

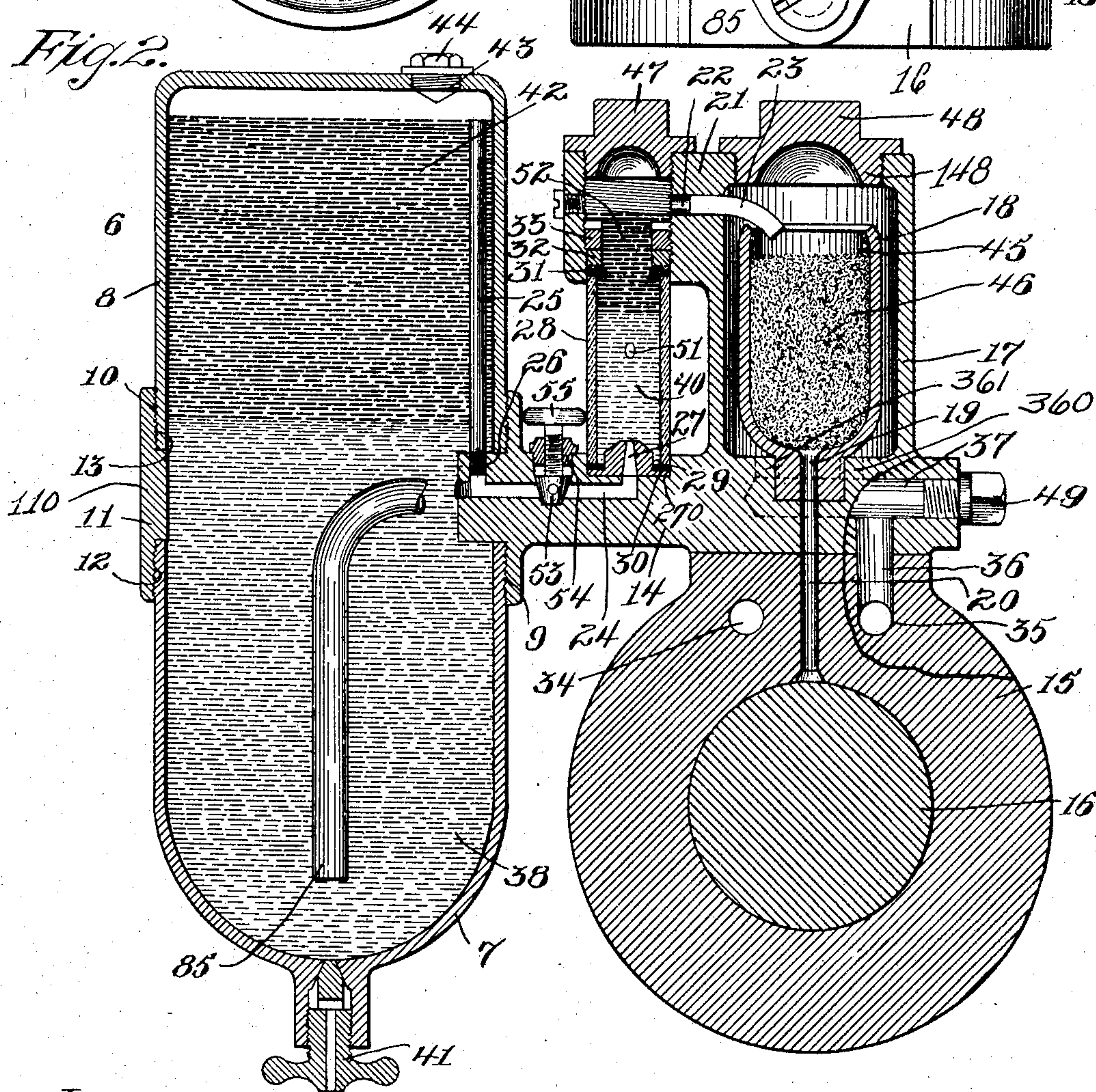
