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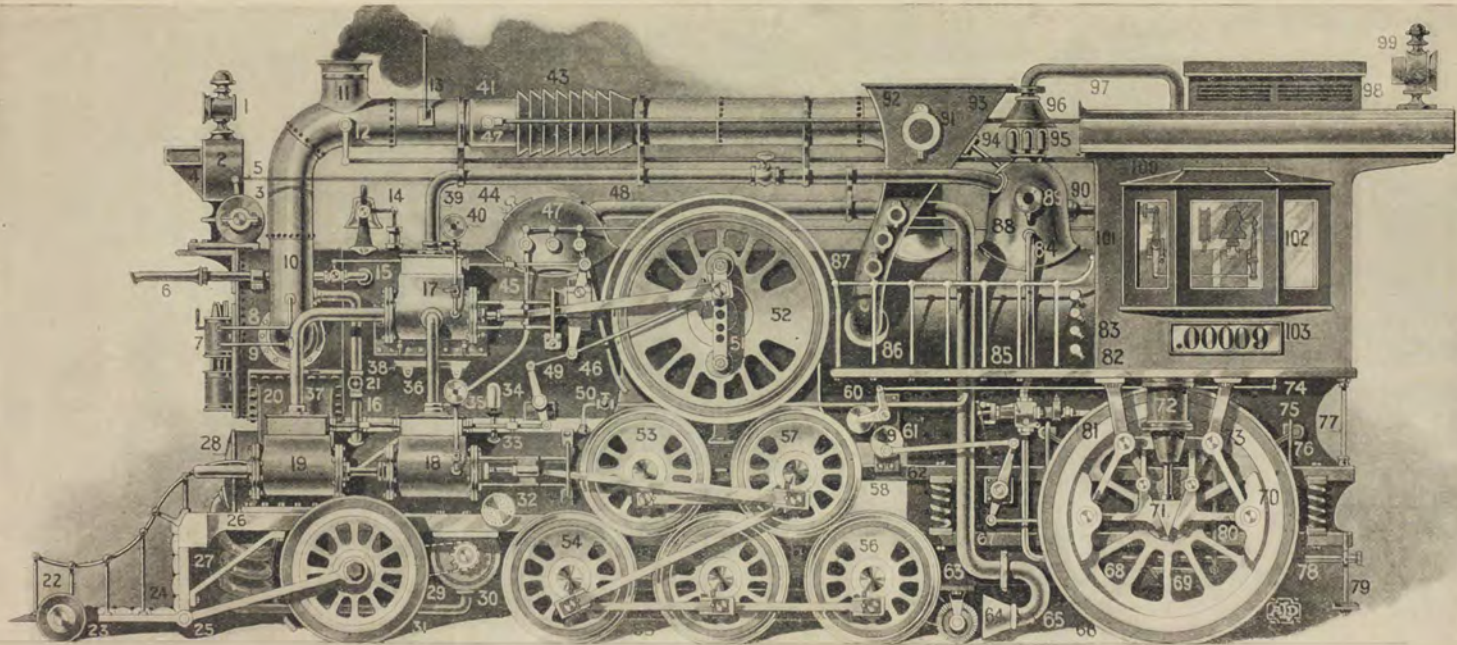
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GILDERFLUKE'S PERFECTED LOCOMOTIVE.

The Gilderfluke Locomotive.

BY ELI GILDERFLUKE.

The appalling wastes and extravagances incident to the operation of the steam locomotive have ever been the subject of much fruitless wrangling and soul-harrowing argument, tending in the direction of matters of trivial import and along traditionally beaten paths.

The inventor with a courage born of his convictions had not yet arisen. Some of those born out of time, Fontaine, Swinnerton, Raub and the great Holman, carried the germs of improvements to overcome these wastes, in part, but their efforts have been ill-timed, and they have suffered a martyrdom to the causes they have variously essayed, through a public lack of appreciation, and a studied disregard of proven economies of their systems by wobbly kneed officials, to whom the slightest remove from olden-time practices was a capital offence.

