(No Model.)

J. U. ZURLINDEN.

LUBRICATOR.

No. 492,252. Patented Feb. 21, 1893.

Fig. 1.

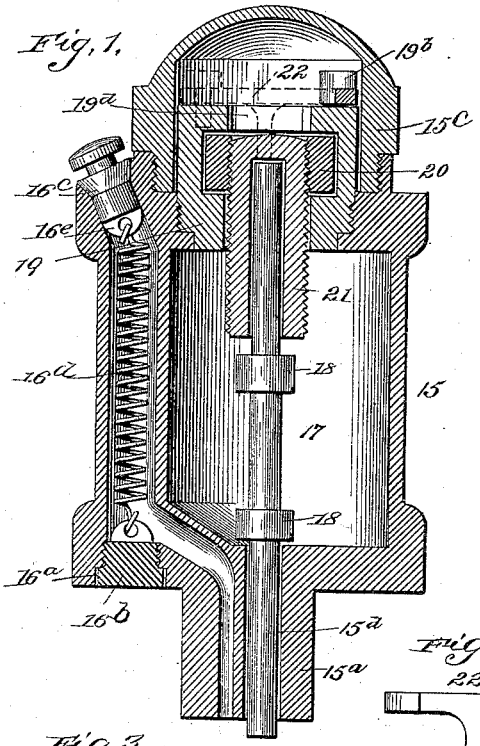

Fig. 2.

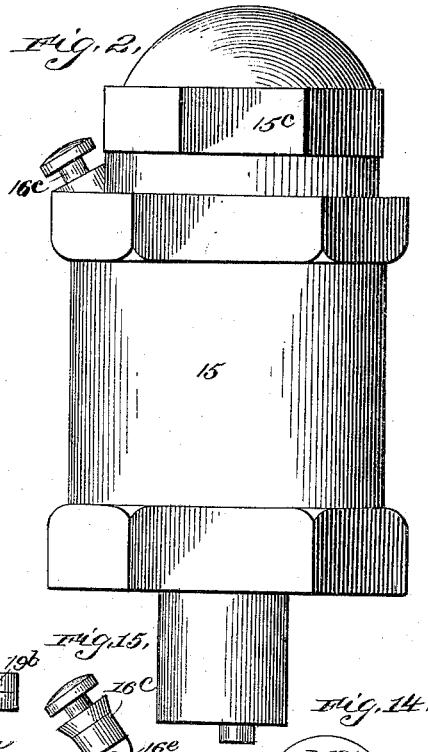

Fig. 11.

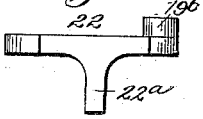

Fig. 15.

Fig. 14.

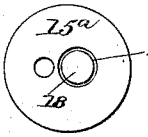

Fig. 3.

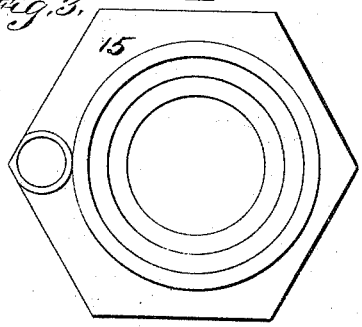

Fig. 13.

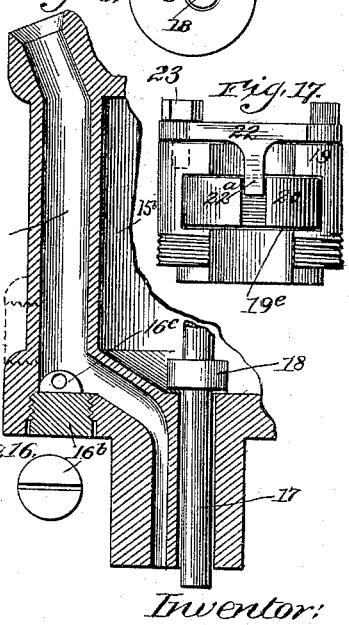

Fig. 12.

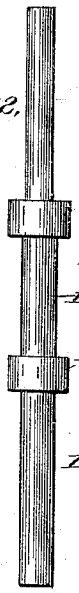

Fig. 17.

Fig. 4.

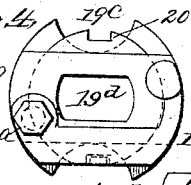

Fig. 7.

