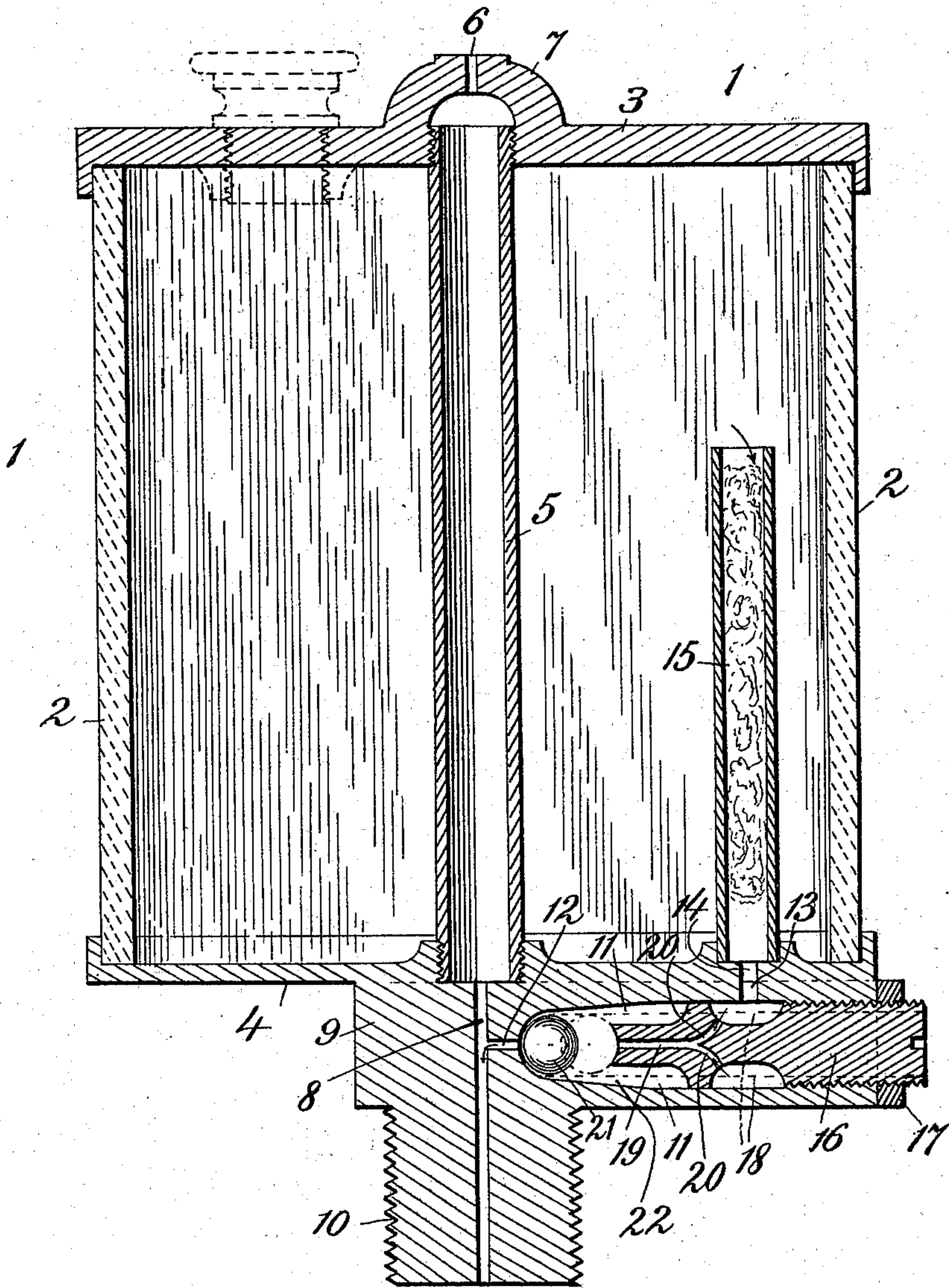


(No Model.)

N. LEIDGEN.
LUBRICATOR.

No. 562,332.

Patented June 16, 1896.



Attest:

J. H. Schott
Alfred T. Sage

Inventor
Nicolas Leidgen,
by R. E. Henneman,
Attorney

UNITED STATES PATENT OFFICE.

NICOLAUS LEIDGEN, OF MILWAUKEE, WISCONSIN.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 562,332, dated June 16, 1896.

Application filed June 24, 1895. Serial No. 553,862. (No model.)

To all whom it may concern:

Be it known that I, NICOLAUS LEIDGEN, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Lubricators; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to an oil-cup for use on crank-pins, eccentric-rods, and on other movable bearings.

