(No Model.)

F. HUMPHREY.

OIL CUP.

No. 346,205. Patented July 27, 1886.

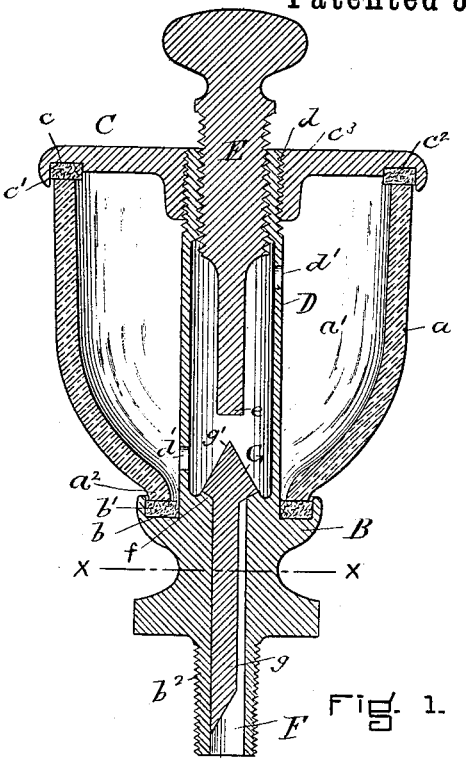

Fig. 1.

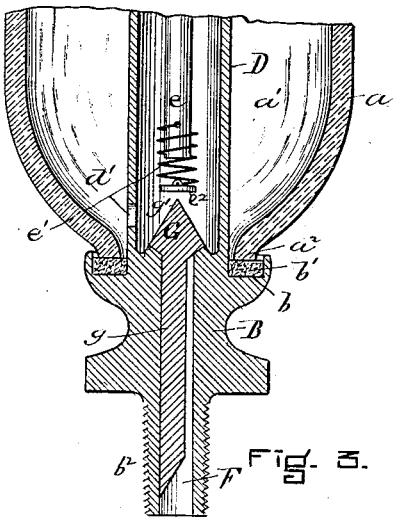

Fig. 3.

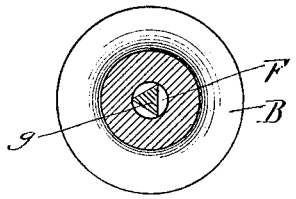

Fig. 2.

WITNESSES.

A. D. Raymond

Fred. B. Dolan.

INVENTOR.

Fred Humphrey

UNITED STATES PATENT OFFICE.

FRED HUMPHREY, OF BOSTON, MASSACHUSETTS.

OIL-CUP.

SPECIFICATION forming part of Letters Patent No. 346,205, dated July 27, 1886.

Application filed January 28, 1886. Serial No. 190,005. (No model.)

To all whom it may concern:

Be it known that I, FRED HUMPHREY, of Boston, in the county of Suffolk and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Oil-Cups, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification in explaining its nature.

The invention relates to the class of oil-cups known as "crank-pin" oil-cups; and it comprises a cup adapted to be secured to the connection or box of a crank having an oil-passage or feedway from the cup to the pin or part to be oiled, which is adapted to be opened and closed by a loose valve operated by its own momentum produced by the motion of the crank or other moving part.

In the drawings, Figure 1 represents a vertical central section of the cup. Fig. 2 is a horizontal section upon the line *x x* of Fig. 1. Fig. 3 is a view in vertical central section of a portion of the cup illustrating a slight modification, to which reference is hereinafter made.

The casing *a*, which preferably is of glass, and which forms the oil receptacle or reservoir *a'*, is attached to a post or standard, B, in any desirable way, and I have represented in the drawings the post as provided with an annular recess, *b*, adapted to be partly filled with the packing *b'*, upon which the lower edge, a^2, of the cup bears, and the covering-disk C, having an annular packing-holding recess, *c*, and flange *c'*, arranged to hold the packing c^2 upon the top edge of the cup, and to be fastened to the standard or post B by the tube D, which extends upward from the post, and has a screw-thread, *d*, to receive the disk or cover C, which has a screw-threaded hole, c^3, to fit the screw *d*. The tube D is connected with the oil-reservoir *a'* by means of the holes *d'*, and it provides an opening by which the cup is filled, and which is closed by means of the screw-plug E. The screw-plug has a downward extension, *e*, the office of which will hereinafter be explained. There is formed in the post or standard B the hole or passage F, through which the lubricant escapes from the chamber *a'* to the bearing or part to be lubricated. At the upper end of this passage there is arranged a valve-seat, *f*, which preferably is raised slightly above the bottom of the tube, and has an inclined or conical seat to receive the valve G. This valve G has an inclined or rounded surface adapted to fit the seat of the valve *f*, and a spindle or rod, *g*, which extends downward in the hole F to very nearly its bottom or lower end. The shape of this spindle or stem *g* is such as to provide a continuous passage from the valve-seat along its side, so that upon the lifting of the valve the lubricant may escape through this passage to the part to be lubricated. The post or standard B also has the screw-sleeve b^2, by which the cup is fastened in place.