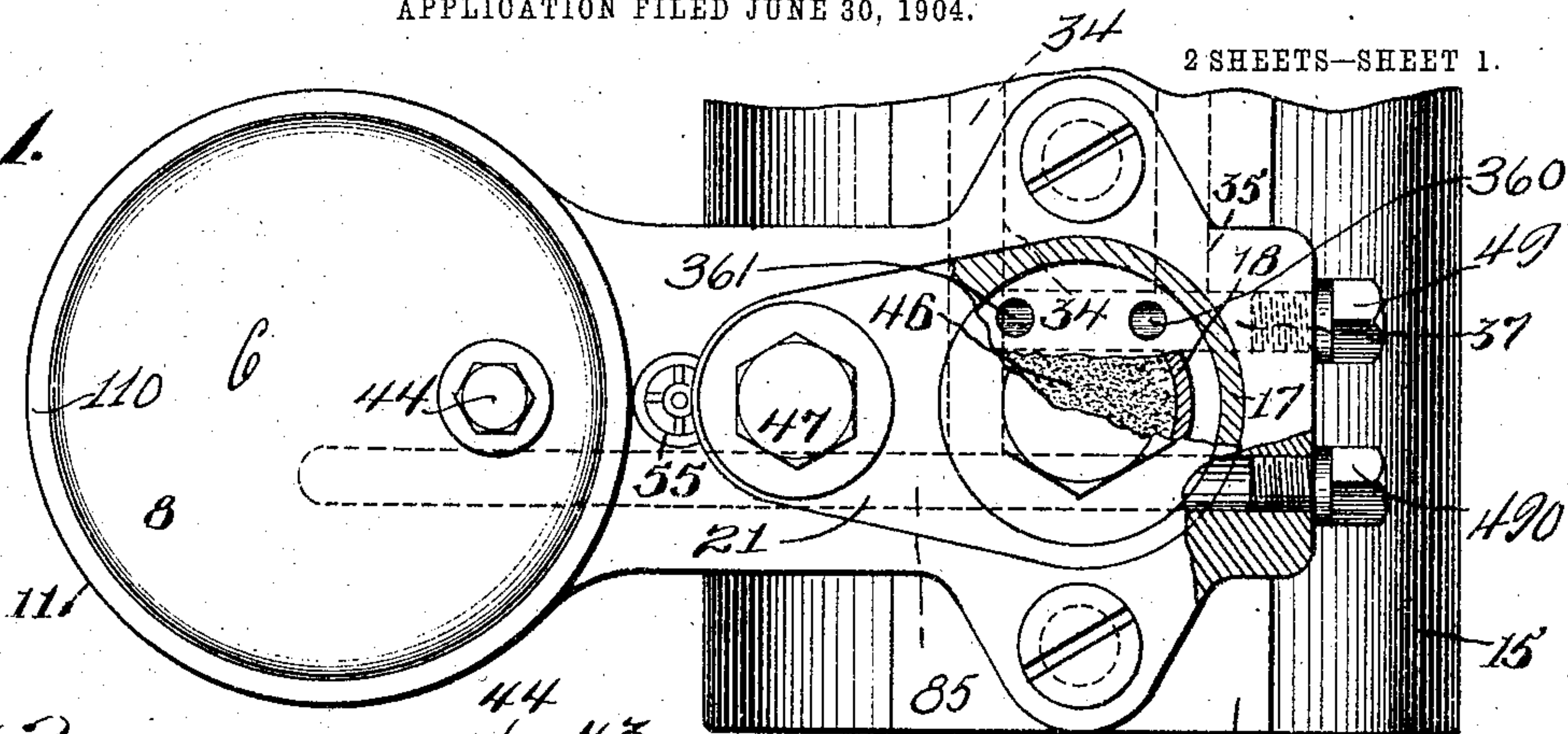
No. 780,778.

