

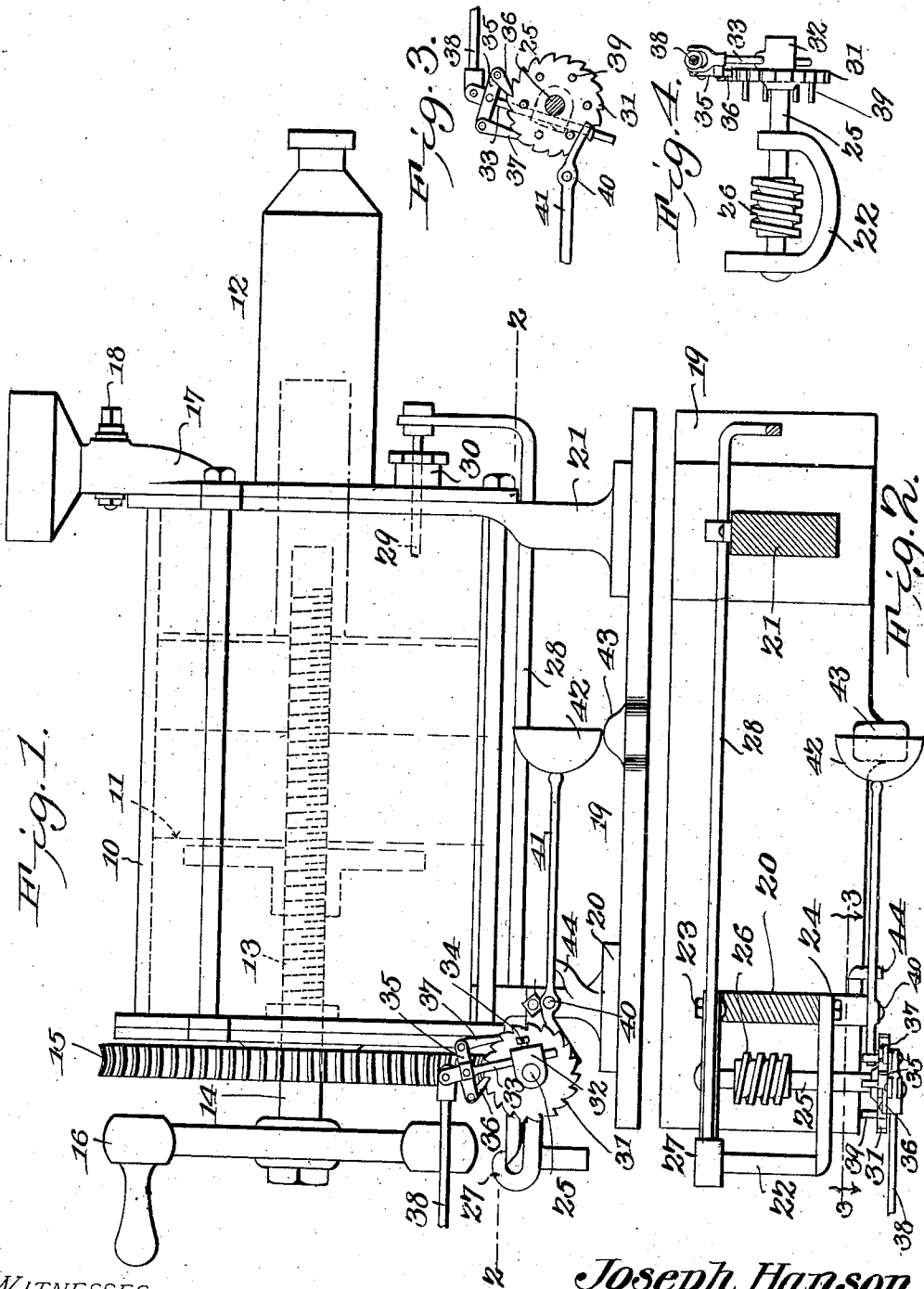
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SIGNAL FOR FORCE FEED LUBRICATORS.

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JOSEPH HANSON, OF INWOOD, IOWA.

