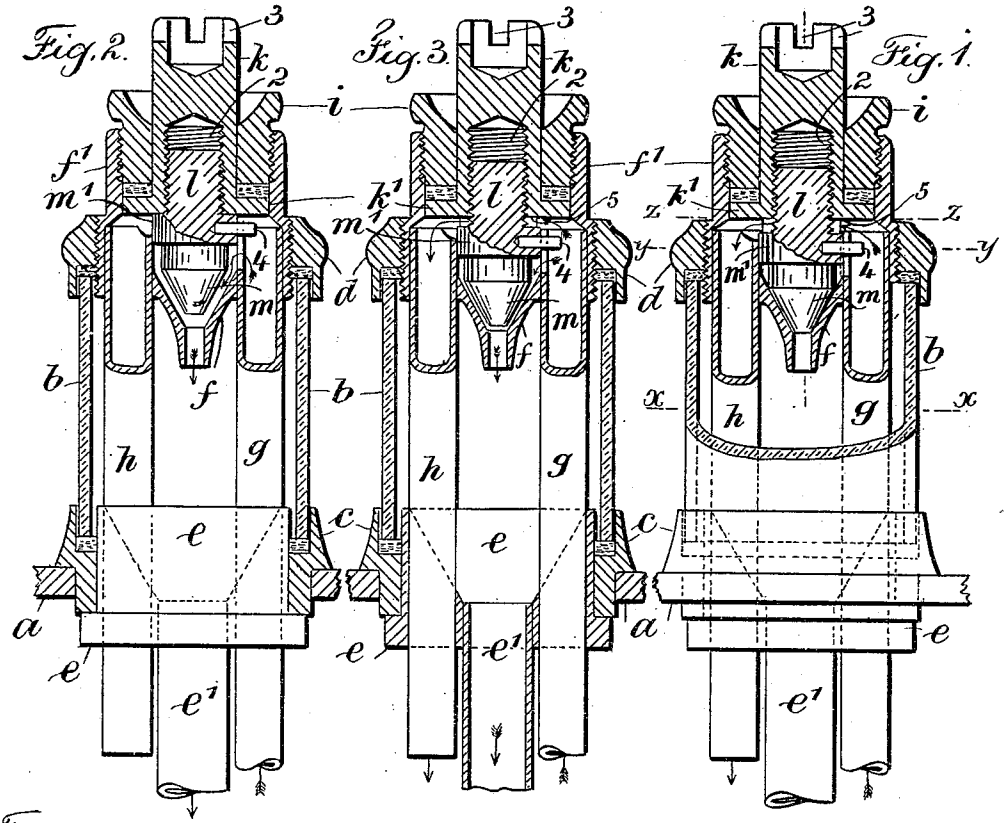
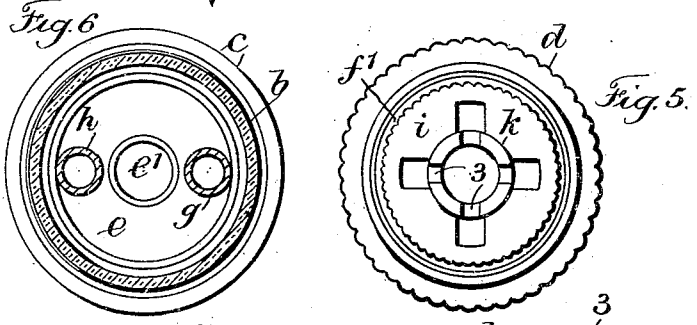
J. T. PEDERSĔN.

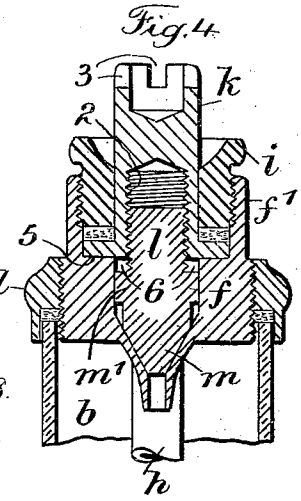
LUBRICATOR.