PATENTED JAN. 24, 1905.

C. COMSTOCK.
LUBRICATOR.

APPLICATION FILED JUNE 30, 1904.

2 SHEETS—SHEET 1.



Witnesses:

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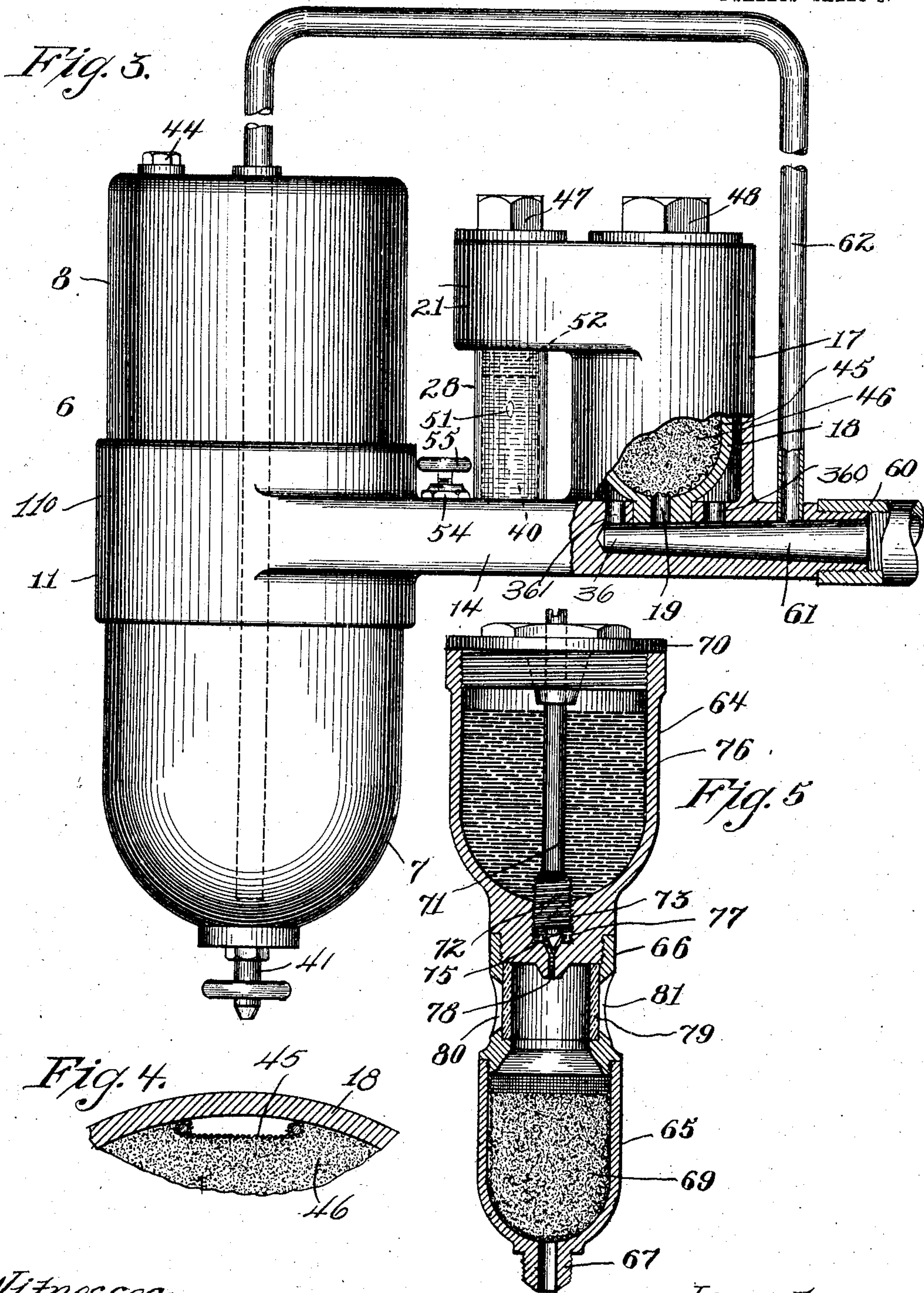
By his Attorney,

F. W. Richards.

C. COMSTOCK.
LUBRICATOR.

APPLICATION FILED JUNE 30, 1904.

2 SHEETS—SHEET 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHESTER COMSTOCK, OF BROOKLYN, NEW YORK.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 780,778, dated January 24, 1905.

Application filed June 30, 1904. Serial No. 214,701.

To all whom it may concern:

Be it known that I, CHESTER COMSTOCK, a citizen of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Lubricators, of which the following is a specification.

This invention is directed to the art of lubricating, and comprehends the admixture of one material with another, whereby both may be discharged to the parts to be lubricated in a compound form.

The invention further comprehends the construction of such devices or apparatus as will automatically accomplish such admixture and to do so preferably by a process resulting in the final discharge of the lubricant, and which discharge may be effected by pressure or gravity.

It is comprehended that the results to be obtained may be effected through the instrumentality of various constructions which may be suitably adapted for the purpose specified, and it will therefore be understood that the constructions illustrated on the accompanying sheets of drawings, together with the detailed description thereto appertaining, shall not be considered as confining my invention to the particular form of mechanism or apparatus herein illustrated and described.

It is an object, among others, of the invention to provide any suitable structure which is capable of carrying forth an idea of feeding a lubricant by a gradual discharge and so directing such discharge through another lubricating substance that both of said lubricants may be combined and finally discharged in compound form with that degree of simplicity and efficiency as will render the device practicable and desirable.

