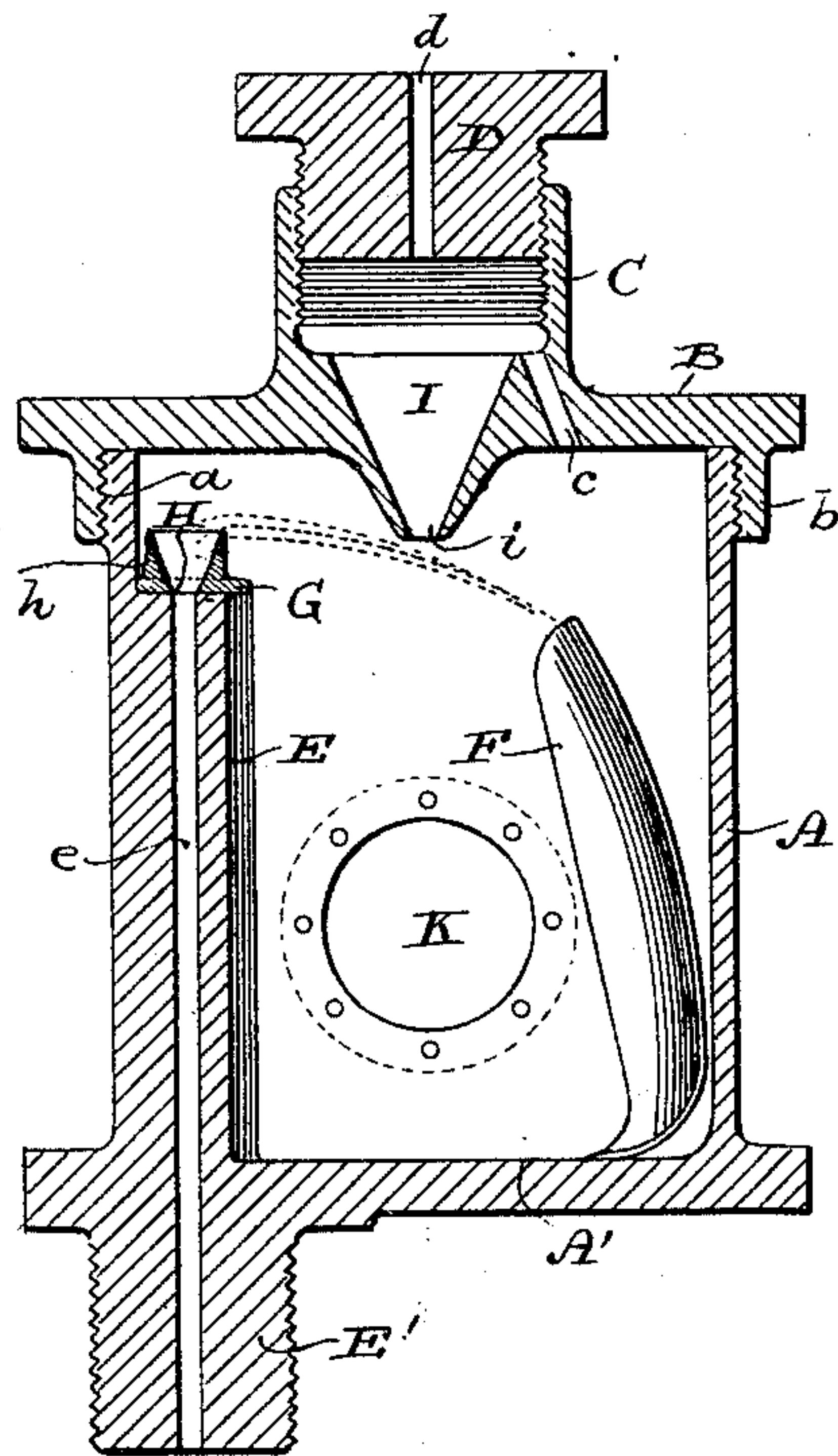


(No Model.)