In operation the oil-cup is moved with greater or less rapidity, according to the movement of the part to which it is attached, and this movement imparts momentum to the valve and spindle G *g* sufficient to cause the valve to be lifted from its seat once at least each revolution of the crank. This movement of the valve allows a small quantity of lubricant to escape through the passage F to the crank-pin or part to be lubricated. The extent of the lift of the valve G is limited by the extension *e* of the plug E, the under surface of which acts as a stop in limiting or controling the upward movement of the valve. If the cup is moving comparatively slowly no stop is required, as the momentum communicated to the valve is not sufficient to throw it far enough from its seat to make one necessary. If, however, the movement of the cup is rapid, then it is desirable to locate the stop in relation to the valve to limit the extent of its throw produced by the momentum; and it will be observed that this stop is made vertically adjustable in relation to the valve.

In Fig. 3 it will be seen that the stop e^2 is made yielding by the interposition of the spring *e'*, and this form of construction is desirable where it is necesary to obtain a rapid or quick seating of the valve. It will be seen that the valve is extended upward to form a point, *g'*. This shape is desirable for three reasons: First, to permit the lubricant to flow quickly and easily to the seat; second to reduce the friction, and, third to provide a point or projection raised sufficiently above the seat to permit of the use of a stop which shall not interfere with the flow of the lubricant.

I prefer to make the lower end of the stem or spindle *g* inclined, so that the lubricant may easily pass from it upon its downward movement to the part to be lubricated.

When the form of valve shown is used it will be desirable to make the stem or spindle triangular in cross-section, as represented in Fig. 2, in order that the valve may be guided in its movement to and from its seat. It is obvious, however, that other forms of valves and stems or spindles may be used, and I do not confine myself to the particular form herein shown and described. Neither do I confine myself to an oil-cup constructed as herein specified, as the invention is applicable to any oil-cup having any other form of construction.

It will be seen that the cup is filled through a hole in the disk closed by the screw-plug E, and that the screw-plug is made long enough to provide for the vertical adjustment of its lower end, *e*, which acts, as before stated, as a stop, so that the part E acts as a plug or stopper in closing the supply-inlet, and also as a support for the valve-stop. It will further be seen that the cup acts to deliver lubricant only while in motion, and that at all other times the valve is held to its seat by gravity. It will also be seen that the cup is simple in construction and easily and cheaply made. The cup can, of course, be used on any movable bearing or part, which will communicate motion to the loose valve and cause the operation of the cup.

I am aware of the patent to Renchard, No. 278,742, dated June 5, 1883, for improvement in oil-cups; but I consider that my invention does not embrace any of the features therein described and claimed.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination, in an oil-cup of a crank-pin or other movable bearing, of the post B, having the annular recess *b*, the tubular extension or sleeve D, cast therewith, and having the holes *d'*, the interior screw-thread and the exterior screw-thread at its upper end, the disk or cover C, having the recess *c* and flange *c'*, and the packing c^2, the adjustable screw-plug E, having the extension *e*, extending downward in the sleeve D nearly to the bottom of the cup, the escape-passage F, and the loose valve G, having the conical head *g'*, and the stem *g*, extending downward into the passage F, and the valve-seat *f*, all substantially as described.

2. The combination, in an oil-cup of a crank-pin or other movable bearing, of the post B, having an escape-passage, F, and the valve-seat *f*, the sleeve or extension D, cast therewith, and having the holes *d'*, the plug E, arranged to screw into the sleeve D, and having the part or end *e*, extending nearly to the bottom of the cup to act as a stop for the valve, and the valve G, having the conical head *g'*, extended above the valve-seat *f*, and the long stem *g*, extending into the escape-passage F, substantially as and for the purposes described.

3. The combination, in an oil-cup of a crank-pin or other movable bearing, of a stop located in the lower part of the oil-cup with the loose valve G, having the conical or tapering head *g'*, and the long spindle or stem *g*, extending into the passage F, and the valve-seat *f*, all substantially as described.

4. The combination, in an oil-cup of a crank-pin or other movable bearing, of the plug E, having an extension provided with a yielding stop, e^2, located near the bottom of the oil-cup with the loose valve G, having the stem or spindle *g*, extending into the oil-escape passage F, and adapted to be moved upward to open the valve by the momentum of the crank-pin, and to be returned to its seat by the combined action of gravity and the yielding stop, substantially as described.

FRED HUMPHREY.

Witnesses:
F. F. RAYMOND, 2d,
FRED. B. DOLAN.