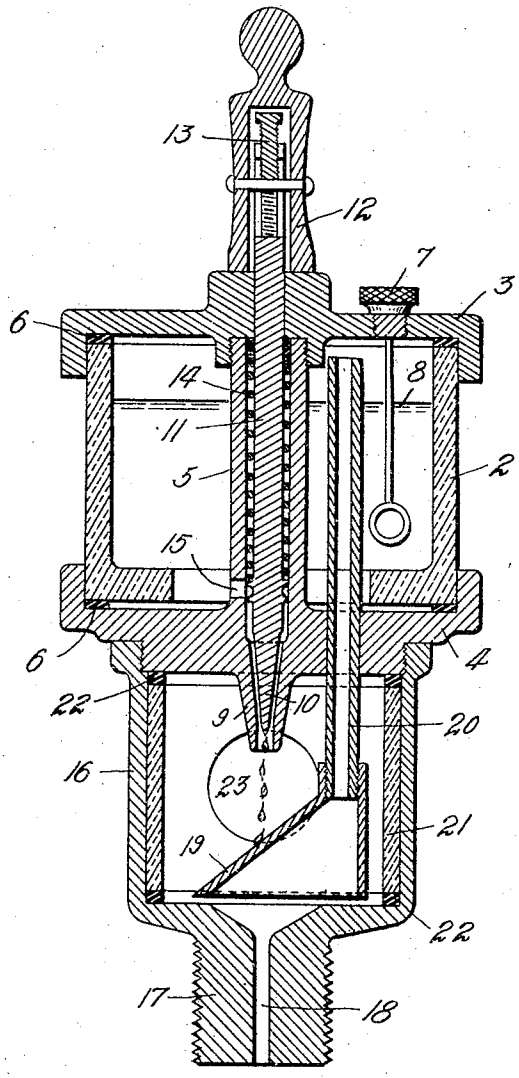
No. 779,336. PATENTED JAN. 3, 1905.

W. H. WILKINSON.

OIL CUP.

APPLICATION FILED NOV. 16, 1903.



Witnesses:
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No. 779,336. Patented January 3, 1905.

UNITED STATES PATENT OFFICE.

WILLIAM H. WILKINSON, OF MEDWAY, MASSACHUSETTS, ASSIGNOR TO WILLIAM H. WILKINSON COMPANY, OF WEST MEDWAY, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

OIL-CUP.

SPECIFICATION forming part of Letters Patent No. 779,336, dated January 3, 1905.

Application filed November 16, 1903. Serial No. 181,283.

To all whom it may concern:

Be it known that I, WILLIAM H. WILKINSON, a citizen of the United States, and a resident of Medway, in the county of Norfolk and State of Massachusetts, have invented new and useful Improvements in Oil-Cups, of which the following is a specification.

My invention relates to oil-cups, and more particularly to cups which are intended to be applied to cylinders of gas-engines and the like which are periodically filled with gases in a state of high compression. In the use of oil-cups as applied to such cylinders trouble has been experienced heretofore on account of the tendency of the explosion or other development of high pressure within the cylinder to force a portion of the gases up through the oil-passage and through the body of oil contained in the cup, thereby not only churning the oil and sometimes blowing it out of the cup, but also preventing or seriously interfering with its proper feed. This result is made all the more objectionable by reason of the fact that the normal flow of oil from the oil-cup takes place slowly, so that any interference with the flow has a proportionately great effect on the quantity of oil admitted to the cylinder.

My invention is intended to provide an oil-cup which will be free from the objection above referred to and will operate to feed in a manner capable of accurate regulation a uniform supply of oil to such a cylinder without having its operation interfered with by wide variations of pressure within the cylinder and is herein shown and described as applied to an oil-cup of the sight-feed type, in which the rate of feed of the oil is always open to observation.

In the accompanying drawing the figure shows in central vertical section a sight-feed oil-cup containing my improvements in their preferred form.

