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1,870,019

LOCOMOTIVE

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2 Sheets-Sheet 1

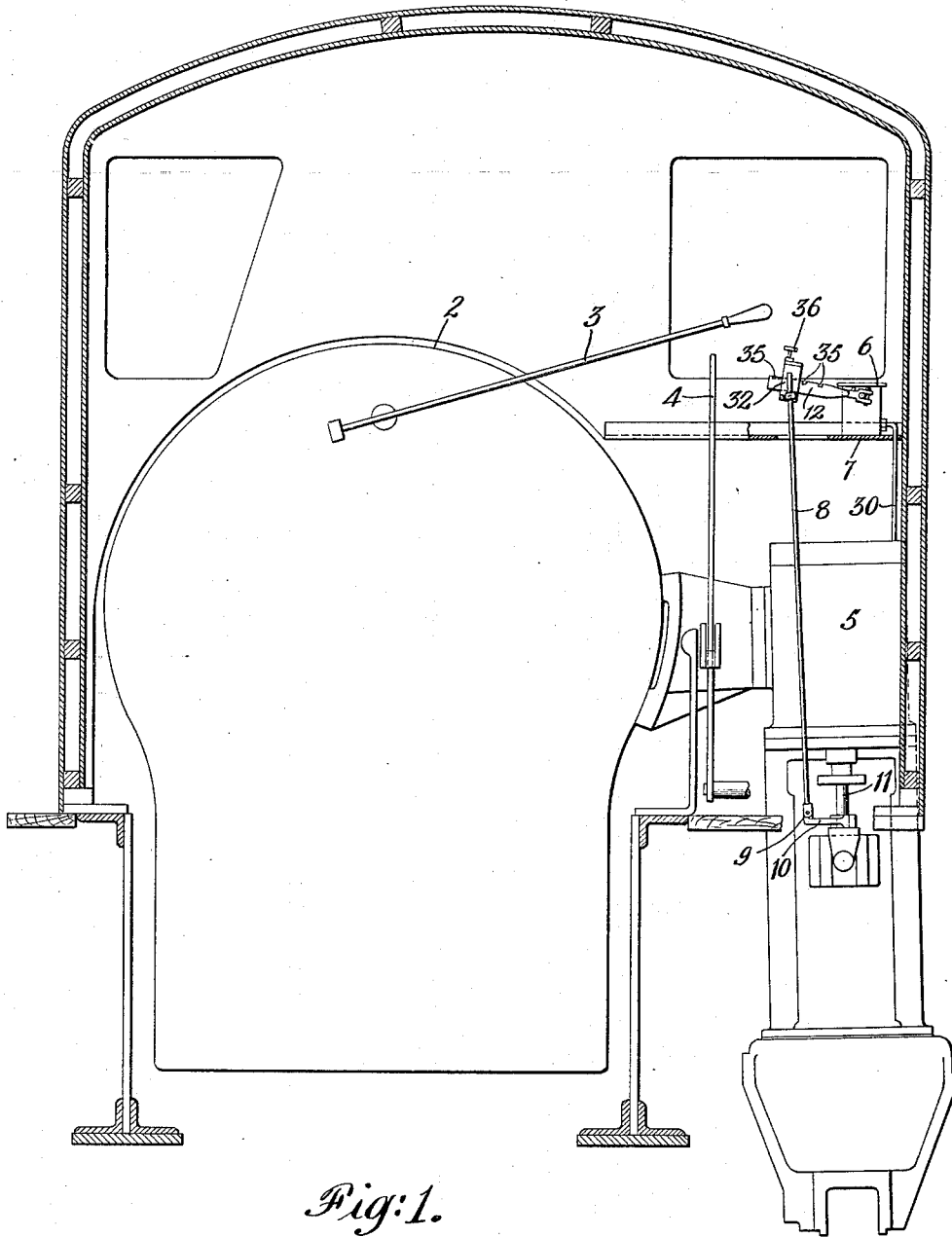


Fig. 1.