There are still those who, in a feeling of antagonism to departures from the worship of methods moss grown, will question some of the many economical innovations here appearing for the first time in locomotive construction. "Haec olim meminisse juvabit."

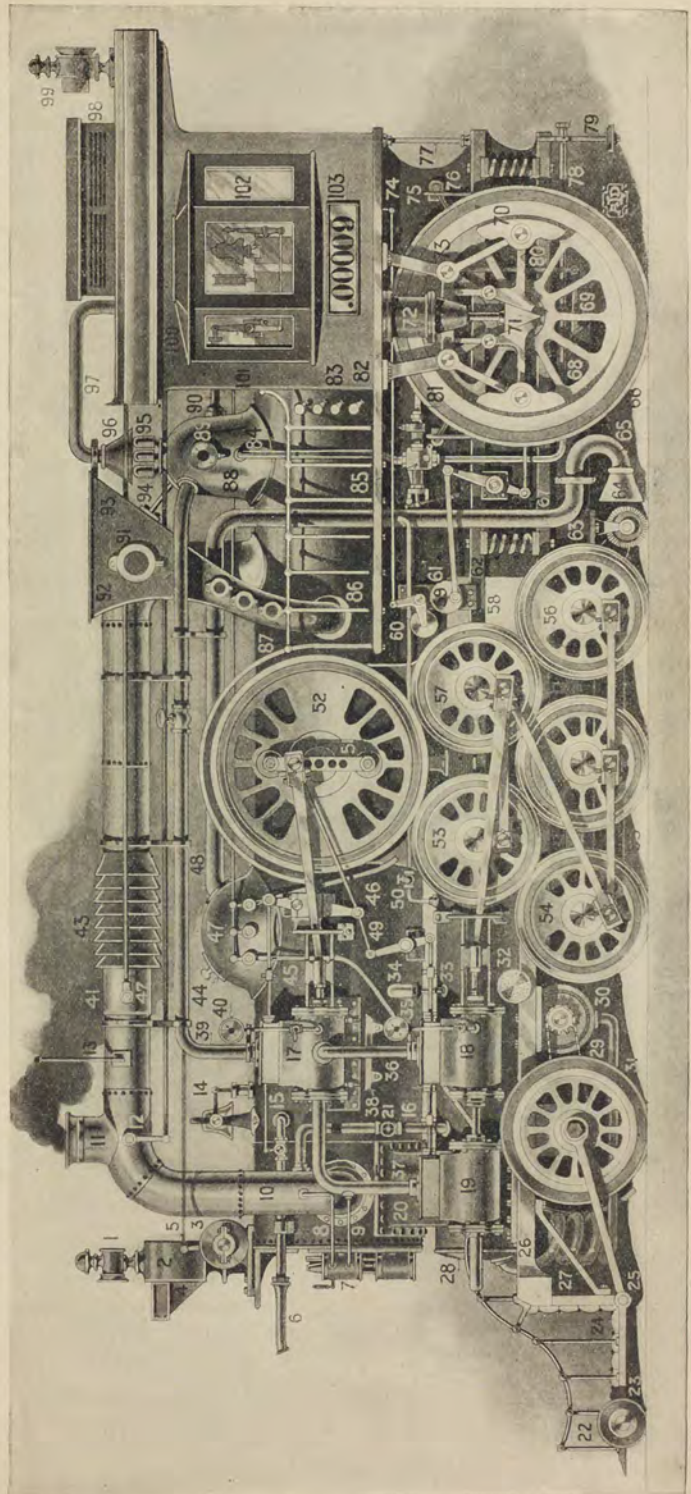
A brief description of a newly devised and highly economical engine follows herewith, reference being made to numbers as appearing on engraving.

1 is a small head or signal lamp, burning kerosene, and is a substitute or understudy for the high-power electric search-light, should the electric light fail in operation from any derangement of wires, or should bugs, attracted by the light, clog the dynamo or light exciter. Should bugs be attracted in such quantities as to seriously impede the movement of trains, it is suggested as a remedy, the painting of front end of engine with an insecticide, and the spraying of the right of way with a saturated solution of bichloride of mercury and alcohol, carried in a suitable receptacle placed on the tender of engine. The spraying to be accomplished by the use of compressed air.

