.

July 21, 1924, locomotive 609, North Birmingham, Ala. Insufficient clearance between reverse lever and cab. One injured.

**July 22, 1924, locomotive 905, Sylva, N. C. Grate shaker bar slipped off fulcrum lever due to being fouled by step bolted to wind sheet which prevented bar from slipping down on lever properly. One injured.

July 23, 1924, locomotive 8551, Grand Crossing, Fla. Reverse-lever latch failed to catch in quadrant account of notches in quadrant being partially stopped up. One injured.

July 27, 1924, locomotive 4540, Lovick, Ala. Improper adjustment of spring rigging caused right front driving box to run hot and expansion caused it to stick between shoe and wedge causing derailment. One injured.

**August 5, 1924, locomotive (G. S. & F.) 8255, Avondale, Ga. Fireman injured while assisting to reverse locomotive due to reverse lever difficult to operate account of reverse-shaft boxes improperly fitted and too tight on reverse shaft. One injured.

**August 16, 1924, locomotive 382, Sheffield, Ala. A sharp pointed nail used in reverse lever latch pin instead of cotter key caused injury. One injured.

**August 30, 1924, locomotive 6885, Meridian, Miss. Hand cut on broken glass in front cab window. One injured.

**September 5, 1924, locomotive 447, Spruce Pine, Ala. Nozzle nipple on fire hose blew off due to not being sufficiently clamped. One injured.

September 6, 1924, locomotive 8252, near Kent, Fla. Left injector steam pipe broke off at top connection to collar; flange of collar too thin and no ball joint to the connection. One injured.

September 30, 1924, locomotive 614, Woodville, Ala. Auxiliary reach rod to valve gear stripped threads in adjusting connection. One injured.

November 1, 1924, locomotive 5011, Rankin, Tenn. Injector steam pipe pulled out of collar at injector throttle. One injured.

November 13, 1924, locomotive 6889, Ellisville, Miss. Injured while shaking grates account of front section being disconnected. One injured.

November 15, 1924, locomotive 375, Mt. Vernon, Ill. Packing nut on bottom water glass nipple blew off due to threads on nut badly stripped and loose fit. One injured.

December 15, 1924, locomotive 842, Atlanta, Ga. Running board hand rail became disconnected in threaded fitting. One injured.

December 17, 1924, locomotive 1648, Atlanta, Ga. Flue broke off at safe end weld; overheated in welding. One injured.

December 26, 1924, locomotive (A. & V.) 423, Meridian, Miss. Injector primer valve bonnet blew out due to threads on bonnet badly worn and stripped. One injured.

January 27, 1925, locomotive 6356, Roe Junction, Tenn. Squirt hose blew off nipple due to being improperly clamped; squirt pipe pointed directly toward engineer's seat box. One injured.

January 30, 1925, locomotive 718, Pride, Ala. Eccentric crank arm broke, breaking out front end of cylinder; old flaw on side of crank arm. One injured.

**February 22, 1925, locomotive 1490, Gainesville, Ga. Main connection side rod bushing sheared rod keeper off. One injured.

February 27, 1925, locomotive 787, Woods, Ind. Injector overflow pipe connection improperly applied so that vent hole pointed toward the cab. One injured.

**March 2, 1925, locomotive 1675, Durham, N. C. Screws loose on one side of seat box, allowing seat box to move. One injured.

March 3, 1925, locomotive 6619, Wauhatchie, Tenn. Grate shaker lever pin came out, causing fireman to fall. One injured.

March 4, 1925, locomotive 587, Jellico, Tenn. Ash pan blower pipe nipple blew out account of being applied cross-threaded and screwed into valve only four threads; threads stripped and badly deteriorated. One injured.

March 5, 1925, locomotive (A. & Y.) 953, Greensboro, N. C. Cast-iron dome cap burst and blew off; old crack in flange approximately two-thirds of the circumference. Two injured.

March 23, 1925, locomotive 750, Cox, Ala. Flue burst at defective safe end weld; overheated in welding. One injured.

*March 30, 1925, locomotive 402, Hayne, S. C. Insufficient clearance between reverse lever and independent brake valve. One injured.

April 1, 1925, locomotive 375, Mt. Vernon, Ill. Pin lost out of front end of grate shaker connecting rod causing grates to become disconnected. One injured.

*April 2, 1925, locomotive 4520, Adger, S. C. Main driving axle broke. One injured.

**April 16, 1925, locomotive 1305, Macon, Ga. Grate shaker post caught on corner of metal deck plate and hung causing injury to employee; slot in deck plate not properly lined to allow shaker post to pass freely. One injured.

*May 21, 1925, locomotive 809, Bridgewater, N. C. Whistle stuck open account of wire from whistle to whistle cord inside of cab becoming caught in groove. One injured.

May 23, 1925, locomotive 105, Horning, Ala. Defective fire hose burst. One injured.

May 26, 1925, locomotive 8340, Sofkee, Ga. Main rod broke. One injured.

**June 1, 1925, locomotive 4010, Appalachia, Va. Drain plug to lubricator broke off. One injured.

June 9, 1925, locomotive 4541, Waco, Ga. Shovel struck against hole in shovel sheet. One injured.

June 18, 1925, locomotive 783, Juliette, Ga. Grate shaker bar slipped off post due to improper fit. One injured.

Forty-one accidents, 42 injured.

SOUTHERN PACIFIC—EAST:

**November 13, 1924, locomotive (H. & T. C.) 114, Galveston, Tex. Jacket band left loose and sticking out caused injury to engineer's hand while reversing engine. One injured.

May 19, 1925, locomotive (G. H. & S. A.) 149, Dallas, Tex. Rivets securing one side of hinge to deck sand box lid were broken or missing which allowed lid to tilt and fireman to fall. One injured.

Two accidents, two injured.

SOUTHERN PACIFIC—WEST:

July 11, 1924, locomotive 3035, San Francisco, Calif. Lubricator glass burst. One injured.

July 29, 1924, locomotive 2361, Herndon, Calif. Squirt hose valve came open. One injured.

July 31, 1924, locomotive 2321, Penryn, Calif. Main rod broke due to old progressive fracture allowing piston rod to knock out front cylinder head and the escaping steam blew two brakemen off pilot beam, one of which was blown between the rails and run over by the locomotive and two cars. One injured.

**February 21, 1925, locomotive 1220, Bayshore, Calif. Main rod broke due to old flaw. One injured.

April 9, 1925, locomotive (E. P. & S. W.) 2510, near La Luz, N. Mex. Engine truck axle broke inside wheel fit caused by old fracture, causing derailment. One injured.

April 17, 1925, locomotive 1080, Oakland, Calif. Spring hanger broke. One injured.

Six accidents, six injured.

SPokane, PORTLAND & SEATTLE RAILWAY:

*October 21, 1924, locomotive 603, Vancouver, Wash. Injector steam pipe blew out of collar at fountain due to not being properly secured. One injured.

One accident, one injured.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS:

August 12, 1924, locomotive 65, St. Louis, Mo. Back head was blown out of right main reservoir. One injured.

November 13, 1924, locomotive 40, St. Louis, Mo. Loose drain pipe on main air reservoir swung around when drain valve was opened and struck engineer; drain pipe not properly applied. One injured.

**January 8, 1925, locomotive (St. L. T.) 420, St. Louis, Mo. Hot water discharged from steam pipe leading from dome to connection with snow sweeper and struck switchman who was riding on front footboard account of cap placed over end of pipe to prevent leakage being defective. One injured.

*June 18, 1925, locomotive 313, St. Louis, Mo. Squirt hose blew off. One injured.

Four accidents, four injured.

TEXAS & PACIFIC RAILWAY:

*August 13, 1924, locomotive 334, Fort Worth, Tex. Squirt hose became disconnected from pipe due to hose not clamped at this connection. One injured.

May 21, 1925, locomotive 456, Longview Junction, Tex. Driving brake hanger pin broke due to old fracture allowing brake rigging to drop in front of driving wheel and cause derailment. One injured.

Two accidents, two injured.

TRINITY & BRAZOS VALLEY RAILWAY:

*October 28, 1924, locomotive 32, Fort Worth, Tex. Reverse lever slipped out of quadrant and caught engineer's hand between lever and boiler head; stop pin missing from quadrant. One injured.

