

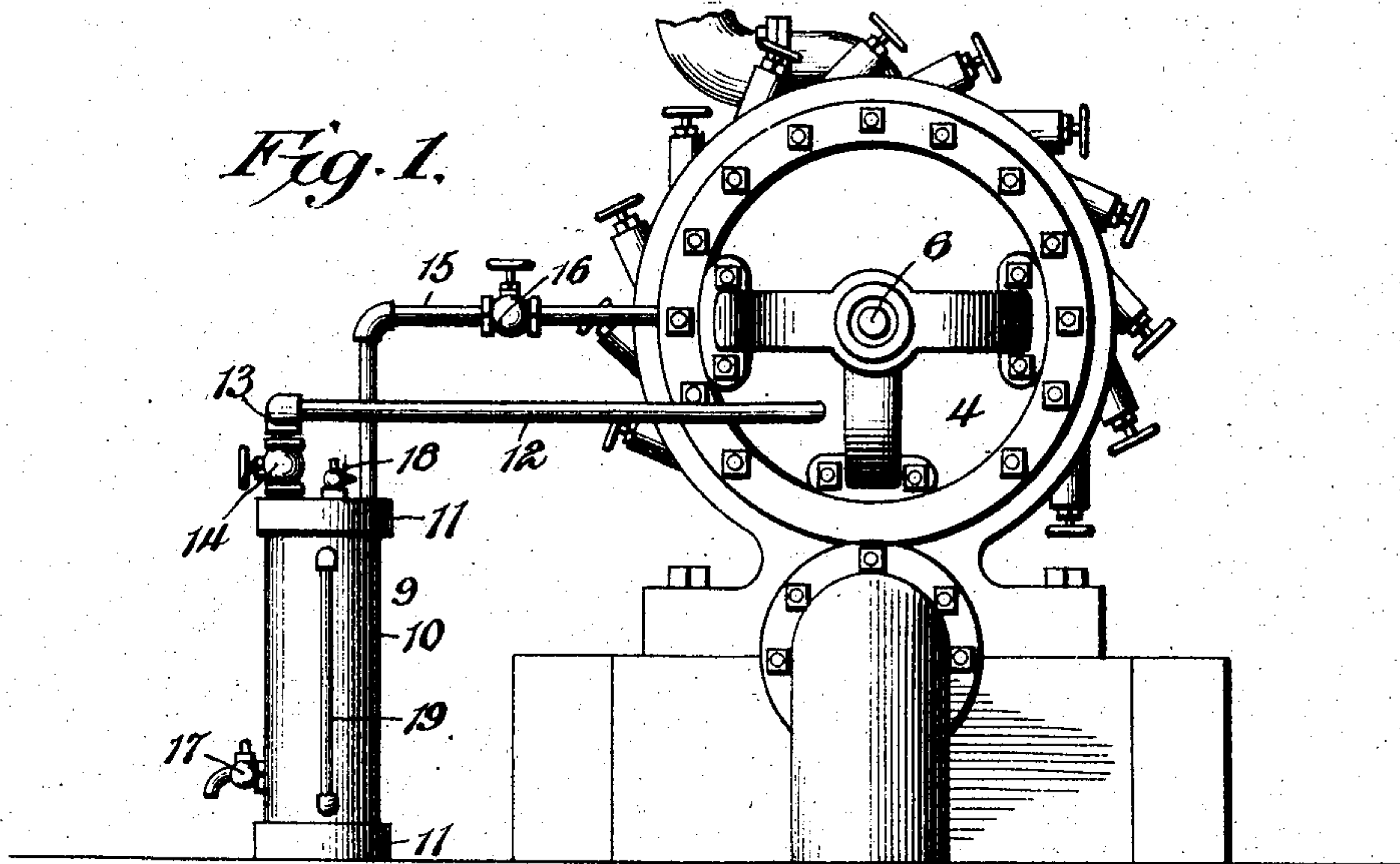
No. 772,954.

