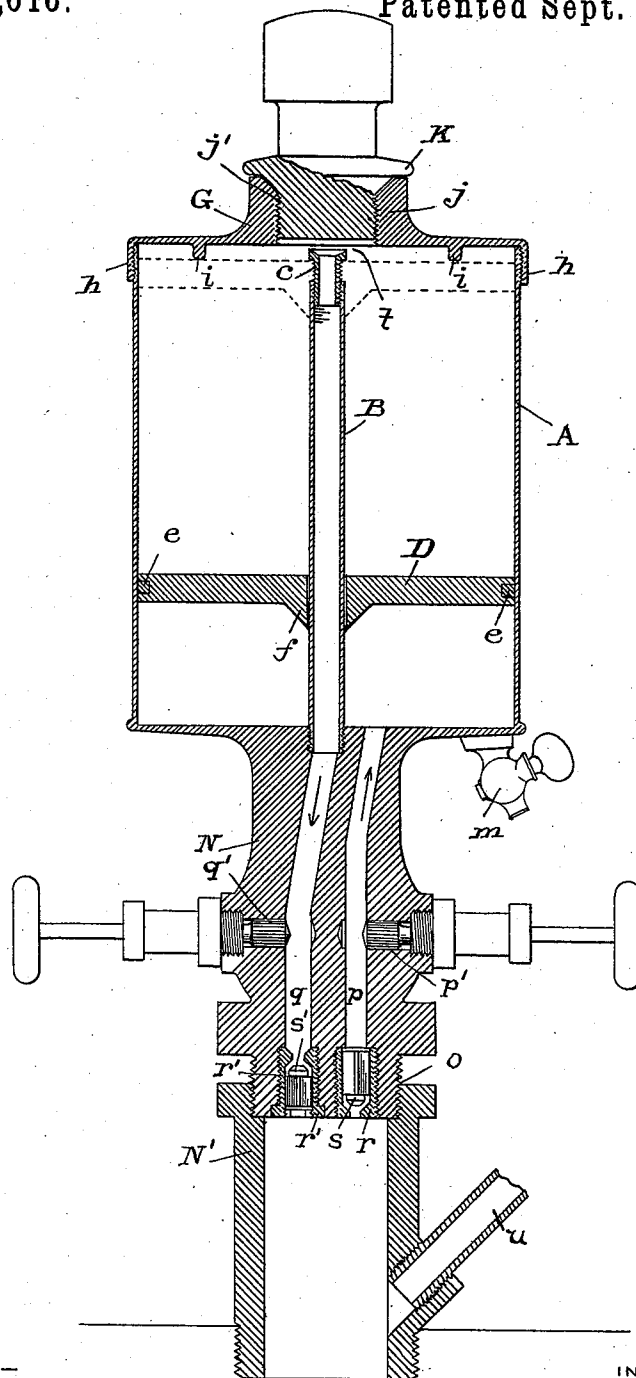


(No Model.)

A. D. HOMARD.
LUBRICATOR.

No. 568,616.

Patented Sept. 29, 1896.



WITNESSES :—

Charles B. Mann Jr.
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Steam Chest

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LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 568,616, dated September 29, 1896.

Application filed May 29, 1896. Serial No. 593,678. (No model.)

To all whom it may concern:

Be it known that I, ALBERT D. HOMARD, a citizen of the United States, residing at Massillon, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Lubricators, of which the following is a specification.

The object of this invention is to provide a lubricator for dispensing or using flake graphite on locomotive valves and cylinders. As a lubricant for steam-valves in locomotives the flake graphite referred to is a very superior article, but it has been found difficult to use it, and very unsatisfactory results have been obtained with the various lubricator-cups now in use because of the inevitable tendency of the graphite to settle in a solid mass in the bottom of the cup of said lubricators.

By using the lubricator which is the subject of the present invention the difficulties referred to have been overcome, and flake graphite may now be used for steam-valves such as those named with the very best results.

In order to make the invention more clearly understood, I have shown in the accompanying drawing certain means for carrying the same into practical effect, without, however, intending to limit my invention to the particular construction which, for the sake of illustration, I have shown.

The drawing shows a vertical section of the lubricator.

