

J. W. THOMPSON.
Lubricator for Steam-Engines.

No. 223,412.

Patented Jan. 6, 1880.

FIG. 2.

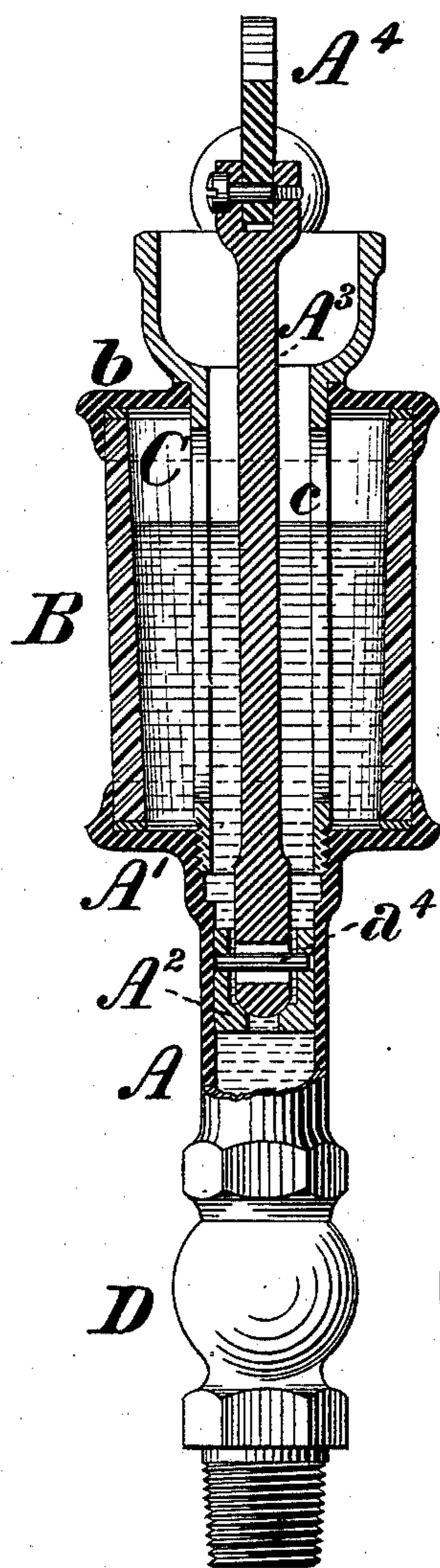


FIG. 1.

