

No. 827,283.

PATENTED JULY 31, 1906.

J. A. ANDERSON.
AUTOMATIC OIL CUP.
APPLICATION FILED SEPT. 27, 1905

Fig. 1

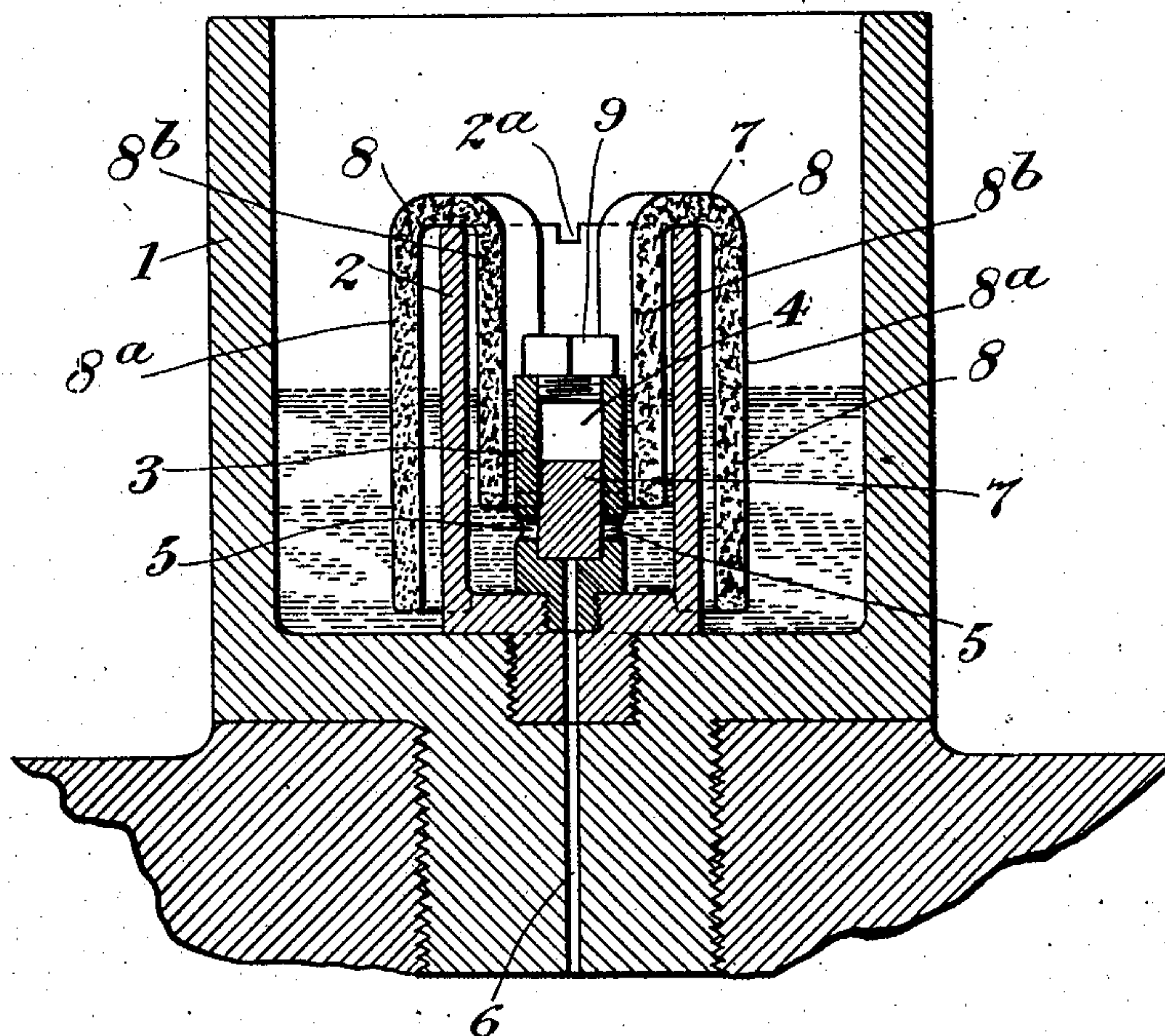
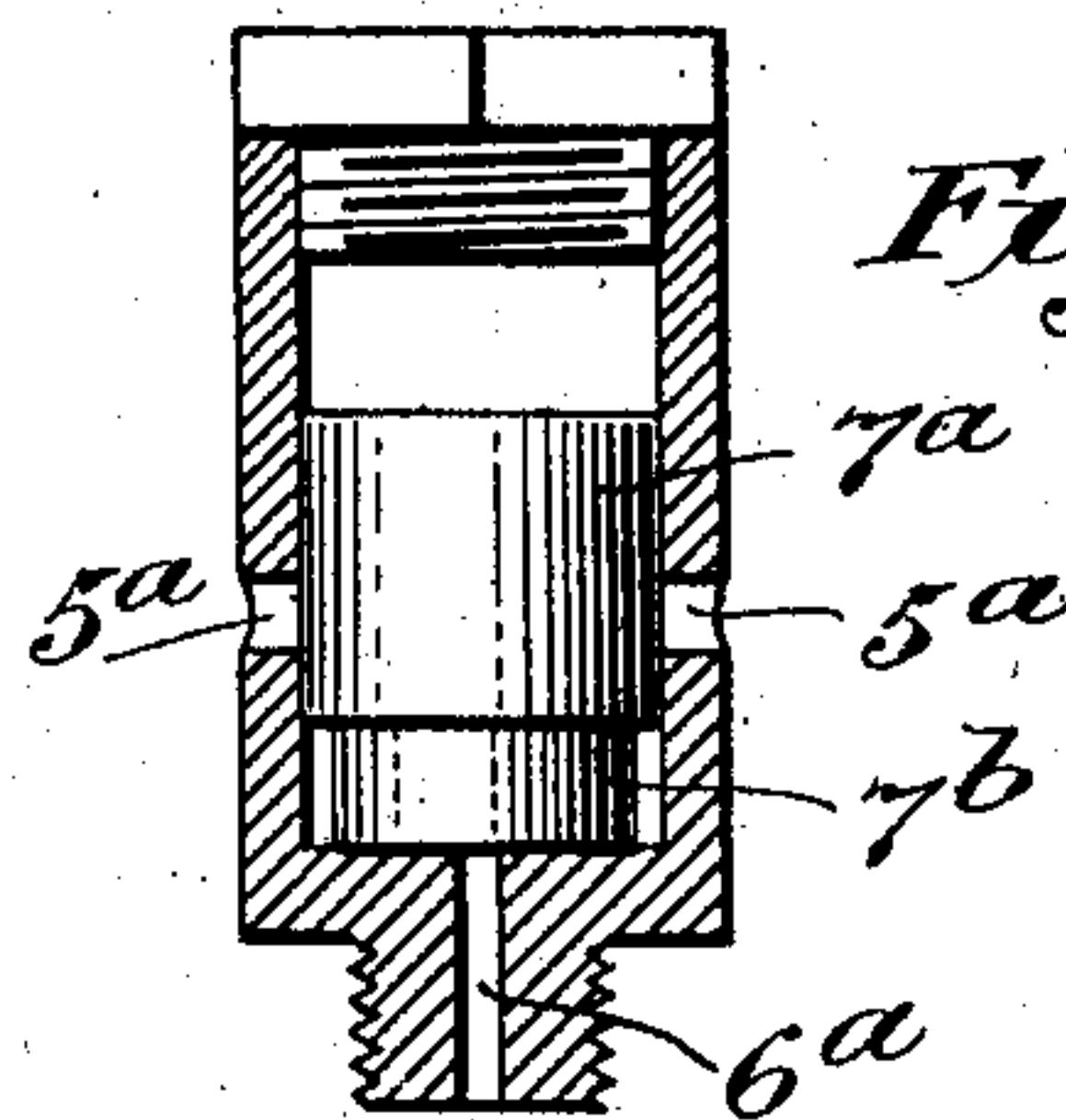