Referring to the drawing, 2 indicates the oil reservoir or cup proper, which is usually made of glass and is inclosed at its top and bottom by metallic caps 3 and 4, suitably held together, as by a central stem 5, formed integral with the cap 4 and screwed into a central boss formed on the inner side of the cap 3.

6 6 represent packing-rings, held between the sides of the cup 2 and the caps 3 and 4, respectively, and 7 represents a removable screw-plug adapted to close tightly the opening through which the oil 8 is introduced into the cup 2.

9 represents a delivery-nozzle projecting downward from the under side of the cap 4, and 10 represents an adjustable valve having its lower end located in said nozzle and adapted to control the flow of oil through the same. The stem 11 of said valve extends upward through the stem 5, which is made hollow to receive it, and through the cap 3, and the upper end of said stem 11 is provided with an opening and closing cam 12 and an adjusting-screw 13, whereby the size of the delivery-opening through the nozzle 9 may be accurately regulated. The stem 11 is surrounded by a spring 14, tending to force it downward, and communication between the interior of the nozzle 9 and the cup 2 is provided by an opening 15, leading through one side of the stem 5 into the open bottom of said cup.

The parts above described are not of my invention, being substantially the same in construction and arrangement as the corresponding parts shown and described in United States Letters Patent No. 542,854, granted July 16, 1895, on the application of Theodore James.

To the under side of the cap 4 is secured a supplementary cup 16, having at its lower end a stem 17, which is adapted to be screwed into a hole drilled through the cylinder-wall and is provided with a passage 18, leading downward from the chamber formed by the interior of said cup 16, through which passage 18 the oil delivered by the nozzle 9 flows into the cylinder. Within the supplementary cup 16 is located means for developing back pressure from the passage 18, and in the present instance there is shown a hood 19, the lower end of which is open and is located directly above the passage 18, so that said hood intervenes between said passage 18 and the nozzle 9. The hood 19 opens into and may be supported by the lower end of a hollow tube 20, forming a back-pressure passage which extends upward through the cap 4 and the cup 2 and terminates within said cup at a point

above the normal level of the oil contained therein. The lower edge of the hood 19 is maintained at a sufficient distance above the bottom of the cup 16 to permit the oil to flow beneath said hood into the outlet-passage 18.

In order to provide a sight-feed, a glass cylinder 21 may be fitted to the interior of the supplementary cup 16 and packed at its ends by suitable packing-rings 22, the walls of said cup 16 being provided with diametrically opposite perforations 23, so that the delivery of oil from the nozzle 9 may be observed by looking through said perforations and glass cylinder from one side to the other.

As thus constructed the operation is as follows: Oil flows from the reservoir 2 through the opening 15 and nozzle 9 at a rate determined by the adjustment of the valve 10 and drops from said nozzle past the line of sight through the perforations 23 onto the top of the hood 19, whence it flows to the bottom of the cup 16 and thence under the edge of the hood 19 and into the cylinder through the passage 18. When an explosion or other development of high pressure occurs in the cylinder, the puff of gas thereby forced outward through the passage 18 is intercepted by the hood 19 and passes from said hood upward through the tube 20 to a point above the level of the oil in the cup 2, where it creates a momentary pressure tending to promote the feed of the oil. Such small portion of the gas as may pass under the bottom of the hood instantly expands into the comparatively large space afforded by the chamber which contains said hood, where its force is entirely spent, so that it cannot exert any perceptible back pressure up the nozzle 9, and hence is prevented from passing upward through the body of oil in the cup 2 and churning the same or interfering with the feed of the oil in any manner.

I am aware that oil-cups for gas-engine cylinders and the like have heretofore been so constructed that the gas forced into the cup by pressure developed in the cylinder is caused to pass directly to a point above the normal level of the oil in the cup, and hence I do not broadly claim such an arrangement. I am not aware of any prior oil-cup, however, in which the gas so forced into the cup is intercepted by a hood in the manner above described or caused to expand into a chamber large enough to substantially reduce the pressure of the gas, and thus render it ineffective to interfere with the feed of the oil.

It will be evident that my improvements are adapted for use in oil-cups other than sight-feed cups and that the manner in which the oil is fed and regulated may be greatly varied without departing from my invention.