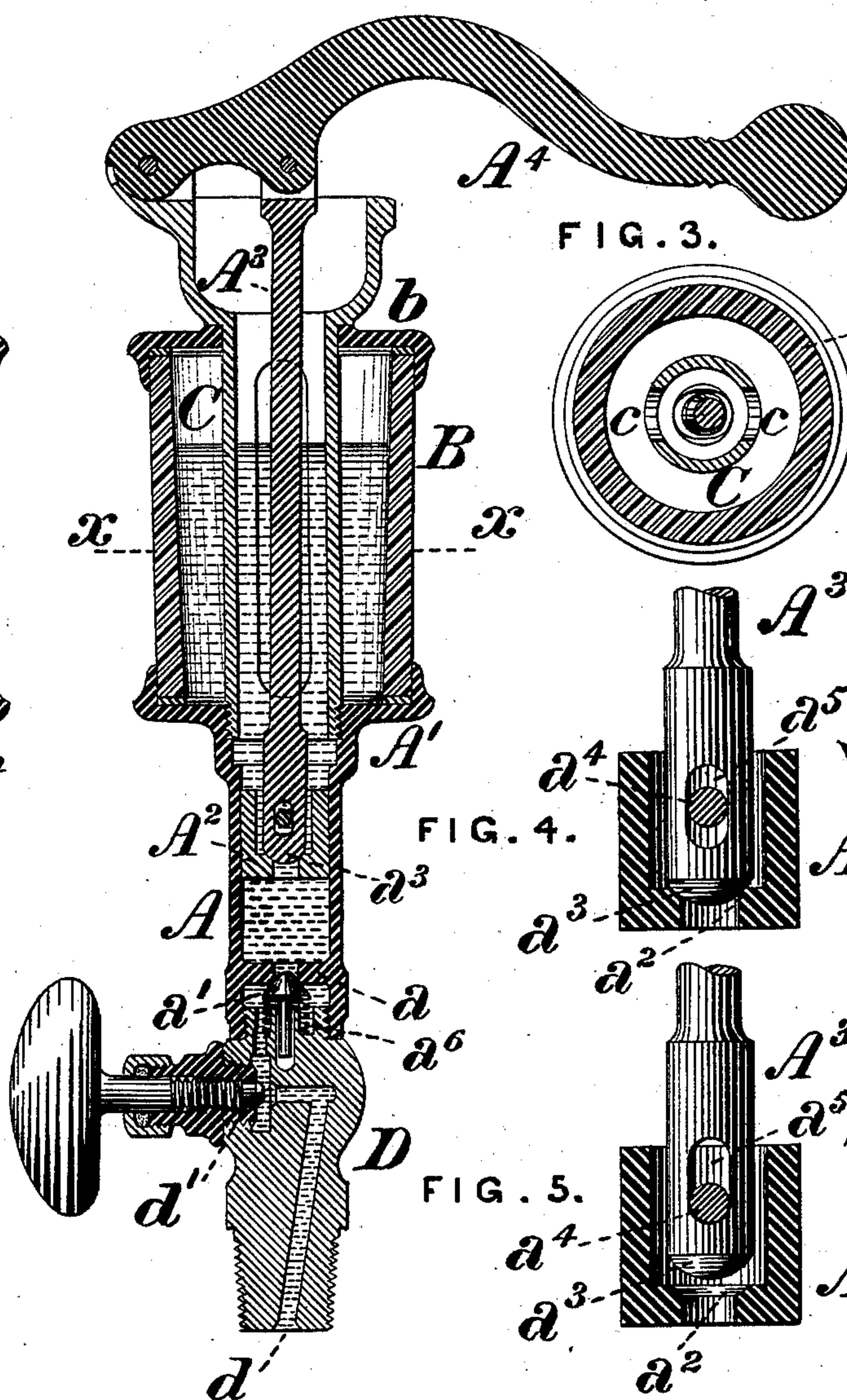


FIG. 3.