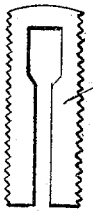

Fig. 6.

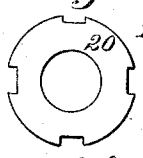

Fig. 8.

Fig. 5.

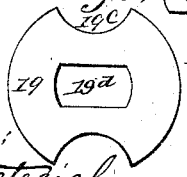

Fig. 9.

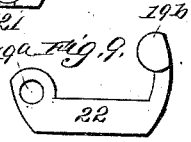

Fig. 10.

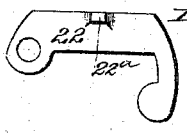

Fig. 16.

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UNITED STATES PATENT OFFICE.

JOHN U. ZURLINDEN, OF BILLINGS, MONTANA.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 492,252, dated February 21, 1893.

Application filed April 6, 1892. Serial No. 427,972. (No model.)

To all whom it may concern:

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

This invention is an improvement upon my lubricator, for which application was made October 29, 1890, Serial No. 369,760.

The object of my present invention is to provide improved means for the adjustment of the plunger, and also to provide other novelties of construction, and combination, to produce a simpler, cheaper, and more efficient lubricator; and with these objects in view my invention consists in the peculiar construction of the several elements, and their novel combination or arrangement, all of which will be fully set forth in the description and pointed out in the claims.

In the drawings forming a part of this specification and in which the same reference numerals indicate the same parts. 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 plunger regulating devices being removed. Fig. 4 is a top plan view of the casting piece carrying the regulating nut therein. Fig. 5 is a bottom plan view of the casting piece. Fig. 6 is a plan view of the regulating nut. Fig. 7 is a detail view of the vertically adjustable tubular guide. Fig. 8 is a bottom plan view of the same Fig. 9 is a top plan view of the locking lever. Fig. 10 is a bottom view of the same showing the pawl. Fig. 11 is a side view of the lever and pawl. Fig. 12 is a full view of the plunger detached. Fig. 13 is a partial sectional view showing the auxiliary passage. Fig. 14 is a bottom plan view of the shank of cup and Fig. 15 is a detail view of the plug for closing the mouth of the auxiliary passage. Fig. 16 is a plan view of the plug 16^b and Fig. 17 is a detail view of the casting piece regulating nut and locking pawl.

Referring to the drawings, 15 indicates an oil cup having a shank 15^a and body 15^b, and a cap 15^c is fitted to the body of the cup in the usual manner. The shank 15^a has a bore or passage 15^d through which the lubricant within the cup is fed to the shaft or journal to be oiled. The oil cup is preferably made of gun metal, though other metals could be used equally as well. One side of the cup is made somewhat thicker than usual, to permit an auxiliary passage 16 being formed therein, said passage extending the full length of the cup and shank and at an intermediate point, preferably at the bottom of the cup, an opening 16^a is produced, which communicates with the auxiliary passage 16 and is normally closed by means of a screw plug 16^b, carrying an apertured lug 16^e upon the inner face of the same.

The top of the passage 16 is made flaring as shown to facilitate the filling of said passage with oil and it is normally closed by a plug 16^c which is formed with a knob to permit the plug being inserted within and withdrawn from the passage and it is also constructed with a beveled shoulder to fit the flaring mouth of said passage. An apertured lug 16^e is carried by the plug upon its inner face, similar to the plug 16^b and to said apertured lugs are connected the opposite ends of the spiral spring 16^d, the purpose of which is to hold the plug 16^c in the mouth of the passage 16. It may also be employed to agitate the oil within the passage should it become thick or sluggish.

A suitable threaded plug may be placed on the side of the body 15 being exactly in front of that section of the auxiliary passage, where the latter turns from the vertical section to the inclined section of auxiliary passage through the bottom of the cup. This plug will be for the purpose of cleaning the inclined part of the auxiliary passage and in constructing same.

