W. L. MORRIS.

OIL CUP.

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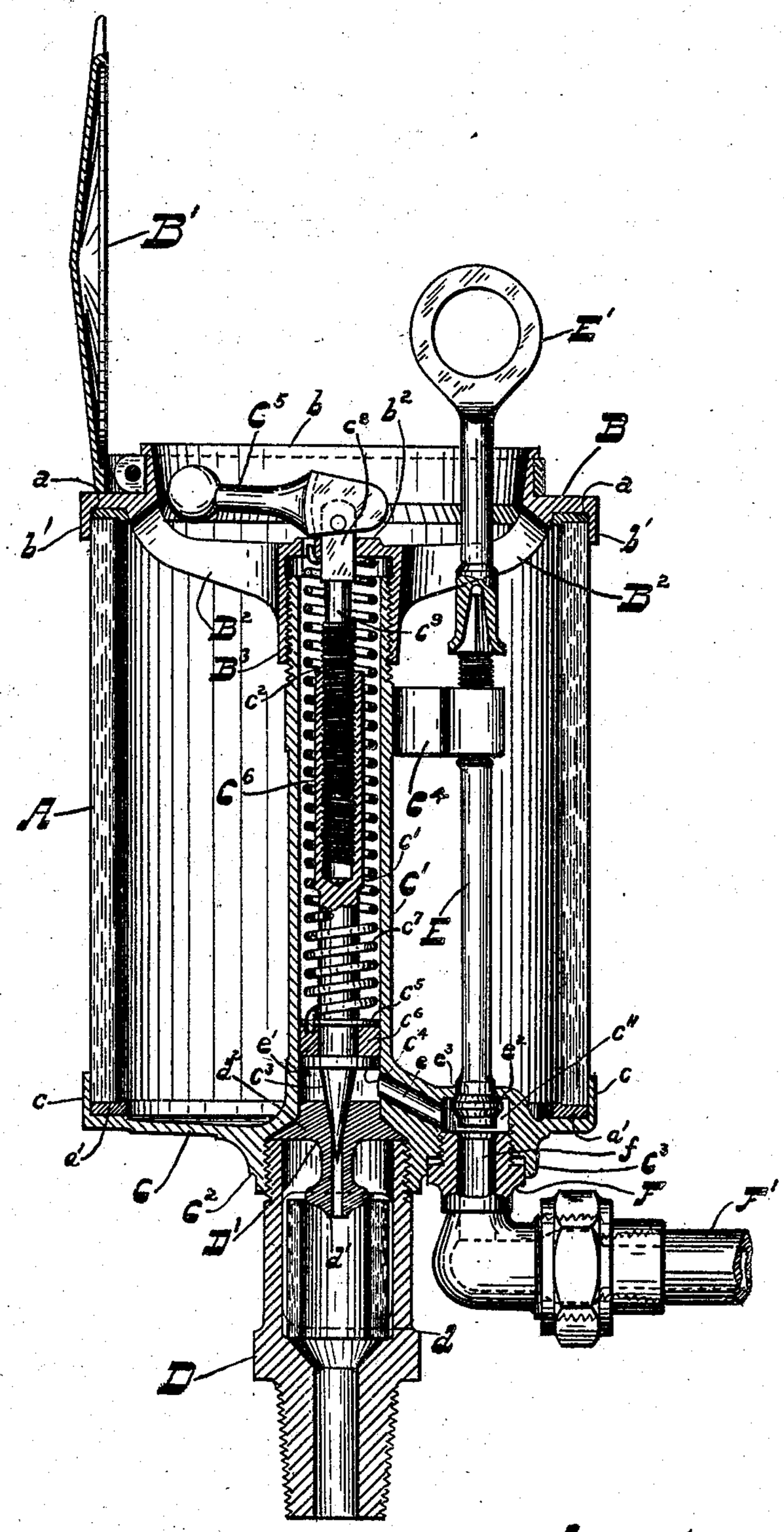
924,487. Patented June 8, 1909.



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OIL-CUP.

No. 924,487. Specification of Letters Patent. Patented June 8, 1909.

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To all whom it may concern:

Be it known that I, WILLIAM L. MORRIS, a citizen of the United States, and resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Oil-Cups, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to improvements in oil-cups, the object being to provide a feeding device for such a cup that will permit the feeding of oil from the body of the cup or from an independent outside supply at the option of the user.

A further object is to make possible the ready adjustment of such feeding device to feed different amounts of oil or to stop such feed altogether.