SIGNAL FOR FORCE-FEED LUBRICATORS.

No. 845,351.

Specification of Letters Patent.

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Application filed March 27, 1906. Serial No. 308,357.

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 Signal for Force-Feed Lubricators, of which the following is a specification.

This invention relates to attachments for force-feed lubricators, whereby a signal is sounded when the lubricant is exhausted, and has for its object to provide a simply-constructed and easily-applied device of this character and to increase the efficiency and utility of the same.

With this 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 side elevation of a force-feed-lubricator device with the improvements applied. Fig. 2 is a longitudinal section on the line 2 2 of Fig. 1. Fig. 3 is a sectional detail on the line 3 3 of Fig. 2. Fig. 4 is a detached detail of a portion of the tripping mechanism.

The improved device comprises a receptacle 10 for the lubricant, preferably cylindrical and provided with an internal plunger, (indicated by dotted lines at 11,) the receiver having a projection 12 at one end, through which the lubricant is forced and to which a suitable conductor is connected to convey the lubricant to any desired point; but as the conductor is not a part of the present invention it is not illustrated.

A threaded stem 13 extends into the receiver 10 and operates in the plunger 11, the stem extending at 14 beyond the casing and provided with a worm-gear 15 and a crank-wheel 16, the latter designed to return the plunger to the rear end of the cylinder by hand when the cylinder is to be recharged with the lubricant.

The lubricant is supplied by a feed-conduit 17, having a controlling-valve 18.

The cylinder 10 is supported upon a base member 19 by a standard 20 21, and a U-shaped frame 22 is mounted to swing from the standard 20 by pins or bolts 23 24, the frame 22 having a shaft 25 journaled therein and carrying a worm-pinion 26 for engagement with the worm-wheel 15 when the frame 22 is in one position and to be disconnected therefrom when the frame is released, as hereinafter described. The frame 22 is provided with a lip 27 or catch, with which a rod 28 engages, the rod slidably disposed in bearings on the brackets 20 21. The rod 28 is upturned at one end and provided with a stem 29, extending through a stuffing-box 30 in the receiver 10 and adapted to be operated by the plunger 11 when the latter approaches the forward end of its stroke.

The shaft is adapted to be continuously and intermittently rotated by a suitable connection with some constantly-moving portion of the machinery—for instance, with some moving part of an engine (not shown)—so that so long as the frame 22 is held in its upward position by the engagement of the rod 28 with its catch 27 the motion imparted to the shaft 25 will be transmitted through the pinion 26 and gear 15 to the stem 13, and thus force the plunger forwardly through the cylinder. The stem 29 is so located that when the plunger approaches the end of its outward stroke, or just before the lubricant is exhausted, the stem will be operated and the rod 28 moved endwise to release the frame 22 and permitting it to drop by gravity, thus disconnecting the worm 26 from the gear 15 and stopping the forward movement of the plunger and preventing damage to the device, which would otherwise result by the continued movement of the plunger.

The object of the present invention, about to be described, is to sound a signal or bell when the frame 22 is released and the forward movement of the plunger stopped.

The shaft 25 is provided with a ratchet-wheel 31 and also provided with a collar 32, through which an arm 33 extends and supported adjustably in the collar by a set-screw 34. The arm 33 is provided near the upper end with a bar 35, having pawls 36 37, engaging the teeth of the ratchet-wheel 31 by gravity. The rod 38 is connected to the arm 33 at the upper end and is designed to be connected to

a constantly-moving part of the machinery, as above noted. Extending from the ratchet-wheel 31 are a plurality of pins 39, spaced apart at uniform distances and concentric to the shaft 25.