Fig. 2



Witnesses:
C. Kaufmann.
C. Laughlan.

Inventor:
James A. Anderson
by David Davis
his Attys.

UNITED STATES PATENT OFFICE.

JAMES A. ANDERSON, OF NEW YORK, N. Y., ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO MONTAUK ENGINEERING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

AUTOMATIC OIL-CUP.

No. 827,283.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed September 27, 1905. Serial No. 280,280.

To all whom it may concern:

Be it known that I, JAMES A. ANDERSON, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Automatic Oil-Cups, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical sectional view. Fig. 2 is a detail sectional view showing a slightly-different form of the oil-feeding piston.

This invention relates to that class of oil-cups which are adapted to be connected to journals and to operate to lubricate the shaft or axle mounted therein only when said shaft or axle is rotating.

The invention is designed particularly for use in railway equipment to lubricate the car-axle journals, the lubricant-applying means depending for its action upon the vibration of the journal-box.

One of the main objects of the invention is to provide such an oil-cup which will be reasonably sensitive to the vibrations of the journal-box, while at the same time positively acting to shut off the flow of oil to the journal when the car is at rest.

A further object of the invention is to provide the oil-cup with an inner supplemental oil-receptacle which is not in communication with the main oil-receptacle except through its upper end and to provide means for feeding the oil from the main receptacle into the supplemental receptacle by capillary attraction, whereby the agitation of the oil in the main receptacle by reason of the movement of the car will not affect the actual feeding of the oil to the journal. This inner oil-receptacle is connected by suitable ports near the bottom of said receptacle to an inner piston-chamber in which is mounted a suitable freely-vibrating piston. The piston-chamber is connected at its lower end by means of a suitable oil-passage to the car-journal, the piston by reason of its vibration during the movement of the car serving to permit the oil to pass to the journal.

