

No. 837,644.

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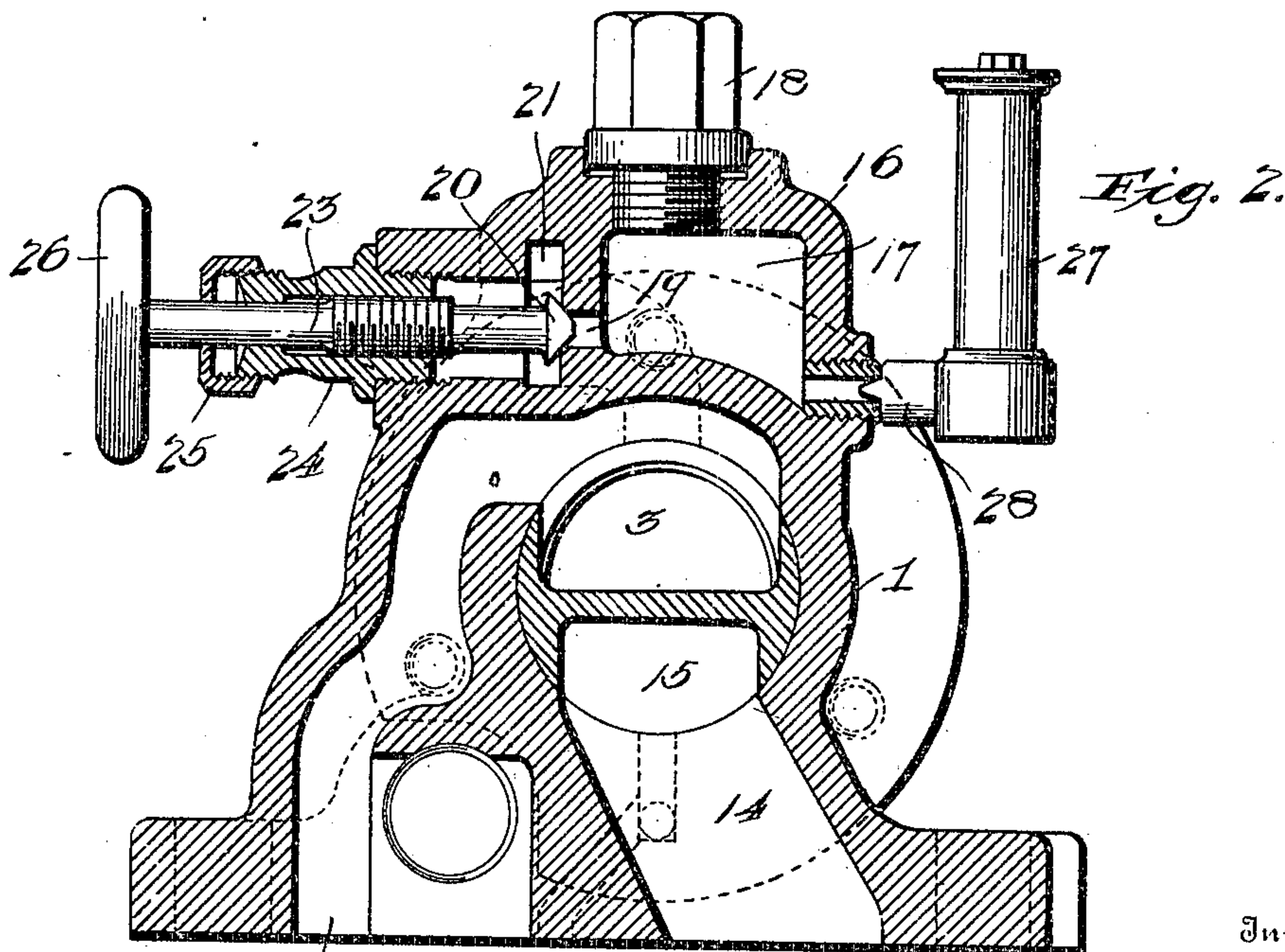
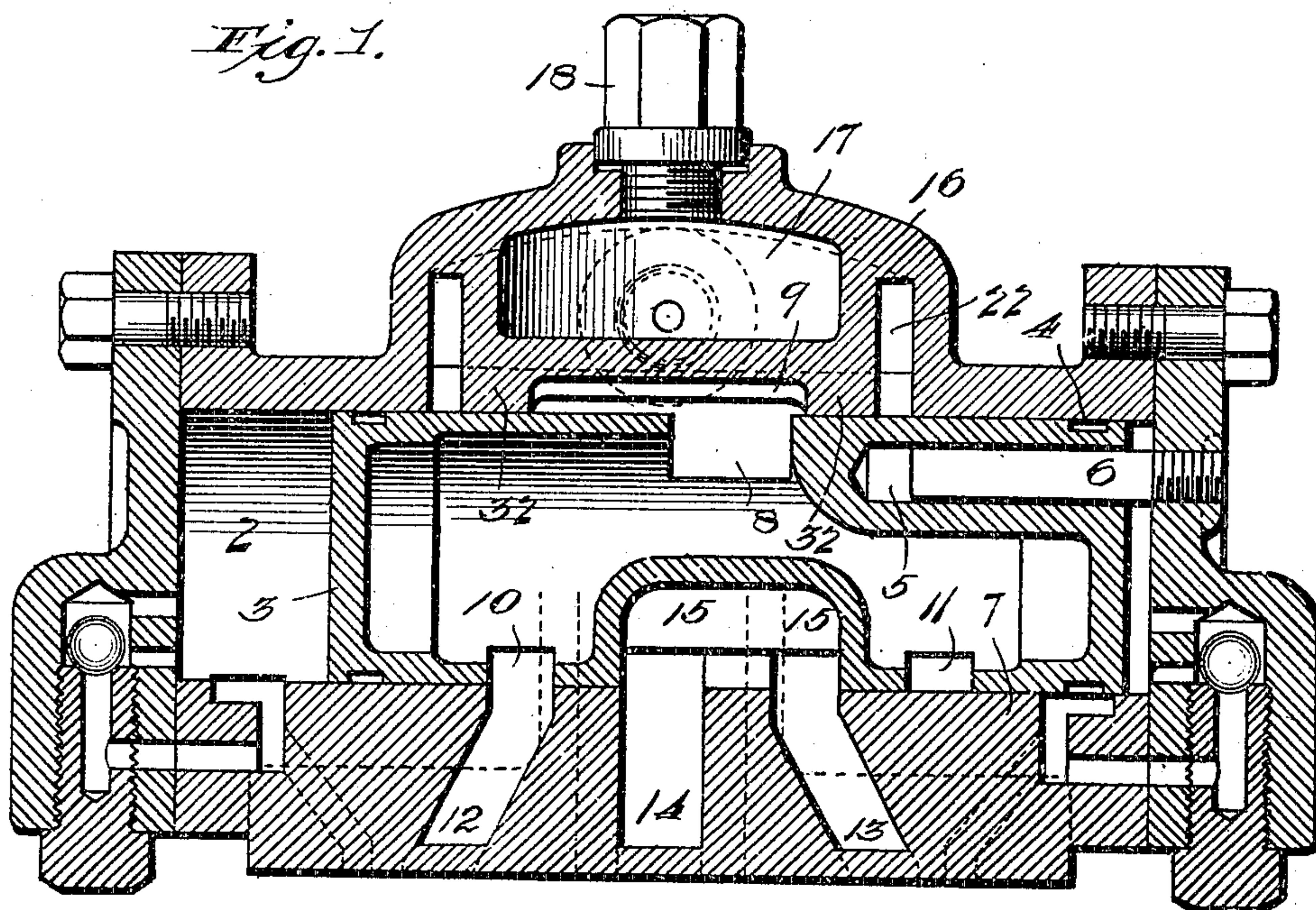
J. J. REILLY.