To the accomplishment of these ends my invention consists of the combination, arrangement and structure of the various parts hereinafter described and fully set forth in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of the various mechanical forms in which the principle of the invention may be used. In said annexed drawing, one form of my improved oil-cup is shown in central vertical cross-section.

The body proper of the cup consists of a cylindrical section A, preferably of glass, a top member B, and a bottom member C. Such top member B is provided with an upwardly-projecting flange *b* which forms the opening to the cup, and with a downwardly-projecting peripheral flange *b'* which is designed to inclose the upper end of cylinder A. Top member B is further provided with a spider B^2, the center of which comprises an internally threaded hub B^3 closed at the top by a cap b^2. Bottom member C is similarly provided with a peripheral flange *c* which projects upwardly so as to inclose the lower end of cylinder A. Bottom member C is further provided with an axially disposed, upwardly-extending, hollow post C', the upper end of which is externally threaded to screw into hub B^3 of spider B^2, whereby the two end members are drawn together so as to secure the cylinder A between them.

Rings *a a'* of packing material, interposed between the ends of cylinder A and top B and bottom C respectively, assist in making the joint tight when the ends are thus drawn together. A lid B', shown as hinged to flange *b*, serves to cover the top of the cup.

Projecting downwardly from bottom member C is a boss C^2 directly beneath hollow post C', and of a somewhat larger bore. This boss is internally threaded to engage with the upper threaded end of a plug D, the lower end of which is also threaded as a means of securing it upon the part to be lubricated. In this plug is located a glass tube *d* which serves as a sight feed for the cup. Secured between the upper end of plug D and the end of the bore in boss C^2 is the valve-seat plug D' the chamfered flange d^2 of which assists in forming a tight joint when plug D is screwed into place. The lower end of valve-seat plug D' has a depending stem *d'* formed with an annular head which is designed to enter the upper end of the sight feed tube *d*, the valve port or passage passing axially through the plug D' and its stem.

The feed-valve c^3 which is designed to register with this valve-seat lies, together with its valve-stem C^6, within the hollow post C'. Such valve-stem preferably consists of two parts *c' c²* which are made longitudinally adjustable relatively to each other by having the end of one (as shown the lower) member internally screw-threaded, and the contiguous end of the other externally screw-threaded, to engage therewith. A helical spring c^7 encircling such valve-stem and lying between the under-surface of head b^2 of hub B^3 and a washer c^5 secured near the lower end of the stem normally tends to hold the valve c^3 upon its valve-seat. A ring c^6 of packing material secured between such washer c^5 and a guide flange c^4 prevents oil from passing into the upper portion of the hollow post C'. A small chamber *e'* is formed in the lower portion of post C' between this flange c^4 and valve-seat plug D' from which the oil is admitted to the bearing upon valve c^3 being raised from such seat. The manner in which the oil is admitted to this chamber will appear later.

The upper end portion c^8 of member c^2 of the valve-stem projects through the head b^2 of hub B^3, the opening therein and such end-portion being shaped to prevent any rotation of member c^2, but to permit its free vertical movement. Just below such end portion, member c^2 is reduced in diameter, so

that upon being raised until this reduced portion c^9 is positioned in the head of hub B^3 rotation is possible. It will thus be seen that the opening in the head b^2 provides in effect a stationary or fixed guide for the upper member of the valve-stem, whereby said member is held against rotation in one longitudinal position of the stem but is freely rotatable in another position of the latter. A cam-lever C^5 pivoted upon the projecting end of member c^2 serves to thus position such member and when raised to rotate it as desired.

The helical spring c^7 is so attached at its upper and lower ends as to prevent any turning of lower valve-stem member c' when the upper member is rotated as just described. The effect of such rotation, therefore, is to lengthen or shorten the valve-stem C^6 as a whole or in other words, to raise valve c^3 different distances from its valve-seat, and so vary the rate at which oil is fed from the cup. The cam-lever C^5, as is evident, is adapted in coöperation with spring c^7 to hold the valve-stem and valve in three different positions. When such cam-lever is horizontally disposed, as shown in the drawing, the stem is lowered sufficiently to allow such spring to retain the valve upon its seat. When turned to its vertical position, it raises the valve-stem as has just been explained so as to permit the rotation of the upper valve-stem member within the lower, and the consequent lengthening or shortening of such valve-stem. While, when turned into a horizontal position opposited to that shown in the drawing, the valve is raised from its seat an amount depending upon such adjustment of the valve-stem length.