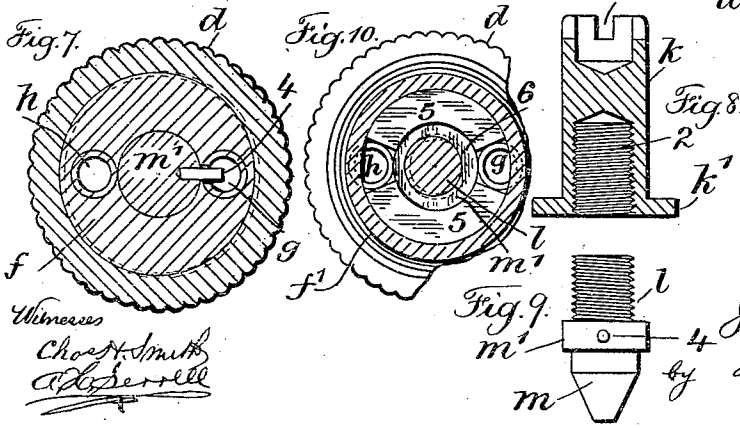
APPLICATION FILED JAN. 8, 1909.

**945,585.** Patented Jan. 4, 1910.

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# UNITED STATES PATENT OFFICE.

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## LUBRICATOR.

945,585. Specification of Letters Patent. Patented Jan. 4, 1910.

Application filed January 8, 1909. Serial No. 471,249.

*To all whom it may concern:*

Be it known that I, JOHANNES THEODOR PEDERSÈN, a citizen of the United States, residing at Woodside, in the county of Queens and State of New York, have invented an Improvement in Lubricators, of which the following is a specification.

My invention relates to the class of oil feeding devices or lubricators especially adapted to supply lubricating oil to the machinery of motor vehicles, motor boats, etc., and the same is an improvement upon the device shown and described in Letters Patent of the United States, granted to me July 24, 1906, #827,032, and particularly to the sight-feed devices of such lubricators, with the object of providing for an adjustable feed-flow in relative proportion to the overflow and vice versa, or in other words, for a decrease in the overflow relatively with the increase in the feed-flow and vice versa.

The essential feature of my present invention consists in the valve device forming part of the well-known sight-feed structure of my aforesaid patent and employed for regulating and controlling the quantity of oil delivered to be forced to the machine to be lubricated. This valve device has a two-part member,—of which one part is manually actuated and revoluble and the other part is non-revoluble but adapted for axial movement by its co-action with the first aforesaid part, and the parts of the sight-feed device employed in connection with this valve are so constructed that whatever position the valve may occupy, the same amount of oil is steadily flowing through the sight-feed; either all for lubricating purposes or all to the over-flow or graded proportions to each, according to the position of the valve with reference to the extremes of its movements.

In connection with the essential feature of my invention I do not limit myself to the balance of the structure employed in connection therewith, as the same may be changed and the oil receptacle and means for supplying the same may be changed without departing from my invention; it being possible to employ the valve structure of the present invention with various other and substantially equivalent combinations of parts.

In the drawings, Figures 1, 2 and 3 represent by vertical sections and partial elevations the devices of my invention with the valve in the closed and open positions and in an intermediate position. Fig. 4 is a partial vertical section and elevation similar to Fig. 1, but at right angles to the position in which Fig. 1 is taken. Fig. 5 is a plan of the parts shown in Figs. 1 to 4 inclusive. Fig. 6 is a sectional plan on the dotted line $x$, $x$, of Fig. 1 for instance. Fig. 7 is a sectional plan on the dotted line $y$, $y$, of Fig. 1. Fig. 8 is an elevation of the upper member of the valve structure and Fig. 9 an elevation of the lower member of the valve structure; Figs. 1 to 4 inclusive showing the parts of the valve structure in their connected relation, and Fig. 10 is a sectional plan on the dotted line $z$, $z$, of Fig. 1.