An embodiment of the invention is illustrated by the accompanying sheets of drawings, whereon—

Figure 1 is a plan view of an improved lubricating apparatus, portions of which are broken away so as to disclose its construction and the apparatus being shown is applied to a journal-bearing. Fig. 2 is a sectional view in elevation of the same. Fig. 3 is an elevational view of such lubricating apparatus, the same being similar to that shown in Fig. 2

with the exception of that portion partially broken away, which is slightly changed for adaptation to a valve-chest of a cylinder. (Not shown.) Fig. 4 is a plan sectional view showing the wire-cloth lining disposed upon a frame which is inserted into the apparatus, and Fig. 5 illustrates a modified form of a lubricating device.

Throughout the various figures similar characters of reference apply to similar parts.

As has been remarked that inasmuch as the principle of this new invention—that is, the conduct of one lubricant into another, then discharging both in a mixed or compound state—is capable of being embodied in a variety of devices, I have, for example, illustrated a device applied to a journal-bearing—for instance, as shown in Fig. 2—and to an exhaust-pipe of a cylinder in another instance, as shown in Fig. 3, and in the third instance I have shown a device capable of being applied to various elements of machinery, &c., where the other illustrated devices may not be so well adapted for application. In either case it will be observed that the invention primarily comprehends the provision of a reservoir adapted to contain a lubricant, a receptacle for containing another lubricant, means for introducing one lubricant into the other, and a “sight” whereby it may be determined the amount of lubricant used.

Referring now to the construction shown in Figs. 1 and 2, 6 indicates in a general way a reservoir which may be made in any suitable manner and which in the present instance may comprise upper and lower cylindrical sections 7 and 8, respectively, each of which may be screw-threaded exteriorly, as at 9 and 10, so that they may be fitted into a frame or bracket 11, internally screw-threaded at 12 and 13 to receive the screw-threaded portions 9 and 10 of said sections, said bracket in the present instance being provided with an internally-projecting shoulder 110, by which the inner wall of the reservoir 6 may be continued, as seen in Fig. 2. This frame 11 may be carried by an arm or extension 14, which in the present instance may be suitably supported upon a bearing 15, in which may rotate a journal 16. Suitably mounted, preferably, upon this

extension 14, and which, if desired, may be integral therewith, is a steam-chest 17, which is provided with a removable plug 48, preferably screw-threaded into the mouth of said chest, 5 as at 148, and whereby said chest may be tightly closed when the device is in operation. Within this chest 17, and preferably stepped into the wall of the extension 14, is a receptacle 18, provided at its bottom with an opening 19, adapted to register with a conduit 20, 10 which passes through the extension 14 and the bearing 15 and communicates with the opening in which the journal rotates.

The chest 17 in the present instance may be 15 cast integral therewith, it being understood that the frame 11, extension 14, chest 17, and extension 21, if desired, may be cast in one piece for cheapness of manufacture. Said extension 21 is provided with a bore which is 20 internally screw-threaded, and passing from said bore to the interior of the chest 17 through the wall of the extension 21 is a port 22, to which in the present instance is attached a nozzle 23, directed into the mouth of the receptacle 18, located in said chest 17. 25

The extension 14 in the present instance may be provided with a conduit 24, extending longitudinally and inwardly through said extension and to which is connected at 26 an elongated perpendicularly-disposed pipe 25, which 30 extends upwardly in the reservoir 6 preferably to a point very near the top of said reservoir.

The extremity of the conduit 24 communicates with a nozzle 27, which in the present 35 instance is stepped into a seat 270 in the extension 14, and this nozzle extends upwardly into a glass tube or sight 28, which is mounted on a packing-ring 29, located around said 40 nozzle 27, and which glass tube extends upwardly and communicates with the bore of the extension 21, whereupon the same may be secured in place by metallic gaskets 32 and 33, a packing 31 being interposed between one of 45 said gaskets and the top of said tube for the purpose of preventing leakage. A plug 47 is screw-threaded into the bore of the extension 21, and thus, as is obvious, a complete airtight communication is obtained between the 50 reservoir 6 and the journal 16 through the pipe 25, the conduit 24, the tube 28, the nozzle 23, and the conduit 20.

The interior of the receptacle 18 is lined, preferably, with gauze, wire-cloth, or other 55 open-mesh lining 45 and is filled in the present instance with some suitable lubricating compound 46—such, for instance, as graphite—which lies in said receptacle in a non-liquid mass, as seen in Fig. 5, upon which 60 may be discharged a lubricant from the nozzle 23, as will be more fully explained hereinafter.