The letter A designates the cup or receptacle to contain the graphite. A stationary feed-tube B is secured in the bottom of the cup and projects upward at the center. At the top this tube has an internal screw-thread, and an inlet-nozzle *c* is fitted therein and is vertically adjustable. The space *t* above the inlet-nozzle will be filled with flake graphite, and by vertically adjusting this inlet-nozzle the said space may be reduced or increased, and thereby the quantity of graphite that will accumulate over the nozzle to be fed may be regulated. A piston D fits within the cup and on its rim has a packing-ring *e* to make it fit steam-tight. The center of the piston on its lower side has an enlargement *f*, something like a hub, and is bored to fit and slide on the central feed-tube B. The flake graphite is to be placed in the cup A upon

this piston, which latter serves as a movable bottom. When steam is admitted below the piston, as hereinafter described, the piston will be lifted and the entire bulk of lubricator above the piston will also be lifted. A cover or head G has a rim-flange *h*, which is internally screw-threaded and fits down around the top rim of the cup and screws thereon. This cover has on its lower surface pendent lugs *i*, which serve as stops to limit the up movement of the piston, as indicated by broken lines. The cover on top and at the center has a boss *j*, in which is an opening *j'*, that is screw-threaded, and a plug K closes this opening.

In the bottom of the cup is a drain-cock *m* to enable all the water and steam under the piston to be drawn off.

A stem N is attached below the cup, and its lower end has a screw-thread *o*, by which it may be connected with the steam-chest of a cylinder or to any intermediate coupling, as N', which can be attached to the steam-chest. The stem has two passages *p* *q*, one of which opens into the bottom of the cup below the piston and is for the admission of steam, while the other, *q*, connects with the lower end of the feed-tube B and is for the outlet or down feed of the graphite.

The steam-passage has a valve *p'*, by which it may be entirely or partially closed or entirely opened. The graphite feed-passage *q* has a similar valve *q'* for the same purpose. Both passages are fitted at the lower end with a valve-bushing *r* *r'*, and a check-valve is in each bushing, though the two valves check in opposite directions. The check *s* for the steam-passage opens to allow the steam to enter the cup below the piston, but closes to prevent the back movement of the steam. The check-valve *s'* in the graphite feed-passage opens to allow the flake graphite to pass from the tube B downward into the coupling N', and thence to the steam-chest, but closes to prevent the steam passing upward into said graphite-passage. The check-valves should preferably have three wings.

The operation is as follows: When the engine is working, the steam-pressure will raise and close the check-valve *s'*, and thus close the graphite feed-passage, and at the same time will raise and open the check-valve *s*

and allow the steam to pass to the cup below the piston, and thereby cause said piston to move upward and force the flake graphite to fill the space at *t* above the inlet-nozzle *c*.
 5 When steam is shut off, the steam check-valve *s* will drop to its seat and thus retain the pressure below the piston. At the same moment the graphite check-valve *s'* will unseat, and by the suction action of the locomotive valve and piston the graphite in the
 10 space *t* will be drawn through the feed-tube *B*, passage *g*, and through the unseated check-valve *s'* into the locomotive steam chest and cylinder. This operation will be repeated
 15 each time the steam is used and shut off by the engineer. The graphite will be fed or be drawn down only when suction caused by the steam takes place.

In case a coupling, such as *N'*, is employed
 20 a branch pipe *U* may connect with said coupling and serves for attachment of a pipe leading from the sight-feed oil-lubricator that is usually located in the locomotive-cab. This is a provision for an oil-pipe to supply oil in
 25 connection with the graphite. This coupling *N'* is no part of my present invention.

Having thus described my invention, I claim—

1. In a lubricator for flake graphite, the
 30 combination of a closed cup; a stationary feed-tube secured in the cup; a piston fitting

in the cup and also around the said feed-tube, and forming a space above the piston for the lubricant material and a space below the piston for steam; a stem below the said
 35 cup and having a steam-passage communicating with the said space below the piston and provided with a check-valve to prevent the back movement of the steam, and a lubricant outlet-passage from the lower end of
 40 said feed-tube and provided with a check-valve to prevent steam passing into the said graphite-space, as set forth.

2. In a lubricator for flake graphite, the combination of a closed cup; a stationary
 45 feed-tube secured in the cup; a piston fitting in the cup and also around said feed-tube, and forming a space above the piston for the lubricant material and a space below the piston for steam; a steam-passage to supply
 50 steam below the piston, and force said piston and the lubricant upward; a lubricant outlet-passage connected with the lower end of said feed-tube; and a check-valve in said lubricant outlet-passage, which is closed by pres-
 55 sure of steam.

In testimony whereof I affix my signature in the presence of two witnesses.

ALBERT D. HOMARD.

Witnesses:

ROBERT H. DAY,
 ROBERT H. FOLGER.