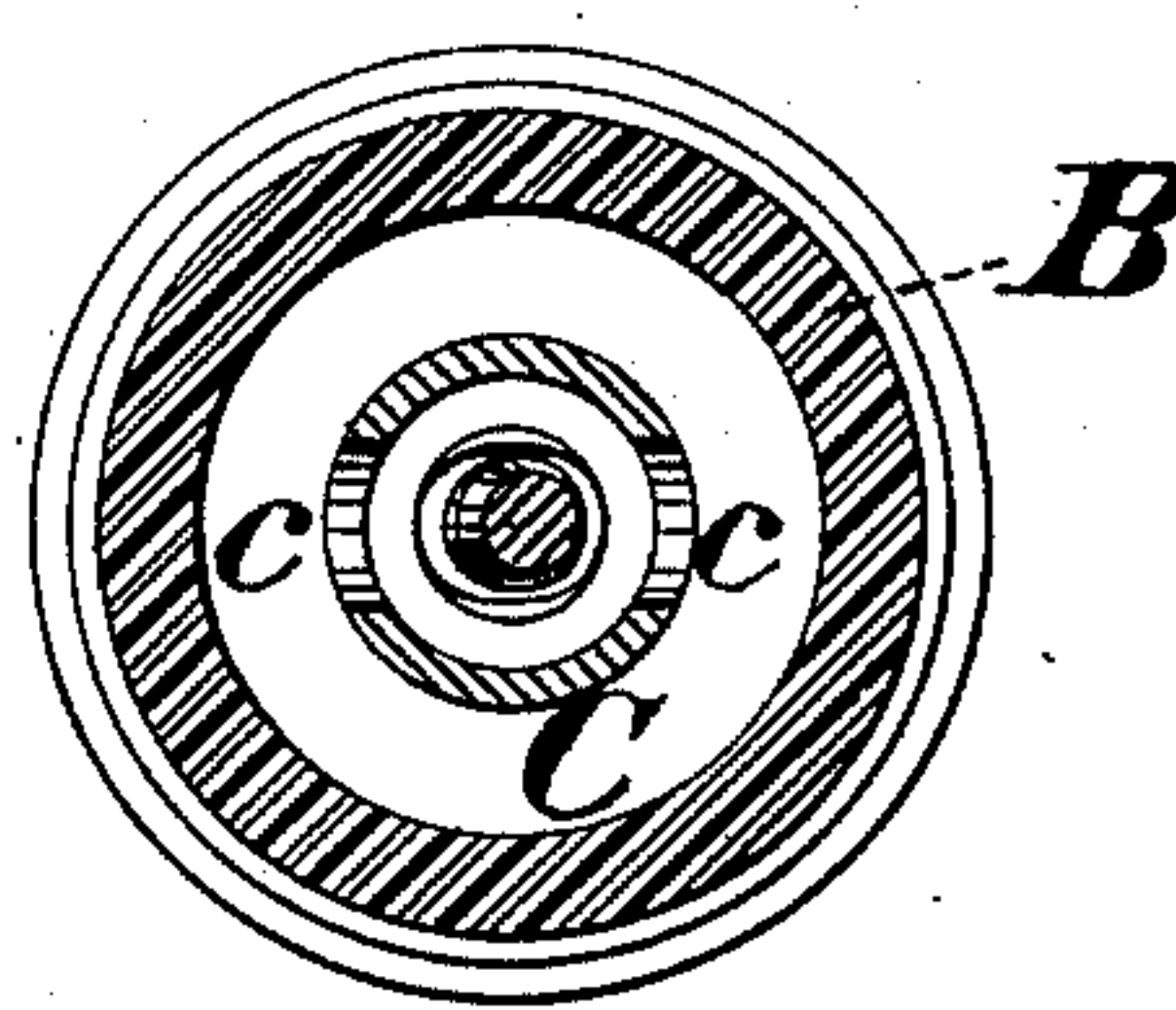


FIG. 4.