A reciprocating plunger 17 is arranged within the oil cup, extending through the passage in the shank and upon said plunger within the oil cup are arranged the valve disks 18 one of which is adapted to rest upon the bottom of the oil cup and close the mouth of the passage when oil cup is not in use. The plunger 17 is sufficiently less in diameter than the passage to permit the escape of oil through said passage when the plunger of the oil cup is reciprocated and the valve 18 raised from its seat at the bottom by its weight in conjunction with the motion of the crank pin during its upward movement, while the engine is in motion. The lubricant having once

entered between plunger and the passage, is propelled by the movement of the plunger through the passage of the shank into the journal. This lubricator is particularly adapted to lubricating the crank pins of locomotives and the revolution of the crank is sufficient to produce the reciprocation of the plunger, which latter being thus reciprocated, the valve disk is operated intermittently, thereby feeding the lubricant to the object to be oiled. The ends of the plunger are made of different diameters for the purpose of regulating the quantity of the oil to be fed in regard to the flowing qualities of the lubricant. The smaller end of the plunger being employed, when the lubricant is not light flowing and the larger end when a light flowing lubricant is used, in connection with the differential ends of the plunger. I employ two valve disks 18 as clearly shown—a casting piece 19 is secured in the upper end of the cup, and is formed with recesses 19^c at its opposite sides to permit the passage of oil to the body of the cup. The casting 19 is also formed with a vertical passage 19^d essentially rectangular in shape and is further provided with a horizontal opening 19^e, a regulating nut 20, the sides of which are dressed with a knurling wheel, is arranged in the opening 19^e and passing through this nut and the passage 19^d, is the vertical guiding tube 21, adapted to receive the upper end of the plunger 17. This guiding tube is made essentially rectangular in cross section to correspond with the passage 19^d, but the rounded sides are threaded and engage the threads of the nut 20, by means of which the guiding tube may be vertically adjusted to regulate the reciprocation of the plunger.

The regulating nut 20 has notches 20^a formed in the sides of the same, and upon the top is pivoted a lever 22, said lever having a depending lug 22^a which is adapted to be thrown into engagement with the notch 20^a and locks the nut against turning thus insuring the stability of the adjustment of the vertical guide, the recess in the side of the nut permitting the movement of the lug.

In operation the parts are assembled as shown in Fig. 1, the cup being arranged so that the lower ends of the shank and plunger 17 will not touch the journal or any of its parts to be lubricated, but are adjacent to the object to be lubricated. The cap is removed and the body of the cup filled with oil. The plug 16^c may also be removed and the auxiliary passage filled with oil. The device is now ready for use and as before explained the oil will be fed from the cup by the reciprocation of the plunger. The plunger is guided on its sides in the guiding tube and vertically by means of the tubular guide and the limit of its reciprocation is also determined by the position of said guide, and when it is desired to change the length of the stroke of plunger, the cap is removed, the locking pawl thrown out of engagement with the nut and the nut turned, thus raising or lowering the guide as may be desired. The valve disks might also serve to agitate the oil and facilitate an even flow of the same.

In order to regulate the quantity of the oil to be fed in regard to its flowing qualities, the cap and casting 19 are removed and the desired end of the plunger put into the passage in the shank, the parts reassembled as before and then finally graded to meet its requirements by turning the regulating nut, as may be necessary to terminate the vertical motion of the plunger. The auxiliary passage is only to be used when the regular arrangement of feed is disabled, or when an additional quantity of oil is to be conducted to the object to be lubricated, and by means of this passage a great deal of time and labor are saved.

Having thus described my invention, what I claim as new is—

1. In a lubricator the combination with an oil cup having a main and an auxiliary passage, said auxiliary passage having an opening produced therein, the screw plug, the spring and plug connected with said spring for closing the mouth of the auxiliary passage, substantially as shown and described.

2. The combination with an oil cup having a feed passage, of the reciprocating plunger arranged therein- the plug, the vertically adjustable tubular guide arranged in said plug and the cap adapted to cover the said parts substantially as shown and described.

3. The combination with an oil cup having a feed passage, of the reciprocating plunger arranged therein, the plug having side recesses for the introduction of oil, the adjustable tubular guide arranged in the plug and adapted to receive the plunger, and a suitable cover all arranged substantially as shown and described.

4. The combination with an oil cup having a free passage, of a plunger arranged therein the plug, the regulating nut arranged therein, and the tubular guide passing through the nut and plug substantially as shown and described.

5. The combination with the cup and plunger, of the plug, the adjusting nut arranged therein, the tubular guide, and the locking device attached to the plug and adapted to lock the adjusting nut substantially as shown and described.

6. The combination with the cup and plunger of the plug having side recesses, a vertical passage, and a horizontal opening, the adjusting nut having notches, the externally threaded tubular guide, and the lever carrying a locking pawl all arranged substantially as shown and described.

JOHN U. ZURLINDEN.

Witnesses:
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EDWARD W. DUNN.