(No Model.) 2 Sheets—Sheet 1.

# W. A. CLAY.

## LUBRICATING DEVICE.

No. 577,679. Patented Feb. 23, 1897.

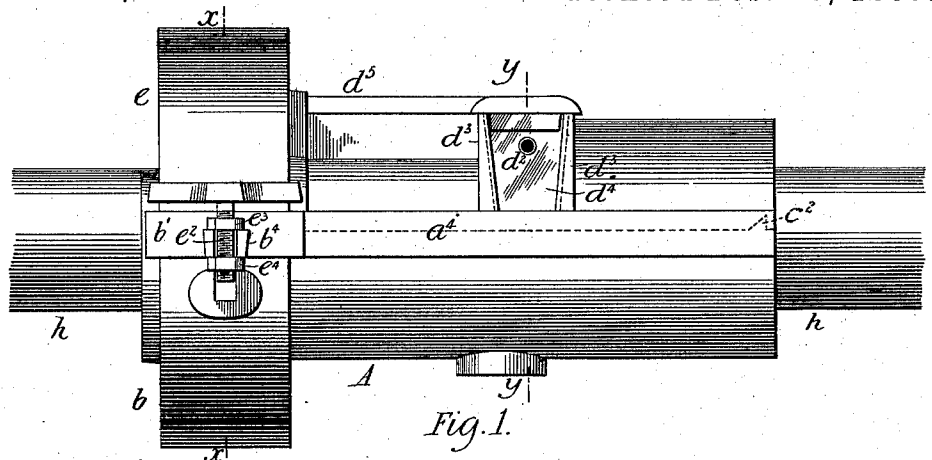


Fig. 1.

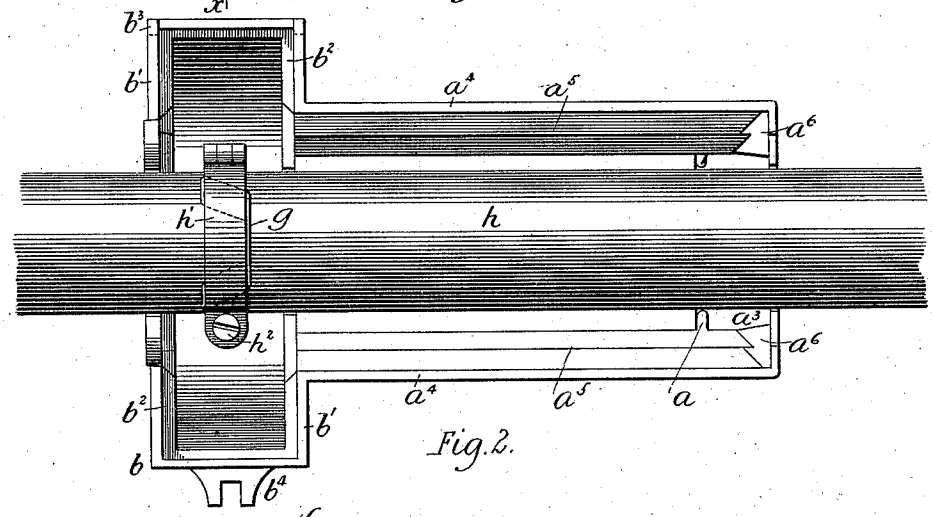


Fig. 2.

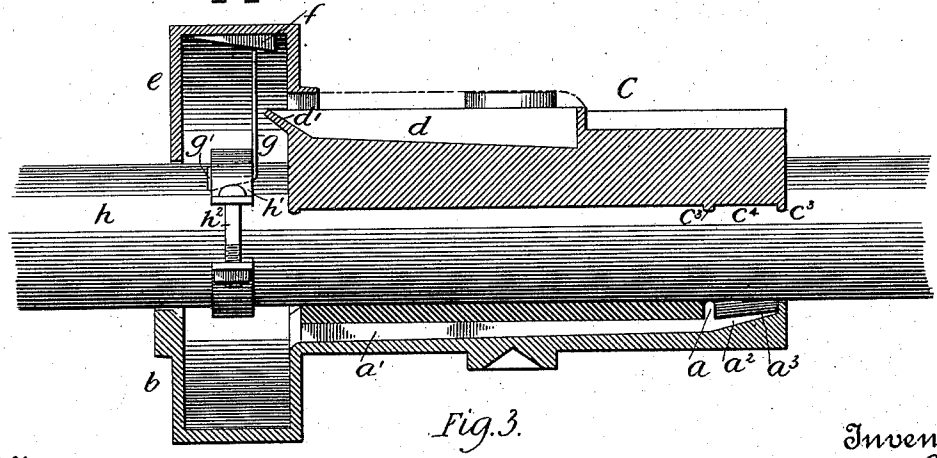


Fig. 3.