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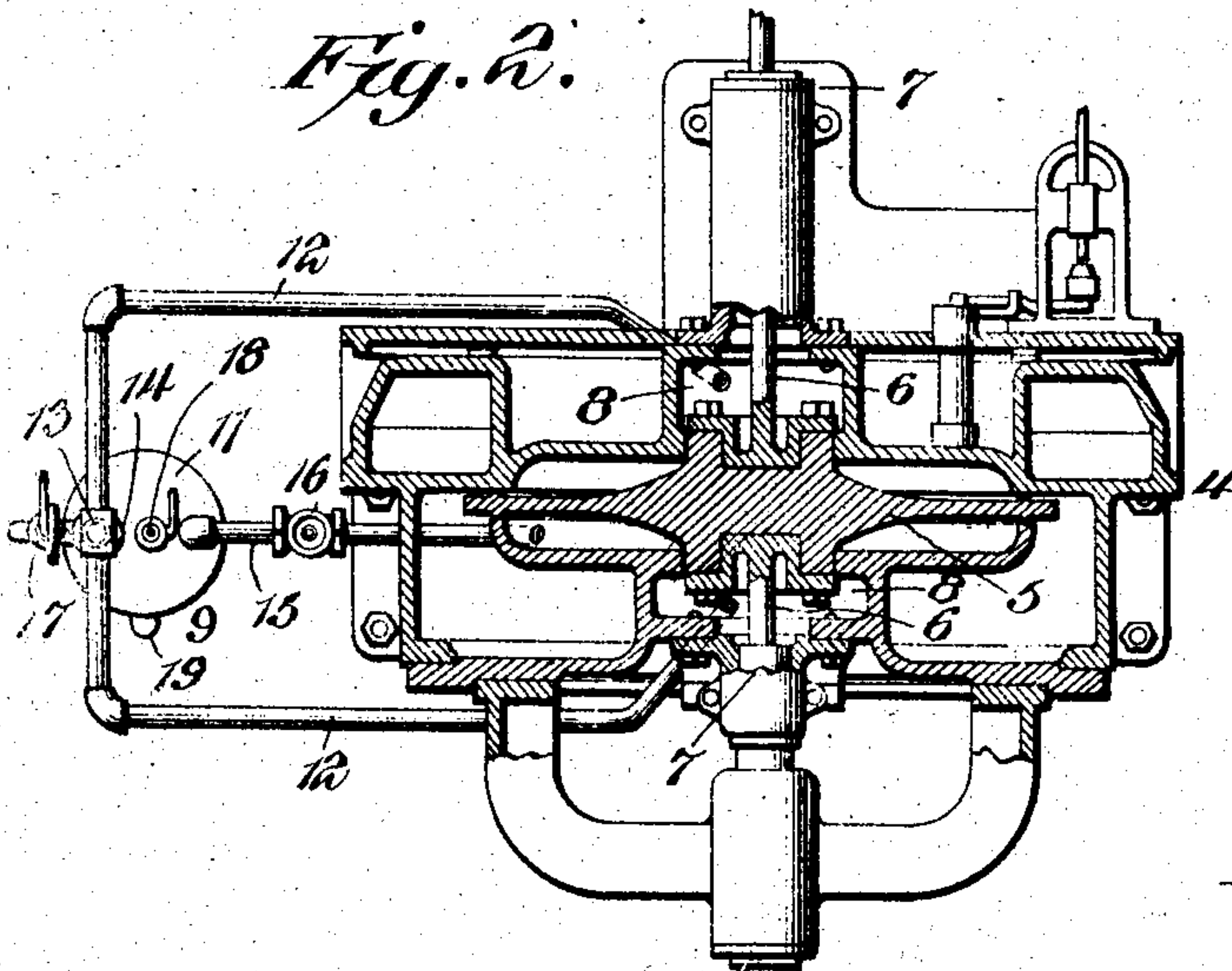
L. E. MURPHY.  
LUBRICANT CONSERVER.  
APPLICATION FILED MAR. 29, 1904.

NO MODEL.

