

No. 730,814.

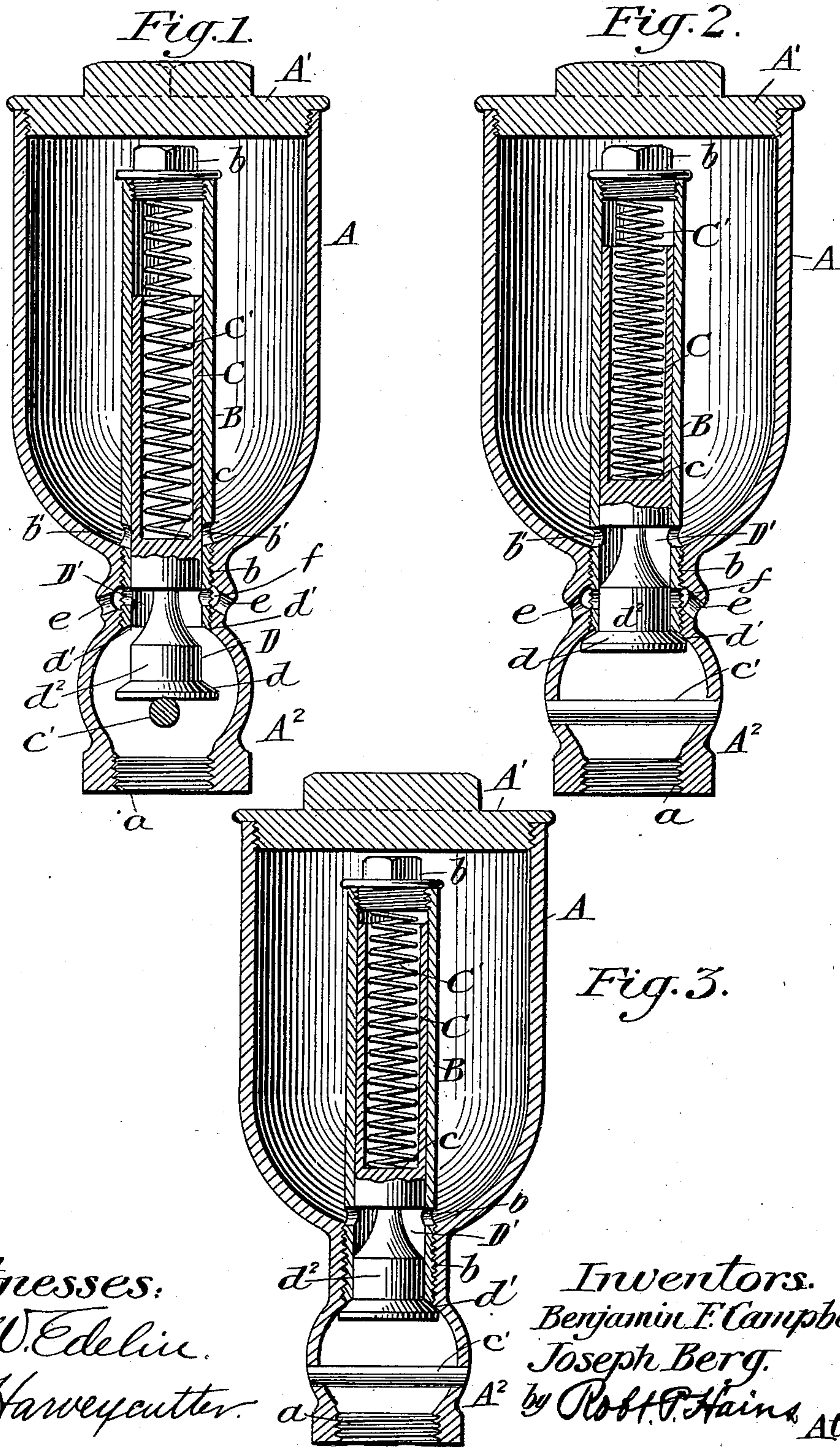
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LUBRICATING DEVICE.

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NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

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LUBRICATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 730,814, dated June 9, 1903.

Application filed December 9, 1902. Serial No. 134,486. (No model.)

To all whom it may concern:

Be it known that we, BENJAMIN F. CAMP-
BELL and JOSEPH BERG, citizens of the United
States, residing in Little Rock, county of Pu-
laski, and State of Arkansas, have jointly in-
vented certain new and useful Improvements
in Lubricating Devices, of which the follow-
ing is a full, clear, and exact description, ref-
erence being had to the accompanying draw-
ings, forming a part of this specification.