It has for its object to provide the oil-cup with a horizontally-disposed chamber at its bottom into which the oil will pass from the cup and from which chamber the oil will be fed to the part to be lubricated through an aperture, the oil being fed through the aperture by a ball which not only serves as a plunger-feed for the oil but also as a valve adapted at times to cut off the inlet of oil through an apertured plug in the chamber and at other times to cut off the outlet of oil through the aperture leading to the part to be lubricated.

It has, further, for its object to provide an adjustable plug in said chamber for regulating the throw of the ball-valve and plunger, so as to regulate the feed of the oil from the chamber to the part to be lubricated.

It has, further, for its object to so construct said chamber that the ball-valve and plunger will have a limited vertical play as well as a longitudinal movement in the chamber, so as to prevent gumming and sticking of the ball.

It has, further, for its object to provide improved features of construction in other particulars hereinafter made to appear.

To the accomplishment of the foregoing and such other objects as may hereinafter be made to appear, the invention consists in the construction and in the combination of parts hereinafter particularly described, and then sought to be specifically defined by the claims, reference being had to the accompanying drawings, forming a part hereof, and in which is represented a vertical section through the oil-cup and parts constituting the invention.

In the drawings, the numeral 1 designates the cup for holding the supply of oil, which cup has glass or transparent sides 2 and metallic top plate 3 and bottom plate 4. The top and bottom plate and sides of the cup are held together by means of a tube 5, screw-threaded at both ends, so as to engage screw-threads in the top and bottom plates and thus secure the parts together. Directly over the upper end of the tube 5 the top plate 3 is provided with an air-inlet 6, which may be in a raised or arched portion 7 of the plate and is for the purpose of admitting air into the tube 5 and through it to an aperture or channel 8, so as to facilitate the passage of oil through that aperture to the part to be lubricated, said aperture or channel 8 being formed in a block or extension 9, projecting from the under side of the bottom plate 4, and which may be made separate from the bottom plate and secured thereto by any suitable means, or otherwise made, which block or extension has a screw-threaded portion 10, by which it may be secured to the part to be lubricated.

Beneath or at the bottom of the cup 1, say in the block or extension 9, there is formed a transverse or horizontally-extending chamber 11, which is formed with an aperture 12, connecting said chamber with the aperture 8 and for the passage of the oil from the chamber to aperture 8, from whence it passes to the part to be lubricated. The chamber 11 is in communication with the interior of the cup 1 through an aperture 13, formed in its wall, and which registers with an aperture 14 in the bottom plate 4 of the cup, so that the oil can pass from the interior of the cup into the chamber 11. For the purpose of preventing any sediment in the oil from passing into the chamber 11, I place over the apertures 13 and 14 a tube 15, which may extend any desired distance into the cup, and which will be provided with some suitable filtering material, so that the oil which passes from the interior of the cup into the tube 15 through the open end of the latter will percolate or filter through the material and thus prevent to a greater or less extent sediment passing with the oil into the chamber 11. Within the chamber 11 is fitted a screw-plug 16, which is inserted through the outer end of the chamber 11 and is capable of adjustment back and forth in

said chamber by screw-threads on the plug engaging screw-threads in the wall of chamber 11. A jam-nut 17 may be provided for the purpose of tightening the plug in place.

5 This screw-plug 16 is provided with a circumferential groove or way 18, so that the oil from the interior of the cup will pass into the space thus formed and from thence through a duct 19 into the portion of the chamber 11
10 which lies between the inner end of the plug and the outlet-aperture 12 of the chamber, said duct 19 communicating with the space made by the circumferential way 18 through one or more diverging ducts 20.

15 Within the chamber 11, between its end having the aperture 12 and the end of the screw-plug 16, plays a ball 21, which feeds the oil from the chamber 11 through the aperture 12 as the ball moves back and forth between
20 the end of the screw-plug and the end of the chamber, the movement of the ball being imparted by the movement of the part to which the lubricating-cup is attached. This ball serves both as a plunger for feeding the oil
25 in its movement and also as a valve to close in alternation or otherwise the outlet-aperture 12 and the inlet-duct 19. This is important, as it is not desirable to let the oil feed to the part to be lubricated when the
30 parts are stationary or out of action.

