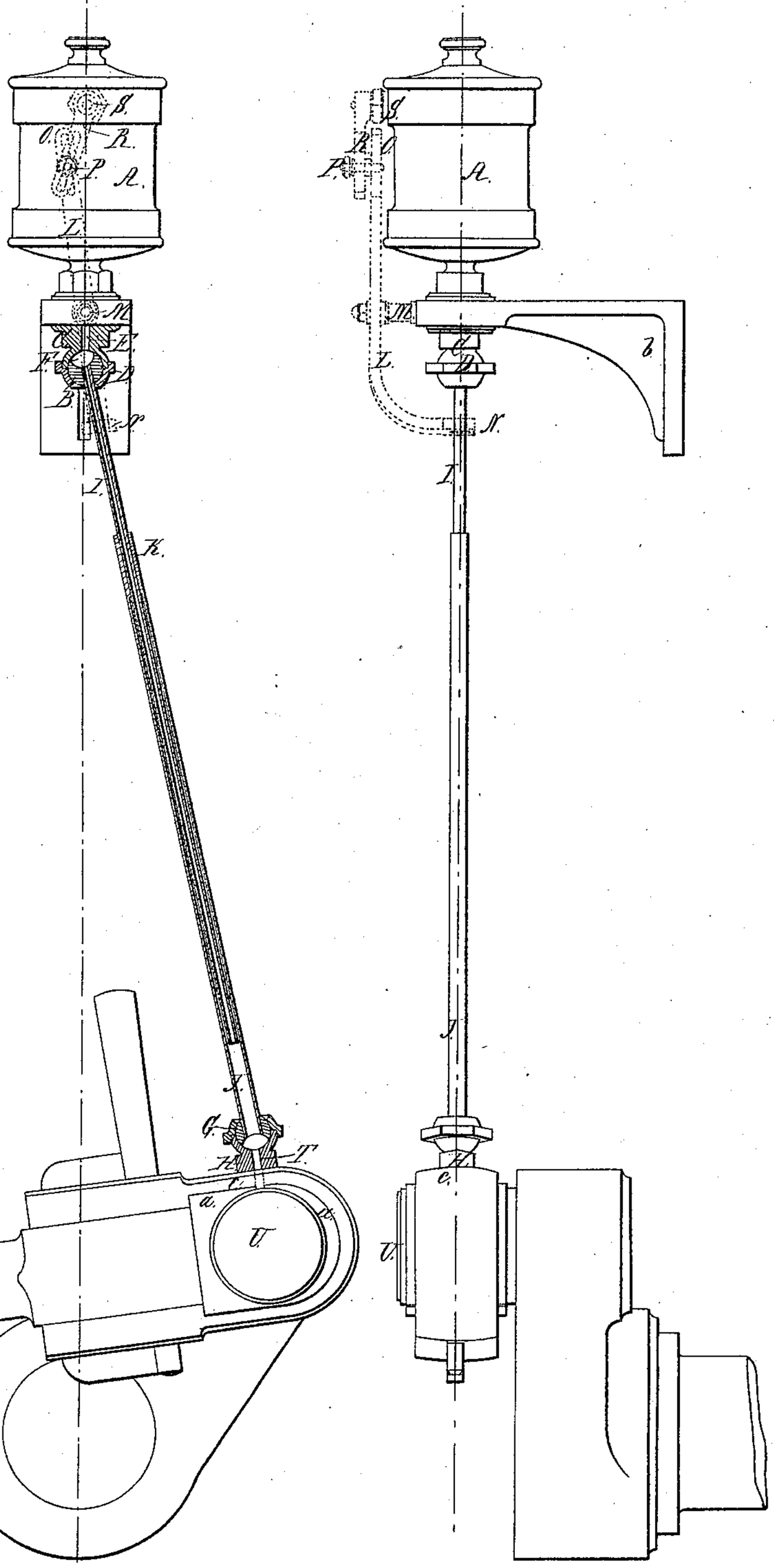
W. E. Everett,

Lubricator.

No. 14,352. Patented Mar. 4, 1856.



UNITED STATES PATENT OFFICE.

WILLIAM E. EVERETT, OF NEW YORK, N. Y.

IMPROVED LUBRICATOR.

Specification forming part of Letters Patent No. **14,352**, dated March 4, 1856.

To all whom it may concern:

Be it known that I, WILLIAM ELIAS EVERETT, chief engineer in the Navy of the United States, at present residing in the city, county, and State of New York, have invented a new and useful Method of Lubricating Surfaces Rubbing Against Each Other, One or Both of Which are in Motion; and I do hereby declare that the following specification, taken in connection with the drawings, is a full, complete, and exact description thereof, reference being had to the drawings making part of this specification.

In the drawings, Figure 1 is a front elevation of the apparatus as applied to a crank-pin and connecting-rod brasses; and Fig. 2 is a side view thereof, with the flexible connection shown in section.

The same letters refer to the same parts in both figures.

