(No Model.)

2 Sheets—Sheet 1.

J. GATES.

Lubricator.

No. 238,674. Patented March 8, 1881.

Fig. 1.

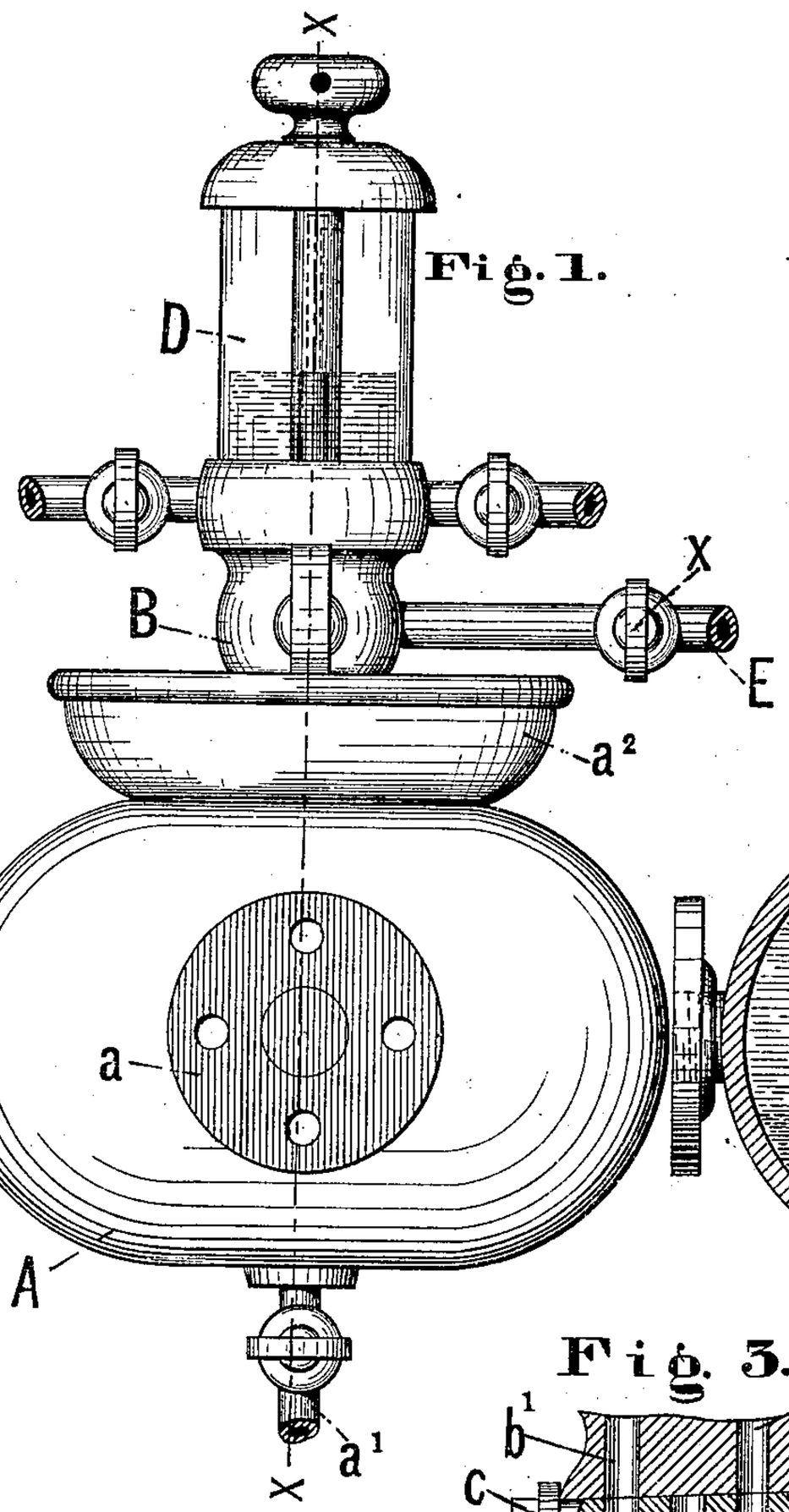


Fig. 2.