$a$ represents a portion of the cover of a suitable oil receptacle, tank, or other vessel, or a bar holder or support and to which the sight-feed devices are preferably connected. These sight-feed devices preferably extend above the cover, but I do not limit my invention to connecting said feed-devices to part of the cover of the oil receptacle, as $a$ may represent a platform suitably supported.

$b$ represents the cylindrical sections of glass forming part of the sight-feed, and $c$—in each of the figures—an annulus into which the lower end of the cylindrical sections $b$ of glass are received; this annulus fitting within an aperture in the part $a$ and being suitably secured thereto. An annulus $d$ is provided fitting over and around the upper end of each cylindrical section $b$ of the device, and I prefer to employ suitable packing rings or washers directly between the ends of the cylindrical sections of glass and the inner surfaces of the annuli $c$ $d$.

In the lower portion of the sight-feed devices, $e$ represents a thimble at the center of which is a pipe $e^1$. The central portion of the thimble is made funnel-shaped for the discharge of the oil into the pipe $e^1$ and this thimble fits snugly within and may be secured to the annulus $c$ in any desired manner. At the upper end of the sight-feed device there is another thimble $f$ which also is of the same configuration and centrally perforated, there being by preference a central nozzle portion to this thimble. The upper part of this thimble is made as an interiorly threaded sleeve $f^1$ and below this sleeve the thimble is exteriorly threaded so as to screw into the upper annulus $d$. A pipe $g$ passes

through the thimble *e*, through the sight-feed and up into and through the thimble *f*, the same being left open at its upper end. A pipe *h* also passes vertically through the sight-feed, through the thimble *e* and into and through the thimble *f*, with its upper end open and these two pipes are advantageously set diametrically opposite to one another.

A cap *i* centrally apertured screws into the sleeve $f^1$ of the thimble *f* to close the same and to serve as a bearing for the upper member of the valve. The upper member of the valve is composed of the stem *k* and the flange $k^1$. The lower part is hollow or apertured and internally threaded at 2. The upper part is also apertured and made tubular and provided with notches or kerfs 3 to receive a screw driver or other implement by which the upper member of the valve is rotated to a greater or less extent. The lower member of the valve comprises the exteriorly threaded stem *l* and the conical head *m*, between which there is a cylindrical portion $m^1$ in which is secured a pin 4.

The upper end of the pipe *g* or it may be the pipe *h* is slotted to receive a projecting end of the pin 4 and the cylindrical portion $m^1$ of the lower valve member is received within and movable through a central aperture of the thimble *f* (see particularly Fig. 4); there being a seat 5 or ledge of this thimble *f* upon which the lower surface of the flange $k^1$ of the upper revoluble valve member bears; the cap *i* screwed down to place in the sleeve $f^1$ serving to keep the upper valve member in position and prevent axial movement longitudinally, but permits a revoluble movement on its axis.

The valve members shown in Figs. 8 and 9 are connected by the screw stem *l* and the internal thread 2 of the upper member, and by virtue of the fact that the upper member *k* is revoluble and the lower member can only move longitudinally, or in the direction of its axis,—because of its pin 4 being in a slot at the upper end of the pipe *g*,—it is evident that the revoluble movement of the upper valve member will by virtue of the screw-threaded connection of the two parts, produce a longitudinal movement of the lower member, forcing the conical head of the lower member to its seat as in Fig. 1, or withdrawing the same partially from its seat as in Fig. 3, or wholly from its seat as in Fig. 2.

By reference to Figs. 1 and 4, in which the conical head of the valve is close to its seat, it will be apparent that there are passage-ways for the oil at either side of the stem *l* between the opposite walls of the thimble *f* and between the pipe *g* and the pipe *h*, so that in this position of the members of the valve with the orifice of the thimble *f* entirely closed, the oil will as forced, pass up the pipe *g* across through the passage-way 6 and down the pipe *h*.