*January 19, 1925, locomotive 32, Corsicana, Tex. Squirt hose pulled off. One injured.

Two accidents, 2 injured.

UNION RAILROAD:

March 2, 1925, locomotive 89, Clairton Junction, Pa. Spanner nut connecting right injector steam pipe to threaded end of valve on steam turret pulled away from valve, due to improper fit. Two injured.

*June 28, 1925, locomotive 28, Duquesne, Pa. Branch pipe union to injector leaking. One injured.

Two accidents, 3 injured.

UNION PACIFIC RAILROAD:

October 2, 1924, locomotive 307, Powars, Colo. Flue failed at defective safe end weld; overheated in welding. One injured.

November 23, 1924, locomotive 5030, Cheyenne, Wyo. Main rod broke due to old flaw causing cylinder head to be knocked out, pieces striking engineer; rods reported pounding on November 7, 11, 12, 13, 14, 17, 21, and 21, and each time repairs were reported made. One injured.

January 15, 1925, locomotive 7026, Rawlins, Wyo. Rear end of guide step came down due to studs at rear end of step missing. One injured.

February 20, 1925, locomotive 246, Valley, Nebr. Handhold on rear of tender broke off due to old break through bolt hole, allowing brakeman to fall to track and one foot was so crushed that amputation was necessary. One injured.

Four accidents, 4 injured.

VICKSBURG, SHREVEPORT & PACIFIC RAILWAY:

**July 11, 1924, locomotive 365, Ruston, La. Front brake beam on rear truck became wedged between wheels and truck bolster; the hangers on front brake beam were $1\frac{1}{2}$ inches shorter than on back brake beam, permitting beam to be forced up and out of place. One injured.

November 25, 1924, locomotive 360, Fords, La. Head broke off of reverse lever latch bolt due to old fracture, allowing lever to fly into forward corner; safety pin improperly located, permitted lever to strike pipes on back head. One injured.

Two accidents, 2 injured.

VIRGINIAN RAILWAY:

*January 10, 1925, locomotive 434, Gray, Va. Spring hanger on front tank truck broke due to old fracture allowing spring to drop and break pedestal tie strap, causing derailment of engine, tank and 9 cars. One injured.

One accident, 1 injured.

WABASH RAILWAY:

July 7, 1924, locomotive 516, St. Louis, Mo. Right side rod broke at old flaw in top section, the additional stress breaking left side rod. Two injured.

August 22, 1924, locomotive 2159, Stanberry, Mo. Injector steam valve blew out of turret due to threads in turret badly worn and threads on valve and in turret being of different taper. One injured.

**October 1, 1924, locomotive 432, Decatur, Ill. Water cooler on tank was loose and slipped causing injury to fireman. One injured.

**October 22, 1924, locomotive 543, Decatur, Ill. Using monkey wrench to open ash pan door and wrench slipped off; wrench reported defective. One injured.

November 30, 1924, locomotive 2257, Benton, Ind. Squirt hose pipe froze up and split at seam. One injured.

December 29, 1924, locomotive 2402, Kansas City, Mo. Extension handle to right injector overflow valve fouled due to excessive slack, making it difficult to operate; engineer was injured when valve opened suddenly while exerting unusual force in effort to open valve. One injured.

January 4, 1925, locomotive 2206, near Clymers, Ind. Crown sheet failure caused by overheating due to low water; initial rupture occurred in autogenously-welded seam between combustion chamber crown sheet and crown sheet proper which failed for a distance of 51 inches. No contributory cause for having low water found. Three injured.

**March 9, 1925, locomotive 2406, Moberly, Mo. Reverse lever moved violently back and forth, striking hostler. One injured.

**April 25, 1925, locomotive 2416, O'Fallon, Mo. Ash pan wrench not proper fit on fulcrum lever. One injured.

Nine accidents, 12 injured.

WESTERN MARYLAND RAILWAY:

**September 7, 1924, locomotive 512, Williamsport, Md. Leading locomotive uncoupled from locomotive 512 account of front coupler shank pin breaking; sudden stop caused front end of tank to raise and apron jumped up and struck fireman. One injured.

October 22, 1924, locomotive 630, Union Bridge, Md. Injector delivery pipe burst where it had been worn in thickness from one-eighth to one-sixteenth inch. One injured.

November 29, 1924, locomotive 911, near Thurmont, Md. Equalizer connecting engine truck and low-pressure driver spring riggings broke 24 inches from front end which left no weight on engine truck and caused derailment of locomotive, tender, and three cars; old flaw at point of failure covering about 10 per cent of cross-sectional area. One injured.

*February 22, 1925, locomotive 204, Chewsville, Md. Whistle stuck open account of valve spring breaking and getting beneath the seat. One injured.

Four accidents, four injured.

WESTERN PACIFIC RAILROAD:

**August 9, 1924, locomotive 305, near Clive, Utah. Injured while attempting to open defective automatic fire door; fire door was inoperative by air pressure due to defective condition of slide flanges, defective roller bearings, and looseness of the operating cylinder; fire door reported needing repairs six times before proper repairs were made. One injured.

October 21, 1924, locomotive 313, near Pardo, Nev. Cab apron removed and laid back in place at time of monthly inspection without applying apron hinge bolts. Apron worked away from locomotive connection and allowed fireman to fall between engine and tender a short time after leaving the terminal. One injured.

Two accidents, two injured.

WHEELING & LAKE ERIE RAILWAY:

August 3, 1924, locomotive 4121, near Harmon, Ohio. Crown sheet failure due to low water; initial rupture occurred in autogenously welded seam of patch in flue sheet and knuckle which failed for its entire length of 54 inches; bottom water glass cock opening partially stopped up; wheel missing from water glass blow-off cock; bottom gauge cock stuck shut and middle gauge cock opening stopped up; gauge cock drip pan stopped up; excessive amount of scale pyramided around bolts and boiler water very dirty. One killed, 4 injured.

November 6, 1924, locomotive 4302, Brewster, Ohio. Stay bolt blew out of fire-box side sheet due to bolt being broken and no threads in hole. One injured.

April 13, 1925, locomotive 4156, Justus, Ohio. Valve ring broke. One injured.

Three accidents; 1 killed, 6 injured.

WICHITA VALLEY RAILWAY:

August 1, 1924, locomotive (F. W. & D. C.) 207, Stamford, Tex. Injector delivery pipe spanner nut pulled off nozzle; spanner nut had been badly mutilated and stretched by use of chisel and set in tightening and threads on nozzle worn. One injured.

One accident, one injured.

WINSTON-SALEM SOUTHBOUND RAILWAY:

**March 30, 1925, locomotive 200, Norwood, N. C. Flue failed at safe end butt weld. One injured.

One accident, one injured.

YAZOO & MISSISSIPPI VALLEY RAILROAD:

*May 26, 1925, locomotive 1537, Coles, Miss. Hanger broke. One injured.

One accident, one injured.

Table showing number of locomotives inspected,

	Akron & Barberton Belt	Akron, Canton & Youngstown	Alabama & Vicksburg	Alabama, Tennessee & Northern	Alliquippa & Southern	Ann Arbor	Arizona Eastern—4 months	Atchison, Topeka & Santa Fe	Atlanta & West Point and Western Ry. of Alabama.
1									
2	1					3	1	24	
3						2		6	
4								6	
5								2	
6			1			8		20	
7				1		3		6	
8						5		28	
9	4	3			1	16		96	
10		2				7		32	
11		1				4		21	
12		1				7		6	
13			2			1		15	
14	1				1	7		8	
15						1		8	
16	1	1				3		155	1
17						2		84	
18								8	
19	2	3			1	1		14	1
20	1	11	1	1	6	16		22	
21	4			1		2		48	2
22						2		12	
23	1					4		13	
24						1		43	
25								9	
26		2				1		16	
27	1	1				13		29	
28				1	3	6		22	
29						8		7	
30	4	4		1	2	7		65	2
31						2		3	1
32	1	5		2	8	32	1	124	7
33						7	2	360	
34	3					1		23	
35								1	
36						2		4	
37		1						8	
38						3		27	
39	8			1		9		42	1
40	1	2				2		82	1
41					2	4		19	
42						5		17	
43	3	1		1		4		73	
44									
45						9		71	
46	4	3				10		103	1
47	1		1					13	
48						4		7	
49				8		22		39	16
50						4		35	
51	1					6		18	1
52						15		30	1
53		3		1		9		38	2
54	1					2		7	1
55	1	1				12		45	
56		2				1		36	
57	1	3		1	5	24		42	2
58						1		31	
59	2	2		1		11		97	
60									
61	2	1		1		20		53	
62	2	4		1		11		38	
63	1	1		1		3		26	
Miscellaneous—Signal appliances, badge plates, brakes (hand).									
Number of defects.									
	50	61	8	22	32	368	4	2,377	47
Locomotives reported.									
	10	24	74	13	13	58	41	2,155	48
Locomotives inspected.									
	11	39	31	17	13	102	6	2,067	65
Locomotives defective.									
	7	22	5	9	9	72	2	841	15
Percentage of inspected found defective.									
	64	56	16	53	69	71	33	32	23
Locomotives ordered out of service.									
	2	5		1		15		30	4

found defective, and ordered from service, etc.

