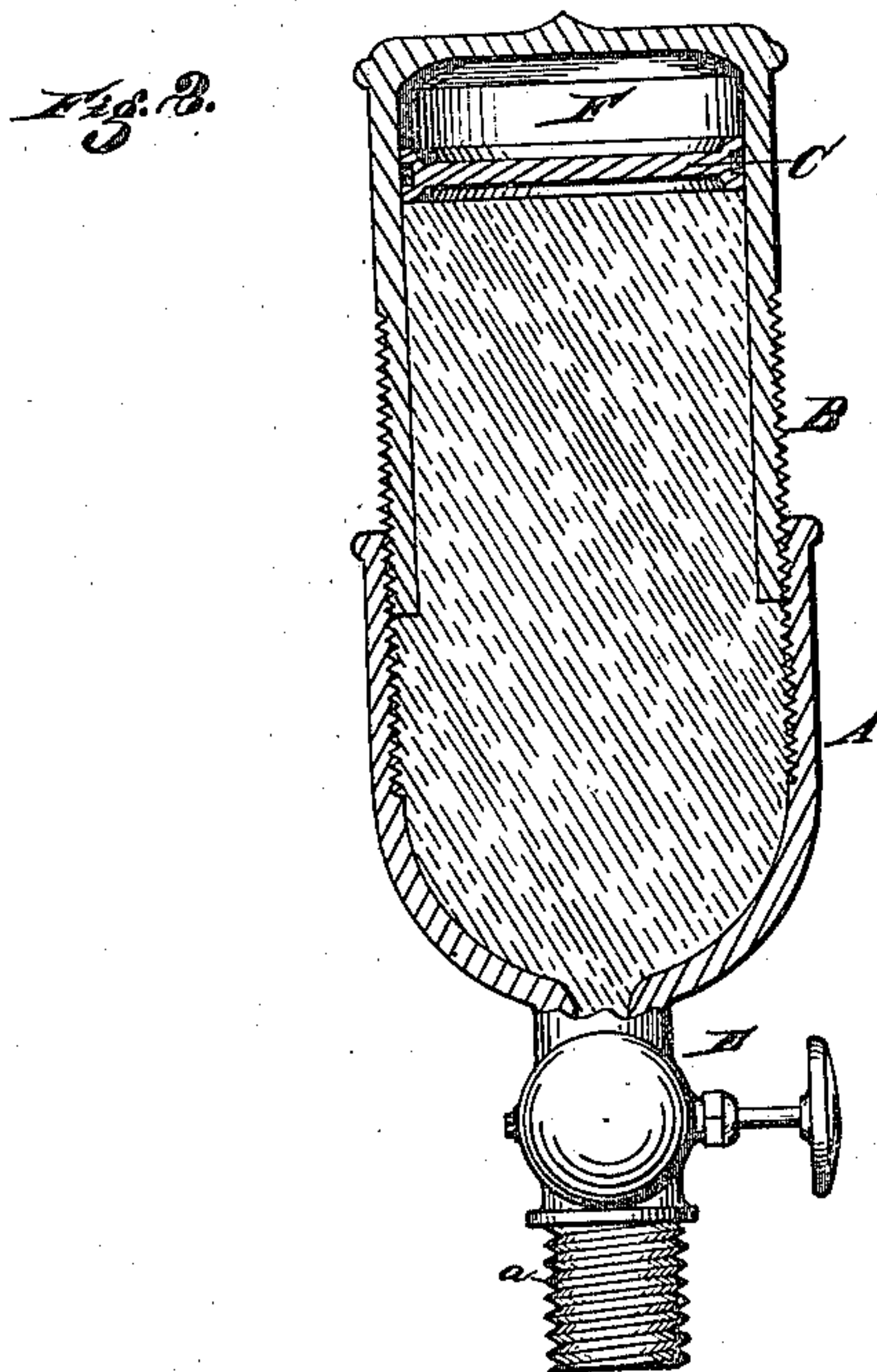