As the lower member of the valve is elevated by the rotation of the upper member of the valve and the conical head *m* is raised from its seat in the thimble *f*, the upper surface of the vertical portion $m^1$ comes closely to the under surface of the flange $k^1$, restricting the opening through which the oil passes from one pipe to the other, and at the same time opening up the thimble aperture so that a certain proportion of the oil is free to pass down into the thimble *f* around the conical head *m* and be discharged from the thimble *f* into the pipe $e^1$ at the bottom of the sight-feed devices. This position is represented in Fig. 3 where part of the oil is forced up the pipe *g* and passed over into the pipe *h* and a part is delivered from the thimble *f* into the pipe $e^1$. With the further rotation of the upper valve member, the lower valve member is raised to the limit of its position shown in Fig. 2, in which the upper surface of the cylindrical portion $m^1$ comes into direct contact with the under surface of the flange $k^1$, entirely closing the opening 6 hereinbefore referred to and preventing any oil passing from the pipe *g* over into the pipe *h*, but compelling all the oil that comes up the pipe *g* to pass down into the conical portion of the thimble *f*,—around the conical head *m*,—to be discharged from the thimble into the pipe $e^1$. From the position of the parts shown in Fig. 1, all the oil that is forced up the pipe *g* from the receptacle is by the pipe *h* returned to the receptacle and from the position shown in Fig. 2, all the oil that is forced up the pipe *g* from the receptacle, descends through the thimble *f* and pipe *e* to be delivered for lubricating purposes, while in the position of the parts shown in Fig. 3, in which the lower member of the valve is at an intermediate point, a part of the oil which is forced up the pipe *g* is by the pipe *h* returned to the receptacle, and the other part descends through the conical part of the thimble *f*, around the conical head *m* of the lower valve member and flows from the orifice of the thimble *f* into the pipe $e^1$ to be directed to the parts to be lubricated. It will therefore be apparent that all of the oil may be returned to the receptacle, or all of it forced to the devices to be lubricated, or that the stream of oil may be divided to any extent at the pleasure of the operator, causing part of it to return to the receptacle and the other part to flow over to the devices to be lubricated. These parts are so proportioned and regulated by preference, that either one of the extreme positions described, on any one of the adjusted intermediate positions described, are capable of taking care of all the oil that is forced up the pipe *g* from the receptacle.

From the sectional plan Fig. 10, the relative size of the seat or ledge 5 upon which the under surface of the flange $k^1$ bears and the passageways 6 for oil around the stem $l$ across from one pipe to the other will be apparent, and it will also appear plain that when the cylindrical portion $m^1$ of the lower valve member is raised to the flange $k^1$, that the passageway 6 will be entirely closed off; the notch in the pipe $g$ for the pin 4 then serving for the discharge of the oil from the pipe $g$ into and away by the conical part of the upper thimble $f$.

While I have shown and described the upper member of the valve as tubular at the lower end and interiorly threaded and the lower member of the valve as formed with a threaded stem, it is obvious and entirely within the scope of my invention to reverse these conditions and make the upper member with a depending threaded stem and the lower member tubular and interiorly threaded as the function and operation of the valve device would not be changed at all thereby.

I claim as my invention:

1. In a lubricating device, the combination with a sight-feed device and a means for passing the oil visually therethrough, of a valve of two connected co-acting members adapted in opposite positions to close off the feed and return and in intermediate positions to regulate the extent of flow in both directions.

2. In a lubricating device, the combination with a sight-feed device and means for passing the oil visually therethrough, of a valve of two connected co-acting members, the one revoluble and the other longitudinally and axially movable thereby, and said valve device adapted in opposite positions to close off the feed and return, and in intermediate positions to regulate the extent of flow in both directions.

3. In a lubricating device, the combination with a sight-feed device and means for passing the oil visually therethrough, of a conical thimble at the upper end of the sight-feed device having a ledge or seat, a valve device of two co-acting parts, the one a revoluble member having a part normally adapted to rest upon said seat or ledge, and a non-revoluble longitudinally movable member actuated by the rotation of the first aforesaid member and adapted in its opposite positions to close off the feed and return, and in intermediate positions to regulate the extent of flow in both directions.