The invention, to be hereinafter described,
relates to lubricating devices of the general
type for applying graphite or other character
of lubricant to the moving parts in a steam
chest or cylinder of a steam-engine, the ob-
ject of the present invention being to provide
an automatically-acting device of simple con-
struction, which upon the exhaust-stroke of
the parts to be lubricated will act to supply
a desired quantity of lubricant, and upon the
working or steam-pressure stroke will oper-
ate to shut off the supply of lubricant and
close the connection to the lubricant reser-
voir or cup.

With these general objects in view our in-
vention consists of the parts and combina-
tions as hereinafter set forth, and particularly
defined in the claims.

In the drawings, Figure 1 is a section of a
device embodying our invention, showing the
position of the parts when the steam-pressure
is relieved and lubricant is being supplied.
Fig. 2 is a section of the device at right an-
gles to that of Fig. 1, showing the position of
the parts when steam-pressure is acting; and
Fig. 3 is a sectional view of the device with
the parts in position indicated for Fig. 2, the
suction-holes being omitted.

In the drawings, A represents any usual
or preferred form of reservoir for holding lu-
bricant—such, for instance, as graphite, oil,
or the like—said reservoir or cup having a
suitable cover A' connected thereto and pro-
vided with an extension A² at its lower end by
which the device may be secured to a steam
chest or cylinder, as by the screw-threads a,
the said extension A² being provided with a
passage-way therethrough, as shown, for the
travel of the lubricant, as will hereinafter
more fully appear.

Extending upward from the lower part of
the reservoir or cup A is a guide-tube B,
shown as provided with external threads b at
its lower end, by which it is secured in place.
It will be obvious of course that means other
than screw-threads may be employed for hold-
ing the guide-tube B in the position stated, if
desired.

Freely movable lengthwise within the guide-
tube B is a guide-sleeve C, the sides of said
sleeve extending well into the tube and hav-
ing an accurate fit therein for a purpose that
will hereinafter appear. Interposed between
the seat c of the guide-sleeve C and a cap
or abutment b at the upper end of the guide-
tube B is a spring C', normally acting to force
the guide-sleeve C downward into the posi-
tion shown by Fig. 1, its downward move-
ment under the action of said spring being
limited by a stop or pin c', extending prefer-
ably across the portion A², as shown. At its
lower end the guide-sleeve C is provided with
a valve, (designated as a whole by the letter
D,) said valve comprising an enlarged head
d, a cylindrical part d², and a lubricant-cham-
ber D', the said lubricant-chamber being
formed by a cut-away portion of the valve be-
tween the lower end of the guide-sleeve C and
the cylindrical part d², as clearly shown.

The guide-tube B near its lower end is pro-
vided with openings b' b' for the passage of
lubricant from the reservoir or cup A into
the lubricant-chamber D' of the valve D when
the guide-sleeve C and valve D are in their
raised positions, as indicated in Figs. 2 and 3.

From the construction thus far described
it will be evident that when steam is work-
ing and there is in consequence steam-pres-
sure on the head of the valve D the said valve
and guide-sleeve C will be forced against the
action of the spring C' into the raised position,
as in Figs. 2 and 3, with the enlarged head
d of the valve securely seated upon the seat
c', formed in the extension or casing of the
reservoir or cup, at which time lubricant will
flow from the reservoir or cup A through the
openings b' b' in the guide-tube B and fill the
lubricant-chamber D'; but when the steam-
pressure is relieved from action upon the
valve D, as when the exhaust takes place in

the engine, the spring C', assisted by the action of gravity, will force the guide-sleeve C downward, thus moving the valve D into its lower position, as in Fig. 1, the sleeve C at such times closing the openings $b' b'$ in the tube B and the lubricant-chamber D' being free to discharge its contents of lubricant under the action of gravity and suction of the engine into the steam chest or cylinder.

10 In order to provide for a more prompt supply of lubricant and enable the suction of the engine to assist more effectually, the lower extension A² of the reservoir or cup A is preferably provided with air ducts or passages e
 15 e , Figs. 1 and 2, disposed in position to be closed by the cylindrical part d^2 of the valve when the latter is in raised position, Fig. 2, and to be in communication with the lubricant-chamber D' of the valve when the latter is in its lowered position, Fig. 1. The effect of this is that air may be drawn through the said air ducts or passages $e e$ by the vacuum of the engine, and as at such times the valve is in the position shown by Fig. 1 the lubricant is readily and quickly drawn into the
 25 chest or cylinder. On the other hand, when the valve is in position, as indicated by Fig. 2, and steam-pressure is acting against the valve the said air ducts or passages will serve as telltales to indicate whether the enlarged head d of the valve is properly seated on the valve-seat d' or not, since if not properly seated steam will escape and indicate defective action.