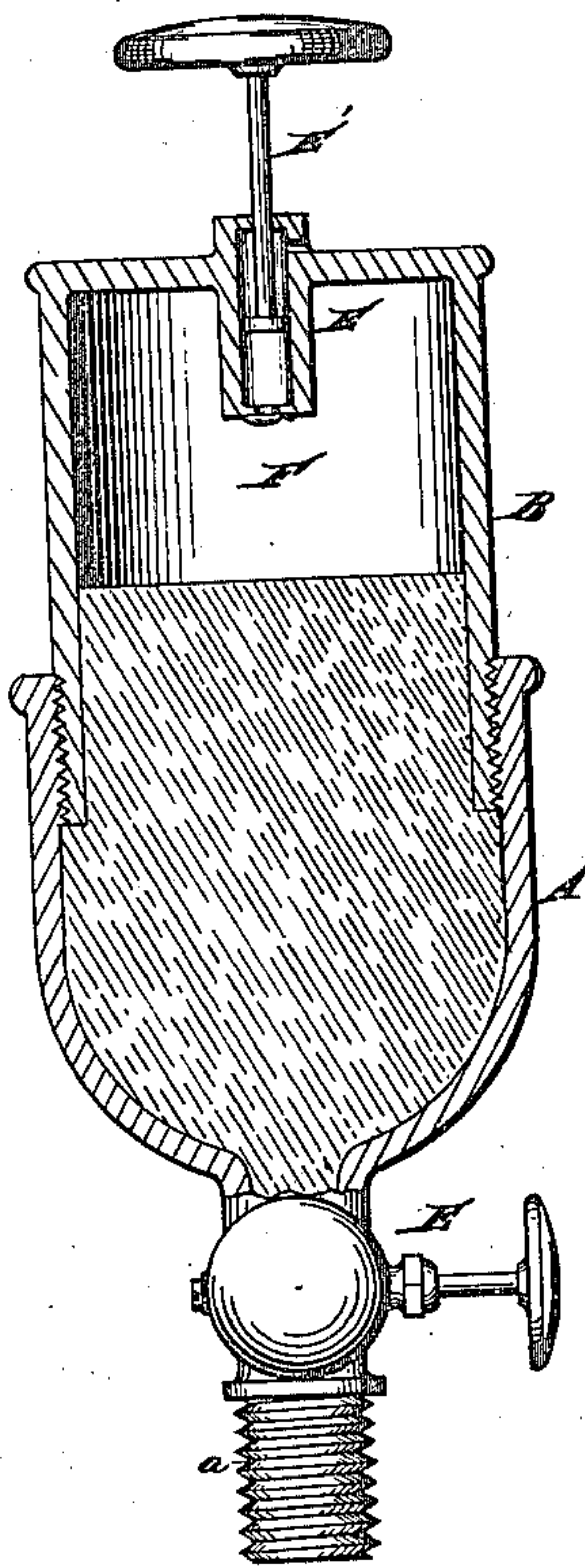
