(No Model.) 4 Sheets—Sheet 1.

G. KLUG.

LUBRICATOR.

No. 574,066. Patented Dec. 29, 1896.

Fig. 5.

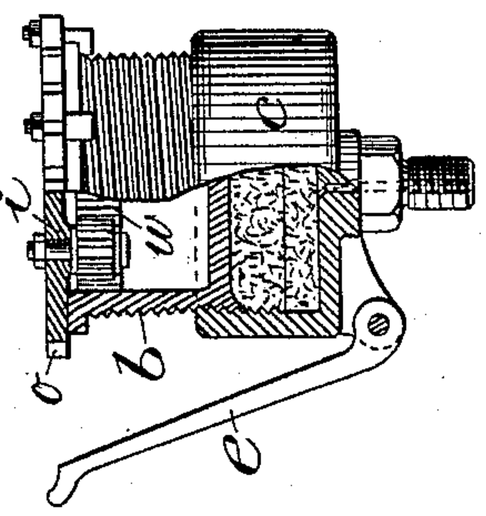


Fig. 8.

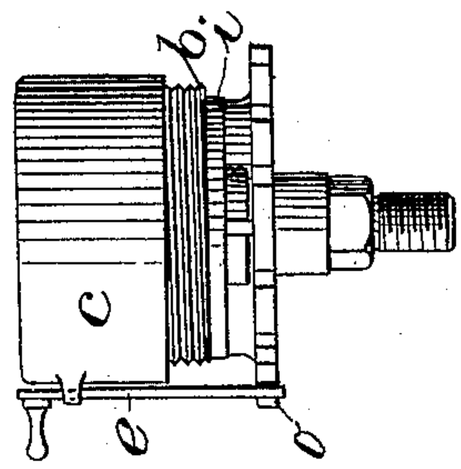


Fig. 4.

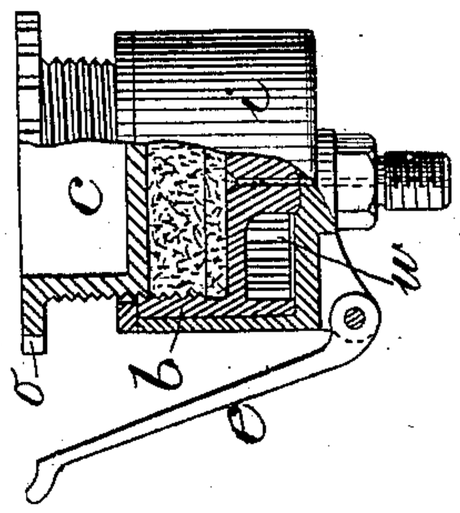


Fig. 7.

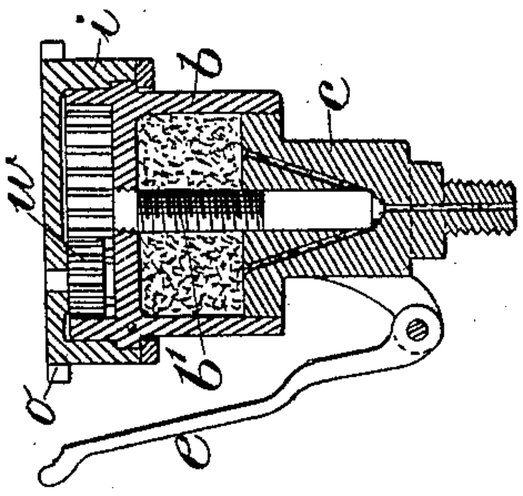


Fig. 2.

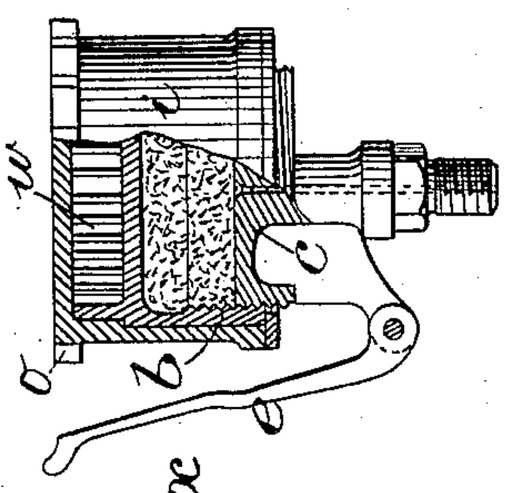


Fig. 6.

