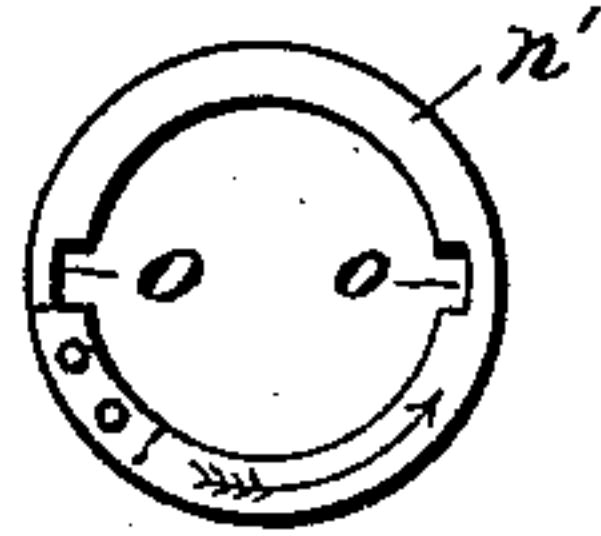
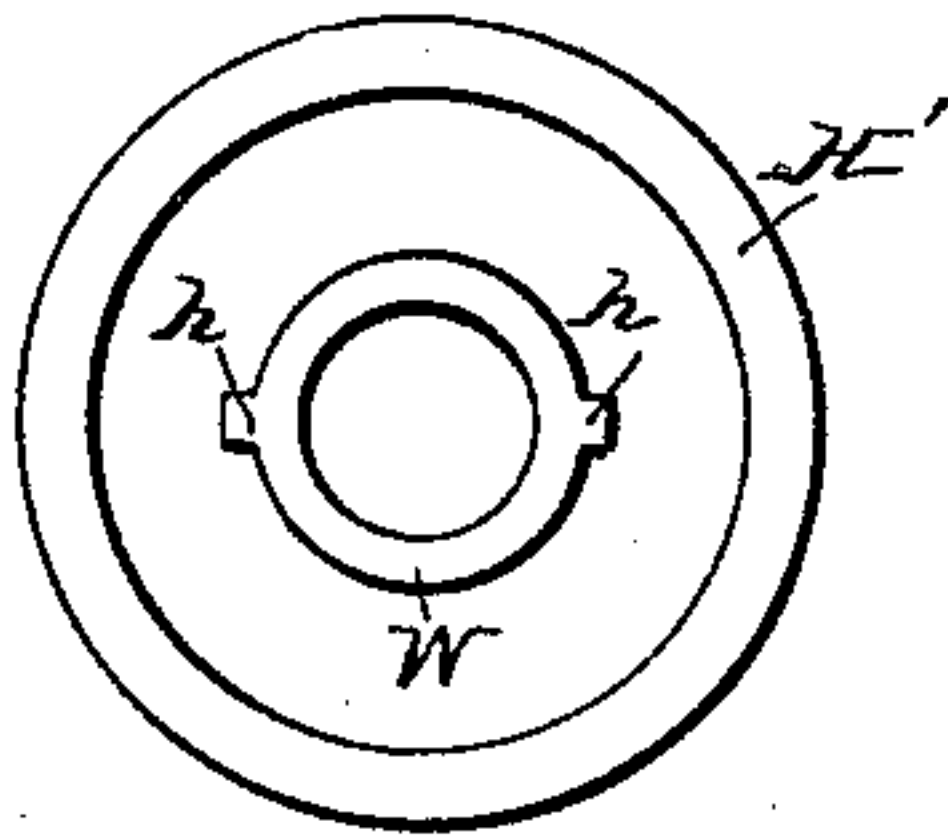