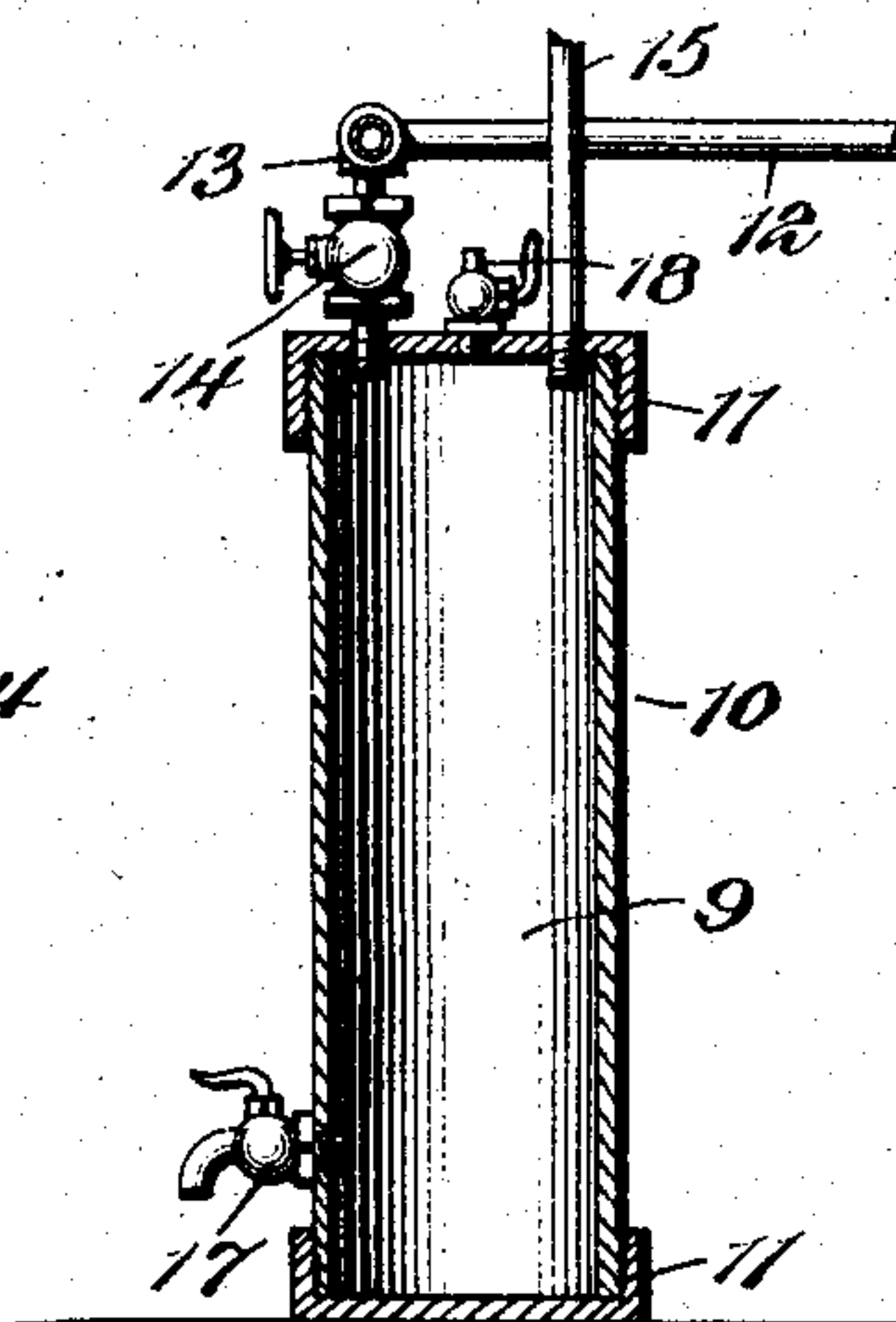
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

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## LUBRICANT-CONSERVER.

SPECIFICATION forming part of Letters Patent No. 772,954, dated October 25, 1904.

Application filed March 29, 1904. Serial No. 200,560. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS EDWARD MURPHY, a citizen of the United States, residing at Jacksonville, in the county of Duval and State of Florida, have invented a new and useful Lubricant-Conserver, of which the following is a specification.

This invention relates to means for preventing the waste and loss of oil employed in lubricating bearings, particularly those bearings of motors and turbines of the fluid-pressure type, though perhaps useful in other relations. It is a well-known fact that great quantities of lubricant passing through the bearings enter the engine or motor, passing thence to the condenser, and are therefrom discharged with the waste water or are returned with the feed-water to the boilers.

The object of the present invention is to provide novel and simple mechanism for preventing this waste and its consequent deleterious influence on the boilers by preserving and collecting the oil, so that it may be used over again.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of a well-known type of turbine, showing the conserver applied thereto. Fig. 2 is a horizontal sectional view through said turbine with the attachment shown in plan. Fig. 3 is a vertical sectional view through the lubricant-receiving reservoir.

Similar reference-numerals indicate corresponding parts in all the figures of the drawings.

The motor illustrated is the De Laval steam-turbine, comprising a suitable wheel-case 4, within which is mounted a turbine-wheel 5, supported by a sectional shaft 6, which shaft is journaled in suitable bearings 7, forming parts of the casing 4. Within the casing and on the other inner sides of the bearing are formed oil-receiving pockets 8, located beneath the shaft 6 and arranged to receive the lubricant which may pass through the bearings 7, travel along and drip from the shaft. When these pockets are filled, the oil ordinarily passes through to the interior of the

wheel-case and eventually finds its way to the condenser and back to the boiler with the feed-water. This objection is obviated by the following structure: A closed lubricant-receiving reservoir 9, consisting of a tubular shell 10, having end caps 11 fitted thereon, is located exteriorly of the turbine and has communication with the pockets 8 through conduits or oil-pipes 12, leading from said pockets to a common coupling 13, connected with the top of the reservoir. In this coupling is arranged a suitable valve 14, by means of which the communication can be controlled. A pressure or vacuum equalizing pipe 15, entirely independent of the pipes 12, constitutes the means of communication between the interior of the wheel-case and the reservoir, this pipe being also provided with a controlling-valve 16. A draw-off cock 17 communicates with the lower portion of the reservoir, and a valved vent 18 is located in the top of the same. A gage-glass 19 may also be employed, being secured to the side of the reservoir, as shown in Fig. 1.