If the part to which the cup is attached stopped in one position, the ball 21 will lie in the end of the chamber 11 over the aperture 12, so as to close the same and prevent
35 the oil flowing or trickling into and through that aperture, and if the part stops in another position, the ball will roll in the chamber so as to seat itself upon the end of the screw-plug 16 over the duct 19 and thus close that
40 duct, so that oil will not pass through it into the chamber, whereas, while the part to which the cup is attached is in motion and the cup thus moved or oscillated back and forth, the ball will be thrown back and forth and thus
45 caused to act as a plunger for feeding the oil from the chamber to the aperture 12. The quantity of oil fed through the aperture 12 will depend upon the extent of throw of the ball, the greater the throw the more oil will
50 be fed by the ball. The extent of throw of the ball is controlled by the adjustment of the screw-plug 16, it being obvious that the farther in that the plug is set or adjusted the shorter will be the throw of the ball and consequently the smaller the feed of the oil.
55

It will be observed that the end of the chamber where the aperture 12 is located is made concave and also that the end of the screw-plug 16 is made concave. This is done so as to
60 insure a close fitting of the ball upon its seat in the end of the screw-plug and also in the apertured end of the chamber when at either end of its stroke, thus insuring the ball to seat itself properly, so as to effectively cut
65 off the flow of oil when the parts are at rest. For the purpose of allowing a greater or less vertical play to the ball in the chamber 11

and thus prevent the duct 19 and the aperture 12 from becoming gummed and the ball from sticking, the wall of the chamber 11 forward of the screw-plug 12 is tapered, more
70 or less, as illustrated at 22. This as stated allows a vertical play to the ball and yet at the same time causes the ball to seat itself either against the end of the screw-plug or
75 against the concave end of the chamber according as the ball may move in one direction or the other.

In order that the inner end of the screw-plug may move in the tapered portion of the
80 chamber, the inner portion of the plug is tapered or cut away circumferentially, so that it may be moved back and forth in the tapered part of the chamber without contacting with its walls. This enables the space
85 in which the ball moves to be enlarged or diminished by the simple adjustment of the screw-plug to such an extent that the throw of the ball can be varied and thus the feed of the oil regulated to a nicety.
90

I have described with particularity what I consider to be the best details of construction of the several parts, but it is obvious that changes can be made therein without departing from the essential features of the invention.
95

It is obvious that the tapered portion 22 of the chamber 11 could be made straight, in which event the several parts would be proportioned substantially as indicated by dotted lines in the drawings, or otherwise, and the other features of my invention still be employed.
100

Having described my invention and set forth its merits, what I claim is—
105

1. The combination with the oil-cup provided at its lower portion with a horizontally-arranged chamber in communication with the interior of the cup and formed with an outlet-aperture for the passage of oil to the part to
110 be lubricated, of a revoluble gravitating ball having a horizontal play in said chamber for feeding oil therefrom, and an adjustable plug fitting inside said chamber and accessible from the end thereof for adjustment to regulate the throw of the ball and feed of the lubricant, substantially as and for the purposes described.
115

2. The combination with the oil-cup, provided at its lower portion with a horizontally-arranged chamber in communication with the interior of the cup and having an outlet-aperture for the passage of oil to the part to be lubricated, of the adjustable plug fitting in
120 said chamber and adapted to regulate the length of the space in which a ball may play and provided with a duct through which oil is fed to the said space, and a ball having a horizontal play in said chamber to feed the oil therefrom and adapted to close either the duct
125 in said plug or the outer aperture in said chamber when the parts are at rest, substantially as and for the purposes described.
130

3. The combination with the oil-cup pro-

vided with a chamber in communication with the interior of the cup and having an outlet-aperture for the passage of oil to the part to be lubricated, of the adjustable plug in
5 said chamber formed with a circumferential groove or way to receive the oil from the cup and having a duct leading from said groove or way for the passage of oil, and a ball or
10 plunger free to play in the chamber between its end and the inner end of the adjustable plug for feeding oil from the chamber substantially as and for the purposes described.

4. The combination with the oil-cup provided with a chamber in communication with
15 the interior of the cup and having an outlet-aperture for the passage of oil to the part to be lubricated, the interior wall of said chamber next to said outlet-aperture being tapered, of an adjustable apertured plug fitting in said
20 chamber for regulating the throw of a feed-ball and supplying oil to said chamber, and a ball free to play in said chamber between

the end of the adjustable plug and the outlet-aperture in the chamber, substantially as and for the purposes described.

5. The combination with the oil-cup provided with a chamber in communication with the interior and having an outlet-aperture for the passage of oil to the part to be lubricated, the interior wall of said chamber next to the
30 outlet-aperture being tapered, of an adjustable regulating-plug fitted in said chamber and having its inner end tapered or cut away circumferentially and provided with an oil-
duct, and a ball free to play in the tapered
35 portion of said chamber to feed the oil therefrom, substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

NICOLAUS LEIDGEN.

Witnesses:

H. J. RIEMENSCHNEIDER,
OTTO GELHAAR.