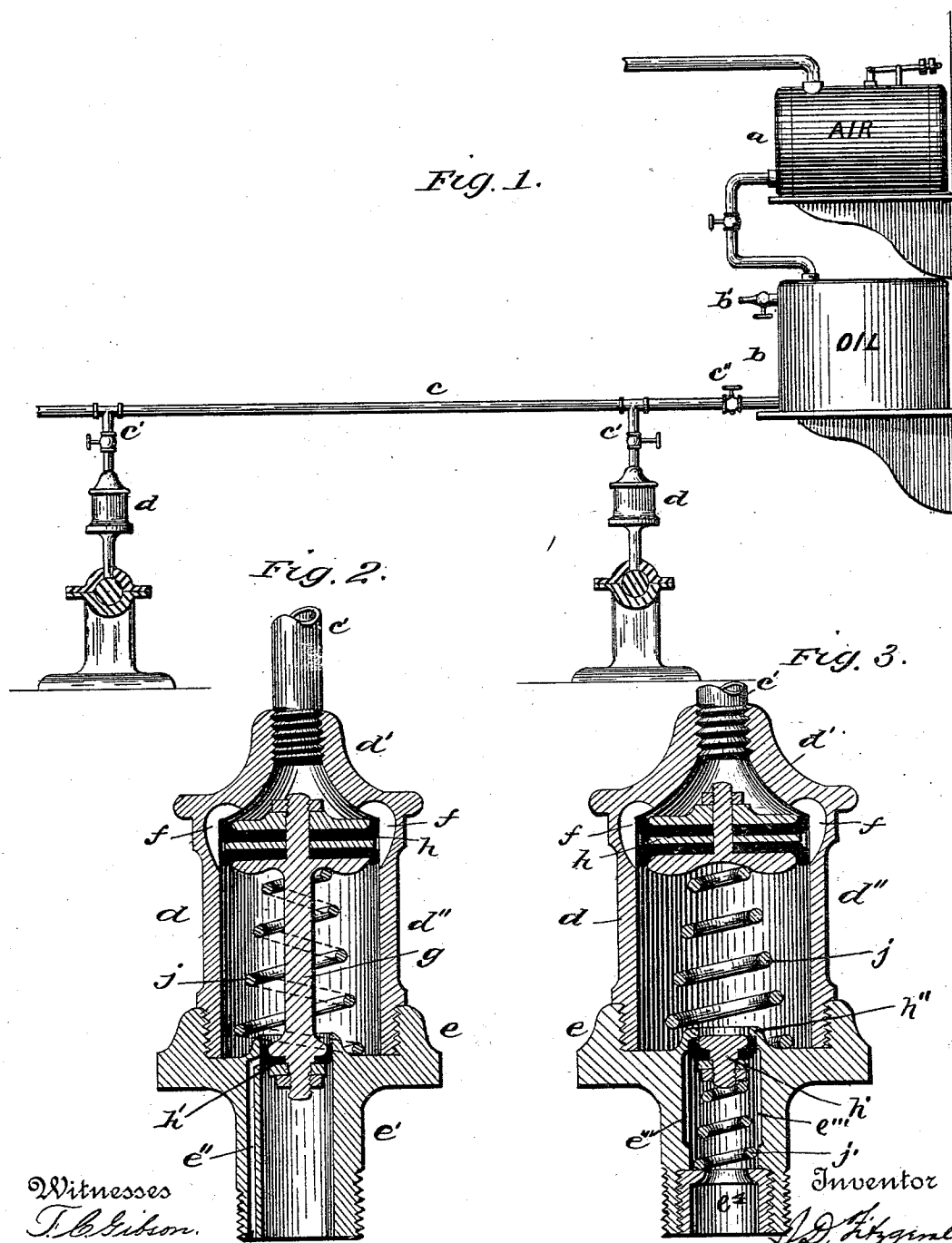


J. D. FITZGERALD.  
LUBRICATOR.

Patented Aug. 25, 1891.



Witnesses  
T. B. Gibson.  
W. R. Davis

Inventor  
J. D. Higgins  
By his Attorneys  
Alexander & Davis

# UNITED STATES PATENT OFFICE.

JAMES D. FITZGERALD, OF SELMA, ALABAMA.

## LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 458,450, dated August 25, 1891.

Application filed April 13, 1891. Serial No. 388,634. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES D. FITZGERALD, a citizen of the United States, residing at Selma, in the county of Dallas and State of Alabama, have invented certain new and useful Improvements in Lubricators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to means for oiling or lubricating journal and other bearings; and it is especially designed to provide an improved pressure system whereby a series of connected oil-cups located at various points throughout a building or machine-shop may be simultaneously caused to forcibly discharge their contents into or upon their respective bearings as often as may be desired, all the cups being controlled and operated from a single point, as will be more fully hereinafter shown; also, to provide an improved and simple oil-cup to operate in connection with the said system.

In the drawings annexed, Figure 1 represents a side elevation of one form of my apparatus or system, and Fig. 2 a vertical sectional view of one of my improved cups; Fig. 3, a similar view of a modification of the cups.

Referring to the drawings by letter, *a* designates a compressed-air reservoir suitably mounted and provided with suitable valved inlet and outlet pipes and safety-valve, and *b* an oil-tank connected to the said compressed-air reservoir by a valved pipe and provided with a suitable blow-off cock *b'*. The main oil-supply pipe *c* leads out of this oil-tank, and is extended to wherever the bearings may be located, this pipe being provided with a suitable cock *c''* to shut off the supply of oil to the bearings whenever desired. Branch pipes *c'* connect the main supply-pipe to the oil-cups *d*, these branch pipes also being valved, so that any one of the cups may be cut off from the supply-pipe without interfering with the operation of the others.