Witnesses
S. E. Zimmerman
W. J. Norton

Inventor
William Albert Clay
By Dudley & Co
his Attorneys.

(No Model.) 2 Sheets—Sheet 2.

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## LUBRICATING DEVICE.

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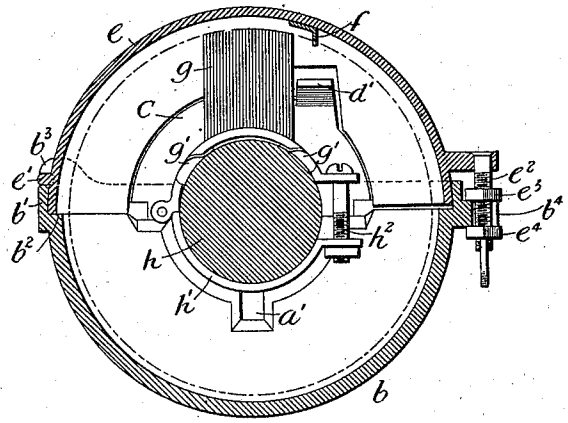


Fig. 4.

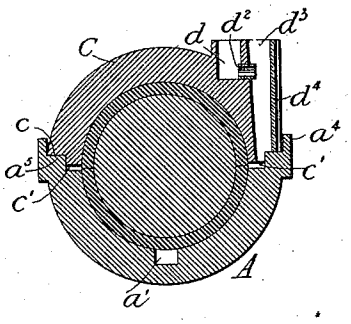


Fig. 5.

Witnesses
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his Attorneys.

# UNITED STATES PATENT OFFICE.

WILLIAM ALBERT CLAY, OF CADILLAC, MICHIGAN.

## LUBRICATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 577,679, dated February 23, 1897.

Application filed May 16, 1896. Serial No. 591,817. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM ALBERT CLAY, a subject of the Queen of Great Britain, residing at Cadillac, in the county of Wexford and State of Michigan, have invented certain new and useful Improvements in Lubricating Devices; 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 letters of reference marked thereon, which form a part of this specification.

This invention is directed to devices for lubricating journal bearings, boxes, or the like, and has for its object the provision of an improved lubricating device possessing advantages in point of efficiency and of economy in the use of lubricants, and added to these the construction employed is simple, the parts being few in number and susceptible of being cheaply produced and is of maximum durability.

The following description is directed to the details of construction, arrangement, and operation of my improved lubricating device, and in connection with such description attention is called to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved lubricating device. Fig. 2 is a top plan view of the lower half of the device. Fig. 3 is a vertical longitudinal sectional view of the complete device. Fig. 4 is a transverse sectional view on line $x\,x$ of Fig. 1. Fig. 5 is a transverse sectional view on line $y\,y$ of same figure.

Referring to the said drawings by letter, A denotes the lower half of the bearing or box, one end of which is enlarged to provide the oil-reservoir $b$, said bearing and reservoir being formed preferably integrally and are of semicylindrical shape. On the inner side of the bearing are ribs $a\ a$, between which is placed the babbitt, and centrally of the bearing at the base is an inclined oil-trough $a'$, extending the entire length and opening into the reservoir. At the other end of the trough $a'$, which is beyond the babbitt, is an approach $a^2$, which has a greater inclination than the base of the trough, whereby the oil is rapidly conveyed from the annular channel $a^3$ in the end of the bearing. The upper edges of the bearing and reservoir are outwardly flanged, as at $a^4\,b'$, and inwardly stepped, as at $a^5\,b^2$, two steps being employed in the bearing, and at $a^6$ said steps and a portion of the bearing are cut away to provide an inclined passage for the oil from the steps to the channel $a^3$. The upper half C of the bearing is correspondingly stepped at its edges, one of the steps $c$ contacting with the upper step of the lower half A, and between the other steps a space is provided to afford a passage $c'$ for the oil. At $c^2$ the upper half bearing is cut away to enlarge the opening made at $a^6$ in the lower half of the bearing. Ribs $c^3\,c^3$ are provided for the upper babbitt, and at $c^4$ is a channel registering with the channel $a^3$. In the top of the upper half C is an inclined trough $d$, located, preferably, beyond the center, the walls extending above the bearing to increase the depth, and said trough has its receiving end $d'$ projecting beyond the end of the bearing and there provided with a base of comparatively sharp inclination. Near the other end of the trough and in the outer wall thereof is an opening, in which is arranged a tube $d^2$, which latter serves as the outlet for the trough. The outer wall of the trough is within the outer side of the bearing and is flanked by two walls $d^3\,d^3$, which, with the said outer wall, form a vertical passage leading to the passage $c'$. The walls $d^3$ are grooved to receive a transparent pane $d^4$, through which the oil-feed can be plainly observed. The trough is provided with a removable cover $d^5$.

