

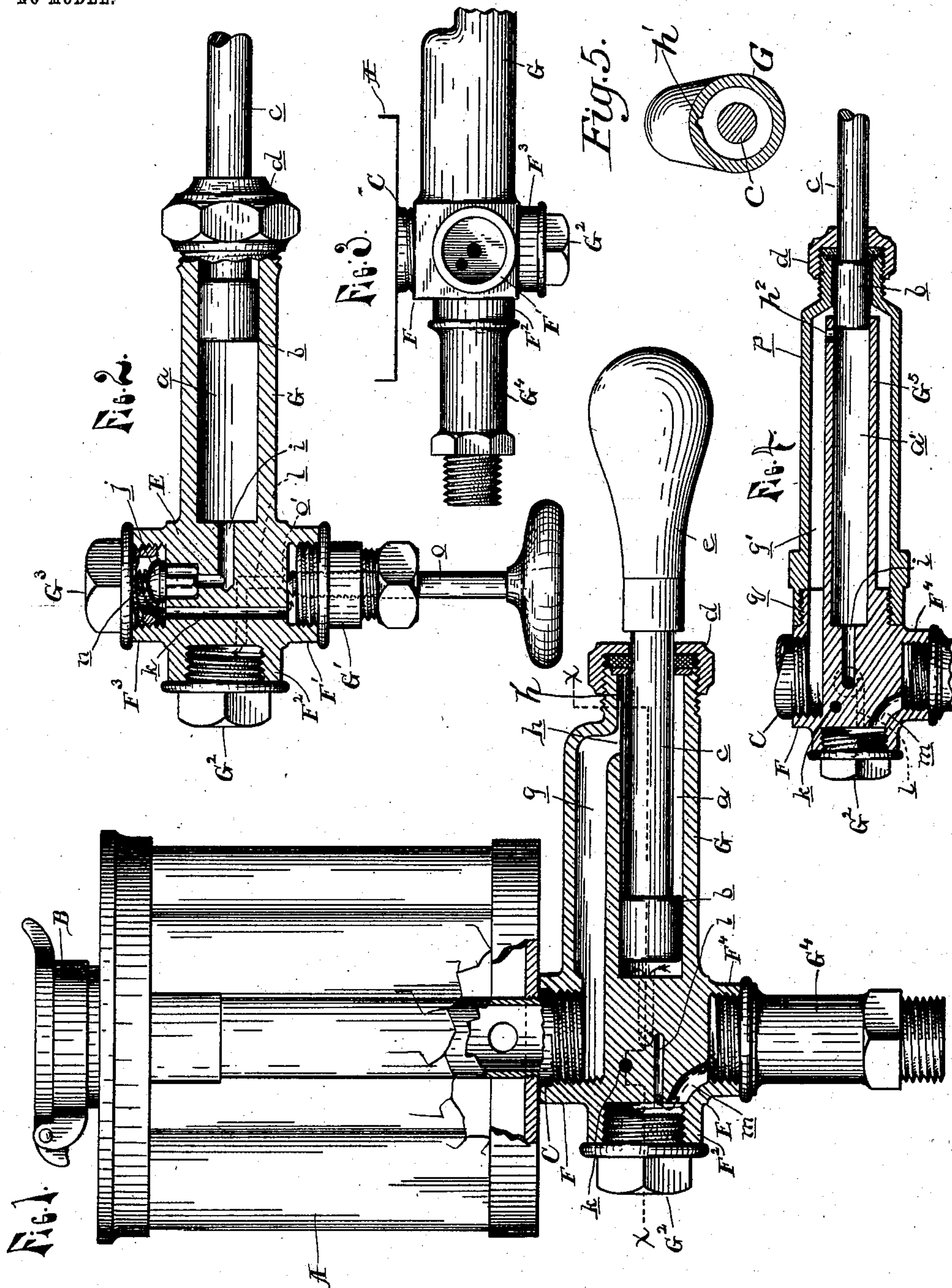
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G. B. ESSEX.
PUMP LUBRICATOR.

APPLICATION FILED JAN. 30, 1901.

NO MODEL.



WITNESSES:

Lewis C. Henders
Joseph A. Nottle

INVENTOR

George B. Essex
By [Signature]
Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE B. ESSEX, OF DETROIT, MICHIGAN, ASSIGNOR TO THE G. B. ESSEX BRASS COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

PUMP-LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 720,516, dated February 10, 1903.

Application filed January 30, 1901. Serial No. 45,288. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. ESSEX, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Pump-Lubricators, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to that class of lubricators known as "pump-lubricators," and more particularly to that kind designed for manual operation; and the invention consists in the novel construction and arrangement
15 of parts, with the particular objects in view to overcome certain defects existing in present constructions and also to facilitate the manufacture thereof, all as more fully hereinafter described, and shown in the accompanying drawings, in which—

20 Figure 1 is a vertical central section of my lubricator, partly in elevation. Fig. 2 is a horizontal section on line $x x$, Fig. 1. Fig. 3 is an elevation of the fitting as arranged for
25 making a side connection. Fig. 4 is a vertical section of a modified construction of the pump-cylinder. Fig. 5 is a transverse section through the outer end of the pump-barrel.