35 The number of air ducts or passages $e e$ may be varied as desired, and to provide for a more uniform and effective action thereof the extension A² of the reservoir or cup A is provided with a small air-chamber f , with which
 40 the air ducts or passages $e e$ communicate, said air ducts or passages being continued through the lower end of the tube B in any convenient number, as will be evident.

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

1. In a lubricating device, a reservoir or cup for holding a suitable lubricant, a guide-tube extending from the lower part of said reservoir or cup and provided with perforations to permit the flow of lubricant therethrough, a guide-sleeve fitted to slide within said tube and provided with a valve having a lubricant-chamber, means normally acting to maintain the valve unseated to discharge the contents of the valve lubricant-chamber to the parts to be lubricated and to cause the guide-sleeve to close the perforations in the tube, said valve being adapted to be seated by
 55 fluid-pressure against the action of said means to interrupt the supply of lubricant to the parts to be lubricated and to bring the lubricant-chamber opposite the perforations in the guide-tube.

65 2. In a lubricating device, a reservoir or cup for holding a suitable lubricant and having an extension from the lower part thereof, a

valve longitudinally movable in said extension and provided with a lubricant-chamber, said valve having a guide-sleeve, means for
 70 establishing communication between the reservoir or cup and valve lubricating-chamber in one position of said valve, devices contained within said guide-sleeve and normally acting to maintain the valve in position to interrupt said communication and supply the
 75 contents of the valve lubricant-chamber to the parts to be lubricated, said valve being movable by fluid-pressure in opposition to said devices to interrupt the supply of lubricant to the parts to be lubricated and for establishing communication between the reservoir or cup and valve lubricant-chamber.

3. In a lubricating device, a reservoir or cup, a guide-tube secured therein and having openings in the wall thereof, a guide-sleeve fitted to slide in said tube and carrying a valve, said valve having an annular lubricant-chamber and a head disposed below the lubricant-chamber, means inclosed by the tube normally acting to move said sleeve and valve to cause the guide-sleeve to close the said openings in the tube and supply the contents of the valve lubricant-chamber to the parts to be lubricated, said valve and sleeve being
 85 operable by fluid-pressure in opposition to said means to close communication between the valve lubricant-chamber and the parts to be lubricated and open communication between the valve lubricant-chamber and reservoir or cup.

4. In a lubricating device, a reservoir or cup for holding a suitable lubricant, a guide-tube within said reservoir or cup, and having openings in the wall thereof, a guide-sleeve carrying a valve at its lower end and movable in said tube, said valve having an enlarged head and a lubricant-chamber, a spring normally acting upon the guide-sleeve and valve to maintain them in lowered position to close the said openings in the guide-tube and interrupt communication between the valve lubricant-chamber and reservoir or cup, said valve and sleeve being operable by fluid-pressure in opposition to said spring to seat the enlarged head of the valve and uncover the openings in said tube to establish communication between the reservoir or cup and valve lubricant-chamber.

5. In a lubricating device, a reservoir or cup for holding a suitable lubricant, a valve disposed in the lower part thereof and provided with a lubricant-chamber, means normally acting to maintain the valve unseated to discharge the contents of the valve lubricant-chamber to the parts to be lubricated, and air-ducts leading to the valve lubricant-chamber when the valve is in position to supply lubricant, said valve being operable by fluid-pressure in opposition to said means to interrupt the supply of lubricant and close the air-ducts.

6. In a lubricating device, a reservoir or cup, a guide-tube secured therein and having open-

ings in the wall thereof, a guide-sleeve movable in said tube and carrying a valve, said valve having a lubricant-chamber and a head, means normally acting to move said sleeve
5 and valve to close the said openings in the tube and supply the contents of the valve lubricant-chamber to the parts to be lubricated, air-ducts opening into the lubricant-chamber when the valve is in position to supply lubricant from the said chamber, said valve and
10 sleeve being operable by fluid-pressure in op-

position to said means to close communication between the valve lubricant-chamber and parts to be lubricated and open communication between the valve lubricant-chamber and reservoir or cup. 15

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In presence of—
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B. E. SCOTT.