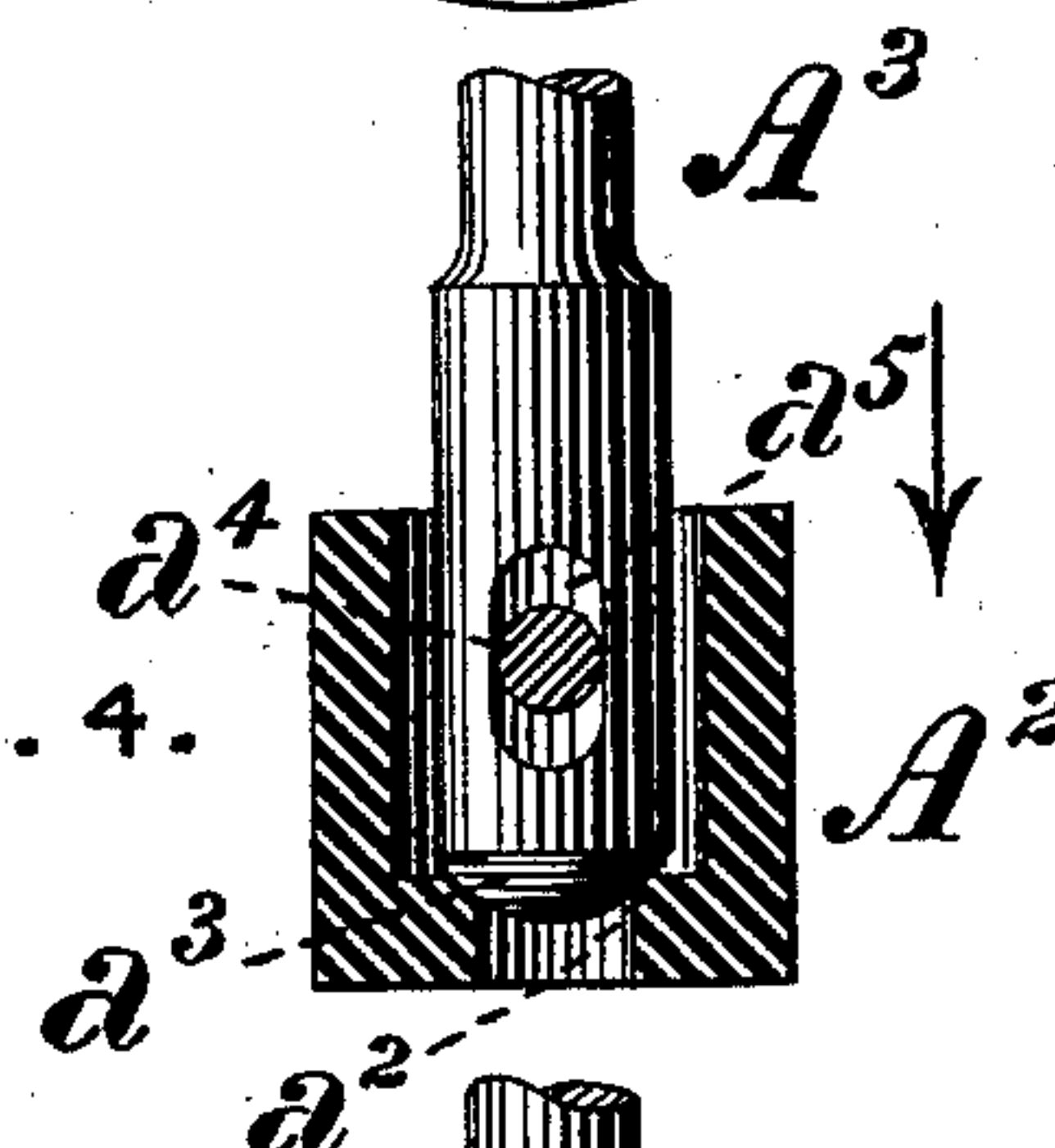
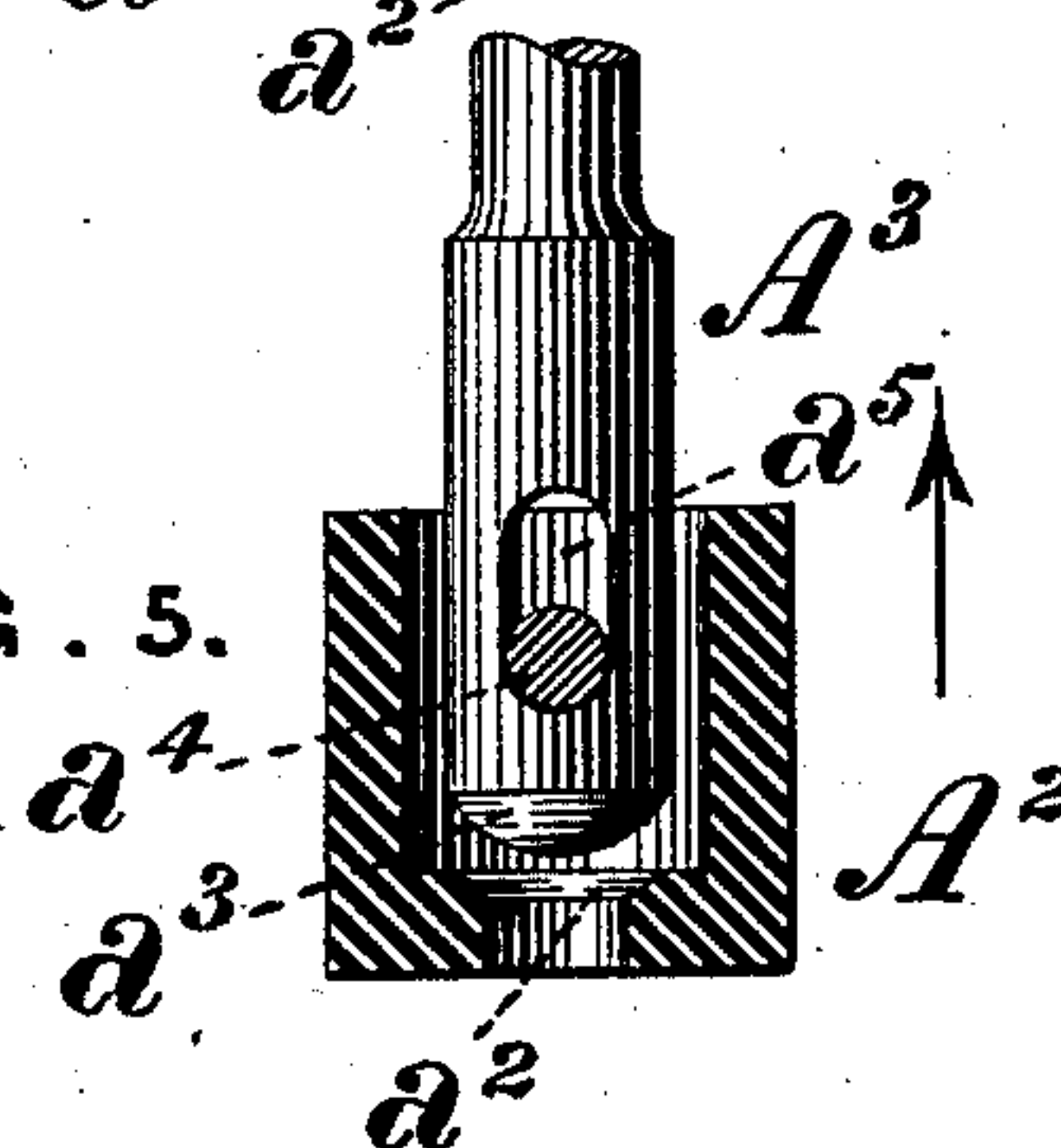


