No. 849,868. PATENTED APR. 9, 1907.

W. V. TURNER.

OIL CUP FOR AIR PUMPS.

APPLICATION FILED JULY 6, 1903. RENEWED APR. 19, 1906.

Fig. 1.

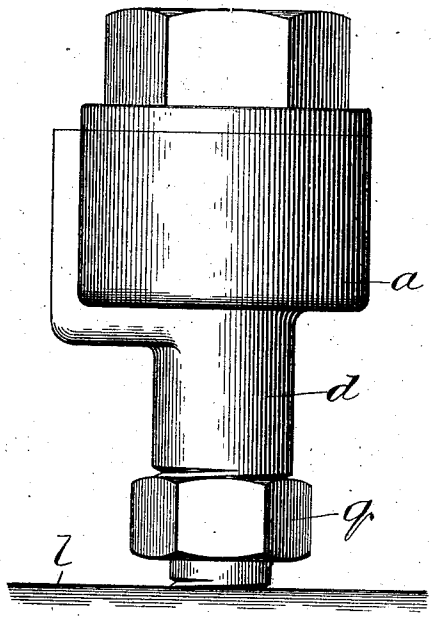


Fig. 2.

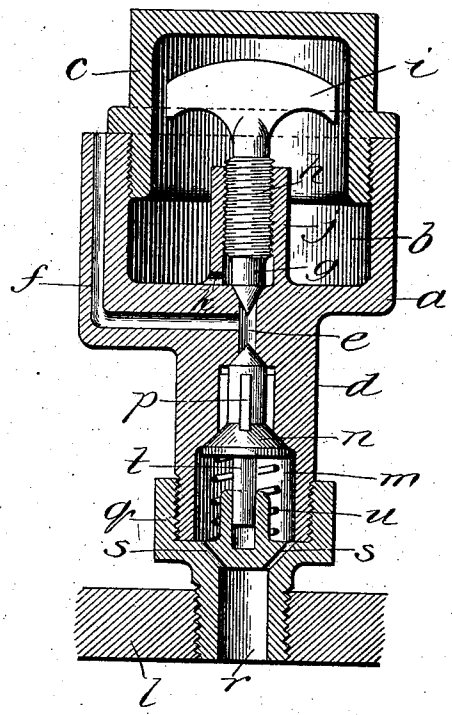
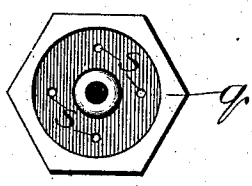


Fig. 3.



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UNITED STATES PATENT OFFICE.

WALTER V. TURNER, OF WILMERDING, PENNSYLVANIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE WESTINGHOUSE AIR BRAKE COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

OIL-CUP FOR AIR-PUMPS.

No. 849,868. Specification of Letters Patent. Patented April 9, 1907.

Application filed July 6, 1903. Renewed April 19, 1906. Serial No. 312,577.

To all whom it may concern:

Be it known that I, WALTER V. TURNER, a citizen of the United States, residing at Wilmerding, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Oil-Cups for Air-Pumps, of which the following is a specification.

This invention relates to that class of oil-cups adapted to be used in connection with air-pumps of air-brake systems.

The principal object of the invention is to provide a simple, economical, and efficient oil-cup for air-brake pumps, with mechanism by which it is automatically operated during the operation of the pump and remains substantially inoperative at other times.

Other and further objects will appear from an examination of the drawings and the following description and claims.

The invention consists principally in an oil-cup for air-pumps in which there are combined a body portion provided with an oil-chamber and an oil-outlet passage having an atmospheric-pressure port and an automatic spring-pressed valve closing the oil-outlet passage.

The invention consists, further and finally, in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of one type of oil-cup for air-pumps as it appears when constructed in accordance with these improvements; Fig. 2, a sectional elevation of the same, taken at or about the vertical center; and Fig. 3, a plan view of the nipple.

In the art to which this invention relates it is well known that it is very desirable to have an oil-cup for air-pumps so constructed and arranged that it may be automatically operated during the movements or operation of the air-pump and remain substantially inoperative at all other times. To this end this invention is principally designed.