30 A is the cup for containing a supply of the lubricant. It may be of any suitable known construction and has the fill-opening B and a discharge-nipple C at the bottom. Below this cup is a single-acting pump formed with
35 the coupling-head E and the pump-barrel G extending laterally at one side of the head. The remaining three sides of this head and the top and bottom thereof are formed with interiorly-screw-threaded coupling-arms F F'
40 F² F³ F⁴, each of which forms a recess or chamber in the head. To the coupling-arm F on top the cup, is connected by means of its discharge-nipple, the coupling-arms F' F² F³ are closed by screw-caps G' G² G³, and the
45 coupling-arm F⁴ has a coupling-stub G⁴, by means of which the lubricator is connected to the part to be lubricated. This coupling-stub and the cap G² are interchangeable,

whereby said lubricator may be arranged for side connection, as shown in Fig. 3. 50

The pump-barrel is formed with a piston-chamber a , containing the piston b , which is provided with a piston-rod c , extending through a stuffing-box d on the outer end of the barrel and terminating in a hand-grip e . 55
A passage g leads from the chamber of the coupling-arm F to near the outer end of the barrel and terminates at an inlet-opening h into the piston-chamber, the groove h' forming a continuation of said opening, so that
60 any lubricant back of the piston-head will be forced back into the passage g . A second passage i leads from the bottom of the piston-chamber a into the chamber of the arm F³, a third passage k leads from the last-named
65 chamber into the chamber of the opposite coupling, a fourth passage l leads from the last-named chamber into the chamber of the coupling-arm F², and a fifth passage m leads from the last-named chamber into the cham- 70
ber of the coupling-arm F⁴. The passage i , leading from the piston-chamber into the chamber of the coupling-arm F³, is controlled by an inwardly-closing check-valve j , which is normally closed by a small coil-spring n , 75
the check-valve and spring being removably held in position by the cap G³. The passage l is adapted to be closed by a valve-stem o , screw-threaded through the cap G' and adapted to seat with its inner end upon a valve- 80
seat o' at the entrance to the passage.

In practice, the parts being constructed and arranged as shown and described, it will be seen that if the cup is filled with the lubricant it will freely discharge through the bot- 85
tom thereof and into the passage g . Supposing now the piston b to be in its inner position, it will be seen that by pulling on the handle e and drawing it into the outer end of the piston-chamber a vacuum will be formed 90
in front of the piston as the check-valve j draws to its seat, and as soon as the piston passes beyond the port h the lubricant will be forced by the atmospheric pressure (the cup not being closed air-tight) and by its own 95
gravity through said port h into the piston-

chamber in front of the piston, and if the piston is now pushed inward the lubricant will be forced out of the piston-chamber and into the part to be lubricated by way of the passages and chambers in the head E.

By screwing the valve-stem *o* to its seat the check-valve and other parts which might need to be looked after can be examined and cleaned, and such closing of the valve also prevents possible loss of the lubricant while the lubricator is not used.

My construction makes a compact and simple device, cheap to manufacture. All the passages are formed in a direct manner through the distributing-head, and by unscrewing the caps and other detachable parts every passage and chamber is fully exposed and may be readily cleaned from any obstruction, if it should become necessary. In casting the device the only core needed is for the passage *g*, and this may be avoided by constructing the device as shown in the modification shown in Fig. 4, which shows the passage *g'*, formed by means of a cylindrical sleeve *p*, of larger diameter than the barrel *G*⁵, which it incloses and which forms the piston-chamber *a'* only and is provided with an opening *h*² for the admission of the lubricant to the piston-chamber. This sleeve *p* is detachably secured by forming the discharge-head E with an additional coupling-arm *q*. My construction also overcomes some defects in the present construction by having the passage *g* extend to near the outer end of the piston-chamber by means of the passage *h'*, as shown, instead of leading into the inner end thereof. With this latter construction if any of the lubricant gets behind the piston by reason of the piston not fitting the piston-chamber tight enough it has no way to get out, and consequently the piston is prevented from being operated, whereas in my construction the lubricant behind the piston is simply forced back into the passage *g* while the piston is drawn out.

What I claim as my invention is—

1. In a lubricator, the combination with the cup for supplying the lubricant, of a single-acting force-pump having a barrel extending laterally below the cup, a piston in said barrel having a piston-rod extending through a stuffing-box in the outer end of the barrel and terminating in a hand-grip for manually

operating the piston, a head at the inner end of the barrel having a coupling-arm on its upper side to which the cup is connected, a chamber in said coupling-arm in free communication with the lubricant in the cup, a passage leading from said chamber into the outer end of the piston-chamber in the barrel, and a discharge-passage leading from the inner end of the piston-chamber in the barrel to the discharge-outlet of the lubricator, an automatically-operating check-valve in said passage and a manually-operated valve for closing said passage at a point between the check-valve and the discharge-outlet.

2. In a lubricator, the combination with the cup containing a supply of the lubricant, of a single-acting force-pump, provided with a head upon which the cup is mounted, and with a barrel extending laterally from one side of said head, a passage connecting the piston-chamber with the interior of the cup for supplying the pump with the lubricant, an outlet in said head and a discharge-passage leading from the inner end of the piston-chamber of the barrel to said outlet, a series of chambers formed in said head, removable caps for said chambers permitting of free access thereto, and a series of short passages connecting said chambers in series to form said discharge-passage.

3. In a lubricator, the combination of the cup A, the single-acting force-pump comprising the head E, and barrel G formed with the piston-chamber *a*, the piston *b* in said barrel having the piston-rod *c* adapted for manual operation, the coupling-arm F on the head to which the cup is connected, the passage *g* leading from said coupling-arm to the outer end of the barrel, the coupling-arms F³, F', F², F⁴, formed on the sides and bottom of the head and provided with removable screw-plugs forming chambers in said arms, the passages *i*, *k*, *l*, *m*, connecting said chambers in series and forming therewith the discharge-outlet of the pump, and the check-valve *j* removably secured in one of said chambers.

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

GEORGE B. ESSEX.

Witnesses:

OTTO F. BARTHEL,
JOSEPH A. NOELKE.