As long as the motor is running the valves 14 and 16 are open, while the vent and draw-off cocks are closed. The result is that the vacuum in the motor and in the reservoir is equal and oil that may drip into the pockets 8 will pass freely and without interference through the conduits 12 into the reservoir 9. Thus it will be prevented from entering the wheel-case and being passed to the boiler with the feed-water of condensation. When it is desired to draw off the accumulated oil from the reservoir 9, the valves 14 and 16 are closed, while the vent and draw-off cocks are opened, permitting the passage of oil through the latter. It will therefore be apparent that this simple arrangement prevents the objections noted in the preliminary portion of the specification and effects a very considerable saving in lubricant, actual tests having shown that ninety per cent. of the oil can be conserved.

While the invention is shown in connection with a well-known type of motor working under a vacuum-exhaust, it will be apparent that the structure is capable of use in other relations and will operate as efficiently under steam-pressure.



The equalizer-pipe 15 is a feature of importance under certain conditions, and particularly in that type of motor wherein a vacuum is employed. It is of course desirable that the conditions so far as pressure or vacuum is concerned should be the same in the reservoir as in the motor-casing in order that the lubricant may flow without opposition into the former. If this equalization were secured solely through the lubricant-conducting pipes, the back draft would be from the reservoir to the motor through said pipes, and consequently in direct opposition to the direction of flow of the lubricant. By having the equalizer-pipe this objection is overcome to a very material degree, as the back draft can take place therethrough, and the lubricant will flow through the conducting-pipes by gravity without being drawn back. At the same time it may be stated that the equalizer-pipe is not an absolute necessity, particularly where the reservoir and connections can be maintained without leakage.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In apparatus of the class described, the combination with a fluid-pressure motor including a closed case and a shaft journaled in the case, of a lubricant-receiver located in the case, a closed lubricant-receiving reservoir, and a conduit connecting the receiver and the reservoir.

2. In apparatus of the class described, the combination with a fluid-pressure motor including a closed case and a shaft journaled in the case, of a lubricant-receiver located in the case, a closed lubricant-receiving reservoir located exteriorly of the case, and a conduit extending through the case and connecting the receiver and reservoir.

3. In apparatus of the class described, the combination with a fluid-pressure motor including a closed case and a shaft journaled therein, of a lubricant-receiving pocket located within the case, a closed lubricant-receiving reservoir located exteriorly of the case, a valved conduit extending through the case and connecting the reservoir and receiver, and a valved fluid-outlet connected to the lower part of the reservoir.

4. In apparatus of the class described, the combination with a fluid-pressure motor including a closed case and a shaft extending through the case and having spaced bearings therein, of spaced pockets located within the case and receiving the surplus lubricant from the bearings, a closed reservoir located exteriorly of the case, and lubricant-conducting connections extending through the case and connecting the pockets and reservoir.

5. In apparatus of the class described, the combination with a fluid-pressure motor including an inclosing case, of a bearing associated therewith, an oil-receptacle located within the case and receiving the surplus lubricant from the bearing, an oil-reservoir located exteriorly of the case, a conduit for conducting oil from the receptacle to the reservoir, and an equalizer-pipe connecting the case and the reservoir.

6. In apparatus of the class described, the combination with a motor comprising a case and a shaft having bearings in the case, of lubricant-pockets for receiving surplus lubricant from the bearings, and a closed lubricant-receiving reservoir having air-tight lubricant-conducting connections with the pockets and communication with the interior of the case.

7. In apparatus of the class described, the combination with a motor comprising a case and a shaft having bearings in the case, of lubricant-pockets located within the case for receiving surplus lubricant from the bearing, a lubricant-reservoir arranged exteriorly of the case, lubricant-conducting conduits connecting the pockets and reservoir, and an equalizer-pipe constituting means of communication between the interior of the case and the reservoir.

8. In apparatus of the class described, the combination with a rotary motor having a wheel-case, of a wheel located within the case, a shaft supporting the wheel and having bearings in the case, pockets formed in the case inside the bearings, a closed lubricant-receiving vessel arranged exteriorly of the case, a valved outlet from said vessel, a valved vent in said vessel, lubricant-conducting pipes communicating with the pockets and leading to the vessel, valves for controlling such communication, and a valved equalizer-pipe connecting the case and the vessel.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

LOUIS EDWARD MURPHY.

Witnesses:

JOHN E. IVERS,  
MARK E. FRETWELL.