In constructing an oil-cup for air-pumps in accordance with these improvements I make a body portion *a*, which provides an oil chamber or reservoir *b*. This oil-chamber is closed by means of a cap portion *c*, that has screw-threaded engagement with the upper part of the body portion, as shown particularly in Fig. 2.

To supply oil to the air-pump, the body portion of the cup is provided with a depending stem *d*, through which an oil-outlet passage *e*, or the lower part thereof, extends. This oil-passage, as shown particularly in Fig. 2, passes through a part of the body portion of the oil-cup and is also provided with an atmospheric port or passage *f*, radially connected therewith and extending upwardly through the body portion of the cup to a point at the upper part thereof. To open and close this oil-outlet passage, or, in other words, to control the supply of oil thereto, a needle-valve *g* is provided having a threaded portion *h* and wing portion *i*. The threaded portion of this needle-valve is engaged with an upwardly-extending hub *j* in the oil-chamber, so that by turning it one way communication is opened between the passage *k*, that forms the inner portion of the oil-outlet-supply passage, and the main portion *e* thereof. An opposite turning movement of the needle-valve will completely or partially close such passage to regulate or restrict the size of the opening, so that the amount of oil fed therethrough may be regulated to suit different circumstances and conditions.

To provide for the automatic feeding of the oil into the air-pump *l*, the oil-outlet passage in the stem of the oil-cup body is provided with an enlargement *m*, and in it is arranged a check-valve *n*, having wing portions *p* thereon to assist it in its rectilinear movements. The lower part of this stem portion has threaded engagement with a nipple *q*, that closes the enlargement of the oil-outlet passage, but has a continuation *r* of such passage connected with the enlarged portion thereof by means of a plurality of small passages *s*. The check-valve is provided with a depending stem portion *t*, entering a perforation in the nipple portion, which assists to guide or hold said valve in its desired movements.

A helical spring *u* is located below the check-valve for normally holding the same to its seat with a certain pressure, whereby when the pump is not working the oil which drips past the need e-valve collects in the ports *e* and *f*, but is prevented from entering

the pump by check-valve *n*. As the passage *f* leads to the upper portion of the cup, there will be no overflow of this oil to the outside of the cup. When the pump begins working with sufficient rapidity to open the check-valve *n*, the oil which has collected in the passage *f* above the same is immediately drawn into the pump and thoroughly lubricates the same at the start. Then at each suction-stroke of the pump, which opens the check-valve, only such small quantity of oil as regulated by the needle-valve will be fed to the pump. The rate of flow of oil past the needle-valve will not be affected by the suction of the pump, since the inlet-port *f* provides for a free intake of air at a point between the needle-valve and check-valve. Consequently for any given adjustment the feed will be constant and uniform.

I claim—

1. A lubricator for air-pumps, comprising an oil-chamber, an outlet-passage leading from said chamber to the pump, a valve for controlling the flow of oil into said outlet-passage, an air-inlet port leading from said outlet-passage to a point at the upper portion of the oil-chamber, and a check-valve in said outlet-passage.

2. A lubricator for air-pumps, comprising an oil-chamber, an outlet-passage leading therefrom to the pump, a needle-valve for controlling the flow of oil from the chamber into the outlet-passage, a check-valve in said passage, and an air-inlet port leading from a point in said passage above the check-valve to the upper portion of the oil-chamber.

3. A lubricator comprising an oil-chamber, an outlet-passage leading from said chamber, an air-inlet port having a restricted opening communicating with said passage to a point at the upper portion of the oil-chamber, and a check-valve in said outlet-passage.

4. A lubricator comprising an oil-chamber having an outlet-passage, a restricted opening communicating between the lower part of the oil-chamber and the outlet-passage, a check-valve in said passage, and an air-inlet port leading from said outlet-passage to the upper part of the oil-chamber and having free open communication with said check-valve.

5. A lubricator for air-pumps, comprising an oil-chamber, an outlet-passage leading from said chamber to the pump, a restricted opening communicating between the lower part of the oil-chamber and the outlet-passage, an air-inlet port leading from said passage to the upper part of the oil-chamber, a check-valve controlling said passage, and a spring to hold said valve seated.

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