From a suitable source of supply and coming through the conduit 34 is steam, which passes

through a transversely-disposed conduit 85, 65 which extends through the wall of the reservoir 6 and conducts the water of condensation down into and near the bottom thereof, it being understood that for convenience and economy such steam may be obtained from 70 any suitable source.

For the purpose of causing the pressure in the reservoir 6 and the chest 17 to be equal I provide a second conduit, 35, which communicates with a conduit 36, entering into a 75 conduit 37 and which communicates with openings 360 and 361, which enter through the bottom of the chest 17, causing such chest to be filled with steam, whereby pressure will be so directed onto the graphite as 80 to prevent it from being lifted out of the receptacle by under pressure through the port 19.

The steam directed through the conduits 34 and 35 will be condensed into water 38 in the 85 reservoir 6, and such condensation will have a tendency to fill said reservoir. Through the opening 43 in the top of the reservoir, which is provided with a closing-plug 44, I pour oil 42, which rests upon the water resulting from condensation. The glass tube 28 may also be provided with a suitable amount of water 40 for purposes shortly to be explained. 90

As the process of condensation takes place 95 and the drip passes through the pipe 85 the water resulting therefrom will cause the oil which is borne on its surface to rise, and when the oil reaches the mouth of the pipe 25 it will course down into the conduit 24, 100 which will gradually fill as the condensation continues until it reaches the mouth of the nozzle 27, when the drops 51 of oil will be expelled from said nozzle upward through the water 40 until it reaches the surface thereof, 105 when a second mass of oil 52 accumulates on the top of the water in the tube 28 until it reaches the mouth or level of the port 22, when it will commence to run through said port into the nozzle 23 and drip onto the mass 110 of graphite contained in the vessel 18. The oil runs in upon the graphite and spreads over the latter, and when it reaches the wire-cloth 46 it will trickle down said cloth to the opening 19, where it will drip off drop by drop 115 through the conduit 20 onto the journal 16, it being understood that as the oil spreads over the graphite each drop of said oil will carry with it a portion or deposit of the graphite, whereby that lubricant which passes 120 through the conduit 20 will be a composition of oil and graphite or their equivalents.

As has been remarked, the oil leaves the nozzle 27 in drops 51, which drops pass through the water 40 contained in the glass 125 tube 28. In this way the speed with which the final discharge of the lubricant takes place can be ascertained by the rapidity with

which these drops are being expelled from said nozzle through the water.

For the purpose of preventing too great a discharge of the lubricant I situate in the conduit 24 a valve 53, suitably held in place by a collar 54 and which is provided with a handle 55, and by this means the quantity of lubricant to be discharged may be arranged for.

For cleansing the chest, as well as the bore and tube, I may provide plugs 47 and 48, respectively, which may be suitably screw-threaded one into said chest and the other into said bore in a manner, for instance, as shown, and for cleansing the conduits 37 and 85 I may provide plugs 49 and 490, suitably screw-threaded into said conduits, as shown.

The same structure as heretofore described and which embodies the reservoir 6, the glass tube 28, the extension 21, the chest 17, and the receptacle 18 is shown in Fig. 3, and it may embody all of the details of construction heretofore pointed out with reference to Figs. 1 and 2. Instead, however, of being applied to a journal, as shown, for instance, in Fig. 2, the same is applied to a steam-pipe 60, connected with a valve-chest, (not shown,) and a lubricant-conduit 61 instead of being directed downwardly through the extension 14 is preferably directed along the longitudinal axis of said extension into the mouth of the pipe 60. Communicating with such conduit 61 is a pipe 62, which is directed into the reservoir 6 in a manner similar to that heretofore explained, whereby steam may pass therethrough and be held in a condensed condition within the reservoir in the manner heretofore described. The two structures are practically similar, with the exception that the method of the application of the parts to be lubricated is somewhat different.

In Fig. 5 I illustrate another construction which may be used in connection with various parts to be lubricated, such as small journals, &c., and this construction discloses a reservoir 64, a receptacle 65, an intermediate connection 66, and a nozzle 67 for attaching the combined structure in place. The interior of the receptacle 65 may be provided with a wire-cloth lining or other open-mesh lining and also be filled with graphite or other suitable material 69. The reservoir may be provided with a screw-threaded plug 70, through which may be passed a stem 71, having a screw-threaded head 72, fitted into the screw-threaded opening 73 in the base of said reservoir 64 and which head in the present instance may be provided with an oblique conduit 75, through which the oil 76 in the reservoir 64 may drip into a chamber 77 and through a conduit 78 into the graphite 69, the extent to which said oil may drop being determined by the adjustment of the rod 71, preferably, and for observing the extent to which the oil is dropping on the graphite I

provide a glass tube 79, carried by a connection 66 and which connection is provided with sights 80 and 81, respectively.