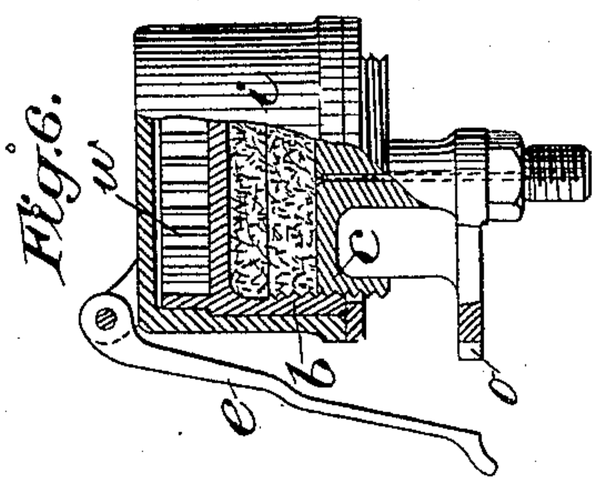


Fig. 1.

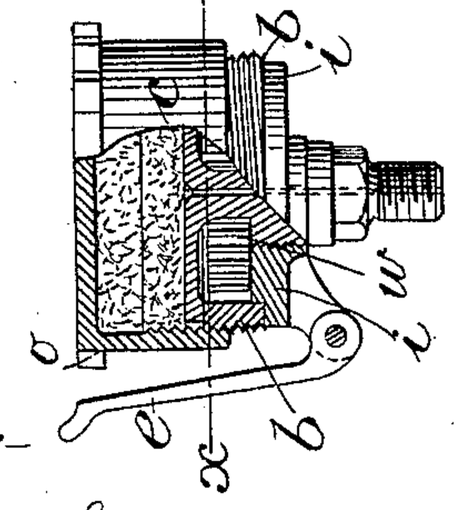
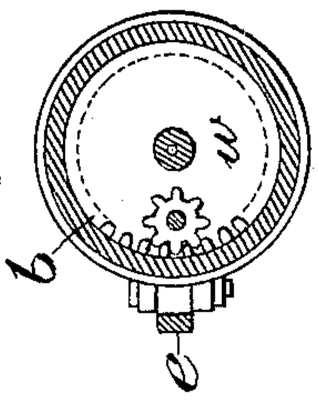


Fig. 3.



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(No Model.) 4 Sheets—Sheet 2.

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LUBRICATOR.

No. 574,066. Patented Dec. 29, 1896.

Fig. 10.

