(No Model.)

J. U. ZURLINDEN.

OIL CUP.

No. 492,318. Patented Feb. 21, 1893.

Fig. 1.

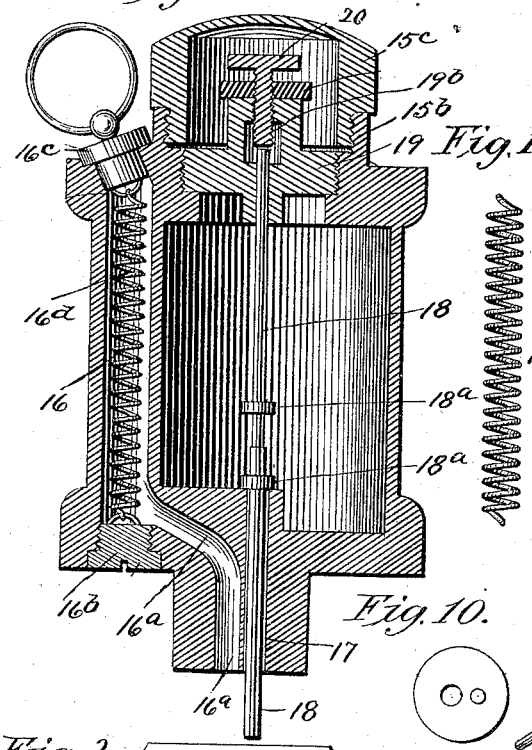

Fig. 12.

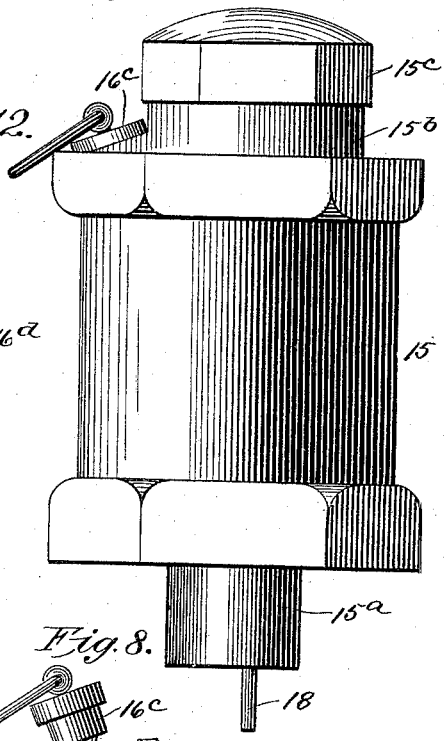

Fig. 10.

Fig. 8.

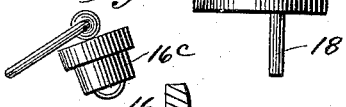

Fig. 3.

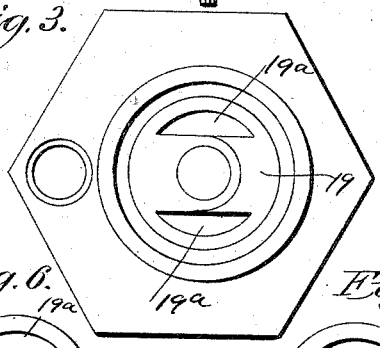

Fig. 4.

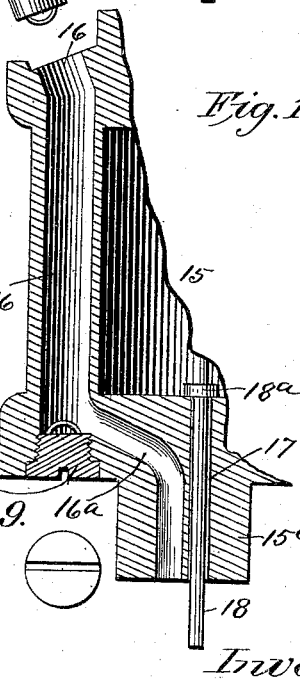

Fig. 11.