LUBRICATOR.

APPLICATION FILED JUNE 22, 1906.

3 SHEETS—SHEET 1.

Fig. 1.



Inventor

John J. Reilly

Witnesses

J. H. Moore
James F. Brown

Rexford M. Smith Attorney

No. 837,644.

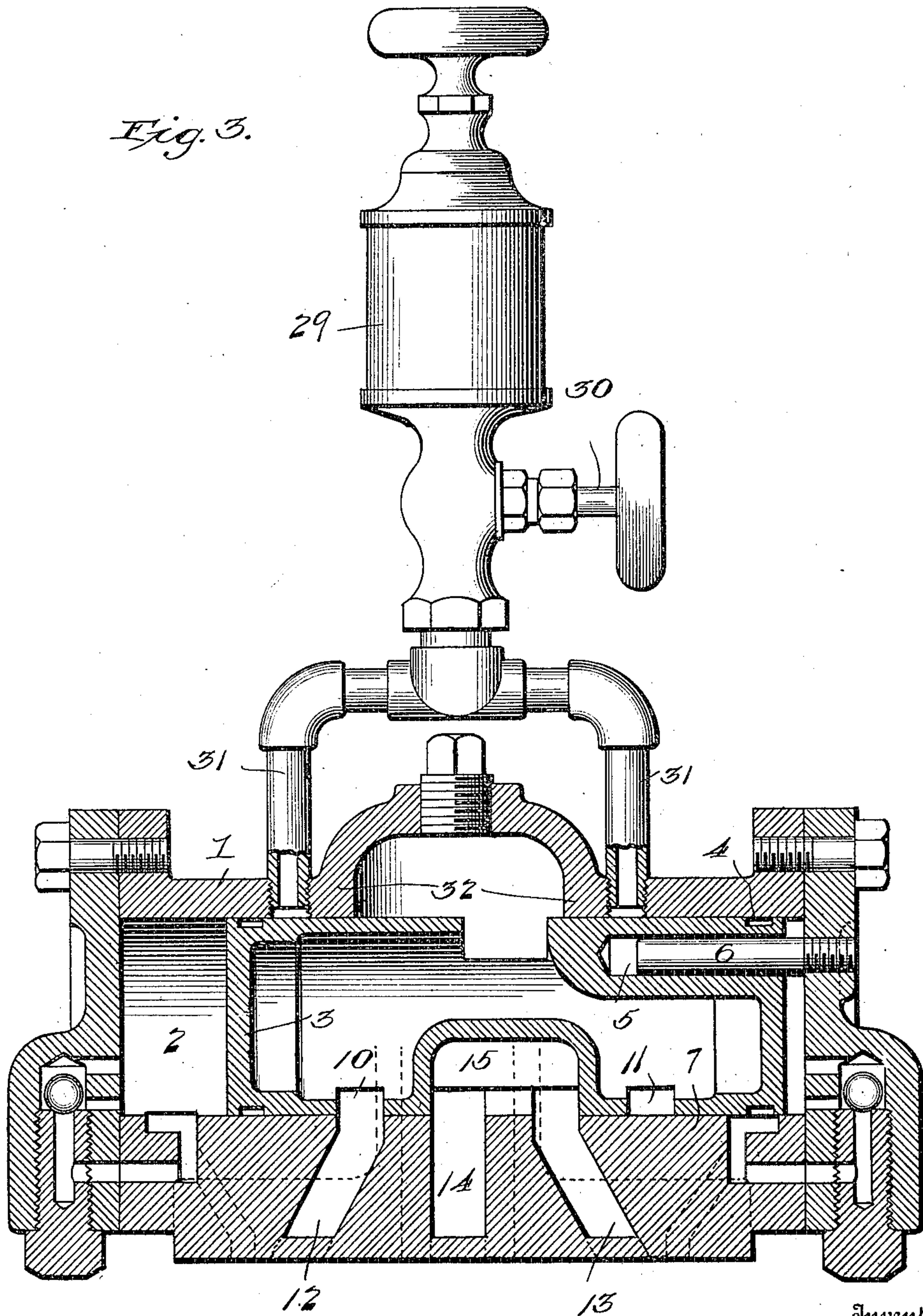
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3 SHEETS—SHEET 2.

Fig. 3.