The cups are each constructed as follows: A vertical cylinder *d''* has formed or screwed on its upper end a head or cap *d'*, and into a central tubular projection formed on this head and leading into the cylinder is screwed the end of the oil-pipe *c'*. Screwed upon the lower end of the cylinder is a head or cap *e*, provided with a central tubular extension or sup-

plemental cylinder *e'*, which is provided at its lower end with external screw-threads to enable the cups to be attached to the bearing in the usual manner. Working in the upper cylinder *d''* is a piston *h*, which is kept normally pressed upward against the upper head by a helical spring *j*, interposed between it and the lower cap. Connected to the upper piston by a stem *g* is a smaller piston *h'*, which works in the lower cylinder *e'*, this piston when in its normal position resting near and closing the upper end of its cylinder. Formed in the interior of the cylinder *d''* and head *d'* are one or more grooves or ports *f*, which permit the inflowing oil to pass freely around the upper piston when the same is in its normal position and completely fill the cylinder of the cup, the lower piston normally preventing the oil entering the lower cylinder or tube. A longitudinal oil port or passage *e''* is formed in the wall of the lower cylinder or tube and connects at its upper end with the interior of the same a little below or even with the piston *h'*, the lower end of the port discharging into the bearings. When the oil from the tank is let into the cups through the pipes, it flows around the upper pistons through the passages *f* and fills the cup-cylinders, and when it is desired to lubricate the bearings the operator simply lets a supply of compressed air from the reservoir into the oil-tank, whereupon the pressure upon the oil in the same and the connected pipes will simultaneously depress the spring-pressed pistons in the cups. In descending, as soon as the upper piston has passed the lower ends of the oil-passages *f*, the supply of oil to the cup-cylinder is cut off, as is evident, and simultaneously with or a little previous to the cutting off of the supply of oil to the cup-cylinder the lower piston passes the oil-discharging port *e''*. Then by continuing the pressure of oil upon the upper piston all or any desired amount of the oil in the cups below the same may be forced out through the discharge-ports into or upon the bearings to be lubricated. When the air-pressure upon the oil in the tank is removed by means of its blow-off cock *b'* or otherwise, the pistons are pressed back to their normal positions and the cup-cylinders again fill with oil, ready for another operation.

It is obvious that I am not confined to compressed air as a source of pressure, inasmuch as other fluids—such as steam—may be used with perhaps equal advantage, or an ordinary hand-pump may be employed to exert the required pressure.

The modification shown in Fig. 3 may be employed without departing from the invention in the least. It will be observed that by this form of device the same result may be accomplished without connecting the pistons together by the stem *g*, the lower piston *h'* being kept normally pressed up against an interior shoulder *h''* on the upper end of its cylinder by a spring *j'*, supported upon a ring *e'*, screwed in the lower end of the cylinder.

In this device the oil confined between the two pistons will serve as a medium for depressing the lower piston simultaneously with the upper one. In this view, also, it will be observed, a longitudinal groove *e'''* in the lower cylinder is employed as a discharge-passage instead of the passage *e''*, (shown in Fig. 2,) which is a hole formed in the wall of the cylinder and nearly extending the full length thereof. It is preferred to make the upper cylinder and piston larger than the lower cylinder and piston, as shown in Fig. 2; but this is not altogether essential to the invention. When the pistons are rigidly connected, as in Fig. 2, and it is desired to forcibly discharge the oil into the bearings, it is necessary that the upper cylinder be the larger; but when they are not rigidly connected, as in Fig. 3, their relative size is immaterial so far as the operation is concerned.

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

1. The combination of an oil-tank, means for exerting a pressure upon the oil therein, an oil-supply pipe leading from the oil-tank, oil-cups connected to bearings, branch pipes connecting the inlet ends of the oil-cups to

the main supply-pipe, and means in each of the cups for discharging oil upon the bearings, said means being operated by the pressure exerted upon the oil in the tank, substantially as and for the purpose described.

2. The combination of an oil-tank, means for exerting a pressure upon the oil in said tank, an oil-supply pipe leading from the tank, oil-cups connected to the supply-pipes and bearings, said cups each consisting of two communicating cylinders, a piston working in each cylinder and normally closing the inlet ends of the same, an oil-passage leading around the upper piston, and a discharge-passage communicating with the lower cylinder at a point below the upper side of the lower piston, as and for the purpose described.

3. In an oil-cup, the combination of two cylinders connected to each other, connected pistons working in these cylinders, means for normally pressing the pistons toward the inlet ends of their cylinders, an oil-passage leading around the upper piston, and a discharge-passage *e''*, communicating with the lower cylinder at a point below its upper side, substantially as and for the purpose set forth.

4. The combination, in an oil-cup, of two communicating cylinders connected together, a piston working in each of these cylinders and normally closing the inlet ends of the same, an oil-passage leading around the upper piston, a discharge-passage communicating with the lower cylinder at a point below the upper side of the lower cylinder, and means for depressing the pistons, whereby oil may be forcibly discharged upon the bearings to which the cups are attached, substantially as and for the purpose described.

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

JAMES D. FITZGERALD.

Witnesses:

H. Q. SHELLEY,  
E. C. MELVIN.