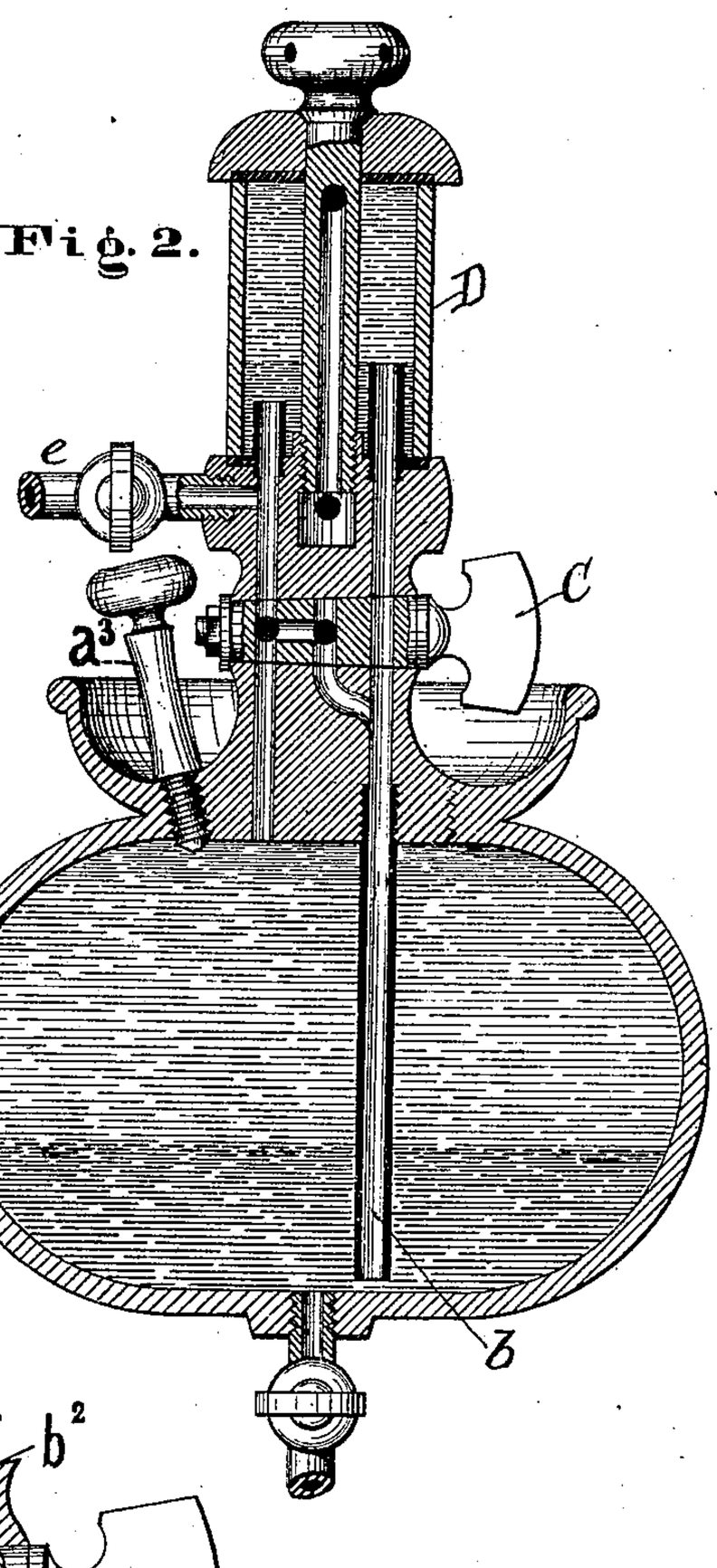


Fig. 3.

