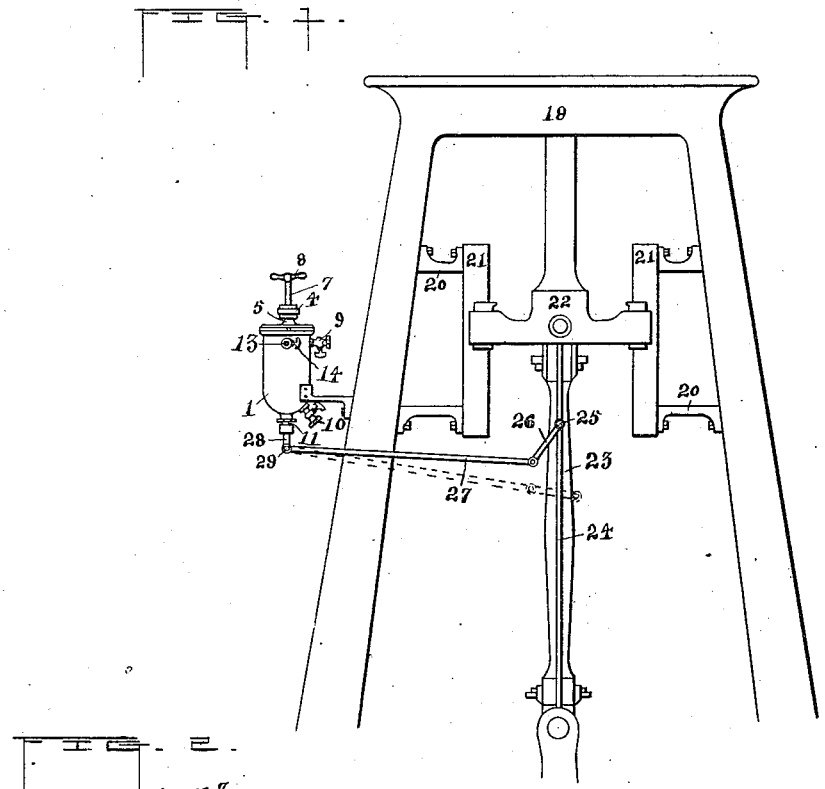
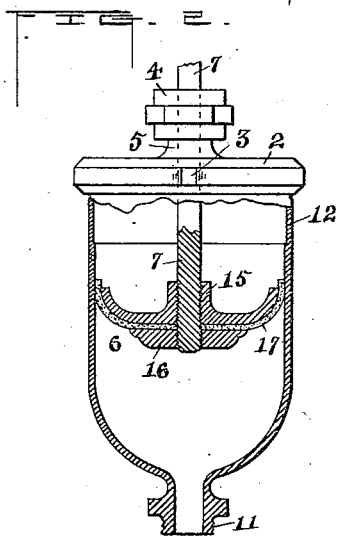
(No Model.)

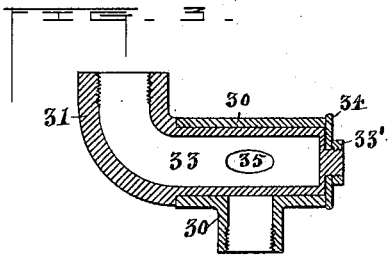
A. McNETT.

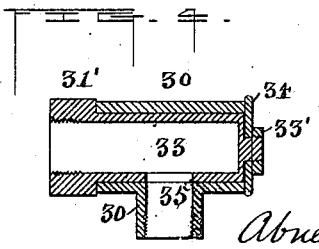
LUBRICATOR.

No. 458,813. Patented Sept. 1, 1891.









Witnesses
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UNITED STATES PATENT OFFICE.

ABNER MCNETT, OF SODUS POINT, NEW YORK.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 458,813, dated September 1, 1891.

Application filed December 3, 1890. Serial No. 373,480. (No model.)

To all whom it may concern:

Be it known that I, ABNER MCNETT, a resident of Sodus Point, in the county of Wayne and State of New York, have invented certain new and useful Improvements in Lubricators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

The object of the invention is to provide an apparatus for forcing grease to lubricate crank-pins, cross-heads, and engine-journals by means of the water of condensation from a steam-pipe, which includes a cover for the grease-cup and a piston, which are easily removable to permit the charging of the cup with grease, and a flexible connection of specific character for the conduction of the grease from the cup to the point of its application; and it consists in the construction hereinafter described and particularly pointed out.

In the accompanying drawings, Figure 1 is a side elevation of the apparatus. Fig. 2 is a vertical central section of the grease-cup on an enlarged scale. Figs. 3 and 4 indicate joints for use in the pipe, through which grease is fed from the cup.

Numeral 1 indicates the cup, and 2 a detachable cap for the same, provided with notches 3 to receive a tool for screwing the cap on or off.

4 denotes a stuffing-box, of usual form, secured upon the screw-threaded nipple or boss 5 of the cap.

6 is a piston, and 7 its rod passing through the stuffing-box 4 and provided with a handle 8.

Petcocks are indicated by 9 and 10, and 11 is a delivery-nozzle adapted to be screwed into a feed-pipe. This is preferably cast solid with the cup, as also is the nipple 5 with the cover. The cocks 9 and 10 are designed to admit air. The piston fits the cup closely and could not conveniently be raised except by admitting air below it, and in some cases, when fluid pressure is cut off above the piston, it could not well be moved downwardly to force grease forward, except provision were made to admit air. Under some circumstances it may be desirable to charge the cup with a lubricating fluid without disconnecting the cup or removing the piston, which can be done by forcing the fluid in at 10. If desired, the cup could be practically emptied through the cock 10 without disconnecting the same from its supporting-bracket. The cup is cored out wider at its top than elsewhere, as indicated at 12, in order to relieve the piston when drawn up to that point, that it may not bind the rod in the stuffing-box when the cover is removed.

