No. 819,401. PATENTED MAY 1, 1906.

P. BEAHM.

LUBRICATING APPARATUS FOR AIR PUMPS.

APPLICATION FILED AUG. 27, 1904.

2 SHEETS—SHEET 1.

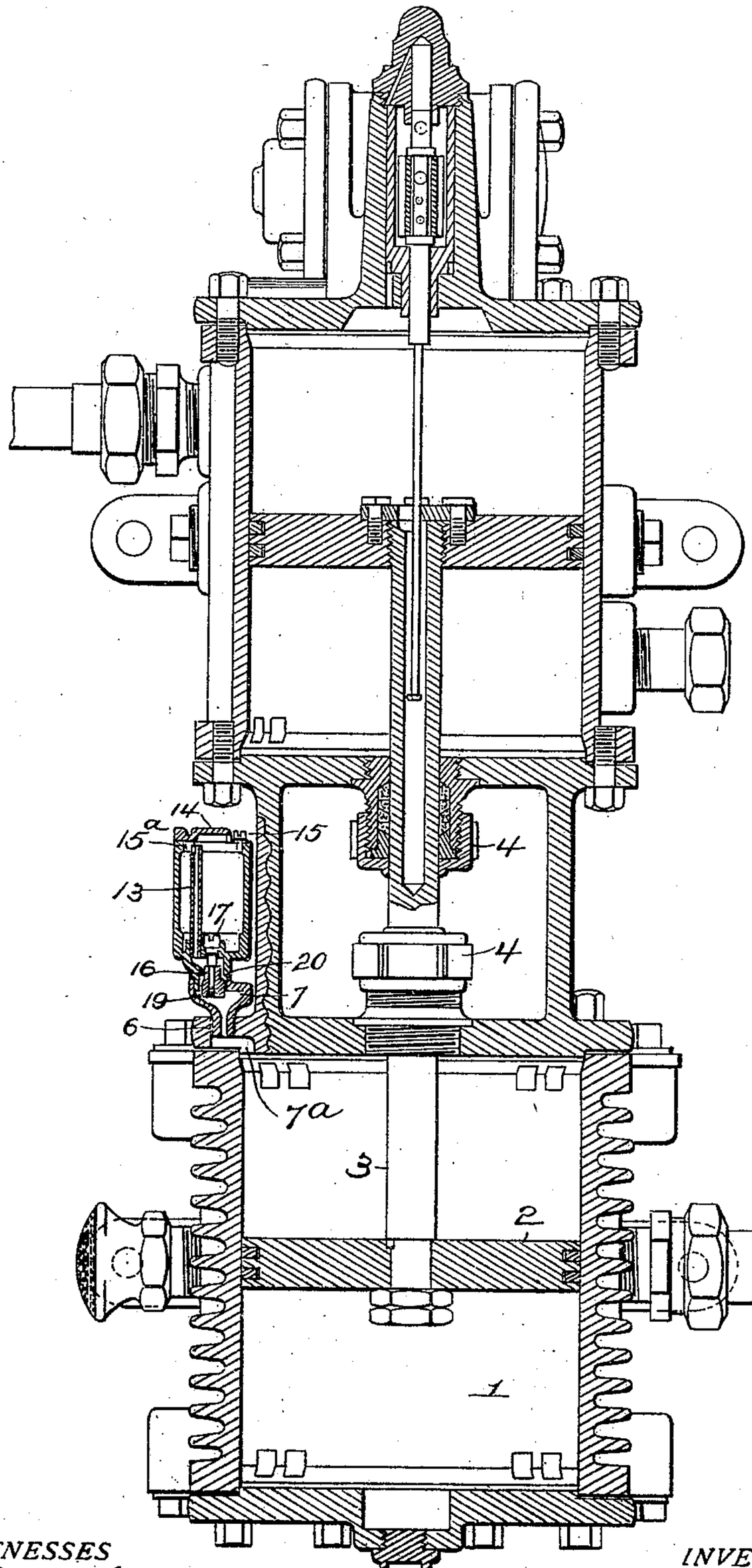

Fig. 1

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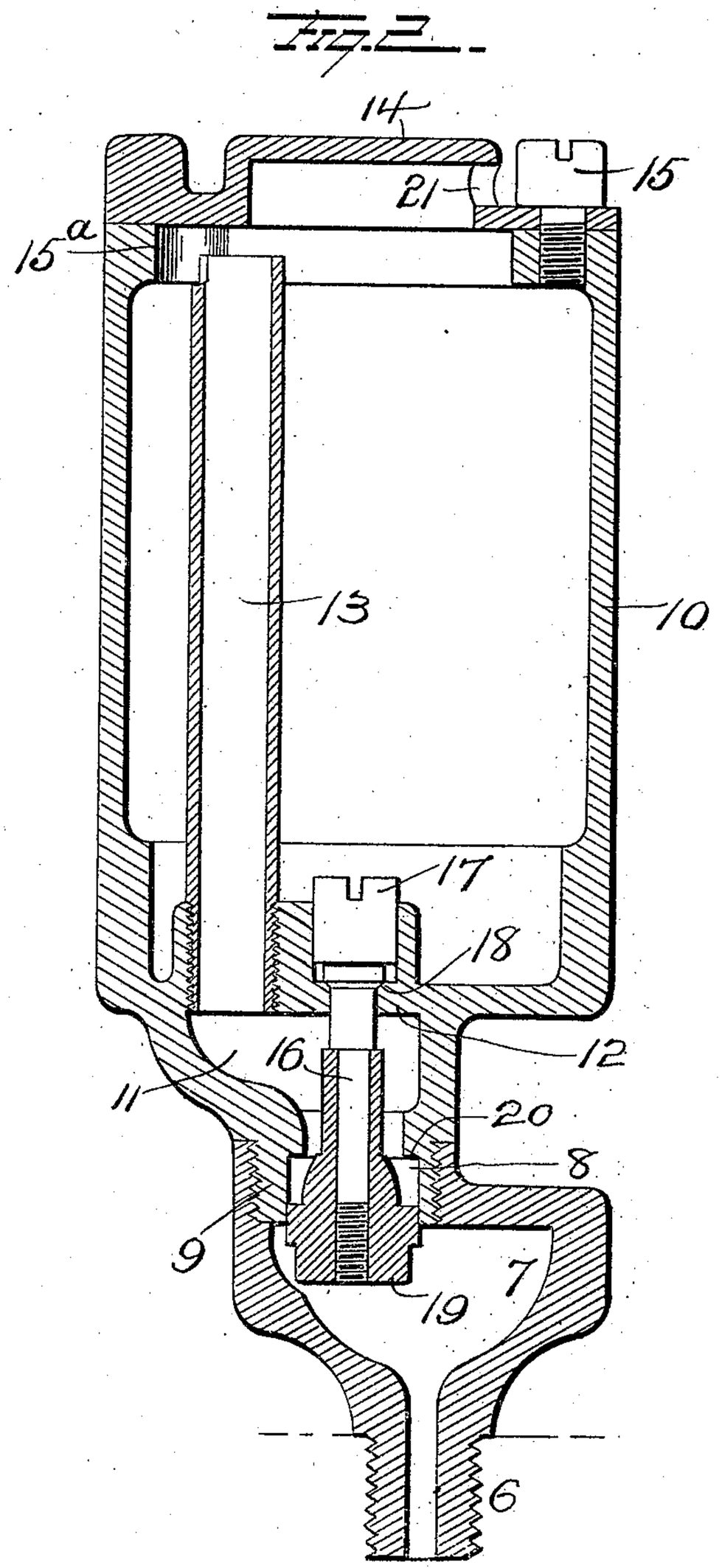
2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

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LUBRICATING APPARATUS FOR AIR-PUMPS.

No 819,401. Specification of Letters Patent. Patented May 1, 1906.

Application filed August 27, 1904. Serial No. 222,406.

To all whom it may concern:

Be it known that I, PETER BEAHM, a resident of Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Lubricating Apparatus for Air-Pumps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved lubricating apparatus for air-pumps, the object of the invention being to provide an improved lubricating apparatus which will be automatic in operation and continuously feed lubricant in small quantity to the air-cylinder, the feed of the lubricant being governed by the pressure and suction due to the movement of the piston in the air-cylinder.

With this and other objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in longitudinal section, illustrating my improvements applied to an ordinary air-brake; and Fig. 2 is an enlarged view of my improvements detached.

1 represents the air-pump cylinder, 2 the piston therein, and 3 the piston-rod, mounted in suitable stuffing-boxes 4.