It will be observed that the pressure within the reservoir 6 is equalized by the steam-pressure which may be directed into the chest 17 through the conduits 36 and 37, connected to the conduit 35, and in this way the oil cannot run too fast into the graphite, and whereby pressure will be so directed onto the graphite as to prevent it from being lifted out of the receptacle by under pressure through the port 19.

It will now be observed that I have provided a lubricating device for discharging a lubricant and combining it with another lubricant by an intermittent process and whereby the two lubricants are directed to the place to be lubricated in a compound or mixed condition. It will be further observed that I provide a method by which to determine the amount of lubricant being utilized, also for controlling the amount to be utilized.

It will be noted that the introduction of oil into the graphite is not essential, it being understood that the graphite alone, being a lubricant, may be carried to the parts to be lubricated by such other suitable medium as may be selected.

Within the purview of this invention I may resort to various constructions or assemblage of parts of lubricating apparatus so long as I maintain the integrity of the principle of combining two or more lubricants and effecting such combination through means whereby both will be carried to the parts to be lubricated.

Having thus described my invention, I claim—

1. In a lubricator, the combination with a fluid-reservoir, of a receptacle for a non-liquid lubricant, means to convey a regulated quantity of fluid onto the surface of the lubricant, and means to convey the fluid along a surface of the lubricant to the parts to be lubricated.

2. In a lubricator, the combination with a fluid-reservoir, of a receptacle for graphite, means for conveying a regulated quantity of the fluid onto the surface of the graphite, and means for conveying the fluid along a surface of the graphite to the parts to be lubricated.

3. In a lubricator, the combination with a fluid-reservoir, a receptacle for containing a non-liquid lubricant, means for conducting a fluid onto the surface of a non-liquid lubricant, means for conducting fluid along a surface of said lubricant, and means for ascertaining the quantity being used.

4. In a lubricator, the combination with a reservoir for fluid, a receptacle for containing a mass of non-liquid lubricant, means for conducting said fluid onto the surface of said lubricant, means for ascertaining the amount of fluid being conveyed to said surface, means to

regulate the quantity of fluid so conveyed, and means to carry the fluid along a surface of the lubricant to the parts to be lubricated.

5. In a lubricator, the combination with a fluid-reservoir, a receptacle for containing a mass of non-liquid lubricant, a lining within said receptacle, means for conveying a quantity of fluid onto the surface of the lubricant, said lining being adapted to further carry the fluid around a surface of the lubricant to the parts to be lubricated, said fluid becoming laden during its travel with a deposit of the non-liquid lubricant.

6. In a lubricator, the combination with a fluid-reservoir, a receptacle for containing a non-liquid lubricant, an open-mesh lining within said receptacle, means for conveying a quantity of fluid onto the surface of the lubricant, said lining being adapted to further carry said lubricant around a surface to the parts to be lubricated, said fluid becoming laden during its travel with a deposit of the non-liquid lubricant.

7. A receptacle for containing a non-liquid lubricating-body, an open-mesh lining therein, said lining being adapted to conduct a fluid deposited on the surface of said body, from said surface around said body to the parts to be lubricated.

8. A lubricator comprising a lubricant-reservoir, a receptacle for containing a mass of non-liquid lubricant, means for dropping a lubricant onto the surface of said lubricant, a lining in the receptacle along which a combined lubricant may travel to the parts to be lubricated.

9. A lubricator comprising a fluid-reservoir, a receptacle for containing a mass of non-liquid lubricant, means for dropping the fluid onto the surface of the mass, a lining in the receptacle along which a combined lubricant may travel, and means for forcing one lubricant onto the other under pressure.

10. A lubricator comprising a fluid-reservoir, a receptacle for containing a non-liquid lubricant, onto the surface of which said fluid may drip, a lining in said receptacle, said lining being adapted to further convey said fluid around a surface of the lubricant.

11. A lubricator comprising a fluid-reservoir, a receptacle for containing graphite, on the surface of which said fluid may drip, a lining in said receptacle, and which is adapted to convey the fluid from the surface of the graphite around the body of the latter to the parts to be lubricated.

12. A lubricator comprising a fluid-reservoir, a receptacle for containing a non-liquid lubricant, on the surface of which said fluid may drip, and a lining in said receptacle, said lining being adapted to convey the fluid from the surface of said lubricant around the body of the latter to the parts to be lubricated.