Atlanta, Birmingham & Atlantic	Atlantic & Yadkin	Atlantic Coast Line	Baltimore & Ohio	Bangor & Aroostook	Belt Ry. of Chicago	Benwood & Wheeling Connecting	Bessemer & Lake Erie	Birmingham Southern	Boston & Albany	Boston & Maine	Brooklyn Eastern District Terminal	Buffalo & Susquehanna	Buffalo Creek	Buffalo, Rochester & Pittsburgh	Cambria & Indiana	Canadian National	Canadian Pacific	Carnegie Steel
5		7	98		1		4		1	2				6		9		1
		3	4															
		23	14						1	15				2		2		2
		6	27											12		3		4
1		18	75				5		2	1				3		7		7
4		8	78	1			2		4	2				3		1		8
4		18	75				2		4	10				3		7		9
5		55	438		5		6		6	51				22		19		8
		12	128				2		2	28				6		19		9
		20	72				1		6	20				6		9		10
4		1	16				7		6	23	3			3	3	1		11
2	1	3	4				4		3	6								12
2		9	147				27		23	6				36	2	12		13
1		3	27							8				1		4		14
5		8	247		2		5			2				40		6		15
3		2	69				1			7				9		8		16
		6	42						1	7				4				17
7		17	132		2		20		8	19				43		12		18
8	1	48	128				8		6	39				24		18		19
6		7	198				1		1	11				13		2		20
		4	37				1		1	25				2		6		21
		8	6				1		2	10				2		8		22
2		2	6				2		2	14				33				23
4		4	22				5		3	3				3				24
		2	65				8		1	1				4		6		25
2		38	110				16		4	8				21		23		26
21		17	191	3	1		14		21	34				37		40		27
8		28	28				17		8	11				11		11		28
		3	112				3		6	24				7		37		29
		3	3															30
17		100	441		3		17		29	38				44		42		31
4		195	458	9	17		5		131	395				20		31		32
2		6	17				1			1				10		3		33
		1	4				5											34
		8	50				1			26				8		2		35
1		1	23				1		2	4				2		1		36
2		20	49	1	1		1		26	30				3		11		37
2		29	88				20		9	6				3		28		38
5		6	148				3		5	5				19		7		39
4		5	30				2		3	9				4		3		40
2		11	63		1		5		9	9				7		9		41
		12	95				9		3	8				11		6		42
9		5	317	1	14		20		22	72				68	1	3		43
		4	30		2		3			1				1		1		44
14		4	58				14		7	5				23	1	15		45
6		42	445	1	5		34		19	66				67		20		46
2		4	14		4		1		2	4				3		21		47
12		22	84		3		2		7	3				8		3		48
4		139	64	1	5		1		45	32	13			4		52		49
4		20	70				19		9	21				10		19		50
4		14	66				3		9	11				20		4		51
22		16	142		3		7		5	18				36		30		52
4		6	232		3		25		31	45				20		24		53
2		11	118				1		7	14				3		7		54
18		33	118		7		3		9	17				8		26		55
15	3	83	211		2		10		11	43				36	4	2		56
		3	223		4		22		8	18				55		18		57
3		60	124		2		31		4	8				27	1			58
		1	1				13		13	8				13		31		59
3		48	190		1		12		22	34	1			17	1	25		60
14		12	86		3		1		3	12	1			14		12		61
		33	97				4		1	5				15		9		62
291	5	1,374	6,767	31	137		410		559	1,363	17	80		930	13	739	13	39
80	16	943	2,031	89	78	11	188	13	359	1,108	10	51	25	293	13	600	138	58
140	1	1,713	2,777	46	55		103	2	375	1,494	5	41	5	334	4	362	9	21
76	1	600	1,433	13	28		65		177	532	3	22		170	3	182	5	10
54	100	35	52	28	51		63		47	38	60	54		51	75	50	56	48
12		15	113	1	4		1		10	23				26	24	5		3

Table showing number of locomotives inspected, found

	Carolina & North-western	Central New England	Central of Georgia	Central Railroad of New Jersey	Central Vermont	Charleston & Western Carolina	Charlotte Harbor & Northern	Chesapeake & Ohio
1 Air compressors.....			6	7		3		15
2 Arch tubes.....				1				
3 Ash pans or mechanism.....			2					1
4 Axles.....								
5 Blow-off cocks.....			6	7	3	3		19
6 Boiler checks.....			5	7				13
7 Boiler shell.....			5	27	1	1		35
8 Brake equipment.....			10	47	1			58
9 Cabs or cab windows.....	2		1	5	2			83
10 Cab aprons or decks.....			1	7	1	2		11
11 Cab cards.....			10	3				13
12 Coupling or uncoupling appliances.....			12	2	4	1		19
13 Crossheads, guides, pistons, or piston rods.....			13	31	1			45
14 Crown bolts.....			2	4				6
15 Cylinders, saddles, or steam chests.....			11	5	1	2		19
16 Cylinder cocks or rigging.....			4	6	1			11
17 Domes or dome caps.....			6	1				7
18 Draft gear.....			12	25	2	1		40
19 Draw gear.....	3	1	15	45	2	4	1	66
20 Driving boxes, shoes, wedges, pedestals, or braces.....			22	31	4	11		61
21 Fire-box sheets.....			2	4				6
22 Flues.....			2	9	4			15
23 Frames, tail pieces or braces, locomotive.....			18	16		5		39
24 Frames, tender.....			3	11		3		15
25 Gauges or gauge fittings, air.....			2	1				3
26 Gauges or gauge fittings, steam.....			2	16	3			21
27 Gauge cocks.....			4	47	5	13		77
28 Grate shakers.....			12	8				20
29 Handholds.....			20	41	2	2		65
30 Injectors, inoperative.....								
31 Injectors and connections.....			54	50	3	3		110
32 Inspections or tests not made as required.....	5		30	57	20	41		113
33 Lateral motion.....	3		2	31				36
34 Lights, cab or classification.....			1	10		2		13
35 Lights, headlights.....			2	2				4
36 Lubricator or shields.....			3	2				5
37 Mud rings.....	1		2	26	1			29
38 Packing nuts.....			30	5	1	1		38
39 Packing, piston rod or valve stem.....			2	63	3	3		71
40 Pilot or pilot beams.....			11	5				16
41 Plugs or studs.....			5	7		1		13
42 Reversing gear.....			5	6				11
43 Rods, main or side, crank pins, or collars.....			3	66	2	2		74
44 Safety valves.....								
45 Sanders.....			3	21	2			26
46 Springs or spring rigging.....	1		36	45	4	3		85
47 Squirt hose.....			7	4		1		12
48 Staybolts.....			4	4	1			9
49 Staybolts, broken.....			22	16	9			47
50 Steam pipes.....			16	9	1	1		27
51 Steam valves.....			1	10				11
52 Steps.....			9	13	2	2		26
53 Tanks or tank valves.....	1		23	26	2	3		55
54 Telltale holes.....			4	4				8
55 Throttle or throttle rigging.....			4	23	3	6		36
56 Trucks, engine or trailing.....			24	12	2			38
57 Trucks, tender.....	1		49	49		4		101
58 Valve motion.....			1	11	1			13
59 Washout plugs.....			3	23				26
60 Water bar or combustion flues.....				1				1
61 Water glass, fittings or shield.....	1		6	34	2	1	2	46
62 Wheels.....			8	25		1		34
63 Miscellaneous—Signal appliances, badge plates, brakes (hand).....			5	13		1		19
Number of defects.....	8	13	593	1,186	97	130	9	1,327
Locomotives reported.....	11	95	344	612	106	64	10	998
Locomotives inspected.....	12	11	433	674	154	70	7	958
Locomotives defective.....	6	4	182	317	42	44	3	324
Percentage of inspected found defective.....	50	36	53	52	39	69	43	33
Locomotives ordered out of service.....			8	46	2	2		29