The construction and operation of an air-brake apparatus are well known and need not here be described, and as the particular construction of air-brake has nothing to do with my invention, save that the operation of piston 2 governs the feed of lubricant, it is needless to set forth the operation of a particular construction of air-brake, as my improvements may be adapted for use on almost any form of air brake or pump.

Into a threaded opening in one side of head 5 of cylinder 1 a threaded nipple 6 is screwed and communicates with a duct 7^a, leading into the cylinder. This nipple 6 is enlarged at its upper end, forming a chamber 7, having an internally-screw-threaded sleeve 8 at its top to receive a threaded teat 9 at the lower end of a lubricant cup or receptacle 10. In the lower end of cup 10 and communicating with teat 9 is a chamber 11, closed at its top by a wall 12, and a tube 13 is screwed into an opening in this wall and communicates with chamber 11. The tube 13 extends up to near the top of cup 10, which latter is normally closed by a cover 14, connected at one side by a set-screw 15, on which the cover can be swung to one side to expose a lubricant-entrance port 15^a, through which lubricant is poured into the cup 10, and the cover is then closed to exclude all foreign matter, and an air-inlet hole 21 is provided in the cover for a purpose which will hereinafter appear.

16 represents my improved double-headed valve, one member thereof having a threaded plug to enter the other and secure the sections together and permits of adjustment to exactly position the parts. The upper head 17 of the valve 16 is adapted to move downward against a seat 18 in wall 12, the stem of the valve projecting through an opening in the wall through chamber 11, and the lower head 19 is adapted to move upward against a seat 20 in teat 9. Both the heads 17 and 19 are of cylindrical form and move in cylindrical ways, which they nicely fit, and thereby prevent any rapidity of flow of lubricant past the heads even though the valves be open.

The operation of my improvements is as follows: On the upstroke of piston 2 the pressure of air through duct 7^a and nipple 6 into chamber 7 exerts upward pressure on valve 16, causing valve-head 19 to move upward against seat 20 and head 17 to move upward away from its seat 18 and a particle of lubricant to move along the valve-rod into chamber 7. As soon as piston 2 begins its downstroke pressure in duct 7^a, nipple 6, and chamber 7 is replaced by suction, which causes head 19 to drop down from seat 20 and head 17 to close against seat 18. This movement of the piston also causes air from the outside to enter through the inlet 21 in cover 14 and pass down tube 13 into chamber 11, thence past valve-head 19 into chamber 7 and carry with it lubricant in chamber 11 into chamber 7 and through nipple 6 and duct 7^a into the cylinder 2. It will thus be observed that at every complete stroke of the piston a small portion of lubricant is drawn into the cylinder, which insures its being perfectly lubricated by a constant minute supply in proportion to its consumption.

A great many slight changes might be made in the general form and arrangement of the parts described without departing from my invention, and hence I would have it understood that I do not restrict myself to the precise details set forth, but consider myself at liberty to make such slight changes and

alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus of the character described, the combination with a pump, of a lubricant-receptacle connected with the pump, a lubricant-depositing chamber, a valve between the receptacle and chamber actuated in its movements in both directions solely by the operation of the pump-piston and an air-tube communicating with the chamber and through which chamber the lubricant is sucked with the air upon each stroke of the piston.

2. In an apparatus of the character described, the combination with a pump, of a chamber communicating therewith, means for admitting air to said chamber, a lubricant-receptacle above the chamber, a valve actuated solely by the compression and suction of the pump-piston to permit passage of lubricant to the chamber and from the same to the pump.

3. In a lubricator, the combination with a receptacle, a depositing-chamber below the same, connected valves controlling the passage of lubricant from the main receptacle to the depositing-chamber and from the latter, and means for admitting air to the depositing-chamber.

4. In an apparatus of the character described, the combination with a pump, of a chamber communicating therewith, a lubricant-receptacle above the chamber having an air-inlet port in its top, an air-inlet pipe communicating with the chamber and extending above the lubricant-level in the receptacle, and a double-headed valve, the valve-heads secured together and actuated solely by the compression and suction of the pump-piston to permit passage of lubricant to the chamber and suck the same to the pump with the air.

5. A lubricator comprising a lubricant-receptacle and two chambers below the same, a valve between said chambers and a valve between the upper chamber and the lubricant-receptacle, said valves secured one to the other and movable together in both directions and means for admitting air to the chamber between the valves.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

PETER BEAHM.

Witnesses:
JUDSON M. WHITE,
J. EDWD. DIETRICH.