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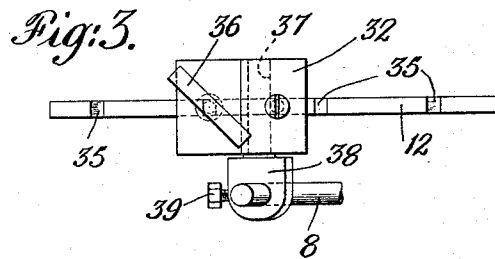
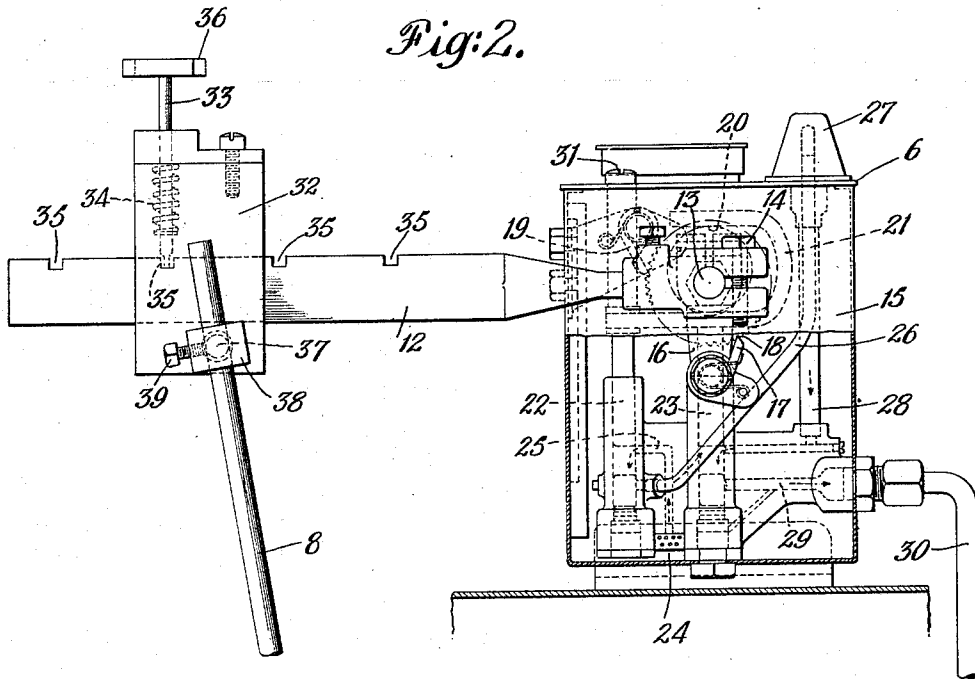
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# UNITED STATES PATENT OFFICE

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## LOCOMOTIVE

Application filed April 21, 1927. Serial No. 185,404.

This invention relates to locomotives, and more particularly to locomotive lubrication, and is especially useful in, and applicable to, locomotives of the gear-drive vertical-engine type, in connection with which it will, therefore, be described herein.

One of the primary objects of my invention is to provide for lubrication of locomotive parts, particularly the cylinders, in proportion to the operating conditions of the locomotive, i. e. to provide means whereby the rate of feed of the lubricant may be varied as operating conditions vary, it being understood, that with locomotives in general, and more particularly with those used in certain kinds of service, of which the geared engine is a good example, operating conditions vary at frequent intervals and over a wide range, so that at one moment the engine will be pulling hard and at another it will be drifting, the former condition demanding greater lubrication, and the latter, less.

More specifically, therefore, it is an object of this invention to provide means under the ready control of the engineman, for directly altering the rate of feed of the lubricator in accordance with changes in operating conditions, whereby over-lubrication while drifting and under-lubrication while working (such as commonly results from a fixed, compromise adjustment of the lubricating device) is obviated.

How the foregoing objects and advantages are obtained together with such others as are incident to my invention or will occur to those skilled in the art, will appear clearly from the following description of the invention viewed in the light of the accompanying drawings, wherein:

Fig. 1 is a view looking forward in the cab of a geared locomotive embodying my invention, certain parts being in section and other parts broken away;

Fig. 2 is an enlarged elevational view of the adjusting mechanism and a common form of lubricator to which it may be applied, a portion of the casing of the latter being broken away, better to illustrate certain parts thereof; and

Fig. 3 is a top plan view of the adjusting means.