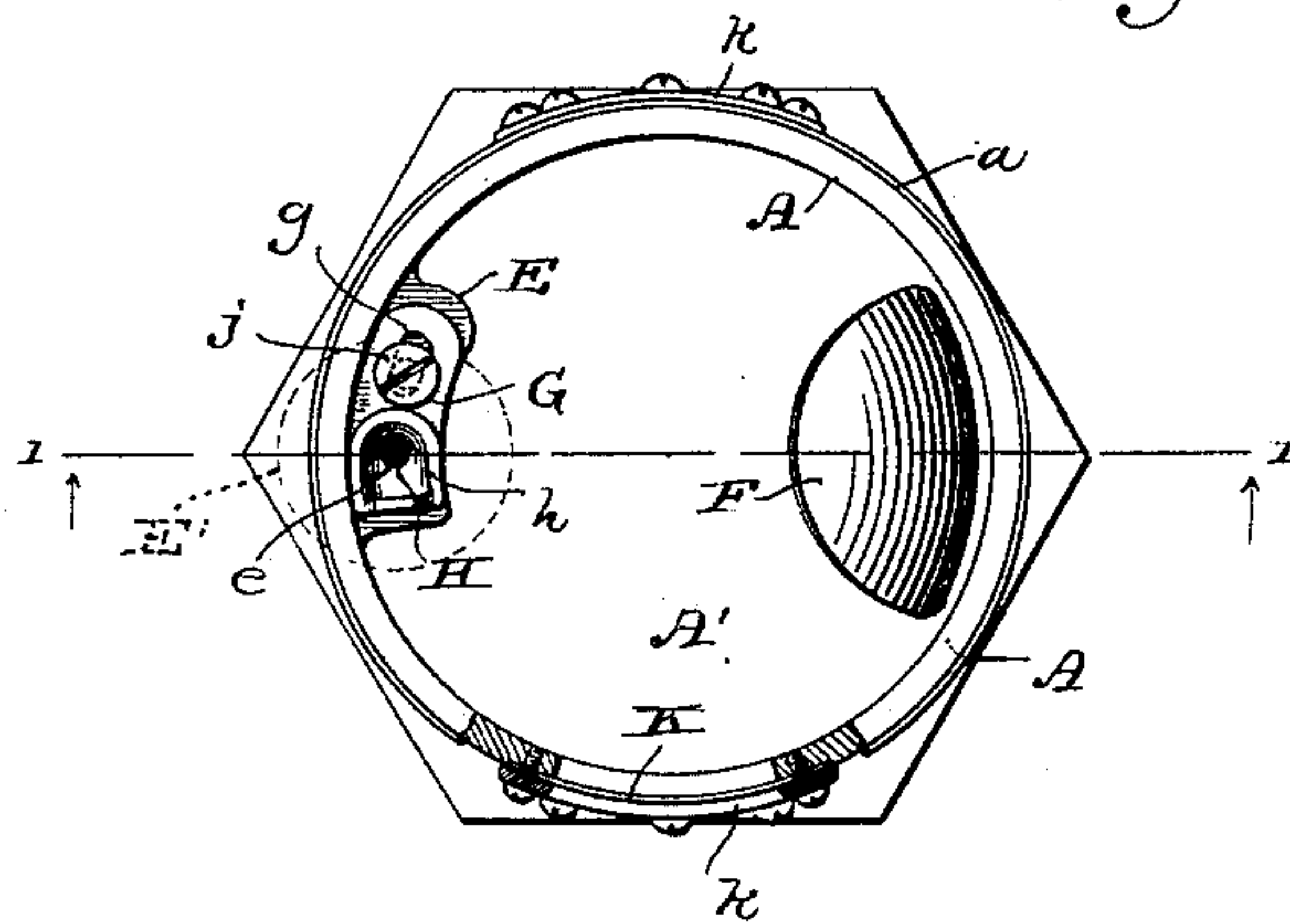
E. D. BANGS.  
OIL CUP.

No. 414,278.

Patented Nov. 5, 1889.



*Fig. 1.*



*Fig. 2.*

Witnesses  
Geo W Young  
William Klug

Inventor  
Edwin D. Bangs  
By Stout & Hindenwood  
Attorneys

# UNITED STATES PATENT OFFICE.

EDWIN D. BANGS, OF MILWAUKEE, WISCONSIN.

## OIL-CUP.

SPECIFICATION forming part of Letters Patent No. 414,278, dated November 5, 1889.

Application filed January 14, 1889. Serial No. 296,237. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN D. BANGS, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Oil-Cups for Lubricating Locomotive and Other Engines; and I do hereby declare that the following is a full, clear, and exact description thereof.

10 My invention relates to oil-cups for lubricating locomotive and other engines; and it consists in certain peculiarities of construction, as will be fully set forth hereinafter, and pointed out in the claims.

15 In the drawings, Figure 1 is a vertical central section through the preferred form of my device on the line 1 1 of Fig. 2. Fig. 2 is a plan view of the same, with the cap removed and parts broken away.

20 A represents the cylinder of the cup, the upper part of which is externally screw-threaded, as shown at *a*, for the reception of the correspondingly-screw-threaded depending circular flange *b* of the cap B, which latter  
25 has an upward-extending central neck C, having interior screw-threads for the reception of a correspondingly-screw-threaded plug D, having a central vertical perforation *d* for the admission of air into the cup above the oil,  
30 and below this neck the cap B is formed into a central feed-hopper I, having a feed-opening *i*, to one side of which is a vent *c*, preferably diagonal, communicating with the interior of the cylinder A.

35 E represents a vertical column integral with the inside of the cylinder, provided with a vertical channel *e*, which also extends through the nipple E', which is externally screw-threaded for attachment to the rods or  
40 pitmen or other moving part of the engine. The bottom A' of the cylinder is tight, and from the same, on the inner side, directly opposite the described column, there rises the curved guide F, for a purpose hereinafter  
45 described.

G is an arc-shaped sliding plate on top of the column E, (and adjustably secured thereto by means of slot *g* in said plate and set-screw *j* passing through said slot into the top  
50 of said column,) while the other end of said plate G is formed with an opening H, guarded

by inwardly-tapering walls *h* to form a funnel, the opening H being more or less in register with the top of the vertical channel *e*, according to the adjustment of the said plate  
55 G, whose edge adjacent to the inside of the cylinder A conforms in curve thereto.