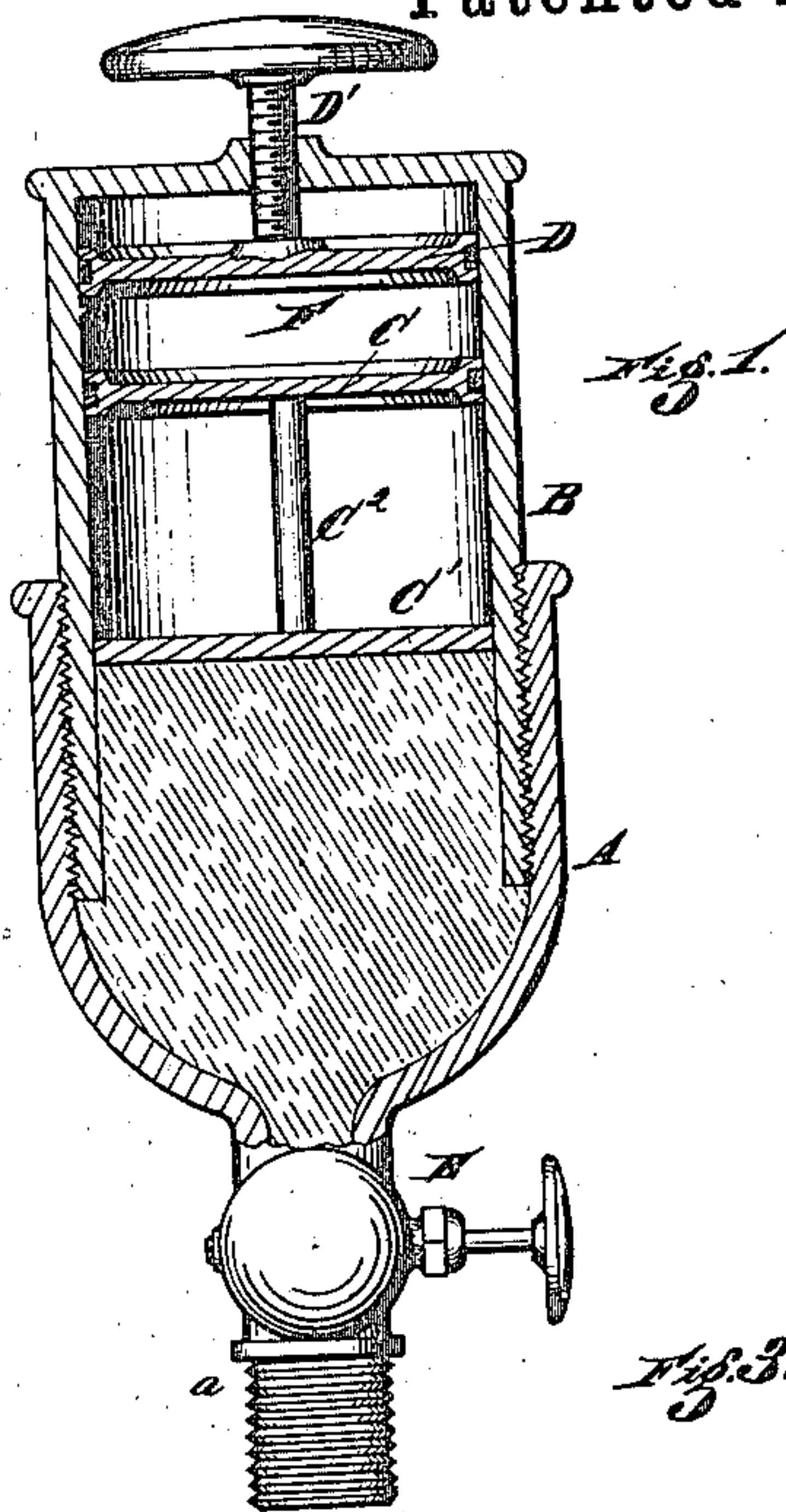