FIG. 5.



WITNESSES.

Robert A. Ripple
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INVENTOR.

J. W. Thompson,
by J. Thomson Bell,
Att'y.

UNITED STATES PATENT OFFICE.

JOSEPH W. THOMPSON, OF SALEM, OHIO, ASSIGNOR OF ONE-HALF OF HIS
RIGHT TO BUCKEYE ENGINE COMPANY, OF SAME PLACE.

LUBRICATOR FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 223,412, dated January 6, 1880.

Application filed August 29, 1879.

To all whom it may concern:

Be it known that I, JOSEPH W. THOMPSON, of Salem, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Lubricating-Pumps for Steam-Engines, of which improvements the following is a specification.

My invention relates to lubricators of the class in which a pump is employed to inject oil or other lubricating material into a valve-chest or other chamber against pressure existing therein, and is designed to simplify and perfect the construction and operation of the valve mechanism, as well as to enable the several members of the lubricator to be readily and conveniently assembled and separated.

To these ends my improvements consist, first, in the combination, in a force-pump, of a piston-rod having a valve formed upon its lower end and a longitudinal slot above said valve, a piston having a valve-seat adapted to receive the said valve, and a connecting-pin passing through the piston and the slot of the piston-rod, whereby a limited range of longitudinal movement is afforded said rod, and the valve thereon is opened and closed; second, in the combination of a pump-barrel, a lubricating-cup, and a laterally-slotted supply-tube by which said barrel and cup are connected; and, third, in the combination, with a lubricating-pump, of a coupling by which it is connected to the chest or chamber it is designed to supply, said coupling carrying the delivery-valve of the pump, and being provided with a supplementary valve, by which communication between the pump and the chest or chamber which it supplies may be closed, so as to permit the removal of the pump from said chamber whenever required.

The improvements claimed are hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a vertical central section through a lubricating-pump embodying my improvements; Fig. 2, a similar section through the same at right angles to that shown in Fig. 1; Fig. 3, a transverse section through the same at the line xx of Fig. 1; and Figs. 4 and 5, vertical central sections, on an enlarged scale, through the piston, with the rod in elevation, showing, respectively, the relative positions of the parts

on the downward and on the upward stroke of the piston.