defective, and ordered from service, etc.—Continued

Chicago & Alton	Chicago & Eastern Illinois	Chicago & North Western	Chicago & Western Indiana	Chicago, Burlington & Quincy	Chicago Great Western	Chicago, Indianapolis & Louisville	Chicago River & Indiana	Chicago, Milwaukee & St. Paul	Chicago, Peoria & St. Louis	Chicago, Rock Island & Pacific	Chicago, St. Paul, Minneapolis & Omaha	Chicago Short Line	Chicago, West Pullman & Southern	Cincinnati, Indianapolis & Western	Cleveland, Cincinnati, Chicago & St. Louis	Clinchfield	Colorado & Southern	Colorado & Wyoming
2	6	52		83	12	3		52	3	102	20		1	3	9	2	10	
14		1		2	2					14	3		1	1	1			
6		1		6						15			1	1	3		6	
1		35		10	4	4		11	2	56	5	1	1	1	13		11	
2		11	1	12	2			14	2	23	7	2	2	3	12		1	
4		27	1	23	3	3		19	14	61	4	1	1	6	13		3	
3		27	1	23	3	3		19	14	61	4	1	1	6	13		3	
28		268	6	279	24	13	10	131	24	291	42	5	12	40	14	61	2	
16		41		130	27	19		33	6	84	10	4	4	12	61	165	3	
7		19		36	10	5	1	11	4	30	5	5	2	2	6	3		
4		15		6	3	2		6		4	4			1	4	5		
9		5		9				6						1	4	5		
6		63	1	142	11	3	1	44	3	83	15		5	5	17	1	16	
12		3		6				2		12			3	4	4			
32		56		176	10	2		44	12	266	13		3	12	32	10	114	1
7		62		105	9			19	5	112	27		1	1	23	1	38	1
13		5		15				7		7					5			
2		42	1	68	1	8		25	15	55	23		6	6	6	6		
10		69		84	21	7	8	31	4	108	6		1	1	36	3	22	
16		58	2	107	18	7	2	21	27	116	22		5	14	7	7		
12		9	1	4	4	3		6	9	32	3		3	3	4	4		
5		3		85	5	4		12	9	14	2		6	6	3	2	16	
4		2		15	2			2	4	10	1		1	1	1	5	10	
5		26		26	2			39	3	39	1		1	1	4	5	6	
3		8		50	7	6		14	2	75	7		3	3	19	1	26	
18		124		81	4	16	2	35	2	122	20		1	9	29	4	37	
1		17		31	8	12	1	7		18	2		4	4	17	2	6	
3		80	7	136	23	14		25	3	70	13		1	20	27	3	5	1
10		2	2	278	34	8	1	70	20	323	32		3	14	77	9	108	
39		414	6	486	30	23	17	232	10	624	26		19	5	79	42	1	32
4		10		15	3	8		5	15	24	7		2	3	3			
1		5		27	1	4		4	1	2	2		4	4	13		2	
10		25		62	6			10	6	16	3		4	4	12		9	
8		1		14	3			5	7	28	8		5	3	11		16	
5		21	1	14	2			68	1	8	1		5		18	2	1	
7		28	2	50	13	3		46	12	84	14		2	2	46	9	26	
4		28		148	7	3		36	20	128	9		5	5	20	1	40	
3		25		36	6	2		18	3	62	8		3	3	3	3	30	
11		19		10	2	2		14	4	43	8		1	1	6	2	14	
13		52		52	11	7	4	25	3	64	8		1	1	22	2	4	
17		107		231	7	13		75	25	189	21		14	25	57	5	27	2
2		1		19				5		6	1				2			
5		13		44	3			18	1	125	15		1	4	31	2	53	
38		81	2	120	23	10		69	48	281	24		1	21	76	18	23	
3		45	2	46	3	2		16	2	62	27		3	2	7		7	
3		10		9	1	2		3	11	34	5		6	6	5	2	3	
3		11		15	1	11	3	30	57	80	15		17	10	3	60		48
1		16		65	13	1		28	1	59	6		3	3	26	6	15	
1		7		24	6	6		8	3	30	5		1	1	10	1	6	
8		50	1	89	7	11		73	7	36	16		1	7	30			

Table showing number of locomotives inspected, found

Parts defective, inoperative or missing, or in violation of rules	Locomotives inspected, found									
	Columbus & Greenville	Conemaugh & Black Lick	Copper Range	Copper River & Northwestern	Cornwall	Cumberland & Pennsylvania	Delaware & Hudson	Delaware, Lackawanna & Western	Denver & Rio Grande	Western
1 Air compressors.....										27
2 Arch tubes.....										3
3 Ash pans or mechanism.....			1							4
4 Axles.....										5
5 Blow-off cocks.....					1					9
6 Boiler checks.....						2				8
7 Boiler shell.....					1	8				9
8 Brake equipment.....						20	22			133
9 Cabs or cab windows.....	1		1			5	1			153
10 Cab aprons or decks.....			2		3	3	5			13
11 Cab cards.....						3	5			4
12 Coupling or uncoupling appliances.....			1							1
13 Crossheads, guides, pistons, or piston rods.....						5	8			34
14 Crown bolts.....										3
15 Cylinders, saddles, or steam chests.....	2		2		2	14	9			164
16 Cylinder cocks or rigging.....			1		1					3
17 Domes or dome caps.....						9	3			50
18 Draft gear.....						1	1			30
19 Draw gear.....	1		4			10	14			18
20 Driving boxes, shoes, wedges, pedestals, or braces.....						1	8			9
21 Fire-box sheets.....					1	4	13			5
22 Flues.....					1	1	2			6
23 Frames, tail pieces or braces, locomotive.....						2	7			19
24 Frames, tender.....						2	4			4
25 Gauges or gauge fittings, air.....					1					6
26 Gauge or gauge fittings, steam.....					1	4	9			33
27 Gauge cocks.....	2					15	17			40
28 Grate shakers.....					1	1	5			16
29 Handholds.....	1		11			6	17			86
30 Injectors, inoperative.....										1
31 Injectors and connections.....	2		3		2	16	53			126
32 Inspections or tests not made as required.....			6		2	1	22			69
33 Lateral motion.....	1					3				14
34 Lights, cab or classification.....										3
35 Lights, headlights.....					2					45
36 Lubricator or shield.....										1
37 Mud rings.....					1	10	20			25
38 Packing nuts.....	1				2		14			15
39 Packing, piston rod and valve stem.....						8	13			64
40 Pilot or pilot beams.....										13
41 Plugs or studs.....										3
42 Reversing gear.....			1			8	6			10
43 Rods, main or side, crank pins or collars.....	1					8	17			62
44 Safety valves.....										17
45 Sanders.....						3	27			31
46 Springs or spring rigging.....	6					18	5			81
47 Squirt hose.....			2							12
48 Staybolts.....						6	7			70
49 Staybolts, broken.....					2					10
50 Steam pipes.....			1			1	8			34
51 Steam valves.....						4	4			15
52 Steps.....			2			3	7			51
53 Tanks or tank valves.....					1	10	22			41
54 Telltale holes.....										5
55 Throttle or throttle rigging.....			1			7	5			28
56 Trucks, engine or trailing.....			1		3	7	17			33
57 Trucks, tender.....	2					7	25			32
58 Valve motion.....			2		1	1	18			25
59 Washout plugs.....						1	32			34
60 Water bar or combustion flues.....					1					41
61 Water glass fittings or shield.....			2			1	5			12
62 Wheels.....					4	10	21			36
63 Miscellaneous—Signal appliance, badge plates, brakes (hand).....			2			1	1			26
Number of defects.....	20	46	34	2	263	521	2,011			
Locomotives reported.....	27	36	29	19	11	21	486	771		548
Locomotives inspected.....	27	8	20	19	16	10	480	536		798
Locomotives defective.....	7	17	8	8	2	113	195	464		62
Percentage of inspected found defective.....	26	59	27	42	50	20	24	36		58
Locomotives ordered out of service.....		7				2	3			72