13. In a lubricator, the combination with an oil-reservoir, of a receptacle for graphite,

means to convey a regulated quantity of oil onto the surface of the graphite, and means to convey the oil along a surface of the graphite to the parts to be lubricated.

14. In a lubricator, the combination with a reservoir for oil, a receptacle for containing graphite, means for conducting said oil onto the surface of said graphite, means for ascertaining the amount of oil being conveyed to said surface, means to regulate the quantity of oil so conveyed, and means to carry the oil along a surface of the graphite to the parts to be lubricated.

15. In a lubricator, the combination with an oil-reservoir, a receptacle for containing graphite, a lining within said receptacle, means for conveying a quantity of oil onto the surface of the graphite, said lining being adapted to further carry the oil around a surface of the graphite to the parts to be lubricated, said oil becoming laden during its travel with a deposit of the graphite.

16. A lubricator comprising an oil-reservoir, a receptacle for containing a mass of graphite, means for dropping oil onto the surface of said graphite, a lining in the receptacle along which combined oil and graphite may travel to the parts to be lubricated.

17. A lubricator comprising an oil-reservoir, a receptacle for containing graphite, onto the surface of which said oil may drip, a lining in said receptacle, said lining being adapted to further convey said oil around a surface of the graphite.

18. A lubricator comprising a reservoir, a steam-tight chest, a receptacle within said chest for containing a lubricant over which the first-mentioned lubricant may flow, and means for directing one lubricant from the reservoir into the lubricant in the chest.

19. A lubricator, comprising a lubricant-reservoir, a steam-tight chest, a receptacle within said chest for containing a lubricant over which the first-mentioned lubricant may flow, means for directing one lubricant from the reservoir into the lubricant in the chest, and means for forcing one lubricant into the other under a pressure.

20. A lubricator, comprising a lubricant-reservoir, a steam-tight chest, an extension proceeding from said chest and having an opening leading thereinto, a connection between said extension and reservoir, a receptacle within said chest adapted to contain a lubricant, a wire-cloth lining in said receptacle, and means within said reservoir adapted to direct pressure in an upward direction so as to force one lubricant from the reservoir and into the receptacle within the chest.

21. A lubricator, comprising a reservoir, a steam-tight chest, an extension proceeding from said chest and having an opening leading thereinto, a connection between said reservoir and steam-chest, a receptacle within said chest adapted to contain a lubricant, means

within said reservoir adapted to so direct pressure as to force one lubricant from the reservoir and into the receptacle within the chest, and means for controlling the amount of flow of one lubricant into the other.

22. A lubricator, comprising a lubricant-reservoir, a steam-tight chest, an extension proceeding from said chest and having an opening leading thereinto, a connection between said reservoir and steam-chest, a receptacle within said chest adapted to contain a lubricant, means within said reservoir adapted to direct pressure in an upward direction so as to force one lubricant from the reservoir and into the receptacle within the chest, means for controlling the amount of flow of one lubricant into the others, and a "sight" for determining the amount of flow of the lubricant.

23. A lubricator, comprising a lubricant-reservoir, a steam-tight chest, an extension proceeding from said chest and having an opening leading thereinto, a connection between said extension and reservoir, a receptacle within said chest adapted to contain a lubricant, a wire-cloth lining in the receptacle upon which the lubricant is carried, means within said reservoir adapted to direct pressure in an upward direction so as to force one lubricant from the reservoir and into the receptacle within the chest, means for controlling the amount of flow of one lubricant into the others and a "sight" for determining the amount of flow of the lubricant.

24. A lubricator, comprising a lubricant-reservoir, a steam-tight chest, an extension proceeding from said chest and having an opening leading thereinto, a connection between said extension and reservoir, a receptacle within said chest adapted to contain a lubricant, means within said reservoir adapted to direct pressure in an upward direction so as to force one lubricant from the reservoir and into the receptacle within the chest, means for controlling the amount of flow of one lubricant into the others, and a glass tube through which to determine the amount of flow of the lubricant.

25. In a lubricator, the combination with a reservoir provided with an opening for introducing a medium, of a steam-pipe directed thereinto, a steam-chest, a steam-pipe directed into said chest, a receptacle within said chest adapted to contain graphite, and means for controlling the flow of the medium.