Jointed pipes have heretofore been used to convey the lubricant to the ends of a connecting-rod by means of a pipe fixed thereon, and I do not claim, broadly, devices of this character. By my improvement the jointed pipes communicate with the fixed pipe approximately midway between its ends, but nearest the upper end, and said fixed pipe communicates with the joints at the ends of the rod directly, thereby dispensing with a branch pipe heretofore used. By this special arrangement the effect of gravity in supplying the lower joint is counterbalanced by the greater proximity of the upper joint to the source of supply of the lubricant, whereby an equal distribution is effected. I thus both simplify the construction and improve its operation.

A hollow nipple or plug is indicated at 13 for the reception of a steam-pipe communicating with the boiler or pump of a steam-engine and provided with a suitable cock 14.

The piston (see Fig. 2) consists of two nuts 15 and 16, shaped substantially as illustrated and screwed upon the piston-rod in such manner as to clamp between them a disk 17, of leather or other suitable material. This has a diameter larger than the internal diameter of the cup, and when pushed into the cup assumes a concave form, which is also provided for by the shape of nuts 15 and 16, as shown. The diameter of the upper nut, which is preferably larger than that of the lower, is such that it holds the leather disk against the wall of the cup. The disk, however, extends above the outer edge of the upper nut, in order that the pressure of the exhaust-steam or water of condensation, as the case may be, shall press the leather against the cup and thus pack the joint.

The above-described grease-cup is attached

to any suitable support—as, for example, a frame 19—to which are connected the brackets 20, supporting cross-head guides 21.

A cross-head is denoted by 22, and 23 is a connecting-rod.

24 is a pipe fixed upon the connecting-rod and extending to each of its joints and adapted to lubricate them.

25 is a joint by which pipe 24 is connected with pipe 26, which permits free motion in a vertical plane of said pipe 26. Pipe 26 is joined to pipe 27 and the latter to pipe 28 by a somewhat similar joint 29.

The yielding packing or leather washer of the piston necessarily fits the cup closely, and it has been found in practice that the unscrewing of the cap, owing to the irregularities in the piston, and particularly in the flexible part thereof, which cannot be made permanently and invariably accurate in its fit, is liable to bend the piston-rod, so as to injuriously affect its subsequent working. The piston would also resist the unscrewing of the cap to the extent of the friction of the piston-rod in the cap and stuffing-box. By coring out the interior of the cup at the top space is provided for the easy turning of the piston, and also to permit it to be inclined sidewise slightly when the cap is unscrewed, whereby the danger of the bending of the rod is obviated, and whereby also less resistance is offered to said unscrewing of the cap.

30 denotes a tubular body, and 31 or 31′ denotes a hollow plug or coupling-piece adapted to receive a pipe and having its opposite end 33 of reduced diameter and adapted to enter the body. The part 33 is provided with a screw to receive the nut 33′, which forces the washer 34 against the end of the body, which has a ground surface, as also does the washer. By this means the body is clamped between the washer and shoulder on the large end of the plug. Adjacent pipes are joined by screwing one of said pipes into the open end of the coupling and the other (or a hollow nipple thereon) into the screw-threaded branch of the body. These joints each provide for free motion in a vertical plane without interfering with the flow of the lubricant, so that the latter can be applied during the continued running of an engine, which is a feature of practical importance in marine and other engines.

35 denotes an opening for the passage of grease.

To fill the cup for use and operate the apparatus the piston is pulled up to the upper or enlarged interior part of the cup, the cap unscrewed, the cap and piston removed, and the cup then charged with grease, the various cocks being manipulated to provide for the suitable inlet and escape of air, and to prevent escape of grease. When the cup is replaced and the cock suitably disposed, the grease can be forced into the delivery-pipe either by hand or by opening the communication between the upper part of the cup and the boiler or pump of a steam-engine. Under some circumstances other fluids than steam or water may be used to force down the piston. The grease when thus forced from the cup flows through the jointed pipes to the pipe 24, which conducts it to the joints of the connecting-rod. The joints provide for effecting this operation when the engine is in motion.

Having thus described my invention, what I desire to secure by Letters Patent is—

1. The cup provided with a removable cap and having an enlarged interior diameter near one end, in combination with the piston having a disk of leather or the like normally compressed against the walls of the cup at its narrower part by a metal clamping-nut, said nut having an upturned edge having a rod extended through the cap, substantially as set forth, whereby the binding of the cap upon the piston-rod during its removal is obviated.

2. The cup provided at its upper part with an inlet for fluid and at its lower end with a discharge-outlet, in combination with a piston and piston-rod, said piston consisting of a nut 15, having approximately the size of the cup and having its outer edges turned upwardly and about parallel to the wall of the cup, a plain nut 16 of smaller diameter, and a flexible disk having a diameter larger than that of the cup and its outer portions held between the cup-wall and the upturned rim of the nut 15 clamped between them, substantially as set forth.

3. In combination, in a lubricator, a cup fixed upon the engine-frame provided with a piston and having an inlet for a fluid under pressure above the piston, a connecting-rod, crank-pin, and cross-head, a pipe extending between the joints at the ends of said rod, and two pipes having a jointed connection with each other, one of said pipes being jointed to the said pipe on the connecting-rod approximately midway between the ends of the pipe, but above its longitudinal center, and the other to the cup, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ABNER McNETT.

Witnesses:
ALFRED B. CLAYSON,
JOHN T. MAHONEY.