defective, and ordered from service, etc.—Continued

Parts defective, inoperative or missing, or in violation of rules	Locomotives inspected, found														
	Denver & Salt Lake	Detroit & Mackinac	Detroit & Toledo Shore Line	Detroit Terminal	Detroit, Toledo & Ironton	Donora Southern	Duluth & Iron Range	Duluth, Missabe & Northern	Duluth, South Shore & Atlantic	East Broad Top R. R. & Coal	East St. Louis Junction	East Tennessee & Western No. Car.	Elgin, Joliet & Eastern	El Paso & South Western (5 months)	Emporium Forestry
1 Air compressors.....															
2 Arch tubes.....	7	1	2	4			3	21					11		
3 Ash pans or mechanism.....													2		
4 Axles.....	9			1											
5 Blow-off cocks.....				1									13		
6 Boiler checks.....	2	3	4	1	1		1	1					11	2	
7 Boiler shell.....	5			1	1			1					13		
8 Brake equipment.....	19	1	1	6	3		1	4	9	1	1		113	7	
9 Cabs or cab windows.....	21			6	12			1					27	1	
10 Cab aprons or decks.....				1	1								14	1	
11 Cab cards.....													1		
12 Coupling or uncoupling appliances.....	1	2		6	1		2						2		
13 Crossheads, guides, pistons, or piston rods.....	1			1									1		
14 Crown bolts.....	27			8									52	1	
15 Cylinders, saddles, or steam chests.....				1			1						2		
16 Cylinder cocks or rigging.....	32			4	1		2						16		
17 Domes or dome caps.....	16			6	1		4						2		
18 Draft gear.....	1												13		
19 Draw gear.....	9	1	3	3					5				10	1	
20 Driving boxes, shoes, wedges, pedestals, or braces.....	12		1	1	1			2	3		2		24	1	
21 Fire-box sheets.....	21			1									9		
22 Flues.....		2	2	5									4		
23 Frames, tail pieces or braces, locomotive.....				1	1								9		
24 Frames, tender.....	22	1		1	1			1					7	2	
25 Gauges or gauge fittings, air.....													1		
26 Gauge or gauge fittings, steam.....	8			4				1	1				9		
27 Gauge cocks.....	2	1	4	4			2	1	1				2		
28 Grate shakers.....	10	2	3	11	3		1	1	2				16	1	
29 Handholds.....	14	1	2	2									29		
30 Injectors, inoperative.....	12	2	2	3	1		8	3	6				36	1	
31 Injectors and connections.....	43	3	10	16	2		2			2			56	3	
32 Inspections or tests not made as required.....	44	2	1	9	6		5	2	4	1	6	1	220	8	
33 Lateral motion.....	1												1		
34 Lights, cab or classification.....															
35 Lights, headlights.....	8			1	1								2		
36 Lubricator or shield.....															
37 Mud rings.....	19			2	1				2				17		
38 Packing nuts.....	15			1	1								8		
39 Packing, piston rod and valve stem.....	8												14		
40 Pilot or pilot beams.....													27	1	
41 Plugs or studs.....													19		
42 Reversing gear.....	2			3				1					3		
43 Rods, main or side, crank pins or collars.....	20			2	1								34	1	
44 Safety valves.....	4												1		
45 Sanders.....	26			12	10								13		
46 Springs or spring rigging.....	29	2	4	2	3				3				28	1	
47 Squirt hose.....	1			2	2								13		
48 Staybolts.....	6												2		
49 Staybolts, broken.....	13	2	3	5									9		
50 Steam pipes.....	3	1	1	1									7		
51 Steam valves.....	9	5	4	6	1			7	13	2			6		
52 Steps.....	3	1	2	6									7		
53 Tanks or tank valves.....	3	1	1	2									19	1	
54 Telltale holes.....	1	1	1	2									1		
55 Throttle or throttle rigging.....	3			9	1								26	1	
56 Trucks, engine or trailing.....	22	1	2										9	1	
57 Trucks, tender.....	7			1	15								29		
58 Valve motion.....	3	2	10	1	4								1		
59 Washout plugs.....	4	5	18	12	5								10	1	
60 Water bar or combustion flues.....	8			8	2								1		
61 Water glass fittings or shield.....	5			1									14		
62 Wheels.....													9		
63 Miscellaneous—Signal appliance, badge plates, brakes (hand).....															
Number of defects.....	565	43	105	207	72		60	57	82	13	32	30	1,148	44	
Locomotives reported.....	58	30	28	30	85	18	110	114	95	11	12	10	276	151	10
Locomotives inspected.....	121	17	51	54	123		56	60	110	9	17	11	331	67	
Locomotives defective.....	82	14	26	39	35		24	22	39	4	10	9	226	20	
Percentage of inspected found defective.....	68	82	51	72	28		43	37	35	44	59	82	68	30	
Locomotives ordered out of service.....	36	2	5	7	4		4	1	5		1	1	58	3	

Table showing number of locomotives inspected, found

Parts defective, inoperative or missing, or in violation of rules		Fort Worth & Denver City	Galveston, Houston & Henderson	Georgia & Florida	Georgia, Florida & Alabama	Georgia	Great Northern	Green Bay & Western	Gulf & Ship Island
1	Air compressors	2		1		2	32	1	
2	Arch tubes						1		
3	Ash pans or mechanism						1		
4	Axles								
5	Blow-off cocks					1	12		3
6	Boiler checks						11		2
7	Boiler shells	1				1	27		
8	Brake equipment	5		1			120	13	2
9	Cabs or cab windows	1					23		
10	Cab aprons or decks						20		2
11	Cab cards						4	3	
12	Coupling or uncoupling devices	1					21		
13	Crossheads, guides, pistons, or piston rods	6				4	15	2	1
14	Crown bolts						3		
15	Cylinders, saddles, or steam chests	7		1	1	2	40		
16	Cylinder cocks or rigging						43	2	
17	Domes or dome caps					1	2		
18	Draft gear	5	7				30	7	
19	Draw gear	5		2	1	2	68	14	2
20	Driving boxes, shoes, wedges, pedestals, or braces		6	1			68		4
21	Fire-box sheets	2		3			10		4
22	Flues						6		
23	Frames, tail pieces or braces, locomotive					1	22		5
24	Frames, tender	2		1			9		
25	Gauges or gauge fittings, air						8	7	
26	Gauges or gauge fittings, steam				1		19	4	1
27	Gauge cocks	1		3		2	61	4	4
28	Grate shakers						16	2	
29	Handholds	6		7		2	80	3	
30	Injectors, inoperative						1		
31	Injectors and connections						67	8	8
32	Inspections or tests not made as required	22		18		19	50	46	1
33	Lateral motion						12		3
34	Lights, cab or classification								
35	Lights, headlights						12	1	
36	Lubricator or shields			2			2		
37	Mud rings	1		1			24		
38	Packing nuts	1		3	1	10	35	2	3
39	Packing, piston rod or valve stem	2				2	64	2	
40	Pilot or pilot beams						18	1	
41	Plugs or studs	1					17		
42	Reversing gear	2		1			11	1	
43	Rods, main or side, crank pins or collars	3				3	51		2
44	Safety valves						1		
45	Sanders						76		
46	Springs or spring rigging	1				1	105		7
47	Squirt hose			4			11	3	
48	Staybolts	1					3		
49	Staybolts, broken	51		4			11		
50	Steam pipes			2			45	17	12
51	Steam valves	1				2	15		
52	Steps	6		2			40	4	1
53	Tanks or tank valves	1					66	2	
54	Telltale holes					2	7	2	
55	Throttle or throttle rigging	5		1	1	1	51	4	
56	Trucks, engine or trailing			3	1	2	29	2	14
57	Trucks, tender	5		10	9		122	6	2
58	Valve motion						11		1
59	Washout plugs	3				3	40	1	3
60	Water bar or combustion flues						85	6	
61	Water glass, fittings or shield	5		3			28	1	
62	Wheels	2		1		2	21		
63	Miscellaneous—Signal appliances, badge plates, brakes (hand)	5		3			21	3	
Number of defects		171	95	18	103	1,897	185	79	
Locomotives reported		108	12	27	22	70	1,421	41	42
Locomotives inspected		80	10	37	33	107	1,453	66	58
Locomotives defective		29	29	33	9	36	670	44	25
Percentage of inspected found defective		36	23	62	27	34	46	67	43
Locomotive ordered out of service		8	3		2	31	9	1	