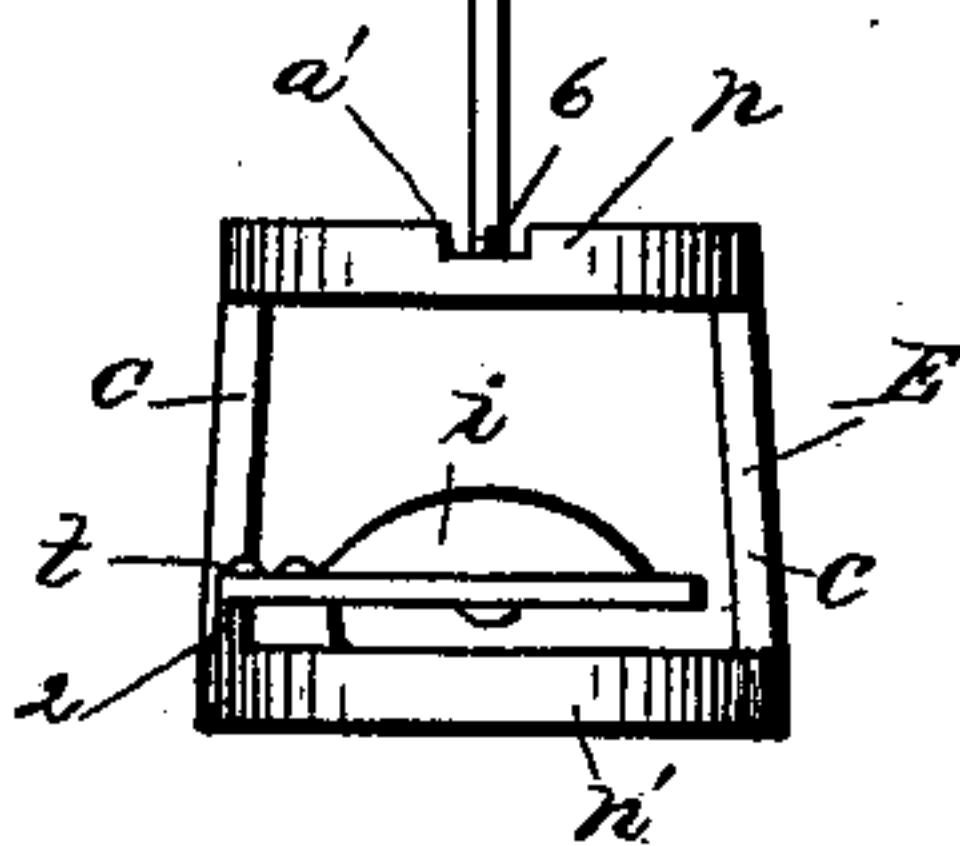