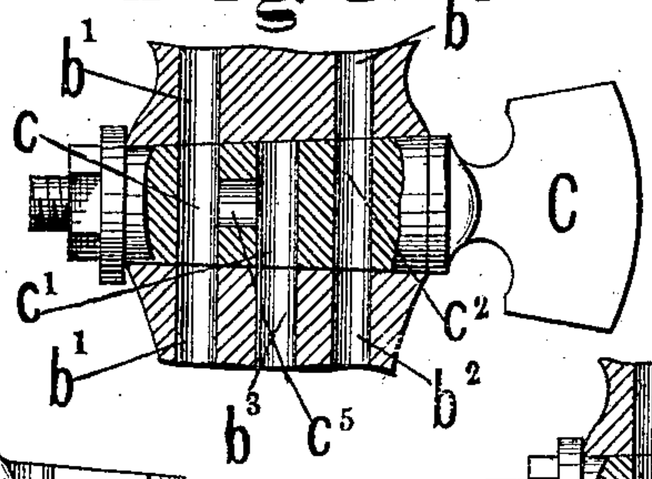


Fig. 4

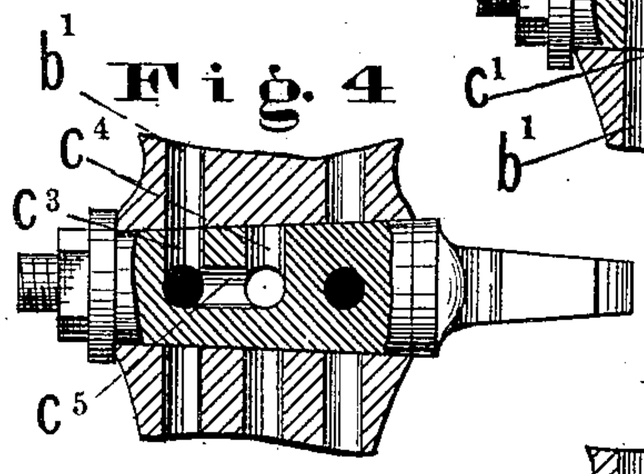


Fig. 5.

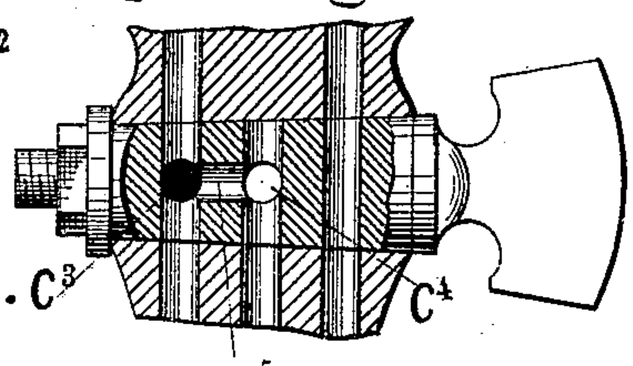
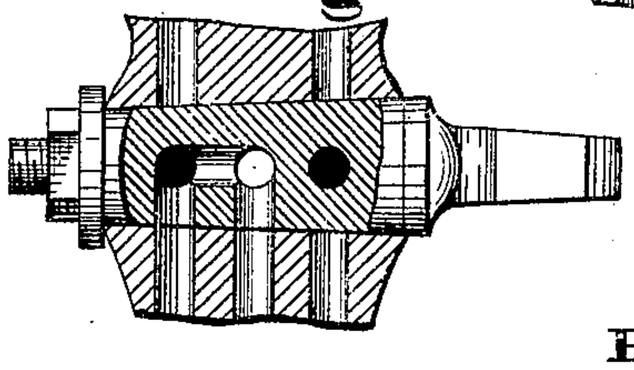


Fig. 6.



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(No Model.) 2 Sheets—Sheet 2.

J. GATES.

Lubricator.

No. 238,674. Patented March 8, 1881.

Fig. 7.