defective, and ordered from service, etc.—Continued

Gulf Coast Lines	Gulf, Colorado & Santa Fe	Gulf, Mobile & Northern	Hocking Valley	Huntingdon & Broad Top Mountain	Illinois Central	Illinois Terminal	Indiana Harbor Belt	Indianapolis Union	International Great Northern	Interstate	Jonesboro, Lake City & Eastern	Kansas City Southern	Kansas City Terminal	Kansas, Oklahoma & Gulf	Kentucky & Indiana Terminal	Lake Superior & Ishpeming	Lake Superior Terminal & Transfer	Lake Terminal							
2	4	3	7	1	4		2		1		1	2	3	1	1			1							
					1							1													
					1							2													
					3			1				3													
					5		1					2													
					11							4													
					68		69	1	3		2	18	5	2				1							
					25		5	1	8		3	3	8	2				1							
					17				11		1	3													
					10				2		2	2													
					5			1			1	1		4											
					22		11		6	3	1	2	2					1							
					10				1		1	1													
					23		3		5	3	1	14	2	8				1							
					2				6	4	1	5	1	1											
					21		2		7	3		5	7	2											
					38		9	1	8	2		15	3	5				1							
					44		16		5	11	1	16	3	8				20							
					17		1	1	1	1		5	1	8				21							
					11		1				2	2	1	1				22							
					22		2	1	7	4		15	2	6				23							
					7		1				3	3						24							
					1		1		2			9	1	1				25							
					13		2		4	3		15	3	1				26							
					34		14		11	2	1	6	2	2				27							
					1		3		1	1		2	2					28							
					16		32		3	3		15	2	6				29							
					4		1		1	1		9	1					30							
					3		5		1			9	1	1				31							
					23		34		10	48		24	8	3				32							
					56		75		22	1	2	44	1	16				33							
					6		8		3			1						34							
					1		19		9			2	1					35							
					3		6		1	4		2	1					36							
					1		11		4			1						37							
					1		4		2			1	3					38							
					5		4		3			3		4				39							
					1		1		3			2	1	1				40							
					1		1		4			4						41							
					5		8		1	3		8						42							
					9		56		3	16		12	3					43							
					1		1		1			7	1					44							
					21		28		31			10	3					45							
					3		15		5	3		6	2					46							
					3		1		2			1	3					47							
					29		23		27	15		1	3					48							
					2		2		8			11		2				49							
					1		3		5			2						50							
					23		20		4	9		7	5	3				51							
					5		8		3	18		1	3					52							
					7		10		5	6		1	5					53							
					11		54		8	5		5		2				54							
					18		63		11	16		4	9	9				55							
					4		28		4	4		5	5	1				56							
					18		37		2	6		4						57							
					5		13		9	5		12	2					58							
					13		10		6			6						59							
					11		9		3			6						60							
					483		816		168	510	32	1,431	3	400	12	261	101	21	430	98	99	42	13	13	
					91		126		88	159	21	1,920	11	139	23	187	14	11	178	37	39	24	32	11	17
					291		441		141	198	7	1,506	8	166	19	250	16	6	237	45	37	6	37	18	8
					181		253		83	128	9	459	1	86	5	73	15	3	124	36	16	17	8	4	
					145		188		88	65	78	30	12	52	26	29	94	50	52	80	43	46	44	50	
					58		7		7	12		30		18		9	6	2	11	2	1	2	1		

Table showing number of locomotives inspected, found

Parts defective, inoperative or missing, or in violation of rules	Lehigh & Hudson						
	Lehigh & New England	Lehigh Valley	Litchfield & Madison	Long Island	Los Angeles & Salt Lake	Louisiana & Arkansas	Louisiana & Northwest
1 Air compressors.....	2	8	1	3	4		
2 Arch tubes.....		2					
3 Ash pans or mechanism.....		3					
4 Axles.....		6					
5 Blow-off cocks.....		11					
6 Boiler checks.....		39		6	7		
7 Boiler shells.....		50	1	15	9	1	1
8 Brake equipment.....		16		1	10		
9 Cabs or cab windows.....		2		2	12		
10 Cab aprons or decks.....		11		1	13		
11 Cab cards.....		1					
12 Coupling or uncoupling devices.....		5					
13 Crossheads, guides, pistons or piston rods.....		29			12		1
14 Crown bolts.....		1					
15 Cylinders, saddles, or steam chests.....		50		5	9		2
16 Cylinder cocks or rigging.....		13		7			
17 Domes or dome caps.....		1		1	3		
18 Draft gear.....		20	1	1	5		
19 Draw gear.....		5					
20 Driving boxes, shoes, wedges, pedestals, or braces.....		28	1	13	10		1
21 Fire-box sheets.....		4		4	1		1
22 Flues.....		3		3	7		
23 Frames, tail pieces or braces, locomotive.....		29		1	8	3	
24 Frames, tender.....		9			3		
25 Gauges or gauge fittings, air.....		2		4			
26 Gauges or gauge fittings, steam.....		8		23	3	14	
27 Gauge cocks.....		1		7	2	17	
28 Grate shakers.....		1					2
29 Handholes.....		5		34	1	42	2
30 Injectors, inoperative.....						5	1
31 Injectors and connections.....	1	8	35	19	36	9	1
32 Inspections or tests not made as required.....		29	18	3	2	56	9
33 Lateral motion.....			38		3		4
34 Lights, cab or classification.....							
35 Lights, headlights.....		3		15	6	6	
36 Lubricator or shields.....				3	1	3	1
37 Mud rings.....		1		17	1	6	1
38 Packing nuts.....				13	2	22	
39 Packing, piston rod and valve stem.....				1	1	13	2
40 Pilot or pilot beams.....		10		12			
41 Plugs or studs.....		1		1	3		
42 Reversing gear.....		1		1	9		
43 Rods, main or side, crank pins or collars.....		11		91		2	7
44 Safety valves.....				3		5	2
45 Sanders.....				23		1	13
46 Springs or spring rigging.....		1		73	5	4	10
47 Squirt hose.....				5		1	5
48 Staybolts.....				3	3	1	4
49 Staybolts, broken.....				4	24	7	
50 Steam pipes.....				1	12		4
51 Steam valves.....				1	7		1
52 Steps.....		2		12		3	24
53 Tanks or tank valves.....				34		7	43
54 Telltale holes.....		3					
55 Throttle or throttle rigging.....		2		20	1		5
56 Trucks, engine or tralling.....				21	2	2	10
57 Trucks, tender.....		12		34	3	6	18
58 Valve motion.....				28		3	4
59 Washout plugs.....		1		39		20	23
60 Water bar or combustion flues.....							
61 Water glass, fittings or shield.....		2		24	2	3	10
62 Wheels.....				16		3	16
63 Miscellaneous—Signal appliance, badge plates, brakes (hand).....		3		6			
Number of defects.....	2	156	1,120	35	180	664	49
Locomotives reported.....	40	64	997	11	188	224	43
Locomotives inspected.....	7	60	784	9	153	425	34
Locomotives defective.....	1	39	286	5	54	216	14
Percentage of inspected found defective.....	14	65	36	55	35	51	41
Locomotives ordered out of service.....	1	5	26	4	1	14	2