To carry out my invention I provide a pump-barrel, A, bored out truly for such portion of its length as to admit of the required stroke of the piston, and having, near its lower end, a transverse partition, a , in the center of which is formed a seat for the delivery-valve a' . A circumferential flange or plate, A' , is formed upon the upper end of the pump-barrel, said flange serving to support a cylindrical cup, B, of glass or other suitable material, for the reception of the oil or other lubricating material employed.

The lubricating-cup B is closed at top by a cap, b , and is held in position upon the pump-barrel by a supply-tube, C, open at both ends and having a flaring or bowl-shaped mouth, through which the lubricant is supplied, the same passing into the cup B through vertical slots c formed in the supply-tube.

The connection of the pump-barrel A and cup B is effected by means of a screw-thread formed upon the lower end of the supply-tube and engaging a corresponding thread at the top of the pump-barrel, the cup B being clamped firmly between its cap b and the flange A' of the pump-barrel by a shoulder on the outside of the supply-tube bearing against the cap b .

A hollow cylindrical piston, A^2 , having a central opening in its lower end, is fitted neatly in the pump-barrel A, and is operated by a piston-rod, A^3 , connected at its upper end to a lever, A^4 , which is in turn pivoted at one end to lugs upon the mouth-piece of the supply-tube C. A valve-seat, a^2 , is formed around the central opening of the piston A^2 , said seat being shaped conformably to the lower end of the piston-rod A^3 , which is turned to the form of a segment of a sphere, and constitutes the receiving-valve a^3 of the pump. The piston and rod are connected by a pin, a^4 , passing through a slot, a^5 , in the piston-rod, said slot allowing a sufficient range of vertical movement of the piston upon the rod to permit the passage of lubricating material through the central opening of the piston during the upward stroke thereof, while during the downward stroke the valve a^3 on the piston-rod closes said opening, and forces the liquid which has passed

through it out of the delivery-valve to the chamber to be supplied. The curvature of the valve a^3 insures its fitting to its seat in the different positions imparted to the rod by the oscillation of the lever A^4 .

It will be seen that the piston-rod being the driver, the valve a^3 formed upon it closes firmly and positively before the piston commences its downward stroke, and similarly opens fully before it commences its upward stroke, and by this construction I not only dispense with a separate receiving-valve, but am enabled to conveniently arrange the receiving and delivery valves in line with each other and with the axis of the pump-barrel.

The delivery-valve a' is fitted in the upper end of a coupling, D, having screw-threads upon its ends for connection, respectively, to the pump-barrel and to the chest or chamber which is to be supplied with lubricant, and having a passage, d , for lubricating material extending through it. The valve a' opens downwardly during the downward stroke of the piston, and is pressed up to its seat in the lower partition, a , of the pump-barrel during the upward stroke by a spring, a^6 , as well as by the pressure in the chamber to which the coupling D is connected. A stop-valve, d' , is fitted to the coupling below the delivery-valve, and serves to close the passage d whenever required, so that the pump-barrel and lubricating-cup may be removed from and replaced upon the coupling for any desired purpose

without reference to the existence of pressure in the valve-chest or other object of supply, and without interference with the latter or its contents.

I claim as my invention and desire to secure by Letters Patent—

1. The combination, in a lubricating-pump, of a piston-rod having a valve formed upon its lower end and terminating at its seat and a longitudinal slot above said valve, a piston having a valve-seat suited to receive said valve, and a connecting-pin passing through the slot of the piston-rod and uniting the same to the piston, substantially as set forth.

2. The combination of a lubricating-pump, a lubricating-cup, and a vertically-slotted supply-tube connecting the lubricating-cup and pump-barrel, substantially as set forth.

3. The combination, with a lubricating-pump and lubricating-cup, of a coupling for connecting the pump-barrel and the vessel to be supplied, said coupling carrying the delivery-valve of the pump, and having a stop-valve for closing communication between the pump and vessel to be supplied, the combination being and operating to enable the pump-barrel and lubricating-cup to be entirely removed from said vessel without interference with the contents thereof, substantially as set forth.

JOSEPH W. THOMPSON.

Witnesses:

THOMAS BAXTER,
HENRY C. JONES.