Adjacent to boss C^2 on bottom member C is a supplemental boss C^3. This boss is provided with a recessed bore c^{11} which communicates directly with the body of the cup by an opening e^3 and by means of a port e with the chamber in the lower end of hollow post C′ formed between guide-flange c^4 and valve-seat plug D′. A plug F having an axial bore f, formed at its upper end with a valve-seat, is adapted to connect an outside supply-pipe F′ with such boss C^3. The opening e^3 lies directly above bore f, and a two-faced valve e^2 secured to the lower end of a valve-stem E is adapted, upon such valve-stem being raised or lowered, to close opening e^3 or bore f as the case may be. Valve-stem E is adapted to be thus raised and lowered by being threaded near its upper end to engage a nut C^4 projecting laterally from post C′. To facilitate the turning of the valve-stem to raise or lower it, its upper end is shaped to receive a key E′, as shown. As shown in the drawing, the valve e^2 is positioned to shut off communication with the body of the cup, and to open communication with the outside supply. From whichever source the oil is drawn, upon being admitted to the bore c^{11} of boss C^3 it passes through port e to chamber e' in hollow post C′, and from there, as has already been explained, is fed to the bearing at a rate depending upon the adjustment of valve c^3.

Having thus described the several parts entering into my improved oil-cup, the manner of its operation and use is easily shown. The oil, admitted to chamber e' in hollow post C′ from either the cup-body or outside supply, according to the position of valve e^2, is thence fed to the part to be lubricated through the bore in valve-seat D′ and sight feed d. The rate of feed is regulated by lengthening or shortening valve-stem C^6 by raising cam-lever C^5 to a vertical position and rotating it in the proper manner. To shut off the feed altogether, such cam-lever is laid over on its side in the position shown in the drawing, the position opposite thereto being occupied when the feed is open.

With a cup of this improved construction, it is possible to feed to a bearing different kinds of oil at different times without changing the contents of the cup. Or again the outside supply-pipe may be connected to a gravity or other system and the contents of the cup be used only in case of emergency. Moreover, positive and easy regulation of the amount of oil fed to the bearing is secured by means of the special form of feed-valve and valve-stem shown.

Having thus described my invention in detail, that which I particularly point out and distinctly claim is:

1. In an oil-cup, the combination with a chamber having a port communicating with the part to be lubricated and a second port communicating with the cup-body and with an outside supply, of a valve adapted to close said second port to either such cup body or such outside supply.

2. In an oil-cup, a chamber having two ports, one being a feed port and the other an inlet port communicating with the body of the cup and with an outside supply, a valve controlling such feed port, and another valve adapted to close such inlet port to either such cup body or such outside supply.

3. In an oil cup, the combination of a valve-seat; a hollow post; a valve-stem within said hollow post; a valve borne by said stem and adapted to contact with said valve-seat and to control the admission of oil to the part to be lubricated, said valve-stem forming a chamber in the lower end of said post, such chamber having a port communicating with the cup-body and with an outside supply; and a valve adapted to close said port to either such cup-body or such outside supply.

4. In an oil-cup, feed-regulating means comprising a longitudinally movable valve-stem; and a valve borne thereby, said valve-

stem being composed of two members having screw-threaded engagement with each other, one of said members being held against rotation at all times, and the other being thus held in one longitudinal position of said stem but being rotatable in another position of the latter.

5. In an oil-cup, feed-regulating means comprising a valve; a valve-stem composed of two members, one provided with a female screw and the other with a male screw engaging therewith; means adapted to longitudinally position said valve-stem, one of said valve-stem members being rotatable relative to the other in one position of said valve-stem, and being held against such rotation in another position thereof; and means retaining the other of said members against rotation.

6. In an oil-cup, feed-regulating means comprising a longitudinally movable valve-stem composed of two members, one provided with a female screw and the other with a male screw engaging therewith; a valve borne by said valve-stem; a spring tending to hold said valve against its seat, said spring being connected with the cup and with the lower of said valve-stem members so as to hold the latter against rotation; and means engaging with the other of said members and adapted to hold the same against rotation in one longitudinal position of the stem and to permit such rotation in another position of the latter.

7. In an oil-cup, feed-regulating means comprising a longitudinally movable valve-stem composed of two members, one provided with a female screw and the other with a male screw engaging therewith; a valve borne by said valve-stem; a spring tending to hold said valve against its seat, said spring being connected with the cup and with the lower of said valve-stem members so as to hold the latter against rotation; a fixed guide on said cup for the other of said members, different portions of said member being respectively rotatably and non-rotatably engaged by said guide; and means adapted to longitudinally position said valve-stem to effect such various engagements of said member.

Signed by me this 28th day of June 1905.

WILLIAM L. MORRIS.

Attested by:

JNO. F. OBERLIN,

G. W. SAYWELL.