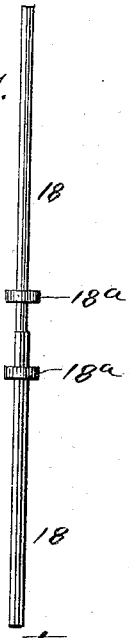

Fig. 6.

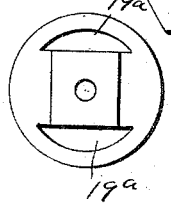

Fig. 7.

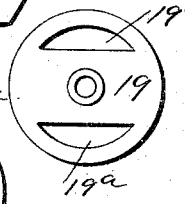

Fig. 5.

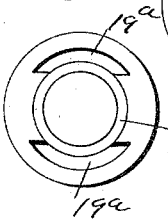

Fig. 9.

Witnesses:
Andrew Campbell.

Inventor:
John Ulrich Zurlinden

UNITED STATES PATENT OFFICE.

JOHN ULRICH ZURLINDEN, OF BILLINGS, MONTANA.

OIL-CUP.

SPECIFICATION forming part of Letters Patent No. 492,318, dated February 21, 1893.

Application filed October 29, 1890. Serial No. 369,760. (No model.)

To all whom it may concern:

Be it known that I, JOHN ULRICH ZURLINDEN, residing at Billings, in the county of Yellowstone and State of Montana, have invented certain new and useful Improvements in Lubricators, of which the following is a specification.

This invention relates particularly to that class of lubricators known as automatic cut off whereby the oil is fed to the object to be lubricated by means of a reciprocating plunger and it is the object of my invention to provide a device of this character which shall be particularly adapted for attachment to locomotive crank pins but equally as well adapted for lubricating every description of a revoluble shaft.

A further object of my invention is to provide a device of this class in which the quantity of lubricant fed can be quickly and easily regulated without removing the device or materially changing its construction, and a still further object of my invention is to provide an auxiliary feeding device whereby an additional quantity of oil can be quickly introduced into the lubricator and fed to the revoluble object.

My invention consists in a reversible plunger rod of different diameters at its opposite ends, and my invention consists still further in certain details of construction and combination of parts, all of which will be more fully hereinafter described and designated in the claims.

In the drawings forming a part of this specification—Figure 1 is a central vertical section of my improved lubricator. Fig. 2 is a side view of the same. Fig. 3 is a top plan view, the cap and regulating screw being removed. Fig. 4 is a detail sectional view. Fig. 5 is a top plan view of the partition and regulator and screw. Fig. 6 is a top plan view of partition. Fig. 7 is a bottom plan view of the same. Fig. 8 is a detail view of top plug. Fig. 9 is a plan view of bottom plug. Fig. 10 is a sectional view of the shank. Fig. 11 is a detail view of the reciprocating plunger with valves attached, and Fig. 12 is a detail view of the coiled spring.

In carrying out my invention I employ an oil cup 15, constructed with a shank 15^a, an apertured top having a neck 15^b and a cap 15^c fitting said neck as usual. One side of the cup is made somewhat thicker than usual and in said thickened side is produced a vertical passage or channel 16 extending from the top to the bottom of the shell or casing and communicating with said passage near its lower end is an angular passage 16^a produced in the bottom of the cup and shank, the said passage extending to the bottom of shank, the passages 16 and 16^a forming one continuous passage from the top of cup to the bottom of shank, which always rests adjacent to the object to be lubricated. The bottom of the cup is provided with an enlargement adjacent to the passage 16 to permit the passage 16^a to be properly formed, thus making the continuous auxiliary passage entirely independent of the bowl of the oil cup.

The bottom of the passage 16 is closed by a screw plug 16^b and the top of said passage is closed by a plug 16^c, said plug being connected with a spiral spring 16^d which rest normally in the passage 16 and is attached to the plug 16^b by means of a loop or eye the same as it is attached to the plug 16^c. The shank is also provided with a vertical oil feed passage 17 extending from the bottom of cup to bottom of shank and in said passage is arranged the reciprocating plunger 18, said plunger having valve disks 18^a arranged thereon one of which disks is adapted to rest upon the bottom of the cup and close the top opening of the passage 17 thereby preventing the oil escaping into said passage. The plunger 18 is somewhat less in diameter than the passage 17 whereby when the valve 18^a is raised the oil may flow down the plunger and the sides of said passage to the object to be lubricated.