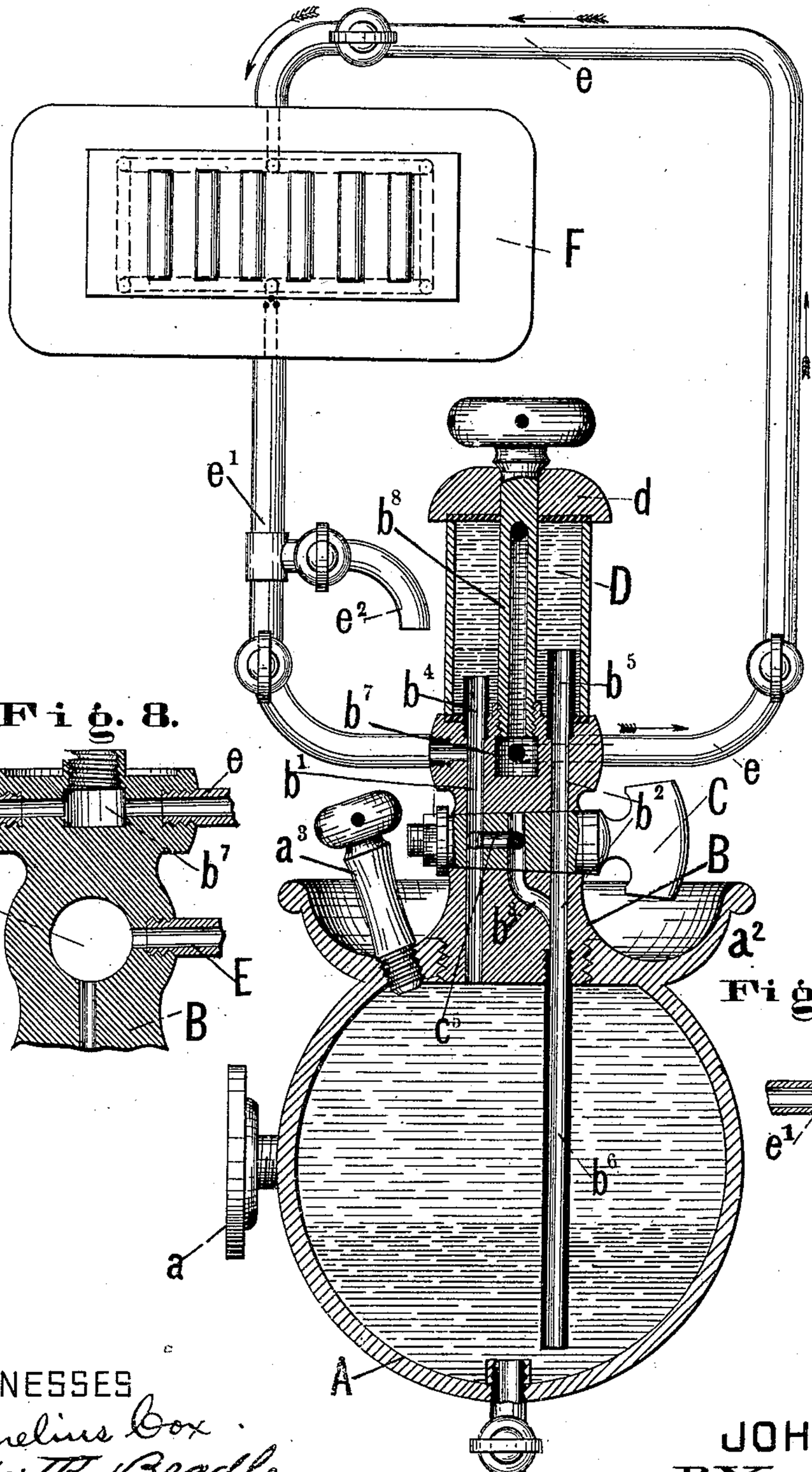


Fig. 7,a.

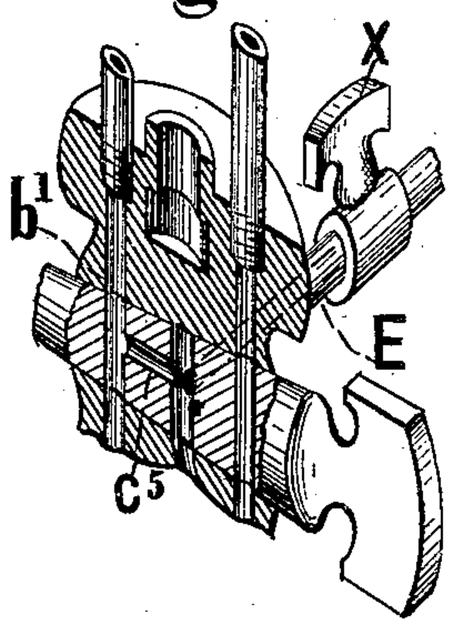


Fig. 8.

Fig. 9.

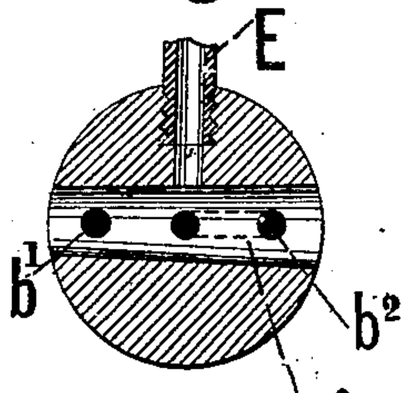
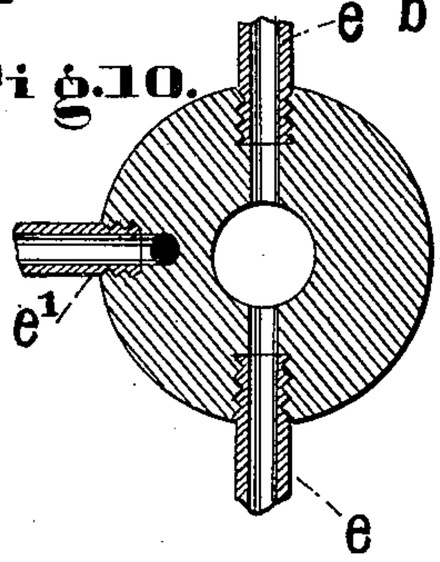