The difficulties attending the lubrication of moving parts of machinery other than mere shafts when in rapid motion are well known. It is necessary either to slow down or decrease the velocity in order to fill the oil-cups properly, or else to take the chances and pour an intermittent stream of oil, which sometimes hits and sometimes misses the cup, while oil is wasted for no purpose, and even worse, as it dirties and gums up those parts on which it falls. These considerations apply with most force when it is attempted to oil a rapidly-revolving crank-pin or jaws of any kind moving on guides which are not vertical.

The object of my invention is to remedy these well-known evils, and the nature thereof consists in lubricating a moving rubbing surface by means of a flexible connection, in combination with a stationary oil-cup, substantially in the manner and for the purposes as herein specified.

In order to carry out my invention, an oil-cup of any ordinary construction is secured upon a proper bracket or otherwise at some convenient spot near to the surface to be lubricated, and this cup is connected by means of a proper flexible tube with the moving surface through a hole or passage in that surface, the tube being sufficiently flexible to accommodate itself to the varying distances between the surface and the cup, and also to the various changes of direction of the tube caused by the motion of the surface relatively to the oil-cup. There are many varieties of flexible tube which attain that characteristic, either on account of the material of which they are composed or by means of proper joints applied to tubes of rigid material, which will answer my purpose.

In the drawings is represented a flexible tube which I have used experimentally with success, and it is shown as applied to a crank-pin embraced by an ordinary connecting-rod, as that is one of the most difficult moving parts to lubricate.

In the drawings the crank-pin is represented at U, with the usual brasses *a a* surrounding the same. Upon the strap *c* is secured a socket H, composed of two pieces, as usual, and inclosing a perforated ball G, to which is attached a tube J, within which is inclosed another tube I, free to slide therein. At the part K the outside of the inner tube fits tightly against the inside of the outer tube, the joint being ground or else a small stuffing-box being applied there. The tube I is attached to a ball B, inclosed in another socket C D, attached to the bottom of an oil-cup A, supported upon a bracket *b*. Two small passages T and E connect the lower socket with the surfaces to be lubricated, and the upper socket with the oil-cup. There is therefore an open tube connecting the oil-cup with the surfaces.

The oil-cup represented in the drawings is that known as the "mechanical oil-cup," in which a series of small spoons take up small quantities of oil from a reservoir and drop it into a tube. The passage E connects with the tube, and the oil as lifted by the spoons drops or trickles through the balls, tubes, and passages onto a part of the circumference of the crank-pin.

The tubes must have sufficient movement one within the other to compensate for the throw of the crank, and it is clear without description of the operation and from mere inspection of the drawings that the slide and socket-joints together will accommodate themselves to all movements of the crank-pin or stub-end of the connecting-rod, even allowing for side vibration which might arise from the crank-pin deviating from its true course on account of the shaft being out of line.

Now it will be obvious that many other flexible connecting-tubes might be used in

place of that represented in the drawings—for instance, cocks might be used in place of ball-and-socket joints, or short pieces of flexible tubing might be applied in lieu of either, or a whole tube of gutta-percha or india-rubber or a woven tube like those used for movable gas-burners might be substituted in place of both joints and tubes, or zigzagging tubes like those used for extension gas-burners might replace the sliding tubes, or other changes might be made so long as the tube is sufficiently flexible and is connected at one end with the oil-cup and at the other with the surfaces to be lubricated.

Upon a small pivot M, attached to the bracket, is mounted a small lever L, one of whose ends M embraces the upper tube and rocks with it, while the other end at O is slotted. A rock-shaft S, carrying an arm R, also slotted, gives motion to the mechanism within the oil-cup and receives motion from the lever, being connected therewith by a small bolt, washers, &c., as shown at P. By moving this bolt up or down after being loosened, and then setting it fast again, the arc through which the rock-shaft arm vibrates will be varied, and consequently the supply of oil, for when the arm vibrates in a smaller arc a less number of spoonfuls of oil will be delivered in a given number of vibrations. If the spoons should at any time deliver too much oil, so that the tube should fill when at its greatest elongation, it is clear that as the tubes slide within each other to shorten again the oil will be forced back through the small reservoir into the reservoir from which the spoons dip it up.

An ordinary oil-cup, or one provided with a tube and piece of wicking, may be employed in place of the mechanical cup represented in the drawings, but not with as good economical effect, the difference being just that between different kinds of oil-cup as usually fitted when used without a flexible tube.

As before stated, I have shown my apparatus as applied to a crank-pin; but it is applicable to all moving rubbing-surfaces.

Having thus described my lubricating apparatus, I claim as of my own invention—

1. A stationary oil cup or reservoir, in combination with a flexible tube one of whose ends communicates with the cup and the other with the surfaces to be lubricated, substantially in the manner and for the purposes herein specified.

2. Giving motion to the spoons of a mechanical oil-cup when it is used in combination with a flexible tube by means of a vibrating lever or its equivalent, which derives its motion from the tube itself, substantially as herein set forth.

WILLIAM E. EVERETT.

Witnesses:

EDWARD GIFFORD,

CHAS. W. COPELAND.