My lubricator is particularly adapted for the crank pins of locomotives and the revolution of the crank is sufficient to produce a reciprocation of the plunger thereby avoiding eccentric shafts &c. now in use in this class of lubricators, though my lubricator, of course, could be used equally as well in this manner. The plunger therefore being in a constant state of reciprocation while the object to be lubricated is in motion the valve disk 18^a is intermittently operated allowing the oil to pass to said object through the oil feed passage 17.

The plunger is of different diameters as clearly shown one half of the rod being somewhat smaller than the other. The object of this is to regulate the quantity of oil to be fed the smaller end being employed when a larger quantity is needed and vice versa, and as the ends are of different thicknesses, it is necessary to have two valve disks 18^a. A circular partition or bridge 19 is secured in the apertured end of the cup below the neck of the same, said partition having apertures 19^a produced near the sides of the same for the introduction of oil after the cap has been removed, and at the center of said partition or bridge is formed a tubular guiding portion 19^b the upper end of the plunger rod resting and reciprocating in the lower end of said tubular guide and in the upper end of the same is inserted a regulating screw 20 which is adapted to be screwed down the desired distance to limit the upward movement of the plunger rod.

Now in operation the parts are assembled as shown and described and the shank is screwed down so that its lower end will rest adjacent to the object to be lubricated. The cup is then removed, the oil introduced into the bowl of the cup through the apertures in the partition or bridge, and the cup replaced. The device is then ready for operation and as the plunger is free to move in the feed passage 17 it will be reciprocated by the movement of the object to be lubricated and the oil intermittently fed to said object by lifting the valve disks 18^a from the top of said passage. The amount of reciprocation is determined by the regulator screw and said screw may be locked by a nut 21 if desired. In order to regulate the quantity of oil to be fed the cap and partition are removed, the plunger rod reversed and the parts replaced.

In order to enable one to conduct an additional quantity of oil to the object to be lubricated when the oil cup is already filled I use auxiliary oil feed passage 16 into which the oil can be quickly introduced whence it is conducted to the object. To introduce the oil, the top plug is pulled out and the coil spring distended and when the passage is filled the plug is released and the retraction of the spring will bring it back to its proper seat.

By having the auxiliary passage, a great deal of time and labor is saved and in connection with the reversible plunger rod I provide a lubricator having three distinct quantities of feed and it is therefore seldom necessary to remove the lubricator and the consequent wear is thereby avoided. The passage 16 by having plugs at each end can be easily cleaned when so desired.

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

1. In a lubricator an improved oil cup having an auxiliary oil feed passage passing through the side and shanks of the same, said passage having an opening intermediate its ends and a removable plug for closing the same, substantially as shown and described.

2. The combination with an oil cup having an auxiliary passage which is provided with an opening intermediate its ends, of a removable plug inserted in said opening and a spring actuated plug adapted to fit the upper end of the passage, substantially as shown and described.

3. The combination with an oil cup having an auxiliary oil feed passage which is provided with an opening intermediate its ends, of a removable plug inserted in said opening, a plug adapted to fit the upper end of the passage and a spring arranged in the passage and connecting the plugs, substantially as shown and described.

4. The combination with an oil cup having a passage in its shank, of a reversible reciprocating plunger rod arranged in said passage, said rod being reduced for one half its length and the valve disks arranged upon said rod, substantially as shown and described.

5. The combination with the oil cup having a passage in its shank, the reversible reciprocating plunger rod, arranged in said passage and provided with valve disks, the partition having a tubular guide and the regulator screw all arranged substantially as shown and described.

Dated at Billings, in the county of Yellowstone and State of Montana, August 27, 1890.

JOHN ULRICH ZURLINDEN.

Witnesses:
ANDREW CAMPBELL,
EDWARD TUORNEY.