Fig. 10.



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UNITED STATES PATENT OFFICE.

JOHN GATES, OF PORTLAND, OREGON.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 238,674, dated March 8, 1881.

Application filed June 3, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOHN GATES, of the city of Portland, county of Multnomah, and State of Oregon, have invented new and useful Improvements in Lubricators; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to that class of lubricators which is based upon my patent of April 29, 1873, No. 138,243; and it consists, mainly, first, in the combination, with the oil-tank and water-glass, of a water-pipe extending downward into the oil-tank to a point near the bottom of the same; second, in the combination, with the glass, of a gage-nozzle, by means of which the amount of oil delivered in a single jet is determined; and, third, in the peculiar construction of the intermediate cock between the tank and the glass.

In the drawings, Figure 1 represents a side view of the improved lubricator complete; Fig. 2, a vertical section of the same on the lines *x x* of Fig. 1; Figs. 3, 4, 5, and 6, detail views, showing the intermediate cock in its different positions; Fig. 7, a lubricator, a valve in connection with which it is employed, and the pipe-connections uniting the two together. Fig. 7ª represents a perspective view representing the passage and pipes by means of which the pressure-pipe E is connected to the chamber of the gage-glass; Figs. 8, 9, and 10, detail views, showing the relative positions of the different pipes and passages.

To enable others skilled in the art to make and use my improved lubricator, I will now proceed to describe fully the construction and operation of the same.

A represents an oil-tank, preferably of globular form, which is provided upon one side with a bracket, *a*, by means of which it may be readily attached to any proper point of support, and below with an opening, from which extends a waste-pipe, *a'*, controlled by a suitable cock, as shown.

a^2 represents on annular drip-pan, located upon the tank, which is provided with an opening leading into the latter, this opening being closed ordinarily by the removable filling-plug a^3, Fig. 7, as shown.

B represents a standard or cylindrical block rising from the top of the tank, which serves to support, in part, the water-glass D, hereinafter referred to. *b*, Fig. 8, represents a transverse cylindrical opening in this standard, which is adapted to receive the cock C, hereinafter referred to. *b'* represents a vertical opening or passage in the standard B, extending from the transverse opening in an upward and downward direction the entire length of the same. b^2 also represents a vertical opening or passage extending from the transverse opening in an upward and downward direction the entire length of the same. b^3 represents a passage extending from the transverse opening in a downward inclined direction into the passage b^2, as shown. b^4 represents a short nozzle screwed into the upper portion of the standard B, in line with the passage *b'*, as shown. b^5 represents a longer nozzle screwed into the upper portion of the standard B, in line with the passage b^2, as shown. b^6 represents a pipe-section screwed into the lower part of the standard B, in line with the passage b^2, as shown; b^7, a chamber, located in the upper portion of the block or standard B, having a passage leading therefrom to the exterior of the block, as shown. b^8 represents a hollow bolt screwed into the top of the chamber b^7, which communicates above, by means of a horizontal opening, with the space in the glass near the top line of the latter.

C represents the cock located in the transverse opening *b* of the standard before referred to. *c c' c²*, Fig. 3, represent passages extending through the same, in a vertical direction, when the cock is in the position shown; and c^3 c^4 represent passages extending to the center of the same, in a horizontal direction, when the cock is in the same position—that is, the position shown in Fig. 3. c^5 represents a longitudinal passage, by means of which the passages c^3 and c^4 are united.

D represents a glass cylinder, located upon the top of the block B, and *d* a cover-plate resting upon the top of the same, as shown. By means of suitable packing the ends of the cylinder are made perfectly tight. The cylinder and cover-plate are properly secured in place by means of the hollow bolt b^8, before referred to.