Inventor

John J. Reilly

Witnesses

James F. Brown

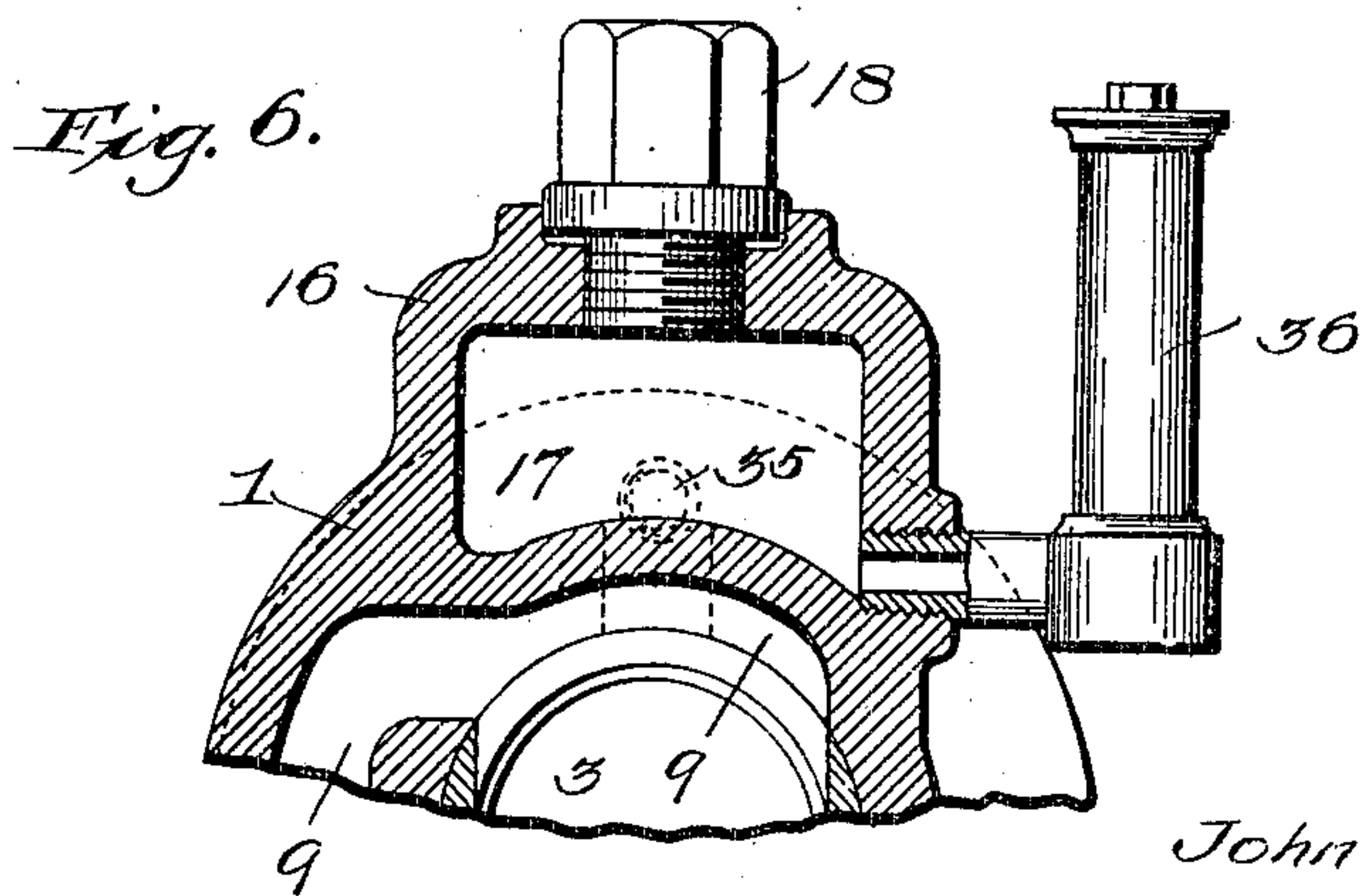
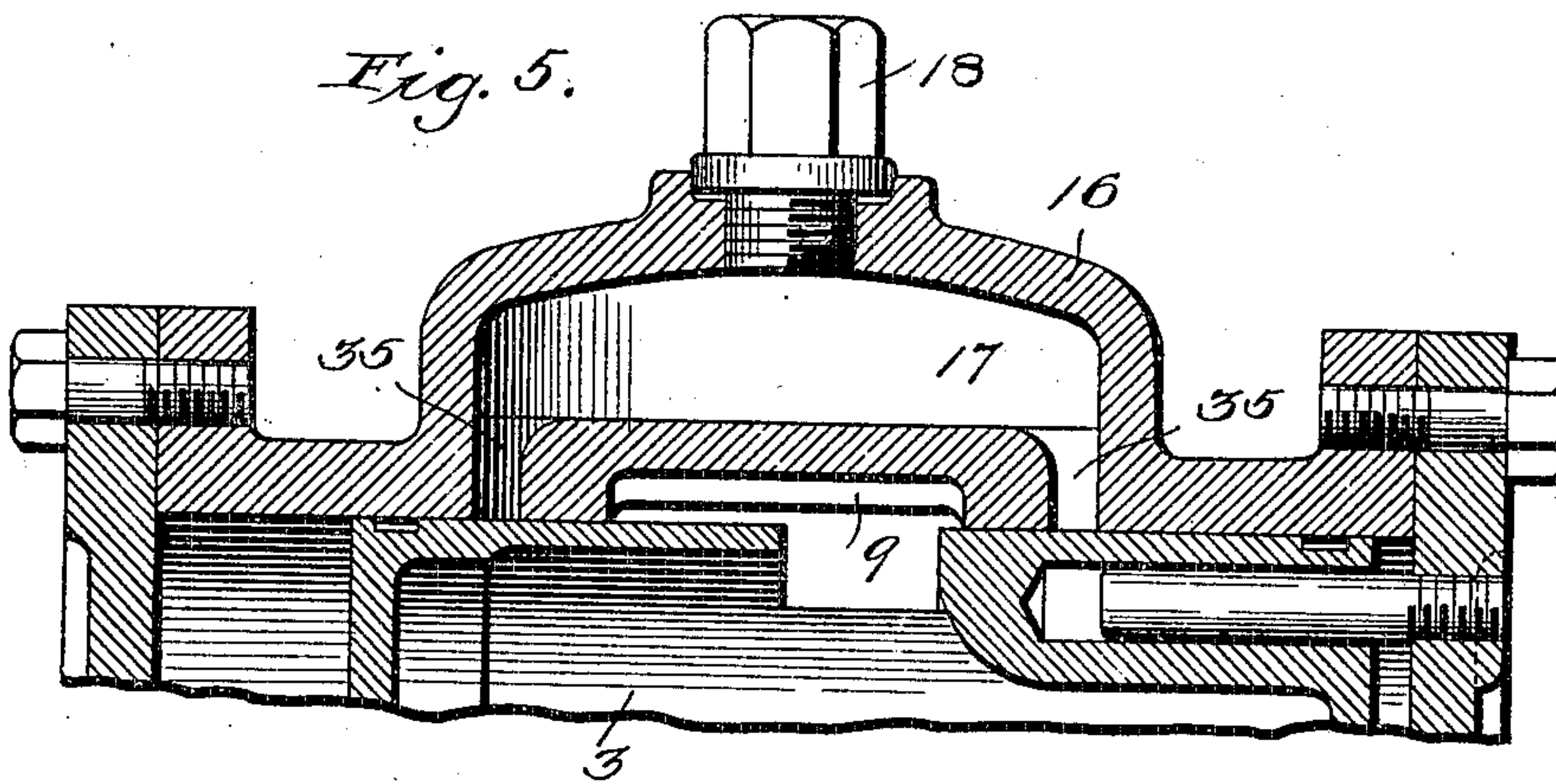