2 is a high-power triple X-ray electric search-light of 9,340 candle-power, to enable the engineer to see around curves and through mountains. The light exciter or persuader is driven by a small steam turbine or caloriflute 3 controlled from the cab by the lever 5. This light serves a special purpose in such parts of the country as are infested by train robbers, the X-ray feature enabling the engineer to detect the inmost thoughts of those coming within its range, and to govern himself accordingly.

4 is a side hood over reflector of lamp, the office of this hood being to keep the intense glare of the headlight from blinding the depot master.

6 is a new anti-sleep-on-the-track device, being a highly polished nozzle or hydroshove, attached to a pipe leading back to boiler, and operated by lever 15, from



GILDERFLUKE'S PERFECTED LOCOMOTIVE.

fireman's side of the cab. The object of this apparatus is, to project against the cuticles of hoboos or stray beeves upon the track, a stream of aqua pura at a temperature of 212 degrees; this is to assist the aforesaid hoboos and beeves to a realization of their danger, and to be of service in the acquirement of a hump upon themselves in the clearance of the right of way. This squirt can also be used in the winter for the melting of snow banks left by the plow.

7 is an especially designed 19-inch air brake pump, which, together with a new and improved brake rigging, will stop a train of 70 cars at a speed of 42.7 miles per hour, in 8 feet, 10 inches. This will enable an engineer to run at full speed right up to the station platform, thus saving many money-bearing minutes, now lost by the slowing up of trains entering stations or terminals.

8 and 9 are air brake pump steam exhaust and supply pipes, in the order named, the supply being taken from the dry pipe to the front cylinder of the lower tandem-compound portion of the engine.

10 is a new and vastly improved smoke pipe or carbowallop, for the swift conveyance of smoke, cinders and gases back to the fire box for re-incineration, and with a nice new lead pencil and a sheet of smooth brown paper, a saving of at least 75 per cent. in coal consumption can be easily figured, and in actual service there is no doubt but what a train of 68 cars and a short caboose can be hauled 137.49 miles per half ton of coal.

12 is a by-pass or deflectorbolus, so placed in the carbowallop as to enable the engineer, should there be too much smoke, ashes or cinders returning to fire box, thereby causing too intense a fire, to turn the smoke or gases into the stack 11, and allow them to pass to the atmosphere as shown on engraving.

41, 42, 43, are also parts of the smoke pipe or carbowallop, as aforesaid, 41 being a movable sleeve, or slipguilder, connected with petticoat pipe, 43, and operated by cab lever, 42. The wings of this petticoat pipe act as an atmosphere scoop when engine is running forward, and induce a rapid movement of the oxygen-charged smoke, together with gases and cinders, to the fire box. The forced addition of the oxygen-charged smoke makes a fire of such intensity that an engine equipped with the apparatus will burn very nearly anything, and is especially fitted for the burning of a mixture containing equal parts of culm, fine gravel and slag. The use of this composite fuel will effect a still further saving of 20 per cent., making a total estimated saving of 95 per cent. over present fuel consumption per train mile, and tons hauled.

16 is a pipe connected with compressed air reservoir, and is to be used as an auxiliary blower for the carbowallop, when engine is making steam in the house.

13 is a signal or fireworks holder placed upon the sides of the carbowallop, so as to insure a prominent display for the usual railroad signals, flags or lamps. This device is also to be used in connection with a newly designed system of weather signals, by flags and pyrotechnics, carried on the engine. This flagholder in connection with the triple X-ray electric search light, will be found especially valuable in apprising the train dispatchers of the train's location, in the event of a lap order, or when wires are down.

14 is a new steam bellringer or chimodad, a special feature being the connection between the chimodad and the bell, which prevents the bell from turning over. Other inventors have struggled for years in the solution of this problem without success.

17, 18, 19 are steam cylinders forming a trunk cross-steep-tandem-compound system of such marked economy in steam consumption as to effect a proven saving of 87.8 per cent. over the steam consumption of the highest type of simple engines of the same draw-bar pull and under similar conditions. Improvements now making will show a still further economy in the steam consumption of 12.2 per cent., which will make a steam economy of 100 per cent.; the steam being actually used up without waste, positively no steam appearing in the stack or carbowallop. The distribution of the steam in these cylinders is very simple, but is too complex for a written description.