E represents a pipe, controlled by any suitable cock, *x*, which communicates, by means of a suitable passage-way, with the transverse opening *b* of the block B, and extends away to any proper source of water-supply, or other means for furnishing an increased pressure. *e e* represent oil-pipes, controlled by any suitable cocks, which communicate, by means of suitable passages, with the chamber b^7, and extend away to any desired part which it is desired to lubricate. *e'* represents a pipe leading from the part which is lubricated back to the lubricator, which pipe communicates, by means of a proper horizontal passage, with the vertical passage *b'*, as shown. e^2 represents a branch pipe, controlled by a proper cock, by means of which the fluid contents of the valve may be drawn off, if desired, and be delivered into the drip-pan.

F represents the valve to be lubricated, which is connected above with the supply-pipe *e* and below with the return-pipe *e'*, as shown.

The various operations of the lubricator under different conditions will now be shown.

First, method of filling the tank and glass: The oil-tank being empty, the oil may be readily introduced after the filling-plug has been removed from the opening by pouring the oil directly into the same or into the drip-pan. If the oil-tank is full of water, the same is allowed to escape through the waste-pipe as the oil is introduced. Sufficient water, however, should be left in the tank to cover the lower end of the pipe b^6. The cock C then being turned into the position shown in Fig. 4, communication between the glass and the tank will be entirely cut off. Water being admitted through the supply-pipe E, Figs. 7ª and 9, and passage c^5 *b'*, Fig. 7ª, to the glass, the same is filled thereby.

The method of operation is substantially as follows: The cock *x* of water-supply pipe E being closed, turn the cock C into the position shown in Fig. 7. Communication, consequently, being opened between the glass and the tank, the water, owing to its superior gravity, will sink through the nozzle b^5, passage b^2, and pipe b^6 into the tank and force up a corresponding amount of oil through the passage *b'* and nozzle b^4. The water in the glass will not fall lower than the mouth of the nozzle b^5, and hence the height of the nozzle will determine the amount of oil which the glass will contain. If the cock of the water-supply or increased-pressure pipe E is now opened, the entire body of oil in the glass will be ejected through the hollow bolt b^8 and the oil-supply pipe *e* to the place of lubrication. No oil will arise from the tank at this time, because the passage of the same is prevented by the inflowing water-column. After oil has been expelled from the glass the latter may be filled again by simply closing the cock in the water-supply pipe. By thus opening and closing the cock *x* in supply-pipe E the oil may be ejected in jets—that is, the contents of the glass may be delivered bodily at one time to the part to be lubricated, instead of being delivered in drops at intervals, as is usual in this class of lubricators.

Some of the advantages of the described construction are as follows: By means of the downwardly-extending water-pipe b^6 the flow of oil from the tank is prevented, excepting through the passage *b'*. When, then, this passage *b'* is closed to the passage of oil by the pressure of an incoming water-volume, as occurs when feeding in jets, it follows that only the oil which is in the gage-glass will be delivered therefrom, and consequently the precise amount used may be known with certainty. The amount of oil raised into the glass by the descent of the water contained therein when the intermediate cock is opened is determined by the height of the water-nozzle, the flow of water from the glass being stopped when the level of the mouth is reached. From this it follows that the capacity of the glass may be readily varied by changing the length of the nozzle. By means of the special construction of the intermediate cock, C, the various operations hereinbefore described are rendered possible. By means of the branch pipe e^2 the oil from the valve may be drawn into the drip-pan, when desired. By connecting the above with the valve-chamber an equilibrium is established between the two, so that the oil may be floated into the valve without the employment of special pressure for injecting it.

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

1. In a lubricator having the oil-gage glass D and the reservoir A, the intermediate connecting-passage, *b' b²*, the pressure-pipe E, and the extended pipe b^6, the construction being such that the contents of the gage-glass may be delivered, in whole or in part, without affecting the contents of the reservoir.

2. In combination with the tank and glass, the standard B, having passages *c c' c² c³ c⁴ c⁵*, adapted to register with the passages in the standard.

3. The lubricator described, consisting of a reservoir, A, standard B, a glass gage, D, located above the same, an intermediate cock, C, located between the two, a gage-nozzle, b^5, extending into the glass gage to determine the amount of oil that the same will contain, a downwardly-extending pipe, b^6, and a passage, *b'*, adapted to receive a water-supply, as described.

JOHN GATES.

Witnesses:
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