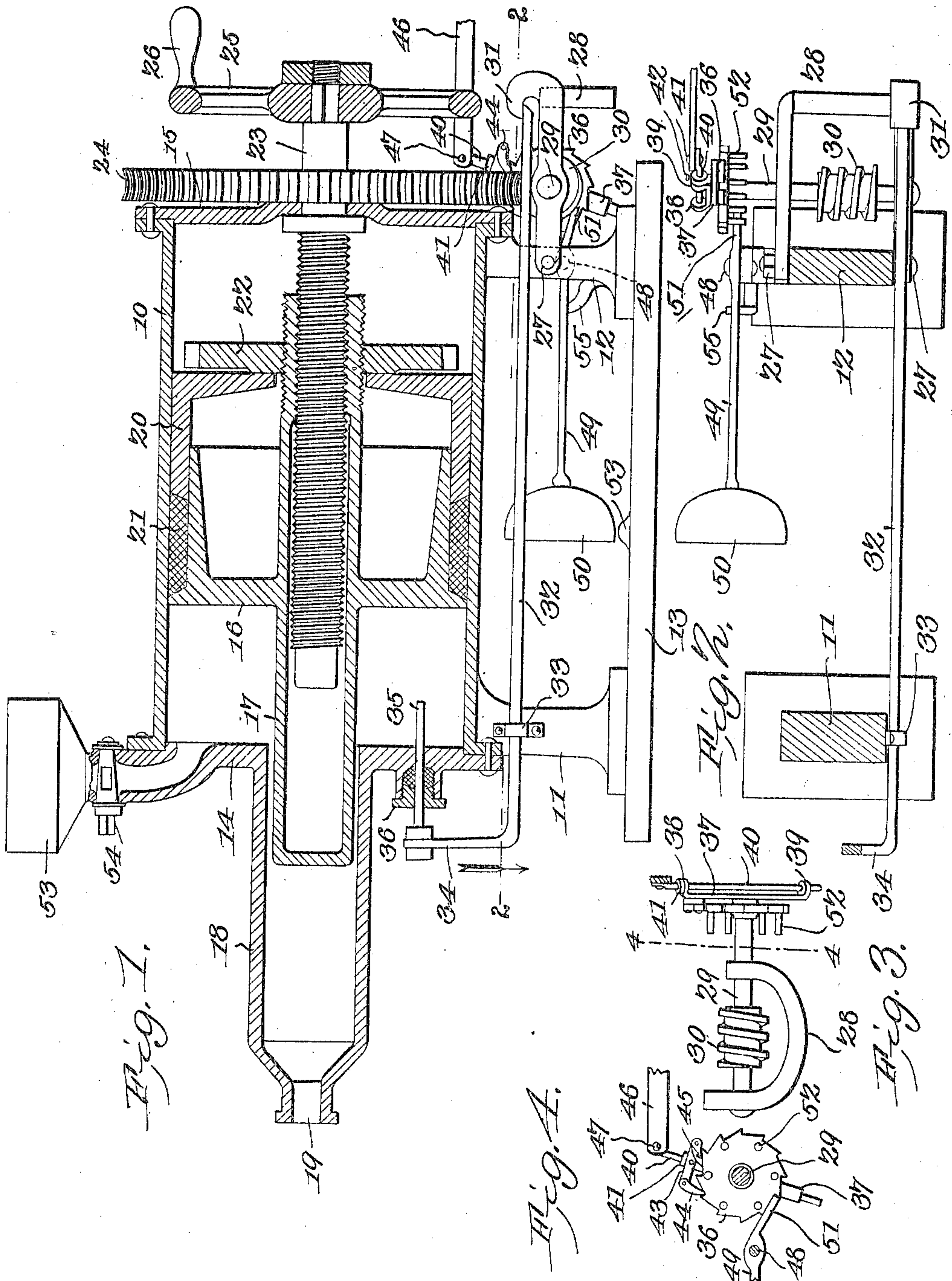


No. 811,917.

PATENTED FEB. 6, 1906.

J. HANSON.
LUBRICATOR.

APPLICATION FILED OCT. 23, 1905.



Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH HANSON, OF INWOOD, IOWA.

LUBRICATOR.

No. 811,917.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed October 23, 1905. Serial No. 284,039.

To all whom it may concern:

Be it known that I, JOSEPH HANSON, a citizen of the United States, residing at Inwood, in the county of Lyon and State of Iowa, have invented a new and useful Lubricator, of which the following is a specification.

This invention relates to lubricators of the class known as "force-feed" lubricators, and has for its object to provide an improved structure of this class arranged for operation by a moving part of the engine or other mechanism to which the device is applied, and with an automatically-operated tripping mechanism for disconnecting the operating mechanism when the feeding members have reached a certain predetermined point, and thus avoid damage by the further action of the feeding mechanism after the lubricant is exhausted.

With these and other objects in view, which will appear as the nature of the invention is better understood, the invention consists in certain novel features of construction, as hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which corresponding parts are denoted by like designating characters, is illustrated the preferred form of the embodiment of the invention capable of carrying the same into practical operation.

In the drawings, Figure 1 is a longitudinal sectional elevation of the improved device. Fig. 2 is a plan view of the lower portion of the device in section on the line 2 2 of Fig. 1. Fig. 3 is a front view of the tripping mechanism. Fig. 4 is a section on the line 4 4 of Fig. 3.

The improved device comprises a cylindrical body 10, supported by standards 11 12 from a base 13 and with detachable heads 14 15, the head 14 having a filling-nozzle 53 and shut-off valve 54.