I claim as my invention—

1. In an oil-cup, the combination with a reservoir having an outlet; of a supplemental cup or chamber to which said reservoir delivers, said supplemental cup having an oil-delivery passage; an independent back-pressure passage connecting said reservoir and cup, said back-pressure passage terminating at its lower end within said supplemental cup or chamber, and at its upper end above the normal oil-level in said reservoir; and means within said supplemental cup or chamber for deflecting back pressure to said back-pressure passage.

2. In an oil-cup, the combination with a reservoir having an outlet; of a supplemetal cup or chamber to which said reservoir delivers, said supplemental cup having an oil-delivery passage; an independent back-pressure tube leading from said supplemental cup to a point in said reservoir above the normal level of the oil therein; and means within said supplemental cup or chamber to deflect back pressure to said back-pressure tube.

3. In an oil-cup, the combination with a reservoir having an outlet; of a supplemental cup or chamber to which said reservoir delivers, said supplemental cup having an oil-delivery passage; and an independent back-pressure tube having a hood at its lower end covering the oil-delivery passage of said supplemental cup, and terminating at its upper end in said reservoir at a point above the normal level of the oil therein.

4. In an oil-cup, the combination with a reservoir having an outlet; of a supplemental cup or chamber to which said reservoir delivers, said supplemental cup having an oil-delivery passage; a hood within said supplemental cup over said oil-delivery passage, said hood being slightly raised above the bottom of the cup to afford a restricted passage for the oil; and a tube leading from said hood to a point within said reservoir above the normal level of the oil therein, said hood and tube forming an independent back-pressure passage.

5. In an oil-cup, the combination with a reservoir having an outlet; of a relatively large supplemental cup or expansion-chamber to which said reservoir delivers, said cup having an oil-delivery passage; a hood in said supplemental cup intervening between said reservoir-outlet and said oil-delivery passage, said hood being slightly raised above the bottom of the cup to afford a restricted passage for the oil that flows from the reservoir-outlet down said intervening hood to the oil-delivery passage; and a tube leading from the said hood and terminating at a point above the normal level of the oil in said reservoir.

6. In an oil-cup, the combination with a reservoir having an outlet; of a supplemental cup or expansion-chamber to which said reservoir delivers, said supplemental cup having an oil-delivery passage and being provided with transparent walls to give a line of sight across the path of the oil; a hood in said cup and having a flaring open mouth capping the oil-delivery passage and receiving the oil-drip from the reservoir-outlet, said hood being slightly raised above the bottom of the

cup to afford a restricted passage beneath the hood; and a tube leading from said hood to a point in said reservoir above the normal level of the oil therein.

7. In an oil-cup, the combination with a reservoir 2 having an outlet 9; of means for controlling the flow of oil from said outlet; a supplemental cup or expansion-chamber of relatively large capacity to which said reservoir delivers; said cup having an oil-delivery passage in line with said reservoir-outlet; a flaring open-bottomed hood capping said oil-delivery passage and receiving the oil-drip from said reservoir-outlet, said hood being slightly raised above the bottom of the cup to afford a restricted passage beneath the hood; and a tube carried by said reservoir which supports said hood at its lower end and terminates at its upper end at a point within said reservoir above the normal level of the oil in said reservoir.

8. In an oil-cup, the combination with a reservoir 2 having an outlet 9; means for controlling the flow of oil from said outlet; a cup 16 secured to the bottom of said reservoir and having perforated walls and an oil-delivery passage 18; a transparent cylinder lining said perforated cup; a flaring open-bottomed hood in said cup opening directly over the oil-delivery passage 18 and raised slightly above the bottom of the cup 16 to afford a restricted passage beneath the hood; and a tube 20 leading from said hood through the bottom of said reservoir and terminating at a point above the normal level of the oil in said reservoir.

In testimony whereof I have hereunto subscribed my name this 7th day of November, 1903.

WM. H. WILKINSON.

Witnesses:
E. D. CHADWICK,
JOSEPH T. BRENNAN.