22 is a new and improved pilot or flipgang carried on the pony truck wheels 23, to keep the nose of the flipgang from stabbing into the ties. The conventional pilot is a rude, barbarous construction and a relic of days gone by. A swine upon the right of way, struck by this old-time pilot, would be tossed aside in a brutal manner, and in some cases seriously injured, to say nothing of the hazard of covering the front end of the engine with disrupted hog. Suits for damages resulting from the promiscuous distribution of swine over the surrounding country are entirely avoided by this new and improved device, and the saving thus accomplished will go a long way in the settlement of the pay-roll and purchases of soft hammers to be used on the sand pipes or cinder hopper.

25 is a brace leading from heel of flipgang back to the center of front bearing pony truck, and serves to keep the wheels in alignment, and prevents a wobbling motion tending to weary the fireman, and possibly leading the engine into the ditch, and resulting in the derangement of portions of the reciprocating parts.

26 is the front frame, carrying saddle and tandem cylinders.

27, 28, 29, 30, 32, 33, 34, refer to compressed-air attachment. 33 is the main compressed-atmosphere retainer or drum, atmosphere entering through the strainer

32. This strainer is for the separation of dust and bacilli from the air before it enters the circuloxytor or blower. The introduction of the railway bacillus (*Bacillus Amylobacter*) into the carbowallop being a serious matter, and one hitherto overlooked in locomotive construction. The atmosphere strainer connects directly with the circuloxytor or fan blower 30, driven by a chain and sprocket wheels from the axle of the front pony truck. The atmosphere is forced by the circuloxytor through the coiled conducting pipe 27, and enters retainer at 28, the pressure in the retainer being controlled by a whistle safety valve 30, having a "toot that's like a hoot."

35, 40 are recording gages for determining the effected steam-saving, and are to be consulted on the arrival of train at each stopping place or terminal, and the results noted in a nice little pocket record book, especially designed and provided for the purpose.

36, 37 are steam supply pipes to the cylinders, and are so very simple as to make a description unnecessary.

38 is a small pan or drip to catch water coming from the cylinder cocks and is connected with a small pipe which returns the water to the boiler for reheating.

39 is main steam supply or dry pipe placed above the boiler. The steam produced by this boiler is so very dry, and the percentage of moisture so small, that lagging of the dry pipe to prevent condensation is unnecessary.

44, 45, 46, 47, 48, 50, 63, 64, 65 have to do with the track-sanding system. 47 is the sand holder, sand being introduced through orifice closed by the cover 44. 45, 46 are sand-conducting pipes, 45 being for the conduct of sand to the rail in front of pony truck wheel 31. The forward movement of the wheel over the sand tends to break up the coarser particles and to spread the sand evenly over the rail, so that traction wheels 54, 56 get a firmer hold upon the track. Any kind of sand or fine gravel will serve the purposes required, the grinding action of the various wheels tending to reduce it to the proper fineness. 46 is a sand pipe for delivering sand upon the intermediate driving wheels, and operates to prevent slipping and heating the tires. The sand used through pipe 46, is the sand that is returned to the holder by the compressed air exhaust system. 63 is a small brush or dustoscope, just abait the traction wheels. The object of this dustoscope is to brush the sand remaining on the rail into the funnel shaped scoop, 64, from which it is exhausted through pipe 65, by an exhaust created by compressed air pipe 50, and is thence carried to the sand holder for use over again.

This system will be found very serviceable in such localities as are deficient in sand, gravel or small rocks, and brings about an economy in sand handling, the saving of which expended in the purchase

of coal will go a long way toward the earning of dividends.

49, 51 shows an amazingly simple valve and reverse motion, constructed boldly along original lines, and is as distinctly a radical remove from the common every day link as was the link from the olden time hook motion. There are those who could not invent a button for a buttery door, who will no doubt stand ready to question such a decided innovation, and in their poor, weak little intellects, will conjure up trials and tribulations for the inventor, as was ever the wont of such small malicious natures.