Movably disposed within the body 10 is a plunger 16, having a central tubular shell 17 extending from opposite sides of the same, the shell internally and externally threaded at one end and with the other end closed and extending into a tubular projection 18 on the head 14, the terminal of the projection provided with means, as at 19, for attaching the conductor-pipe through which the lubricant is conveyed to the parts to be lubricated. The plunger 16 is provided with a packing-gland 20 and packing 21, the gland adapted

to be adjusted by a wheel-nut 22, engaging the externally-threaded portion of the shell 17.

Mounted for rotation in the rear head 15 of the body 10 is a shaft 23, with the inner portion threaded and engaging the internally-threaded portion of the shell 17 and carrying a worm-gear 24 externally of the head 15. The shaft 23 is also provided with a hand-wheel 25, having a handle 26 for rotating the shaft manually when the plunger is to be returned to its initial position for refilling the body 10 with the lubricant.

Pivoted at 27 upon the standard 12 is a U-shaped frame 28, having a shaft 29 journaled therein and carrying a worm-pinion 30, adapted for engagement with the worm-wheel 24 when the frame 28 is in one position and detachable therefrom when the frame is in its other position. The frame 28 is provided with an overhanging lug 31, and movably engaging this lug is a rod 32, the rod slidably disposed in a hanger 33 on the standard 11 and with one end upturned at 34 and engaging a stem or rod 35, extending through a stuffing-box 36 in the head member 14 and projecting into the path of the plunger 16. Means are provided for constantly rotating the shaft 29, and when the frame 28 is in its upward position, as in Fig. 1, with the rod 32 in engagement with the lug 31, the worm-pinion 30 will operate the worm-gear 24, and thus slowly rotate the shaft 23 and move the plunger 16 forward and expel the lubricant through the discharge-orifice 19. When the lubricant is nearly exhausted or when the plunger reaches the stem 35, the latter is forced outwardly, carrying the rod 32 with it and withdrawing the same from the lug 31 and releasing the frame 28, which drops by gravity and disengages the worm-pinion from the worm-gear, and thus stops the further movement of the plunger.

The shaft 29 is arranged to be operated constantly from some moving part of the engine or other mechanism to which the device is applied, and this operating mechanism consists of a ratchet-wheel 36, fast upon the shaft 29, and with a bar 37 rotative on the shaft and provided with spaced lateral bearings 38 39, through which a rod 40 is slidably disposed and adjustable therein by a collar 41 and set-screw 42. Extending transversely of the bar 37 is an arm 43, having pawls 44 for engaging the ratchet-wheel 36. A rod 46

is coupled at 47 to the rod 40, the reciprocation of the latter communicating intermittent motion to the shaft 29 and thence to the worm-gear 24, as will be obvious. The rod 46 is connected to some moving part of the mechanism to which the device is applied, but which is not shown, as it forms no part of the present invention.

Pivoted at 48 to the standard 12 is an arm 49, having a gong 50 at one end and with the other end 51 extending to a point adjacent to the ratchet-wheel 36. The ratchet-wheel 36 is provided with a plurality of spaced pins 52, extending over the end 51 of the arm 49. When the frame 28 is in its upper position, with the worm-pinion 30 in engagement with the worm-gear 24, the pins 52 rotate above the end 51 of the rod 49 and do not affect it. When, however, the frame 28 is released by the coaction of the plunger 16, stem 35, and rod 32, as before described, the falling of the frame 28 and the shaft 29 and its attachments will cause the pins 52 to engage the end 51 and depress the same and elevate the gong 50 and drop the latter at intervals upon an anvil 53 upon the base 13, and thus sound the gong at intervals so long as the frame 28 remains in its depressed position. Thus when the lubricant is exhausted from the receiver 10 and the operating mechanism is tripped, as above described, to stop the further movement of the plunger a signal mechanism is thrown into action and the signal sounded continuously so long as the rod 46 is operated or until the attendant refills the receiver and restores the frame 28 to its upward position. By this arrangement the attendant is notified when the device needs replenishing with the lubricant. A stop 55 is arranged in the path of the arm 49 to receive the impact of the bar and prevent the gong from bearing continuously upon the anvil 53, but causing the blow to be struck only by the rebound of the gong-arm, as will be obvious.

Having thus described the invention, what is claimed is—

1. In a force-feed lubricator, a receiver for the lubricant, a plunger operating in said receiver, a supporting-frame with spaced sides having bearings intermediate the ends and connected at one end by a transverse member and swinging from the other end, one of said side members having a catch-recess, a drive-shaft journaled in said bearings, means for constantly rotating said shaft, gearing between said shaft and plunger, a movable member detachably engaging said recess, a trip disposed in the path of the plunger and operatively connected to said movable member, whereby when the plunger reaches a certain predetermined position the trip will be actuated to release the frame and permit the gearing to be disconnected by gravity.

2. In a force-feed lubricator, a receiver for the lubricant, a plunger operating in said receiver, a supporting-frame with spaced sides having bearings intermediate the ends and connected at one end by a transverse member and swinging from the other end, a drive-shaft journaled in said bearings and extended at one end beyond the frame, a ratchet-wheel carried by the extended end of said shaft, an arm swinging upon said shaft and provided with pawls engaging said ratchet, means for vibrating said arm to cause the constant intermittent rotation of said shaft, gearing between said shaft and plunger, a trip movably disposed in the path of the plunger and detachably engaging said frame, and means for causing the plunger to actuate the trip.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOSEPH HANSON.

Witnesses:

C. W. HANSON,
JULIUS HOFF.