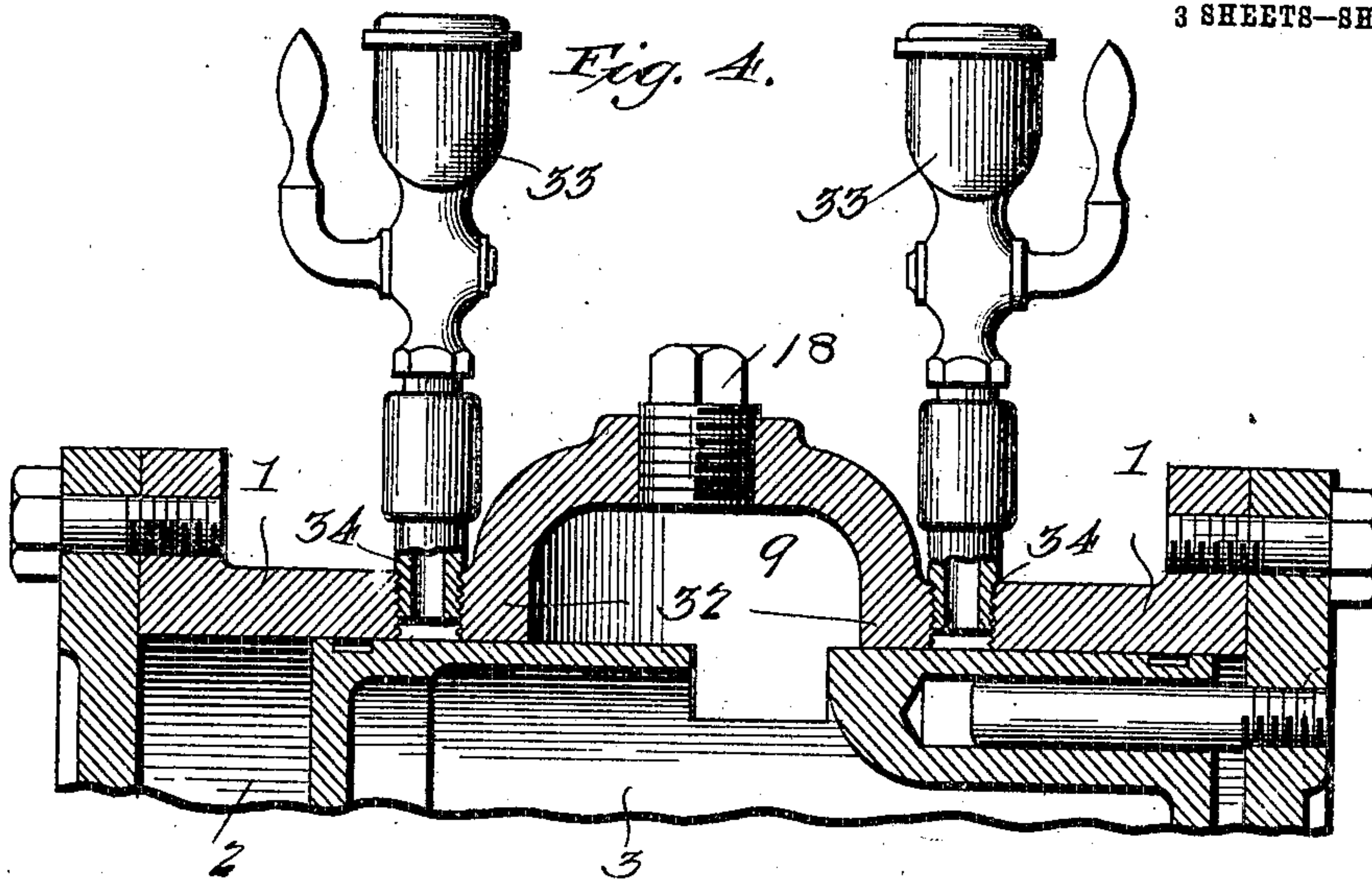
By