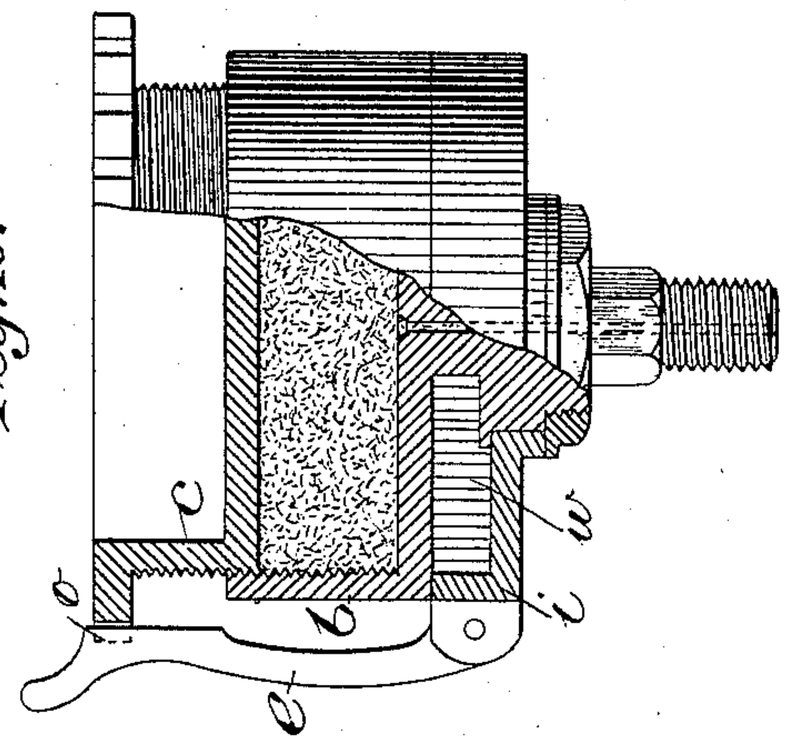
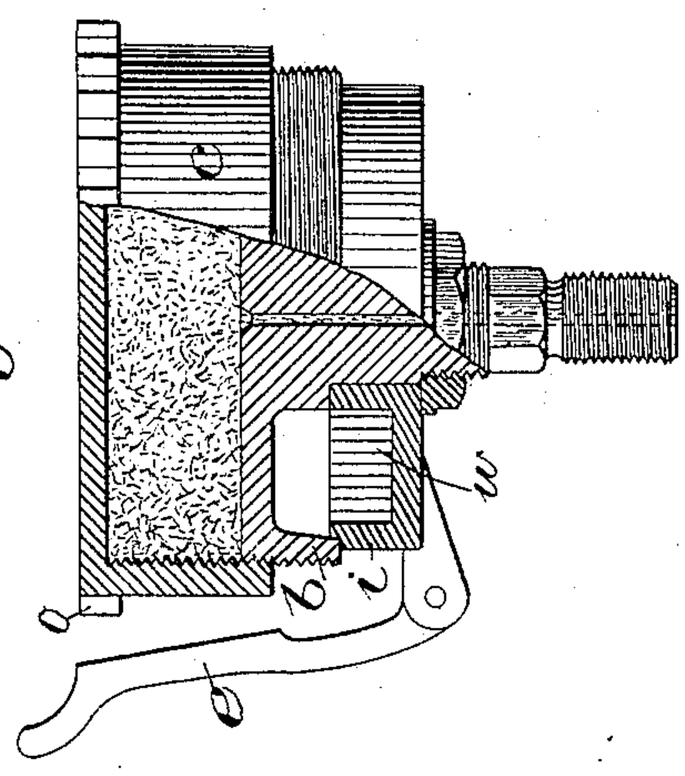


Fig. 9.



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No. 574,066. Patented Dec. 29, 1896.

Fig. 12.