$e$ denotes the upper half of the oil-reservoir, the lower end of which in practice engages the flange $b'$ and step $b^2$ of the lower half, and said upper half is removably hinged at one end to the latter, the preferred construction being in the nature of pins $e'$, which engage hooks $b^3$ on the lower half. The upper half $e$ is adjustable to or from the lower half, for a purpose to be presently explained, the means employed being a threaded bolt $e^2$, carried by the part $e$, which passes through a bifurcated lug $b^4$ on the part $b$, and nuts $e^3$ $e^4$ are employed in connection with the bolt, as shown, to firmly hold the part $e$ in the desired position. On the inner side of the upper part $e$, at a point in line with the trough

$d$, is a depending beveled plate $f$, one end of which terminates immediately over the receiving end $d'$ of said trough. This plate is in the path of a scraper-plate $g$, secured to and rotating with the shaft $h$, said scraper-plate being secured to place on the latter, preferably by a split collar $h'$ and bolt $h^2$, which collar engages arms $g'$ on the inner end of the plate, as shown. The outer end of the plate is curved concentrically with the shaft, and said plate may be of the shape shown or of disk form, dependent upon the speed of the shaft.

The operation of the device is as follows: Oil in sufficient quantity is admitted to the reservoir and is carried therefrom by the rotating scraper to the plate $f$ on the upper part $e$. Following the inclination of the plate $f$ the oil flows to and from that end which is above the end $d'$ of the trough $d$, and after passing through the latter it passes through the tube $d^2$ and thence by the vertical passage to the passage $c'$. Upon reaching the end of this passage $c'$ the oil flows by the opening $a^6$ $c^2$ through the channel $a^3$ to the trough $a'$ and thence back to the reservoir. The oil thus has a constant uninterrupted circulation through the entire bearing, and at various points a portion of the oil is taken up by the shaft, with the result of thoroughly lubricating the bearing-surfaces. The amount of oil circulated, which is indicated through the sight opening or pane $d^4$, may be nicely regulated by varying the distance between the scraper and the plate $f$, which is easily and quickly accomplished by adjusting the height of the part $e$ through the bolt $e^2$ and nuts $e^3$ $e^4$, as before stated.

The peculiar construction employed insures in practice constant lubrication for a comparatively great length of time with a small supply of the oil. The operation is entirely automatic, no attendance being necessary except when renewals of oil are demanded. The oil is distributed evenly over the entire portion of the shaft-bearing, and any excess of oil is carried back to the reservoir. The parts are few in number, there being but three parts to the body of the structure, and the remaining parts are so constructed as to be durable and to be free from danger of disorder.

I claim as my invention—

1. The combination with a bearing provided with an upper and lower oil-trough, of an oil-reservoir formed in two parts, means for adjusting said parts to or from each other, an inclined plate in the upper part arranged to discharge oil into the upper trough, and a scraper carried by the shaft and adapted to move in the path of the plate at any desired distance therefrom.

2. The combination of the lower bearing and the lower half of the reservoir formed integrally therewith, said lower bearing having an inclined oil-trough in its base and oil-channels in its sides leading to said trough, the upper bearing having an oil-trough in its top and a vertical passage leading from said trough to the channels, said passage having a sight-opening, means for adjustably securing the upper half to the lower half, an inclined plate in the top of the upper half arranged to deliver oil to the trough in the upper bearing, and a scraper carried by the shaft and adapted to deliver oil to the plate.

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

WILLIAM ALBERT CLAY.

Witnesses:

JAMES R. BISHOP,

CHAS. W. DUTTON.