Referring to the various parts by numerals, 1 designates an oil-cup which forms the main oil-receptacle. Centrally within this

cup is mounted a supplemental cup 2, this latter cup forming a supplemental oil-chamber. The cup 2 is provided with notches 2^a, in which a screw-driver may be inserted when it is desired to remove it from the main receptacle. This inner cup terminates below the upper end of the main receptacle, and mounted in the center of the bottom of it is a tube 3, which is closed at its upper end and forms a piston-chamber 4, which is in communication with the supplemental oil-chamber at the lower end thereof through small ports 5. The bottom of the piston-chamber is connected with a port 6, said port delivering the oil at the desired point in the bearing.

Within the piston-chamber is mounted a piston 7, which is capable of endwise movement and slight lateral vibration therein, said piston being straight at its lower end and adapted to rest flatly on the bottom of the piston-chamber and to cover the outlet-port 6 to prevent the escape of oil through said port. While the car is in motion, the piston 7 will be moved vertically and vibrated laterally in the piston-chamber by reason of the jolting of the car. This movement of the piston will cause it to force the oil through the port 6 in the manner of a pump, the oil accumulating under the piston when it is moved upward or toward one side of the piston-chamber and being forced out through the port 6 when the piston is moved downward or toward the other side of the chamber. The ports 5 are formed in the piston-casing below the upper end of the piston, said piston at all times extending over the inner ends of said ports. The piston-chamber is of such length that the piston cannot be lifted sufficiently to wholly uncover the ports, thereby preventing an undue and unnecessary flow of oil to the journal should said piston be thrown to the top of its chamber by an unusual jolt of the car.

In the form of piston shown in Fig. 2 the upper part 7^a thereof fits snugly within the piston-chamber, the lower part 7^b thereof being slightly reduced in diameter. The upper enlarged part of the piston extends below the inlet-ports 5^a when the lower end of the piston is at rest on the lower wall of the piston-chamber and serves to close said

ports. By this means I provide two means for preventing the flow of oil to the car-journal when the car is at rest, the lower end of the piston closing the ports 6^a and the part 7^a of the piston closing the ports 5^a. It will be readily seen that the vibrations of the car will move the piston vertically sufficiently to bring the lower reduced part of the piston opposite the ports 5^a, thus permitting the oil to flow to the bottom of the piston-chamber. It is also clear that the downward movement of the piston will force the oil out through the port 6, said piston acting as a pump-piston.

To feed oil steadily from the main oil-receptacle 1 into the supplemental receptacle, two capillary feeding-wicks 8 are employed. These wicks are arranged between the notches 2^a, and each consists of the part 8^a, which extends into the main receptacle, and the part 8^b, which extends into the supplemental receptacle. The part 8^a extends to the bottom of the main receptacle, while the part 8^b does not extend below the ports 5. By this means a steady and uniform supply of oil will be maintained in the inner receptacle and the agitation of the oil in the main receptacle will not in the least affect the operation of the feeding means.

The upper end of the piston-chamber is closed, as before described, and is provided with the boss 9, which protects it. The said chamber is closed to prevent the accumulation of grit or foreign matter. It will also be readily seen that by feeding the oil through the capillary wick into the inner chamber the dust and dirt is prevented from flowing to the journal from the main oil-receptacle.

From the foregoing it is clear that I provide an extremely simple and efficient oil-cup which will be automatic in its operation and by which a proper amount of oil will be fed to the car-journal during the rotation of the journal. The pump-like feed is particularly effective in supplying the proper amount of oil, while the piston at the same time forms a reliable means for effectively closing the outlet-port while the car is at rest.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. An oil-cup comprising a main receptacle, a supplemental receptacle located within the main receptacle, means for feeding oil from the main receptacle into the supplemental receptacle, an upright piston-chamber formed within the supplemental receptacle, a piston therein having a straight lower end and slightly smaller in diameter than the diameter of the piston-chamber and adapted to be moved by the vibrations of the oil-cup, there being an outlet from said piston-chamber, said outlet being covered by the piston when said piston is at rest, the piston-chamber being provided with ports connecting it with the lower end of the supplemental chamber.

2. An oil-cup comprising a main receptacle, a supplemental receptacle located within the main receptacle, capillary means for feeding oil from the main receptacle into the supplemental receptacle, a piston-chamber located in the supplemental receptacle, said chamber being closed at its upper end and provided with oil-inlet ports near its lower end and with an oil-outlet port through its bottom, a piston in the piston-chamber adapted to normally close the outlet-port from said chamber and to permit the feeding of oil therethrough only during the oscillation of said piston.

3. An oil-cup comprising a main receptacle, a supplemental receptacle, capillary means for feeding oil from the main receptacle into the supplemental receptacle, a piston-chamber in the supplemental receptacle, a vertically-movable piston therein and adapted to close ports between the said piston-chamber and the supplemental oil-receptacle, the lower end of said piston being reduced in diameter, said reduced portion being normally below the oil-inlet ports into said piston-chamber.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 26th day of September, 1905.

JAMES A. ANDERSON.

Witnesses:

W. H. RUBY,

WM. R. DAVIS.