My oil-cups may be provided, if desired, with windows K K, secured to the cylinder A by suitable frames *k k* and rivets, as shown. 60

The operation of my device is as follows: To determine the requisite flow of the oil through the channel *e*, (which naturally varies according to the quality of the oil and the temperature of the air,) the cap B is removed and the cylinder of the oil-cup is  
65 filled even full with oil, and the plate G adjusted to cover more or less of the channel *e*, and when the opening H in said plate is in such position with reference to the channel *e* that the requisite number of drops per  
70 minute of the oil will pass through said channel *e*, then the set-screw *j* is tightened to place, and the plate G thus secured in this preferred adjustment. The oil is allowed to drain off  
75 till the space above said plate G is free, and then the cap B is screwed to place, and the oil-cup is attached by its nipple E' to the part of the engine to be lubricated thereby. The cap B is not removed to fill the cup, except  
80 in the first instance of testing the flow and adjusting the plate G, as just described; but the plug D is removed and the cup replenished through the neck C, and when oil shows  
85 above the opening *i* of the feed-hopper I the cup is sufficiently filled, and then the plug D is screwed down to place, the space inside the neck C below the bottom of the plug D and  
90 in the hopper I forming, with the space in the cylinder above the oil, an air-cushion, which materially aids the flow of the oil through the channel *e*.

It will be understood that the part of the engine to which my oil-cup is attached has a reciprocating motion, and with each forward  
95 or upward motion of said part the oil inside the cup, directed by the curved guide F, is injected up over and into the opening between the walls *h* of the plate G, and thence finds its way through the opening H into the  
100 channel *e*, and thence to the journal, slides, or other part to be lubricated, and this action



will continue just so long as there is a single drop of oil in the cup.

My device is not only extremely efficient, but is very economical as well, as it will only feed while the engine is in motion, and for this reason and because by its use the actual amount of oil needed can be quickly and accurately ascertained the result is a great saving of oil, absolutely none being wasted with my device.

Another advantage lies in the fact that by reason of the straight channel *e* the same can be instantly and easily cleaned by thrusting a wire therethrough should it ever become clogged.

By reason of the described vent *c* the cup can be readily filled, as described, through the neck *C* and feed-hopper *I*, as the air in the cylinder will escape through said vent as fast as the oil from the hopper takes its place; and if any oil is forced through this vent *c* in the motion of the cup when in use, it will fall into the feed-hopper *I*, and thus directly feed back into the cylinder. The opening *i* in the bottom of the feed-hopper *I* is below the walls *h* of the entrance to the channel *e*, and hence in the described operation of my device, when the same has been filled to the point of said opening *i*, the oil in the cup can only get into the channel *e* by the described motion of the cup, and will be directed by the curved guide *F* directly to the funnel-entrance to said channel, as indicated by the dotted lines in Fig. 1, the pressure of the air above the oil being increased by the described motion of the oil-cup, and serving to drive the oil down through the channel *e*, thereby making a sure and continuous feed, so long as the cup is in motion.

In case it is found more convenient to have the nipple *E'* or part which screws onto the moving part of the engine in any other location than that shown, it will only be necessary to make a suitable connection between the channel *e* in the column *E* and the channel in said nipple; but this is so obvious that I have not deemed it necessary to illustrate the same in the drawings.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an oil-cup, the combination of the cylinder with a vertical column having a channel therethrough adjacent to the wall of said

cylinder and a curved guide for directing the course of the oil to said channel, substantially as set forth.

2. In an oil-cup, the combination of the cylinder with a vertical column having a channel therethrough adjacent to the wall of said cylinder, the top of said column being below the top of said cylinder, and a cap having a feed-hopper projecting down into said cylinder below the entrance to the said channel, whereby the said channel can only receive oil when the oil is forced above said channel-entrance, as by the motion of said cup, substantially as set forth.

3. In an oil-cup, the combination of the cylinder with a vertical column having a channel therethrough adjacent to the wall of said cylinder, the top of said column being below the top of said cylinder, and a cap having a passage leading to said cylinder closed by a perforated plug, whereby there is always an air-cushion above the oil in the cup, substantially as set forth.

4. In an oil-cup, the combination of the cylinder with a vertical column having a channel therethrough adjacent to the wall of said cylinder, an adjustable plate having an opening registering with said channel and surrounded by walls forming a funnel around said opening, said plate being adapted, by change of position, to more or less close said channel, and a curved guide for directing the course of the oil into said funnel, substantially as set forth.

5. In an oil-cup, the combination of the cylinder with a vertical column having a channel therethrough adjacent to the wall of said cylinder, and a curved guide for directing the course of the oil, with a cap having a central feed-hopper and a central neck rising above said feed-hopper and communicating therewith, and a vent or passage between said neck and the cylinder below, and a perforated plug filling the upper part of said neck, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

EDWIN D. BANGS.

Witnesses:

H. G. UNDERWOOD,  
WILLIAM KLUG.