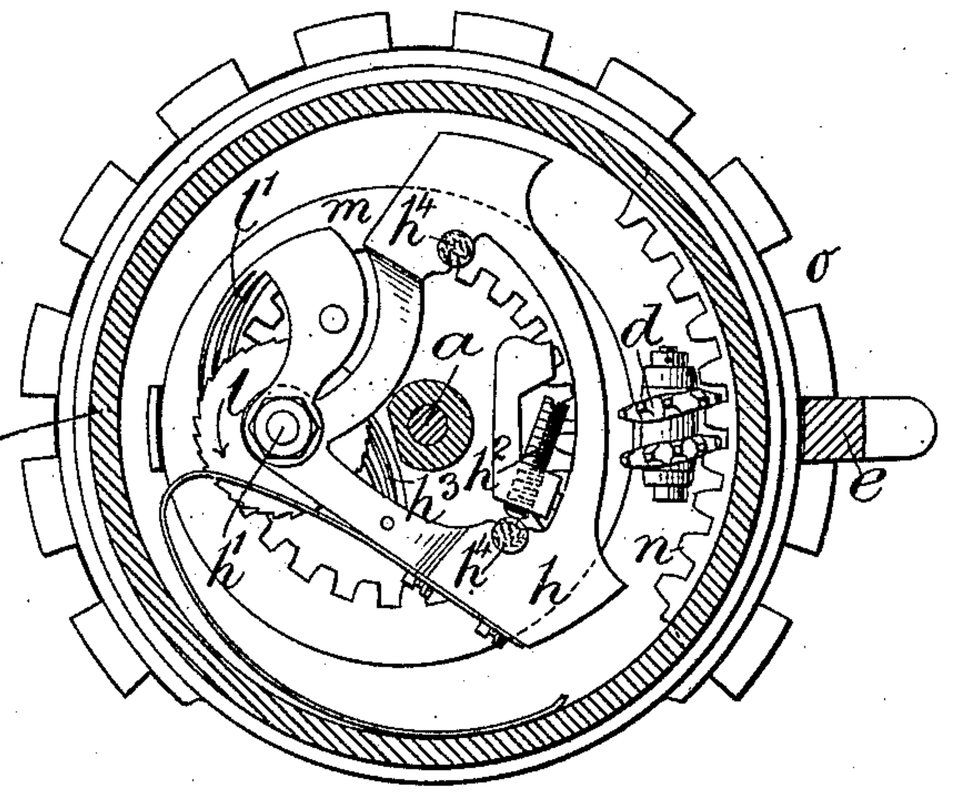


Fig. 11.

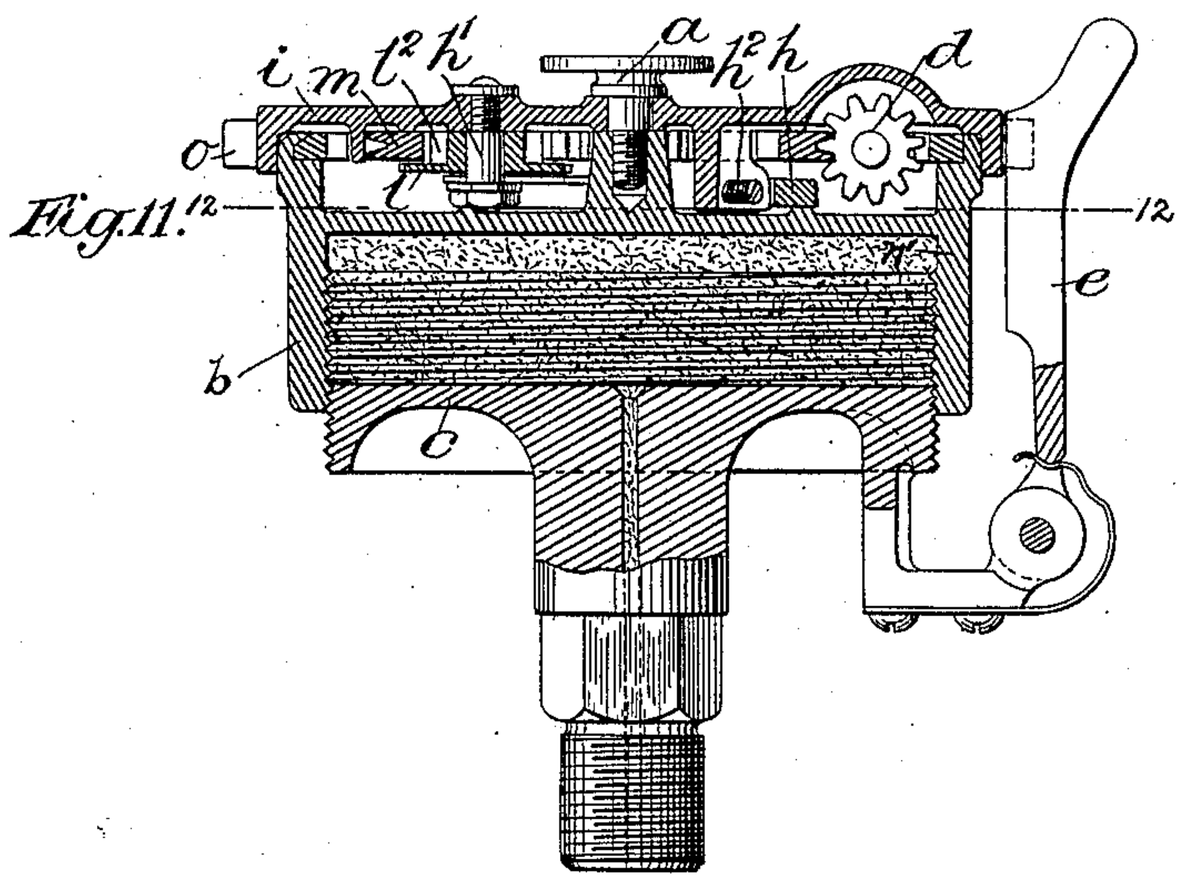
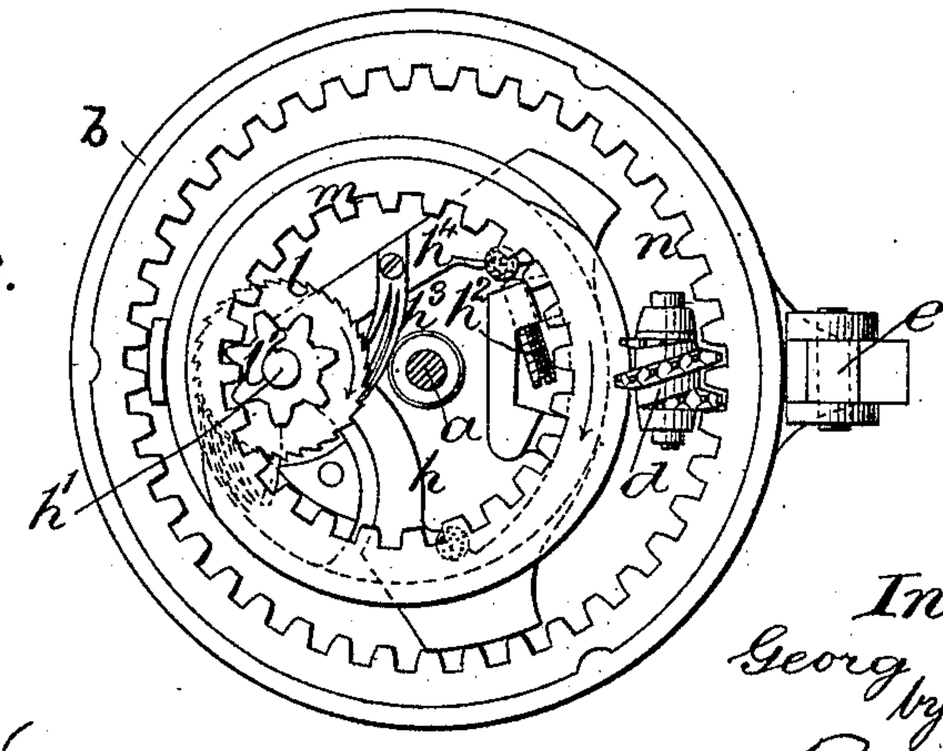