defective, and ordered from service, etc.—Continued

Louisiana Ry. & Nav. Co.	Louisville & Nashville	Louisville, Henderson & St. Louis	McCloud River	Macon, Dublin & Savannah	Maine Central	McKeesport Connecting	Manistee & North-eastern	Maryland & Pennsylvania	Mercer Valley	Michigan Central	Midland Valley	Minneapolis & St. Louis	Minneapolis, St. Paul & S. S. Marie	Minnesota & International	Minnesota, Dakota & Western	Minnesota Transfer	Mississippi Central	Mississippi River & Bonne Terre
	15				1		1			2								
5	7									11	2	1	2					
9	36			2					2	14	3	1	1					
12	36				4					12	3	3	2					
39	120	2		1	7		3	2	1	47	4	23	73					
11	55				8					23	3	7	2					
11	20				6					20		8	8					
3	18			2	7				1	26		1	1					
8	2									18		2	1					
10	31				7			1	1	22		4	7					
1	1									3		1	1					
16	79			1	5				1	15	9	4	5					
11	46									19	1	3	6					
3	3			1						1		1	1					
28	50		1		3					42	3	3	14	2				
44	152	3		1	4		1	3	3	34	3	8	8	10	11		1	
29	95				4			1		15		12	5	3				
4	18				1					18		4						
1	5							1		7								
27	65			1	1					2		3	5	1				
4	7				1				1	1		1	1					
5	27				1			1	2	9		1	5					
4	98				7		3			36	1	4	2		4			
25	95			3	10		5		1	70	1	3	12			2	3	
8	8	1							2	28		1	9					
28	51		1		2		1	2	2	44		11	19	5	5	6		
1	1									2								
36	204			6	12		3		3	139	9	2	13	1	5	1		
88	32	1			42		1	5	3	59	17	26	48	2			3	
18	14				1			2		5		1	1					
1	10				1				2			1	1					
1	7									3		1	4					
6	11				1			1		8		1	1					
14	10				1					26	1	1	1					
6	131			3	1		1	1		58		3	7					
6	44			1	1		4		4	7	1	13	3			3	1	
2	31				2		2		3	3		3	4					
5	30				3					6	2					2	3	
48	90	2		3	5			11	7	25	1	1	3	1		1	1	
1	1				1					24	2	8	16	1		1		
2	21									2		2						
61	132		1	5	13			1	1	44	6	19	43	3			2	5
4	27									31		3	2					
5	20									14		1	1					
50	39	3	30		20		24	17	2	40		17					6	
4	38				1					28		1	3					
1	23				3					16	1	1	6					
39	63		2		6				1	92	4	5	1	4			2	
23	119		2		1				1	67	3	9	1	2				
7	8				6				2	12		1						
6	20				6				2	72		5	5	1	1	1		
34	95				1					18	1	2	12					
56	102				3		3	2	5	87	18	17		1	6	1		
5	25				3				1	2	1	2						
15	93				5					65	1	18	5	1	2			
14	76				7				2	106		7	23	2			5	
36	51			7	16		3	6	2	14	1	7	8				1	
15	21		2	1						12		2						
967	2,791	12	44	60	228		69	75	51	1,664	70	257	461	41	53	49	35	20
67	1,300	37	13	12	236	16	13	14	11	781	50	219	528	24	10	19	23	18
160	1,388	4	8	22	152		11	20	9	524	43	249	679	26	11	27	47	20
113	784	4	5	14	75		9	17	8	348	17	87	172	14	11	18	15	8
78	37	5	63	64	41		6	85	89	66	40	35	25	54	100	67	32	40
64	98	3			14		2	4		44	2	6	4	1	3	1	4	1

Table showing number of locomotives inspected, found

Parts defective, inoperative, or missing, or in violation of rules	St. Louis & Hannibal	St. Louis-San Francisco	St. Louis Southwestern	San Antonio & Aransas Pass	San Antonio, Uvalde & Gulf	San Diego & Arizona	Sandy River & Rangely Lake	Savannah & Atlanta	Seaboard Air Line
1 Air compressors		73	5			1			8
2 Arch tubes		5							1
3 Ash pans or mechanism		2							5
4 Axles								1	
5 Blow-off cocks	2	16			1				24
6 Boiler checks	1	16	1						20
7 Boiler shell		57	4	1					16
8 Brake equipment	1	114	27	3	2	2		1	39
9 Cabs or cab windows	2	12	9		1				19
10 Cab aprons or decks	1	7	7			4	1		8
11 Cab cards		1	1		1				3
12 Coupling or uncoupling devices		1	2			2			7
13 Crossheads, guides, pistons or piston rods	9	47	7	1	5				7
14 Crown bolts	1	3	2						7
15 Cylinders, saddles, or steam chests	3	212	13						16
16 Cylinder cocks or rigging	8	39	14						5
17 Domes or dome caps		2							8
18 Draft gear	4	29	10	1					52
19 Draw gear	5	34	12		3	1			59
20 Driving boxes, shoes, wedges, pedestals, or braces	7	59	39		3			4	64
21 Fire-box sheets		2	3		2				12
22 Flues		3			1				8
23 Frames, tail pieces or braces, locomotive	44	1		5				1	40
24 Frames, tender		7							7
25 Gauges or gauge fittings, air		3			1				4
26 Gauges or gauge fittings, steam	2	18	4			1		1	12
27 Gauge cocks	2	40	9		10	2	3		81
28 Grate shakers	1	11	3						9
29 Handholds	1	16	4	1	2	5		2	24
30 Injectors, inoperative		1							1
31 Injectors and connections	25	156	16	1	5	2		2	156
32 Inspections or tests not made as required	12	319	30	1	13	4	1	8	175
33 Lateral motion	2	4		1				1	4
34 Lights, cab or classification		1							1
35 Lights, headlights		2							5
36 Lubricator or shields		11	4	2	1				5
37 Mud rings		21	1						19
38 Packing nuts	10	22	4						91
39 Packing, piston rod and valve stem	3	52	7		1				10
40 Pilot or pilot beams	1	10							12
41 Plugs or studs		12							19
42 Reversing gear		31	10					1	8
43 Rods, main or side, crank pins or collars	9	73	8	7	5			2	28
44 Safety valves		2							2
45 Sanders		45	2						4
46 Springs or spring rigging	1	177	20	2	7	1			67
47 Squirt hose	6	17		1	1				10
48 Staybolts		9	4						20
49 Staybolts, broken		13	55	14	14				67
50 Steam pipes	1	24	3						33
51 Steam valves		12	1						12
52 Steps	5	9	12			3			23
53 Tanks or tank valves	3	55	3			3			65
54 Telltale holes	1	1			3				2
55 Throttle or throttle rigging	3	49	7	1	2				44
56 Trucks, engine or trailing		42	6						119
57 Trucks, tender	9	117	8	1	2	1		2	228
58 Valve motion	1	21	6	1	2				4
59 Washout plugs	1	89	8	3	6	1		1	127
60 Water bar or combustion flues									2
61 Water glass, fittings or shield	3	39	15	1	3				58
62 Wheels	4	26	3	6	5				31
63 Miscellaneous—Signal appliance, badge plates, brakes (hand)		23	2						8
Number of defects	151	2,354	416	49	118	31	4	27	2,014
Locomotives reported	30	969	290	87	18	17	12	12	608
Locomotives inspected	15	1,547	188	90	46	38	15	11	1,314
Locomotives defective	15	763	89	16	27	21	1	8	675
Percentage of inspected found defective	100	49	47	18	59	55	7	73	51
Locomotives ordered out of service	5	65	14	1	5		1	2	33

defective, and ordered from service, etc.—Continued

South Buffalo	Southern	Southern Pacific, Lines East	Southern Pacific, Lines West	Southern Pacific of Mexico	Spokane International	Spokane, Portland & Seattle	Steelton & Highspire	Sumpter Valley	Tennessee Central	Tennessee Coal, Iron & R. R.	Terminal R. R. Assn. of St. Louis	Texas & Pacific	Texas-Mexican	Texas Midland	Texas Pacific, Mo. Pac. Term. of N. O.	The Kansas City, Mexico and Orient	Tionesta Valley	Toledo, Peoria & Western
1	1	5	11						6							6	1	
2	27								1									
3	6	1																
4																		
5	9		10			1			6			1						
6	21		14						2									
7	16	7	23						7			3		1				
8	122	76	52	2		3			52			10		2				
9	49	6	27			5						2		2				
10	9	16	27	1		1												
11	19	6	8															
12	16	3	19	1		1												
13	39	27	29	1		4			12	1		1						
14	6	2	18															
15	67	13	17			4			23			6						
16	40	25	8						4		2	1						
17	3	2	4						1									
18	67	15	12			1			4									
19	73	33	35			2			23			2						
20	71	33	21			4			8			5		1				
21	21	8	22						7									
22	23	2	11			1			1									
23	31	13	13						35			5						
24	4	3	6						3									
25	6	3	1						3									
26	22	13	22			2			4									
27	69	26	39			1			11			2		1				
28	33								2									
29	49	25	59	3		2			6		5			1				
30	1	7																
31	189	32	56	4		5			22	3	7	7		4				
32	166	113	218	1		8			1		1	24	1	3	4			
33	11	3	21						17			5						
34																		
35																		
36																		
37																		
38																		
39																		
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62																		
63																		
Number of defects	11	2,709	916	1,410	25	102		1	630	17	41	132	9	13	19	323	143	32
Locomotives reported	30	2,235	567	1,780	44	11	89	13	11	46	67	196	339	16	17	16	67	11
Locomotives inspected	4	2,712	636	1,784	8	10	130		4	148	15	26	216	9	12	7	79	15
Locomotives defective	3	974	180	592	8		42		1	109	6	16	35	3	4	4	61	12
Percentage of inspected found defective	75	36	28	33	100		32		25	74	40	62	16	33	33	57	77	80
Locomotives ordered out of service			87	51	1		4		23		1	1		3	2	17	7	2