There will be those whose every endeavor will be to bring about contentions as to, we will say, steam consumption of this engine, claiming it to be excessive, or the other way, to the end, that the inventor lay bare the whole scheme of the motion, in order to demonstrate its meritorious features. The inventor would remind such that he is no newly born biped, that his eye teeth have been cut this many a day, that he is somewhat of a conniver himself, and that he intends to keep the salient features of his device sequestered, against such time as the formation of a company to build this locomotive, and who are willing to "dig up" \$1,267,348.27 in current coin and hand to your humble servant on a silver platter. Nay, kind friends, the explanation of this device we will pass by.

We will, however, venture this much information in relation to the reverse motion portion of this new system.

51 shows a bridge or carry-over, supported at either end by studs or pins. Equidistant on this bridge are round openings suitable for the reception of a movable crank pin.

When the desire to reverse the engine comes to the fireman, the locomotive is brought to a standstill, and a small iron ladder, carried on the tender, is placed on the ground, the top resting on the lower part of flange of the high driver 52. A dexterous twist of the wrist removes the crank pin from the position it is in, and it is moved along across the bridge to a corresponding hole on the opposite side, thus moving valves and reversing the engine. Talk about simplicity—this is simplicity itself!

52, 53, 54, 56, 57 pertain to sundry and divers driving and traction wheels, all designed to the one end—that of the highest speed, combined with a great economy and perfect safety. By the use of these traction and driving wheels great tractive power is obtained, the pull on the drawbar representing 213,647 pounds. Theoretically, this engine will easily haul 294 standard freight cars of 60,000 pounds capacity, fully loaded, at a speed of 84 miles an hour.

52, 53, 57 are tripod traction wheels, with "blind" or "bald" tires, mounted in such a manner as to produce a perfect balance of the reciprocating parts, and

tends to make the smoothest running engine ever built—so smooth and noiseless, in fact, that, at a speed of 119 miles per hour, this engine will make no more noise in operation than a yellow tom cat crossing a wooden bridge.

58 is rear top frame bolted rigidly to firebox, and supported by coiled equalizing springs 62 on the lower rear frame 67, which is free from the firebox and attached to the running gear.

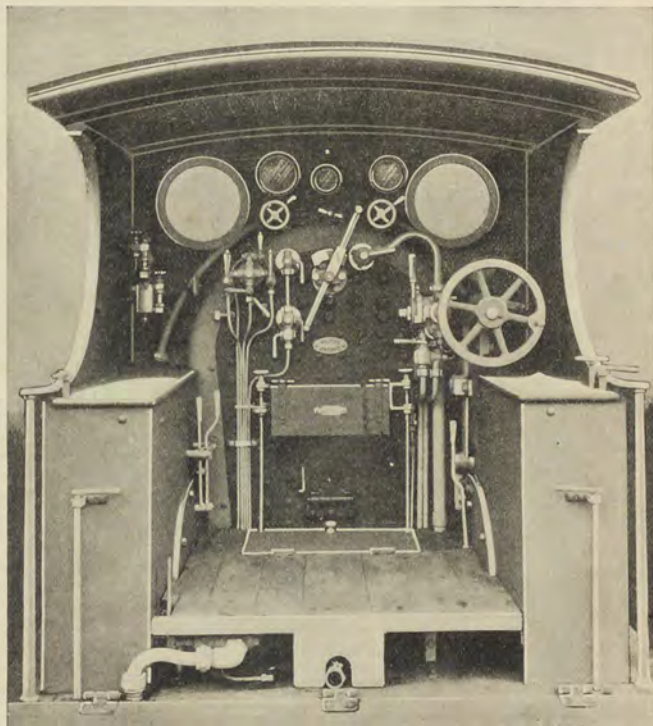
59, 60 have to do with a new grate-shaking device or shudderquake, of very refined adjustment, and worth alone the price of an ordinary locomotive. 60 is an idler wheel hung on a bell crank connecting with the cab by lever 74. This

cussedness, fail to close petticoat pipe 43 and open by-pass 12.