Fig. 13.



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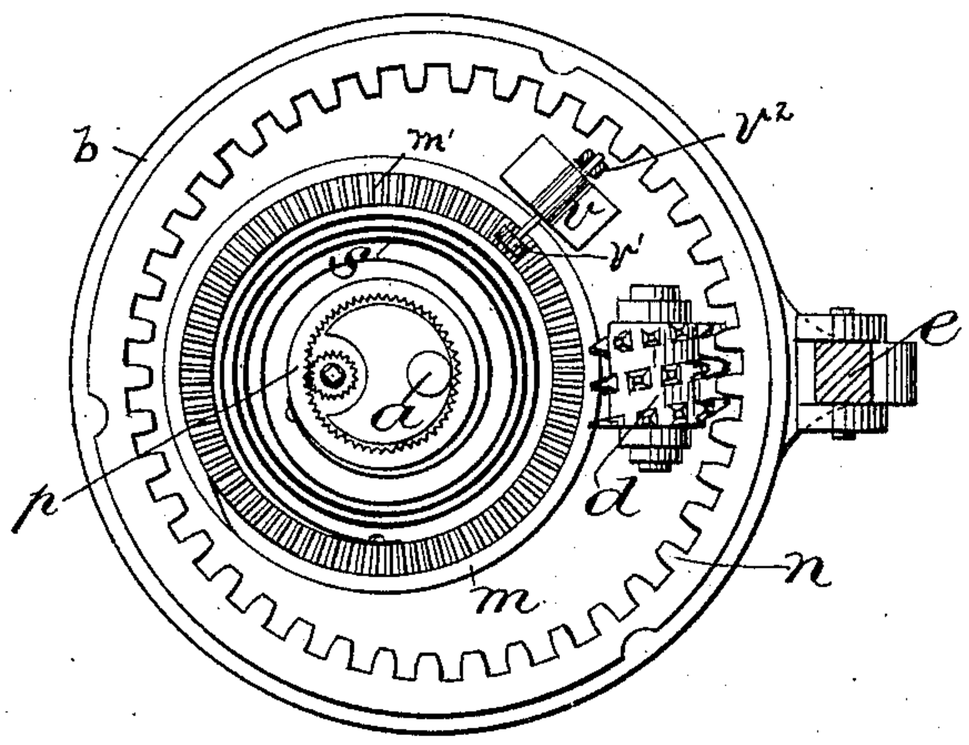
LUBRICATOR.