4. In the sight-feed of a lubricating device and in combination, a thimble having a central conical configuration and a seat above the upper end of the conical configuration, a sleeve and a cap member screwing into this sleeve, a revoluble valve member comprising a stem and a flange at the base thereof and the under surface of the valve adapted to rest upon said seat, a longitudinally movable valve member co-acting with the revoluble valve member and having a conical end adapted to fit the conical portion of the thimble, means for preventing the latter valve member turning, whereby the latter valve member in its opposite positions is adapted to close off the feed and return, and in intermediate positions to regulate the extent of flow in both directions.

5. In the sight-feed of a lubricating device and in combination, a thimble at the upper end of the sight-feed device having a central conical configuration and a cylindrical aperture above the same and a seat at the upper end of the cylindrical aperture, a revoluble valve member having a portion adapted to rest upon said seat and to confine the flow of oil beneath said part, a longitudinally movable valve member coöperating with the revoluble member and having a conical head adapted to seat in the conical portion of said thimble and having a cylindrical portion fitting the cylindrical aperture in the thimble, and a flat upper surface adapted to contact in one of its positions with the under surface of the base of the revoluble member of the valve, and means for preventing the lower valve member turning, whereby said valve is adapted in opposite positions to close off the feed and return, and in intermediate positions to regulate the extent of flow in both directions.

6. In the sight-feed of a lubricating device and in combination, a thimble at the upper end of the sight-feed device having a central conical configuration and a cylindrical aperture above the same, and having a seat at the upper end of the cylindrical aperture, a revoluble valve member comprising a stem and a flange at the base of the stem, and the surface of which latter is adapted to initially bear upon the aforesaid seat, said stem being hollow from the flange end in and interiorly threaded, means for turning said valve member, a lower valve member co-acting with the upper valve member and comprising a threaded stem adapted to be received into the threaded portion at the base of the upper valve member, a conical head adapted to seat in the conical central portion of the thimble and an intermediate cylindrical portion received in the cylindrical aperture of the thimble and movable therein and means for preventing the turning of the lower valve member.

7. In the sight-feed of a lubricating device and in combination, a thimble at the upper end of the sight-feed device having a central conical configuration and a cylindrical aperture above the same, and having a seat at the upper end of the cylindrical aperture, a revoluble valve member compris-

ing a stem and a flange at the base of the stem, and the surface of which latter is adapted to initially bear upon the aforesaid seat, said stem being hollow from the flange end in and interiorly threaded, means for turning said valve member, a lower valve member co-acting with the upper valve member and comprising a threaded stem adapted to be received into the threaded portion at the base of the upper valve member, a conical head adapted to seat in the conical central portion of the thimble and an intermediate cylindrical portion received in the cylindrical aperture of the thimble and movable therein, means for preventing the turning of the lower valve member, a sleeve formed with and extending above the thimble and interiorly threaded, and a cap fitting within said sleeve and surrounding the stem of the upper valve member, and a washer between the flange of the upper valve member and the base of the cap.

8. In the sight-feed of a lubricating device and in combination, a thimble at the upper end of the sight-feed device having a central conical configuration and a cylindrical aperture above the same, and having a seat at the upper end of the cylindrical aperture, a revoluble valve member comprising a stem and a flange at the base of the stem, and the surface of which latter is adapted to initially bear upon the aforesaid seat, said stem being hollow from the flange end in and interiorly threaded, means for turning said valve member, a lower valve member co-acting with the upper valve member and comprising a threaded stem adapted to be received into the threaded portion at the base of the upper valve member, a conical head adapted to seat in the conical central portion of the thimble and an intermediate cylindrical portion received in the cylindrical aperture of the thimble and movable therein, means for preventing the turning of the lower valve member, pipes passing up through the sight-feed device and passing into the thimble with their open ends adjacent to the seat of said thimble and the upper end of one of said pipes slotted to receive the means employed for preventing the lower valve member turning.

Signed by me this 21st day of December, 1908.

J. TH. PEDERSEN.

Witnesses:
GEO. T. PINCKNEY,
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