66 is rear supporting wheel, 104 inches in diameter, for carrying the back end of engine and cab.

68 is an ashpan provided with a back damper or clean-out cover connected to cab by lever 69. In an improved device now making, the ashes will be conveyed to the tender, mixed with fresh fuel and burned over. This operation can be repeated until the ashes are worn out.

70, 71, 72, 73, is a new double duplex, wedge, push-down, driver brake. 70 is the brake shoe, composed of alternate strips of basswood, soaked in glue, and cast steel, and bearing upon an inner re-



CAB OF ENGLISH OIL-BURNING LOCOMOTIVE.

idler wheel being dropped down upon traction wheel 57, makes a contact with shudderquake 59, imparting a rotary motion to the same, moving a connecting rod and suitable rigging, and affording such shakes as may be required for the good of the engine. Drawings and patterns are preparing, whereby the product of this grate-shaking device may be utilized, which will tend to still further increase the savings at the coal pile.

61 is a hollow staybolt, with an opening of 1 inch in diameter. This serves to conduct atmosphere to the fire, and affords an escape for the oxygen-charged smoke returning to firebox through the carbwallop, should the engineer, through negligence or common, daily

cessed portion of the back supporting wheel. 71 is a Damascus bronze wedge, attached to lower end of cylinder piston, and operates to force the brake shoes against wheel as shown, the brake shoes falling away from the wheel by gravity, when piston returns to cylinder 72.

This brake can be applied in less than 1-130 of a second, and is the improved brake referred to before, as being capable of bringing to a full stop in a distance of 8 feet, 10 inches, a train of 70 cars, at a speed of 42.7 miles per hour.

These quick stops open a new era in dividend getting, and are worthy of the most solemn consideration.

75 is just a common every week-day wind sheet.

76 is a spring hanger.

77 is a polished steel hand hold charged with electricity by the caloriflue, so that in the event of the fireman's slipping when climbing into the cab, the act of slipping will turn on the electric current in the hand hold, preventing the fireman from falling, because of his inability to let go of the hold.

This is but a slight tribute to the high courage of the men who would dare to manage this engine, and at another time we may discuss some of the many pleasant features of this engine devised to make life more agreeable and worth the living to those up ahead.

78 is the water supply pipe to the injector.

79 is an electric cab step, especially designed for enginemen with large feet, and who wear heavy shoes. By standing upon the step and touching a small button, the engineman is swiftly shot into the cab without exertion on his part.

80 is bearing brace for brake shoe.

81, 85 pertain to the new and highly improved "Whale" injector, which automatically forces 96,378 pounds of water into the boiler hourly, delivering the cold water directly upon the crown sheet, which tends to keep the crown sheet cool and free from crimps.

82 is the nose of the running board.

83 shows gage or try cocks designed for left-handed firemen, and placed outside of the cab to prevent the dripping of water into the fireman's dinner pail.

84 is steam supply pipe to "Whale" injector.

86, 87, 91, 92 are portions of the cinder hopper or frugoeconomiter, and is a device for separating the coal and cinders coming through the carbollop and delivering them on a shelf at the back end of fire box, where the fireman with a pair of asbestos mittens removes large rocks, bits of wire and scrap tin before returning the coal or cinders to the fire box. Should the frugoeconomiter become choked by material too large to pass through to the fire box, the fireman can remove the covers, 87, 91, and hit the congested mass a tump with an eight-pound hammer provided for the purpose, thus starting the stuff in the direction intended by the inventor. This device exerts a coal saving of 25 per cent., which, combined with the saving effected by the carbollop, makes a coal economy of 120 per cent. The improvements now making will result in these engines becoming coal producers instead of coal consumers, and doubtless the railroads adopting this locomotive will have coal for sale, or to give away.

88 is the steam dome, to which is attached the steam pressure gage, 89. One of the duties of the fireman is to arrive out on the running board every six or eight minutes, and keep "tabs" on the steam pressure, as exhibited on the gage—the object in placing the gage on the

dome being to keep the fireman from sleeping and neglecting to remove the debris coming through the frugoeconomiter.