No. 574,066. Patented Dec. 29, 1896.

Fig. 14.



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UNITED STATES PATENT OFFICE.

GEORG KLUG, OF HAMBURG, GERMANY.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 574,066, dated December 29, 1896.

Application filed September 13, 1895. Serial No. 562,418. (No model.) Patented in Germany May 9, 1894, No. 84,408.

To all whom it may concern:

Be it known that I, GEORG KLUG, a subject of the Emperor of Germany, and a resident of Hamburg, Germany, have invented a new and useful Improvement in Lubricators, of which the following is a specification, and for which a patent has been granted in the Empire of Germany, No. 84,408, dated May 9, 1894.

The invention relates to lubricating apparatus which substantially consists of two parts, namely, a hollow body or receptacle containing the grease and a plug or stud fitted into the said hollow body or receptacle, both parts being screw-threaded and adapted, by being screwed in or on to each other, to press or squeeze the grease or other lubricating substance through an orifice in one of said parts which has connection with the place to be lubricated, the object being to provide a lubricator in which the screwing in or on to each other of the two main parts mentioned may be accomplished automatically.

The object aimed at is reached by one of the two main parts of the apparatus, that is to say, either the plug or the receptacle being constructed snbstantially of two parts so united to each other that they may be concentrically turned, one of said parts, which I will term the "screwed ring," bearing the screw-thread of the apparatus adapted to connect or unite the two main parts, while the other, which I will term the "arresting-ring," is so constructed that it may be combined with the other main part of the apparatus, which hereinafter I will call the "stopper," said connection being such that the turning of the respective parts relatively to each other is precluded. On and between the arresting-ring and screwed ring a gearing is arranged which is adapted to effect their relative turning and further to screw on or in to each other the screwed ring and the stopper, thus squeezing or pressing out the grease or other lubricating substance as soon as the arresting-ring is brought into such connection with the stopper that turning is prevented. The screwed ring is then bound to turn relatively to the stopper.

As is manifest from the above description and the drawings, the apparatus substantially consists of the three principal parts which I have designated "stopper," "screwed ring," and "arresting-ring." Between or onto the two latter parts is arranged the above-mentioned gearing, while the arresting device is attached to the arresting-ring and stopper of the apparatus, thus coupling them together.

One of the three parts is invariably fixed, whereas the remaining parts are movable.

Figures 1, 2, 4, 5, 7, 9, and 10 represent in elevation, partly in section, the principal forms of construction of this invention. Fig. 3 is a sectional view on line *x x* of Fig. 1. Figs. 6 and 8 show in elevation, Fig. 6 being partly in section, modifications in the arrangement of the arresting device. Fig. 11 is a sectional elevation of the apparatus in which the actuating device is represented by a pendulum. Fig. 12 represents a horizontal section on the line 12 12 of Fig. 11, showing the interior of the cover as seen from underneath. Fig. 13 is a plan view of Fig. 11 with the covering-plate removed. Fig. 14 is a plan view illustrating another modification.

In the above figures, *c* indicates the stopper of the apparatus, be it receptacle, Figs. 1, 3, 5, 8, and 9, or plug, Figs. 2, 4, 6, 7, and 10 to 13, in the state of being fixed, Figs. 2, 5 to 7, and 11 to 13, or movable, Figs. 1, 3, 4, and 8 to 10.

b represents the screwed ring, be it a part of the receptacle, Figs. 2, 4, 6, 7, and 10 to 13, or of the plug, Figs. 1, 3, 5, 8, and 9, fixed, Figs. 9 and 10, or movable, Figs. 1 to 8 and 11 to 13.

i is the arresting-ring, be it fixed, Figs. 1, 3, 4, and 8, or movable, Figs. 2, 5 to 7, and 9 to 13.

e and *o* show the arresting device; *w*, the gearing.