Reynold M. Smith, Attorney

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3 SHEETS—SHEET 3.



Witnesses

T. L. Mochaber
James F. Brown

Inventor

John J. Reilly

By

Rexford M. Smith Attorney

UNITED STATES PATENT OFFICE.

JOHN J. REILLY, OF LOUISVILLE, KENTUCKY.

LUBRICATOR.

No. 837,644.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed June 22, 1906. Serial No. 322,888.

To all whom it may concern:

Be it known that I, JOHN J. REILLY, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented a certain new and useful Lubricator, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to lubricators; and the object of the invention is to provide efficient, economic, and reliable means for lubricating valves, such as the piston-valve of a steam-pump or steam-engine, and the other working parts adjacent thereto whereby the valve is thoroughly lubricated during its back-and-forth movement in the steam-chest and whatever oil is carried over the edges of the dividing-partitions is taken up by the steam surrounding the valve and carried to the other working parts of the engine, which are thus in turn lubricated.

By means of the construction hereinafter described positive and economic means are provided for furnishing oil to the valve and other adjacent working parts, relieving the serious trouble which has heretofore been experienced in this class of machinery by reason of the lack of the distribution of oil in the proper quantity. Under the principle now in common use the oil will flow out with the steam and water of condensation; but under the arrangement hereinafter set forth only that small portion of oil which is carried over the top of the valve into the steam-space is carried to the other working parts.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination, and arrangement of parts, as herein fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a vertical longitudinal section through the steam-chest of a pump, illustrating the present invention. Fig. 2 is a vertical cross-section through the same. Fig. 3 is a section similar to Fig. 1, showing a modification in the lubricating connections involving, however, the same principle. Fig. 4 is a section similar to Fig. 3, showing another modification in the lubricating apparatus. Fig. 5 is a similar section showing a simpler form of lubricator, and Fig. 6 is a cross-section taken centrally of Fig. 5.

Referring to the drawings, 1 designates the steam-chest of a pump, said chest comprising the steam space or chamber 2, in which works the reciprocatory cylindrical piston-valve 3, the same being provided on its periphery at each end with a packing 4 to form a fluid-tight joint with the inner wall of the steam-chest.

At one end the piston is provided with a longitudinal bore 5, in which is received a guide-pin 6, which extends from one head of the chest inward and acts to guide the valve 3 in its movements back and forth while preventing said valve from rotating, thus assuring the proper registration between the ports of the valve 3 and the ports of the steam-chest and the underlying valve-seat 7.

The piston-valve 3 is hollow, as shown in the drawings, and is provided at the top with an inlet-port 8, which is in constant communication with a supply-passage 9, which extends from the bottom of the chest upward over the top of the piston-valve, and said valve is provided at points equidistant from its center with ports 10 and 11, adapted to register, respectively, with the passages 12 and 13 in the bottom of the steam-chest, which latter passages lead into opposite ends of the cylinder. (Not shown.) Between the passages 12 and 13 the steam-chest is provided with an exhaust-passage 14, which communicates with an exhaust-cavity 15 in the bottom of the piston-valve 3, which exhaust-cavity is adapted to embrace one or the other of the passages 12 and 13 and simultaneously the exhaust-passage 14.

In carrying out the present invention the upper part of the steam-chest is provided with a dome-shaped extension 16, in which is formed an oil-reservoir 17, which lies over and above the steam-inlet passage 9. A screw-plug 18 gives access to said reservoir through the top thereof in order to introduce the lubricating material to the reservoir, and the said lubricating material passes from the reservoir 17 outward through a port 19, controlled by a valve 20, into a longitudinal passage 21, extending lengthwise of the reservoir 17, being separated therefrom by an intervening wall, the opposite ends of the passage 21 being extended at an angle to form the transverse passages 22, which are located beyond the ends of the oil-reservoir 17 and separated therefrom by intervening walls.

These passages 22 extend over the piston-valve 3, as shown in Fig. 1, at opposite sides of the center of movement of said valve, and each of said transverse passages 22 opens out at the bottom directly upon one end of the piston-valve, or rather between the extreme end of the valve and the central opening or supply-port 8 thereof, whereby the oil is distributed along the upper surface of the piston-valve, finding its way to all parts of the outer surface of said valve.

The valve 20 is mounted upon a threaded stem 23, which screws into a bonnet 24, the latter in turn screwing into an opening provided therefor in the steam-chest, as shown in Fig. 2.