Table showing number of locomotives inspected, found

Parts defective, inoperative or missing, or in violation of rules	Toledo Terminal	Tonapah & Goldfield	Toronto, Hamilton & Buffalo	Tremont & Gulf	Trinity & Brazos Valley	Uintah	Ulster & Delaware	Union Pacific	Union Railroad	Utah Copper
1 Air compressors.....								25		
2 Arch tubes.....								2		
3 Ash pans or mechanism.....								2		
4 Axles.....								9		
5 Blow-off cocks.....					1			12		
6 Boiler checks.....	1				2			9	2	
7 Boiler shells.....				1	3			84	2	
8 Brake equipment.....				3	1			17		1
9 Cabs or cab windows.....						1		2		
10 Cab aprons or decks.....		1			5			2		
11 Cab cards.....					1			2	2	
12 Coupling or uncoupling devices.....								22	1	4
13 Crossheads, guides, pistons, or piston rods.....					3			6	1	4
14 Crown bolts.....								6		
15 Cylinders, saddles, or steam chests.....						1		33		
16 Cylinder cocks or rigging.....								10		2
17 Domes or dome caps.....								4		
18 Draft gear.....				1	3			26	7	
19 Draw gear.....				1	7			7	9	
20 Driving boxes, shoes, wedges, pedestals, or braces.....	1			13				18		
21 Fire-box sheets.....								7		
22 Flues.....	1							3		
23 Frames, tail pieces, or braces, locomotive.....					3			10	4	
24 Frames, tender.....					1			4		
25 Gauges or gauge fittings, air.....					1			10		
26 Gauges or gauge fittings, steam.....					2			23	3	
27 Gauge cocks.....					2			29	2	
28 Grate shakers.....					1			5		
29 Handholds.....					2			32		2
30 Injectors, inoperative.....								2		
31 Injectors and connections.....				3	3			90	3	
32 Inspections or tests not made as required.....				6	10			20	2	
33 Lateral motion.....					4			2		
34 Lights, cab or classification.....								3		
35 Lights, headlights.....						1		3		
36 Lubricator or shields.....	1							5	1	
37 Mud rings.....					2			4		
38 Packing nuts.....								25		
39 Packing, piston rod and valve stem.....					1			19	4	
40 Pilot or pilot beams.....					1			4		
41 Plugs or studs.....					1			5		
42 Reversing gears.....					2			8		
43 Rods, main or side, crank pins or collars.....					2			35	2	
44 Safety valves.....								2		
45 Sanders.....								1		
46 Springs or spring rigging.....				1	3			26	3	
47 Squirt hose.....								27	10	1
48 Staybolts.....					4			7		
49 Staybolts, broken.....								15		
50 Steam pipes.....								15	1	
51 Steam valves.....								13	1	
52 Steps.....								1		
53 Tanks or tank valves.....		2		2	2		4	35	1	3
54 Telltale holes.....		1						43	3	
55 Throttle or throttle rigging.....								9		
56 Trucks, engine or trailing.....				1	9			18	2	
57 Trucks, tender.....					3			54	7	
58 Valve motion.....								6		
59 Washout plugs.....					4			57	1	
60 Water-bar or combustion flues.....								41	3	
61 Water glass, fittings or shield.....				3				5		2
62 Wheels.....					5			1		
63 Miscellaneous—Signal appliance, badge plates, brakes (hand).....					1	1		38		
Number of defects.....	3	6	19	104	8	15	1,071	73	15	
Locomotives reported.....	21	10	20	11	36	13	29	966	163	10
Locomotives inspected.....	30	7	20	12	38	4	22	1,063	15	17
Locomotives defective.....	1	3	7	23	3	4	324	12	4	
Percentage of inspected found defective.....	3	43	35	58	61	75	18	30	80	24
Locomotives ordered out of service.....				3	4	1	19			

defective, and ordered from service, etc.—Continued

	Utah	Vicksburg, Shreveport & Pacific	Virginia Iron, Coal & Coke	Virginian	Wabash	Wabash, Chester & Western	Washington Terminal	Western Maryland	Western Pacific	Wheeling & Lake Erie	Wheeling Steel Corp.	Wichita Falls & Southern	Winston-Salem South-bound	Woodward Iron Co.	Wrightsville & Tennille	Yazoo & Mississippi Valley	Youngstown Sheet & Tube	Roads with less than 10 locomotives	Total defects	
1																			42	1,574
2		2		1	7			7	4	13		1							3	198
3				1				1	1	1									5	216
4								2	2	1									3	14
5	1				8	1		3	7	1		2							20	825
6				1	11			12	1	5		2							45	991
7	2	1		1	9			9	2	15		5			1				62	1,597
8		3			68			61	13	86		3		4	3				335	6,497
9	1				28			17	26	1		1							116	2,541
10					1			8	5	12		5		1					91	1,165
11		2			5			1	3	1		1							96	665
12					4			6	6	6				1					67	447
13		1			6	25		16	8	20		2		3					71	2,922
14					3	1		3	1	1									10	283
15		1	1		31	18		23	5	10	4	4		3	3		1		161	4,352
16					2	27		2	5	2									93	1,801
17					1			1											4	371
18					11	29		16	9	34	1	1							141	2,283
19	1	5		1	22			1	22	22		6		1					234	3,273
20		3			9	26		1	17	8		1							152	3,241
21					3			3	3	9		1							55	1,152
22					1			1	1	2		2							51	524
23		4			7			7	5	1	3								78	2,036
24					1			3	1										24	391
25	1				1	7		9	3	4					1				15	694
26	1	4		1	16			10	3	28	1	2							50	1,809
27		9			12	17		17	11	24		2		1	1				125	3,081
28					5			1	5	2		8					5		15	832
29	2	1			11			14	7	22		2		1	2	1			235	2,831
30																			6	70
31	5	9		3	18	73		30	16	43	2	13	3		5	1	3		383	8,064
32					16	70		1	57	33	20	2	8		1	1			477	10,436
33		33			7			3	3	5		1							69	659
34		1			1			1	1	1		1							2	86
35					3			3	3	8		1							35	928
36					4			4	7	7		1							46	704
37	1	1			1	3		5	8	9	1	1							45	1,384
38					1	13		9	31	31		2							183	2,761
39					1	18		2	9	4		5		1	12				141	2,411
40					4	9		6	5	5		1			6				32	832
41					2	5		1	5	1		1				3	1		44	849
42					2	26		1	1	3									18	1,274
43					2	27		1	1	35	16	39							201	4,813
44					2	2		9	4	3		5			4				7	234
45						24		1	17	4									30	2,004
46					8	44		1	16	11	25	1	1						202	5,532
47					13			4	2	6		1	1						61	1,008
48								4	5	5		1							26	741
49						4		11	67	84	4	49							893	3,745
50						11		3	6	14		1							18	1,590
51						9		1	1	10		1							18	869
52						2		17	12	36	1	1	1						294	2,867
53	1	6			21	33		9	7	14		2		3	2				114	3,352
54					2	1		4	8	5		1			1				73	451
55		2			1	22		1	10	6		2							88	2,403
56		5			14	20		26	5	7		2		1	3	1			157	2,966
57		11			8	40		37	13	23		13							534	5,372
58					3	10		3	2	9		3							29	1,250
59	1	14			3	19		14	16	10		2							74	3,588
60																			1	19
61		3			3	29		28	3	15		3	1	1	2		5		252	3,713
62		2				8		4	14	12		5		1	4				324	2,148
63	2				5	6		15	9	4									39</	