Referring first to Fig. 1, it will be seen that I have therein illustrated, in a geared engine having the usual boiler 2, throttle and reverse levers 3 and 4, and cylinders 5 (the rear cylinder, only, being shown), a lubricator 6, which may be mounted on a shelf or bracket 7 in the cab, as shown, and a drive connection 8 for the lubricator, pivotally connected at 9 to an arm 10 on the valve stem 11. It should be understood, however, that the connecting or driving rod 8 may be driven from any other suitable moving part of the locomotive which is so located that the rod can be extended up into the cab where I locate the lubricator 6.

The lubricator 6 (see Fig. 2), which is not, per se, a part of the present invention, has an operating arm 12 which is made fast at one end to a short shaft 13 by means of a bolt 14. On the inner end of shaft 13, inside the casing 15 of the lubricator is an arm 16 carrying a pawl 17 which, upon up and down swinging of the arm 12, intermittently drives the ratchet wheel 18 which is mounted on a second shaft, (not shown), concentric with, and behind, shaft 13. The ratchet wheel 18 is held against reverse rotation by a fixed brake pawl 19. By its periodic movement, the wheel 18, through its shaft, by degrees rotates the eccentric disc 20 which, in turning, moves the embracing U-shaped member 21 up and down, thereby actuating the plungers 22, 23, to pump the oil (in a manner well understood in this art) from the reservoir 24 through suitable pipes 25, and 26, gauge 27, and pipes 28, 29 to the feed pipe 30, whence it is delivered to the engine cylinders 5 or other working parts. The pump is set, in practice, for a certain feed by an adjustment of the plunger 22 through the screw 31.

The foregoing brief description of the operation of a pump suitable for use in association with my invention (of which other forms or types might well be used) will make clearer the operation of my improvement, which is as follows:

I provide on the operating arm 12 of the

pump a cross-head 32, slidable thereon, and equipped with a locking or latch devise comprising a pin 33 adapted to be pressed by a spring 34 into engagement with adjustment notches 35 on the arm 12, said pin having a convenient handle 36 for disengaging it from the notches. Attached to the cross-head, as by a pin 37 with an enlarged head 38 having a set-screw 39, is the upper end of the connecting rod 8 extending up into the cab from the valve stem 11.

It will now be seen that by locating the pump in a convenient position, as, for instance, in the cab within reach of the engineman, by providing an operating rod up into the cab from the cylinder valve stem or other suitable moving part, and equipping the pump with a notched operating arm and an adjustable cross-head thereon to which the operating rod is connected, I make it possible for the engineman to regulate the feed of the pump that will in accordance with the working conditions of the engine, for by moving the crosshead outwards on lever 12 the effective stroke thereof (for a given movement of connecting rod 8) is reduced and the pump will feed less oil, and by moving it inwards the effective stroke is increased and the pump will feed more oil.

What I claim is:—

1. In a locomotive having a cab, valve mechanism, and parts requiring lubrication, the combination of a lubricator located in the cab and having feed connection to a part to be lubricated, an operating arm for the lubricator, a driving rod for the lubricator pivoted to a moving part of the valve mechanism, and a member slidable on said operating arm and pivotally connected to said driving rod, together with releasable latch means for said member.

2. In a locomotive having a cab, valve mechanism, and parts requiring lubrication, the combination of a lubricator located in the cab and having feed connection to a part to be lubricated, an operating arm for the lubricator, a driving rod for the lubricator pivoted to a moving part of the valve mechanism, and a member slidable on said operating arm and pivotally connected to said driving rod, together with releasable latch means for said member including a movable pin mounted in the member and notches on the arm adapted to be engaged by said pin.

3. In a locomotive having a cab, running gear, and parts requiring lubrication, the combination of a lubricator located in the cab and having feed connection to a part to be lubricated, an operating arm for the lubricator, a driving rod for the lubricator pivoted to a moving part of the locomotive running gear, a member slidable on said operating arm and pivotally connected to

said driving rod, and releasable latch means for said member.

In testimony whereof I have hereunto signed my name.

GEORGE F. NIEGEMANN.

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