26. In a lubricator, the combination with an oil-reservoir, provided with an opening for introducing oil, of a steam-pipe directed thereinto, a steam-chest, a steam-pipe directed into said chest, a receptacle within said chest adapted to fill with graphite, an intermediate system of pipes for causing the oil to pass from the reservoir to the receptacle, means for controlling the flow of oil, and a glass tube through which may be observed the amount of oil being dispensed.

27. In a lubricating apparatus, the combination with an oil-reservoir, of a steam-pipe directed thereinto and from which water is condensed whereby to gradually fill the same, an overflow-pipe for the oil within said reservoir and extending upwardly near the top thereof, means for holding said reservoir in place, a steam-chest mounted on said means, a receptacle within said chest, a wire-cloth lining in said receptacle, a lubricating substance in said receptacle, a system of connections between said reservoir and said receptacle, a system of steam-conduits directed into said chest, whereby to conduct steam therein and thereby compensate for the pressure coming from the steam-pipe directed into the reservoir, a glass tube through which may be observed the amount of lubricant discharged, and means for controlling the amount of lubricant discharged.

28. In a lubricating apparatus, the combination with an oil-reservoir, of a steam-pipe directed thereinto and from which water is condensed thereby to gradually fill the same, a pipe within said reservoir and extending upwardly near the top thereof, means for holding said reservoir in place, a steam-chest mounted on said means, a receptacle within said chest, a wire-cloth lining in said receptacle, a lubricating substance in said receptacle, a system of connections between said reservoir and said receptacle, a system of steam-conduits for directing steam into said chest whereby to compensate for the pressure coming from the pipe directed into the reservoir, and means whereby the amount of lubricant discharged may be determined, and a valve for controlling the amount of lubricant discharged.

29. In a lubricator, the combination with an oil-reservoir, of a steam-pipe directed thereinto and from which steam may be condensed so as to fill the reservoir with water and the oil, a stand-pipe inside the reservoir and into which said elevated oil may flow, a steam-chest, a receptacle within said steam-chest, a lining within said receptacle, graphite carried in said receptacle, steam-conduits conducted into said steam-chest, and an intermediate train of connections between said stand-pipe and receptacle whereby the oil may flow from the reservoir into the receptacle.

30. In a lubricator, the combination with an oil-reservoir, of a steam-pipe directed thereinto and from which steam may be condensed so as to fill the reservoir with water and elevate the oil, a stand-pipe inside the reservoir and into which said oil may flow, a steam-chest, a receptacle within said steam-chest, a lining within said receptacle, graphite carried in said receptacle, steam-conduits conducted into said steam-chest, an intermediate train of connections between said stand-pipe and receptacle whereby the oil may flow from the reservoir into the receptacle, and a glass tube interposed

between the reservoir and receptacle and which is partially filled with water, through which the oil may travel.

31. In a lubricator, the combination with
 5 an oil-reservoir, of a steam-pipe directed there-
 into, and from which steam may be condensed
 so as to fill the reservoir with water and ele-
 vate the oil, a stand-pipe inside the reservoir
 and into which said oil may flow, a steam-chest,
 10 a receptacle within said steam-chest, a lining
 within said receptacle, graphite carried in said
 receptacle, steam-conduits conducted into said
 steam-chest, an intermediate train of connec-
 tions between said stand-pipe and receptacle
 15 whereby the oil may flow from the reservoir
 into the receptacle, a glass tube interposed be-
 tween the reservoir and receptacle, and a valve
 suitably located for controlling the flow of oil.

32. In a lubricator, the combination with a
 20 reservoir for containing oil, of a steam-pipe
 directed thereinto and through which steam is
 condensed, whereby the water resulting there-
 from will elevate the oil to an outlet in said
 reservoir, a valve from which the water may
 25 be discharged from said reservoir, a steam-

chest, a receptacle within said steam-chest
 adapted to contain graphite, a system of con-
 nections between said outlet and receptacle
 and through which the oil may travel, a sys- 30
 tem of conduits connected with said steam-
 chest for directing pressure thereinto for com-
 pensating for the pressure coming from the
 oil-reservoir, and means to determine the
 amount of oil being dispensed.

33. A lubricator, comprising a reservoir to 35
 contain a lubricant, means for regulating the
 flow from the reservoir, a sight for determin-
 ing such flow, a receptacle to contain another
 lubricant, means for conducting the same from
 the reservoir to the receptacle, and means for 40
 obtaining the proper admixture of the lubri-
 cants.

Signed at Nos. 9 to 15 Murray street, New
 York city, New York, this 28th day of June,
 1904.

CHESTER COMSTOCK.

Witnesses:

FRED. W. BARNACLO,
 C. A. WEED.