Pivotaly mounted on the bracket 20 at 40 is a rod 41, having a gong 42 at one end and arranged with its other end extending in the path of the pins 39, so that as the frame 32 is released and swings downwardly the pins will engage the rod and sound the gong. The anvil 43 is connected to the base 19 in position to be engaged by the gong when the latter is operated, and thus sound the gong. A stop 44 is arranged to be engaged by the rod 41, preventing the gong from bearing constantly upon its anvil 43, the resiliency of the rod 41 being utilized to sound the gong when the device is operated. By this arrangement when the frame 22 is held by the rod 28 in its upper position, or in position to cause the worm-pinion 26 to operate the worm-gear 15, the pins 39 will rotate over the shorter end of the rod 41 and not produce any effect thereon, the gong thus remaining inactive while the plunger 11 is being operated within the receiver. When, however, the frame 22 is released, as above described, the pins 39, moving downwardly with the frame, will be disposed in position to act one at a time upon the shorter end of the rod 41, and thus intermittently elevate the gong and permit it to fall upon its anvil 43, and thus sound an alarm, the stop 44 preventing the gong from resting upon the anvil, but utilizing the resiliency of the rod 41 to cause the gong to strike the anvil and then rebound. The operating-rod 38 being moved continuously keeps the shaft 25 and its attachments constantly rotating, so that after the frame 22 has been released the gong will continue to sound until the cylinder is recharged and the plunger again disposed in its rearward position and the frame 22 adjusted in its upward or operative position, as will be obvious. Thus the attendant will be notified by the sounding of the gong of the fact that the lubricating material is exhausted and requires replenishing. The device is simple in construction, can be inexpensively manufactured, and operates effectively for the purpose described.

Having thus described the invention, what is claimed as new is—

1. In a force-feed lubricator a receiver, a plunger operating in said receiver, means for actuating said plunger, a signal means, and gravity-acting means whereby the signal means is operated when the plunger reaches a certain predetermined position in the receiver.

2. In a force-feed lubricator, a receiver for the lubricant, means for impelling the lubri-

cant from said receiver, a swinging rod, a gong at one end of the latter, an anvil upon which said gong strikes when the rod is released, and means whereby the rod is actuated when the impelling means reaches a certain predetermined position.

3. In a force-feed lubricator, a receiver for the lubricant, means for impelling the lubricant from said receiver, a swinging frame carrying a shaft, means whereby the operation of said shaft causes the operation of said impelling means when the frame is in one position, a trip mechanism, a signal means associated with said frame, means whereby said trip mechanism is released when said impelling means reaches a certain predetermined position, and means whereby said signal means is actuated when said trip means is released.

4. In a force-feed lubricator, a receiver for the lubricant, a plunger operating in the receiver, means for operating said plunger, a frame swinging from said receiver, a shaft rotatively disposed upon said frame and partaking of its swinging motion, means whereby the rotary motion of said shaft is transmitted to the plunger-operated means when the frame is disposed in one position, the trip mechanism associated with said frame, means whereby the trip mechanism is actuated when the plunger reaches a certain predetermined position, a signal means, and means whereby said signal means is actuated when the said swinging frame is disposed in the other of its positions.

5. In a force-feed lubricator, a receiver for the lubricant, means for impelling the lubricant from said receiver, a swinging frame, a shaft carried by said frame, means whereby the motion of said shaft is imparted to said impelling means when the frame is in one position, a trip means associated with said frame, means whereby said trip means is operated to release said frame when the impelling means arrives at a certain predetermined position, a disk carried by said shaft and provided with spaced pins, a swinging arm extending at one end into the paths of said pins, and a gong on the opposite end of the arm for sounding when the frame is released by the releasing of said trip means.

6. In a force-feed lubricator, a receiver for the lubricant, means for impelling the lubricant from said receiver, a swinging frame, a shaft carried by said frame, means whereby the motion of said shaft is imparted to said impelling means when the frame is in one position, a trip means associated with said frame, means whereby said trip means is operated to release said frame when the impelling means arrives at a certain predetermined position, a ratchet-disk carried by said shaft and provided with spaced pins, arms swing-

ing on said shaft and having pawls engaging
said ratchet and adapted to rotate the shaft
when vibrated, a swinging arm having one
end projecting into the paths of said pins,
5 and a gong on the opposite end of the arm
which is sounded when the frame is released
by the releasing of said trip means.

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.