25 designates a nut on the outer end of the bonnet 24, and 26 represents a hand-wheel on the outer extremity of the stem 23 for adjusting the position of the valve 20 and regulating the flow of oil to the piston-valve 3.

27 designates a glass gage which communicates, by means of a tubular elbow 28, with the oil-reservoir and indicates the level of oil contained in said reservoir.

Instead of forming the reservoir 17 directly in the steam-chest a separate oil-cup 29 may be provided, as shown in Fig. 3, the same being controlled by a valve 30 and having its supply-tube branched or forked, as shown at 31, the ends of the fork being connected to the steam-chest at points equidistant from the center of movement of the piston-valve 3, so as to supply oil to the end portions of said piston-valve in the same manner as hereinabove described in connection with the construction and arrangement illustrated in Figs. 1 and 2.

After the reservoir is filled the valve 20 is opened, and the oil will then pass from the reservoir through the port 19 into the passage-ways 21 and 22 and then along until it is deposited upon the top of the piston-valve 3. As the piston-valve travels back and forth in the steam-chest whatever oil is carried over the edges of the partitions 32 between the spaces 9 and 22 will be carried off by the steam which surrounds the piston-valve and will then in turn lubricate the other working parts of the engine. Thus a positive and sure means is provided for lubricating the piston-valve and the most important parts of the steam-valve movement, relieving the serious trouble which has heretofore been experienced in machinery of this kind by reason of the lack of the proper supply of lubricant. Under the old plan now in common use the oil flows out with the steam and water condensation; but under the arrangement hereinabove set forth only the small quantity of oil which is carried over on top of the valve into the central space 9 may pass to the other working parts of the movement.

Instead of employing a single oil-cup, as shown at 29 in Fig. 3, and providing branches 31 leading therefrom to the valve two separate and independent oil-cups 33 may be employed, as shown in Fig. 4, the nipples 34 of said oil-cups screwing into the valve-casing 1 at points corresponding with the oil-inlets shown in the other figures and hereinabove referred to.

A simpler form of lubricator is illustrated in Figs. 5 and 6, in which the longitudinal passage 21 is dispensed with and also the valves 20. In this case the oil reservoir or chamber 17 communicates directly with the valve-chamber by means of the end passages 35, the latter leading from opposite ends of the chamber 17 downward and opening out directly upon the top of the valve 3. A glass gage 36 may or may not be used in connection with the lubricator, the application of such a gage being illustrated in Figs. 2 and 6.

I claim—

1. The combination of a steam-chest having a central steam-supply passage, and a superimposed oil chamber or reservoir and also provided with a longitudinal oil-passage communicating with said reservoir and having angular end portions extending over and communicating with the space in which the piston-valve works, a piston-valve working back and forth therein and provided with a central supply-port communicating with the steam-inlet passage of the chest, and a manually-operated valve controlling the supply of oil from the reservoir to the piston-valve.

2. The combination of a steam-chest having a contained oil-reservoir, an angular oil-passage leading therefrom to points equidistant from the center of movement from the piston-valve, a valve controlling the discharge of liquid from said reservoir and its passage to the piston-valve, a glass gage communicating with said reservoir and carried on the steam-chest, and a reciprocatory piston-valve working in said chest, said valve and chest being provided with communicating steam supply and inlet ports, while the discharge ends of the oil-passage communicate with the piston-valve space at opposite sides of the center of motion of the piston-valve, substantially as described.

3. The combination with a casing, of a reciprocatory valve working therein and embodying a hollow body with inlet and outlet ports, said casing being hollowed out to form an oil-reservoir and provided with oil-passages leading from the opposite ends of the reservoir inward to the working space at the top of the valve and communicating therewith at points equidistant from the center of movement of the valve.

4. The combination with a casing having a central inlet arranged at the top of the working space of the valve, of a reciprocatory

valve working in said casing, an oil-reservoir
located above the working space of the valve,
and means for conducting the oil from the
said reservoir into the working space of the
5 valve and feeding the oil to the valve at
points equidistant from the center of move-
ment of the valve.

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

JOHN J. REILLY.

Witnesses:

M. J. FINNEGAN,
A. J. EARLEY.