90 is the steam turret and throttle lever casing.

93 shows a brace for holding the steam hood of the car heating pipe.

94 is a brace from the steam dome to the frugoeconomiter, and acts to resist the impact of stones, coal and cinders coming through the frugoeconomiter.

95 is a double and triple silver-plated steam chime whistle of such power as to be heard, on a still day, at a distance of forty-three miles, giving the gatemen at crossings ample time to lower the gates and to warn passersby to stand at least 37 feet 6 inches away from the track when these fast trains pass.

96, 97 are portions of a new car-heating device. The steam escaping from the silver chime whistle is caught by the steam hood 96, and is carried back through pipe 97, which passes through the boiler to super-heat the steam, and thence to the car-heating system. This effects a saving of 100 per cent. in car-heating, the train being heated by steam that is usually lost or wasted at the whistle.

98 is a cab roof ventilator, which serves to clear the cab from smoke escaping through the hollow staybolts, due to overcharging the firebox by smoke returning through the carbollop. Each locomotive is also supplied with a wet sponge, which the engineer can tie over his face to prevent suffocation, should the ventilator fail to clear the cab quickly enough.

99 is a signal lamp, similar in character to the one on the front of the engine.

100 is a cab bay-window, so arranged as to afford a clear view of the track ahead. This does away with the hole-in-the-elbow-wearing practice of leaning out of the cab window, prevents the cold air from blowing the engineer's eye out, or the dropping of equally cold rain water down the back of his neck.

101, 102 are parts of a very finely adjusted, quick-acting throttle, which is non-stickable.

103 is an electric nameplate, so arranged as to flash any number up to and including .99999, if for any good and sufficient reason these numbers can be used for any purpose whatever.

The foregoing explains, in a brief way, some of the many economical features of this new wonder in mechanics.

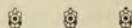
The inventor stands ready to demonstrate the economies of this engine, on any kind of paper, either with pen and ink or with a soft lead pencil with a rubber tip.

The writer has (in his mind) a great works for the building of these engines, and shops in which new methods for the economical handling of work obtains, and at some distant day may acquaint you with some money-saving devices which, to say the least, are startling.

Improved Device for Threading Staybolts.

Railroad men have been made particularly familiar with the foundation defects of staybolts, due to the threads on both ends not being cut so that they will lead with corresponding turns in both sheets. Attention was drawn to this defect so vigorously by Jim Skeevers that numerous attempts have been made to devise a remedy different from that proposed by Skeevers, and the attention now directed to a serious source of weakness is likely to do a great deal of good. In this connection it is well worthy of mention that Mr. James Hartness, of Jones & Lamson Company, has proposed a scheme for cutting the staybolts so that no unequal strains shall be caused when they are screwed into place, which seems exceptionally good and practical. It consists of tandem dies for simultaneously threading the both ends of a staybolt, to insure an accurate correspondence in lead. His arrangement provides a means for accurately adjusting the relative longitudinal position of the dies, and the employment of some type of opening die of not too great length and not too inaccurate in lead, and possessing good diameter controlling features.

He says that both dies employed should be of the opening type, but the scheme would be equally as accurate if a solid or non-opening die were to be used in the place of the rear die. In fact, if the time consumed in operation were not to be taken into consideration, the front die could be non-opening and used to cut both ends, and in the place of the rear die a nut suitably mounted could be used.



It is not generally known, says the "Texas Railway News," that the famous North & South Railroad formerly had no telegraph wire. It runs a short distance in Southern Texas and has two trains. Recently these trains met midway. There was a great quarrel as to which train should back up to the end of the line. Finally the conductors agreed that the train having the less number of passengers should back up. The passengers were counted. One had nine, the other ten, and the train with the nine passengers backed to its starting point.



In tearing up a siding on the Straitsville division of the Baltimore & Ohio Railroad, the other day, the section men discovered that several of the rails had been made in 1863. Subsequent investigation revealed the fact that these rails were part of a lot that were bought in England during the war, at a cost of \$125 per ton in gold. The rails were still in very fair condition, and for light motive power would last ten years longer.