In Fig. 1 the screwed ring *b*, which is movable, is turned by the gearing *w*, while the arresting-ring *i* is affixed to the plug by being tightly screwed thereto.

The screw-thread of the apparatus may be arranged on the circumference of the receptacle and plug, as shown in Figs. 1 to 6 and 8 to 13, or on some other part, for instance, on a pin or bolt *b'*, Fig. 7, said screw-thread being in the latter case transferred into the interior of the receptacle and plug.

As mentioned above, the object of the arresting arrangement is to prevent the arrest-

ing-ring and stopper from a relative turning. It is not intended to limit their upward and downward movement, while it should be adapted to permit the disengagement of the said parts *b* and *i*. This object may be reached by any known means. In Figs. 1 to 7 and 9 to 13, for instance, the arresting arrangement is formed by a handle or lever *e*, which may be so constructed as to be turned or laid over to engage with a groove *o*, arranged on the other part, thereby causing the coupling of said parts and precluding their relative turning, that is to say, these parts slidingly approach each other without moving sidewise. The same end is accomplished in Fig. 8 by means of a bolt or bar, which may also be keyed onto either of the parts, thus engaging at the free extremity with a groove *o* in the other part.

The gearing *w*, which is in Figs. 1 to 7 and in Figs. 9 and 10 indicated by a toothed wheel and pinion, may either be actuated by a spring, as will be hereinafter described, or in apparatus used for lubrication of moving machine parts it may be accomplished by a pendulum arrangement, as illustrated in Figs. 11 to 13. In the latter, *h* indicates a pendulum which is set swinging about the spindle *h'* by the moving part of the machine, said pendulum having a corresponding weight and play of movement which is limited by a regulating-pin h^2. The elastic projections h^4 serve to suppress the noise. The pendulum actuates, by means of the pawl h^3, a ratchet-wheel *l*, which latter is secured by an opposite catch *l'*. A toothed wheel l^2, connected with the ratchet-wheel, engages with the interior teeth of a ring *m*, the latter being furnished outside with spiral threads to engage with the threads of a worm-wheel *d*, thereby turning the latter.

All parts mentioned above (*h*, *h'*, h^2, h^3, h^4, *l*, *l'*, l^2, *m*, and *d*) are arranged on the arresting-ring *i*. The worm-wheel is at the same time a worm in acting upon the toothed ring *n*, secured to the screwed ring *b* or receptacle *n'*, thereby screwing it to the plug *c*, (in this case the fixed part,) in very slow revolutions as soon as the arm or lever *e* engages with the groove *o* of the arresting-ring or cover *i*. Upon disengaging the arm the receptacle will retain its position while the arresting-ring turns, whereby the lubrication stops. The arresting-ring *i* is connected with the screwed ring by means of the screw *a*, by the loosening of which the gearing may be disengaged, inspected, cleaned, and regulated.

I will now describe the modification represented in Fig. 14 and hereinbefore referred to, in which the toothed wheel and pinion are actuated by a spring *s*, which is placed inside the worm *m* and fastened at one end to the said worm and at the other end to a collar *p*, which turns on a hub in the center of the worm for the purpose of winding up the spring.

On the top of the worm-ring *m* there is formed or secured a concentric crown of gear-teeth *m'*, which gear with a small pinion v' on a wind-fly whose spindle works in a bearing v^2 on the inside of the arresting-ring or cover *i*, the said wind-fly serving as a governor to the action of the spring.

What I claim as my invention is—

In a lubricator, the combination of a receptacle and plug which are screw-threaded together and one of which is composed of two parts fitted together to turn one relatively to the other and between which two parts are gearing for effecting such turning, an arresting device between the plug and receptacle to prevent the turning of the one relatively to the other and means for actuating the said gearing, all substantially as herein described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

GEO. KLUG.

Witnesses:
A. SCHAPER,
E. H. L. MUMMENHOFF.