(No Model.)

J. A. HOUCK.  
AUTOMATIC GREASE CUP.

Patented Feb. 10, 1885.

No. 312,204.



WITNESSES  
Jno. E. Miles.  
N. S. Wright

John A. Houck, INVENTOR  
By W. W. Beckett, Attorney



# UNITED STATES PATENT OFFICE.

JOHN A. HOUCK, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO  
JOHN C. GROUT, OF SAME PLACE.

## AUTOMATIC GREASE-CUP.

SPECIFICATION forming part of Letters Patent No. 312,204, dated February 10, 1885.

Application filed May 13, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN A. HOUCK, of Detroit, county of Wayne, State of Michigan, have invented a new and useful Improvement in Automatic Grease-Cups; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

My invention consists in the combination of devices and appliances hereinafter specified, and more particularly pointed out in the claims.

In the drawings, Figure 1 is a vertical section of a device embodying my invention. Figs. 2 and 3 are variations.

My invention relates to an automatic grease-cup adapted to feed the grease continuously.

Heretofore grease-cups as commonly constructed have required the attention of the attendant to see that they are working properly and to apply pressure from time to time as it may be needed.

In practice it has been found that in certain locations it has been impracticable to apply the necessary pressure while machinery is in motion—as, for instance, a cup connected with a crank-pin—necessitating a stoppage of the machinery for this purpose.

It is the object of my invention to overcome these difficulties, and to construct a cup that shall feed continuously and automatically without requiring such attention.

I accomplish my object as follows:

As illustrated in the accompanying drawings, A represents the cup.

B represents any suitable cap, adapted to be engaged upon the cup. This cap may be engaged upon the cup by screw-connections, or it may be engaged thereon in any other suitable way—as, for instance, by a catch or ratchet mechanism.

I would have it understood that I do not limit myself to any specific way of securing the cap in place upon the cup.

C is a movable plate, provided in any suitable manner with an air-tight joint at its periphery. As shown, the plate is cut away

upon its edge to receive a suitable packing to make the joint air-tight.

a is the outlet-orifice of the cup.

The operation of the device is as follows: The cap being removed, the cup is filled with grease. As the plate C, located within the cap, is forced inward, it is evident that a quantity of air will be confined and compressed in its rear in the chamber F. It will be seen, therefore, that as the grease feeds from the cup the expansion of the compressed air in the rear of the plate C will exert a constant pressure upon the grease to force it from the cup, this action being automatic. The construction necessary to secure this compression of air may be modified in many ways. As shown in Fig. 1, an additional plate, C', may be employed, connected to the plate C by an intervening stem, C<sup>2</sup>, in any proper manner, in order to extend the pressure of the air to a greater distance in the cup. So, also, as shown in said figure, an additional movable plate, D, may be employed in connection with the plate C or plates C and C', said partition D having an air-tight connection in the cap, and provided with a screw-cut stem, D', tapped through the cap, by means of which the compression may be increased in the rear of the plate C; or, moreover, as shown in Fig. 3, the plate C may be dispensed with entirely, if preferred, and the cap be provided with any suitable air-pump, E, having its piston E' extending through the top of the cap, the construction being such that air may be forced into the top of the cap, and thereby be compressed in the compressed-air chamber F, the force of the air being exerted directly on the contents of the cup, although an intervening partition may be located above the contents, if it should be found desirable. I prefer, also, to secure upon the nozzle of the cup any suitable regulating-valve, as shown at E". The rate of feed may be regulated, if desired, by means of the valve-stem. I design to employ the cup either with or without a regulating-valve, as may be preferred.

What I claim is—

1. The combination of a grease-cup, a cap adjustably secured thereon and provided with a movable partition, and additional mechanism



ism for compressing the air above the partition, substantially as described.

2. A grease-cup provided with an air-pump adapted to pump air into the cup and compress the same above the contents of the cup, substantially as described.

3. The combination, with a grease-cup having a single reservoir, and an air-chamber above the contents of the cup, of an air-pump to compress the air above the contents of the cup, substantially as described.

4. The combination, with a grease-cup having a removable cap and an air-chamber above the contents of the cup, of an air-pump located in the cap to compress the air above the contents of the cup, substantially as described.

5. A grease-cup provided with an air-pump adapted to pump air into the cup and to compress the same above the contents of the cup, and a valve for regulating the outflow from the cup, substantially as described.

6. The combination, with a grease-cup, of a

cap adjustably secured thereon, said cap provided with a movable plate having an air-tight connection in said cap, and in connection therewith a movable plate adapted to be located over the contents of the cup, said plates having a connection whereby the expansion of the air behind the plate in the cap will exert a pressure upon the contents of the cup, and a mechanism for compressing air above the plates, substantially as described.

7. The combination, with a grease-cup, of a cap adapted to be adjustably secured thereon, said cap provided with a compressed-air chamber, said cup provided with a regulating-valve, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

JOHN A. HOUCK.

Witnesses:

N. S. WRIGHT,

M. B. O'DOHERTY.