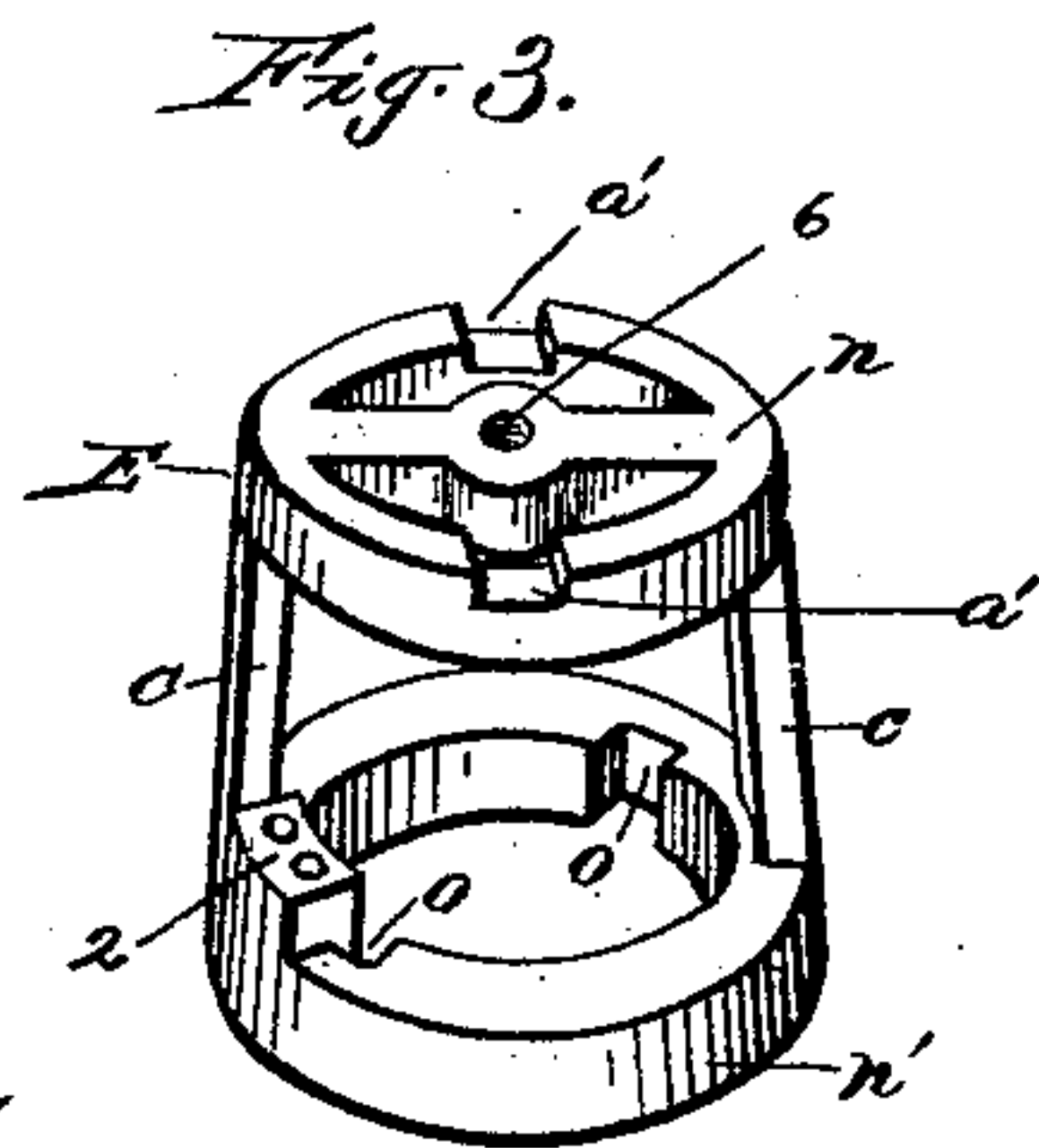
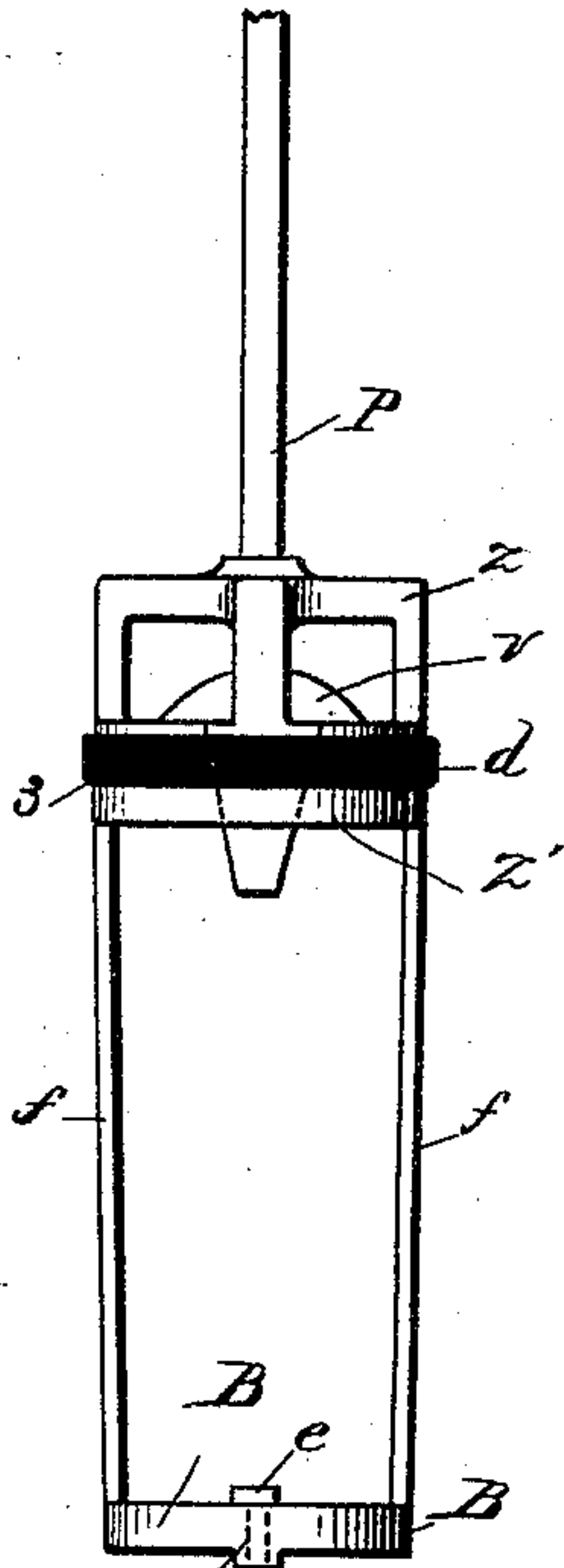
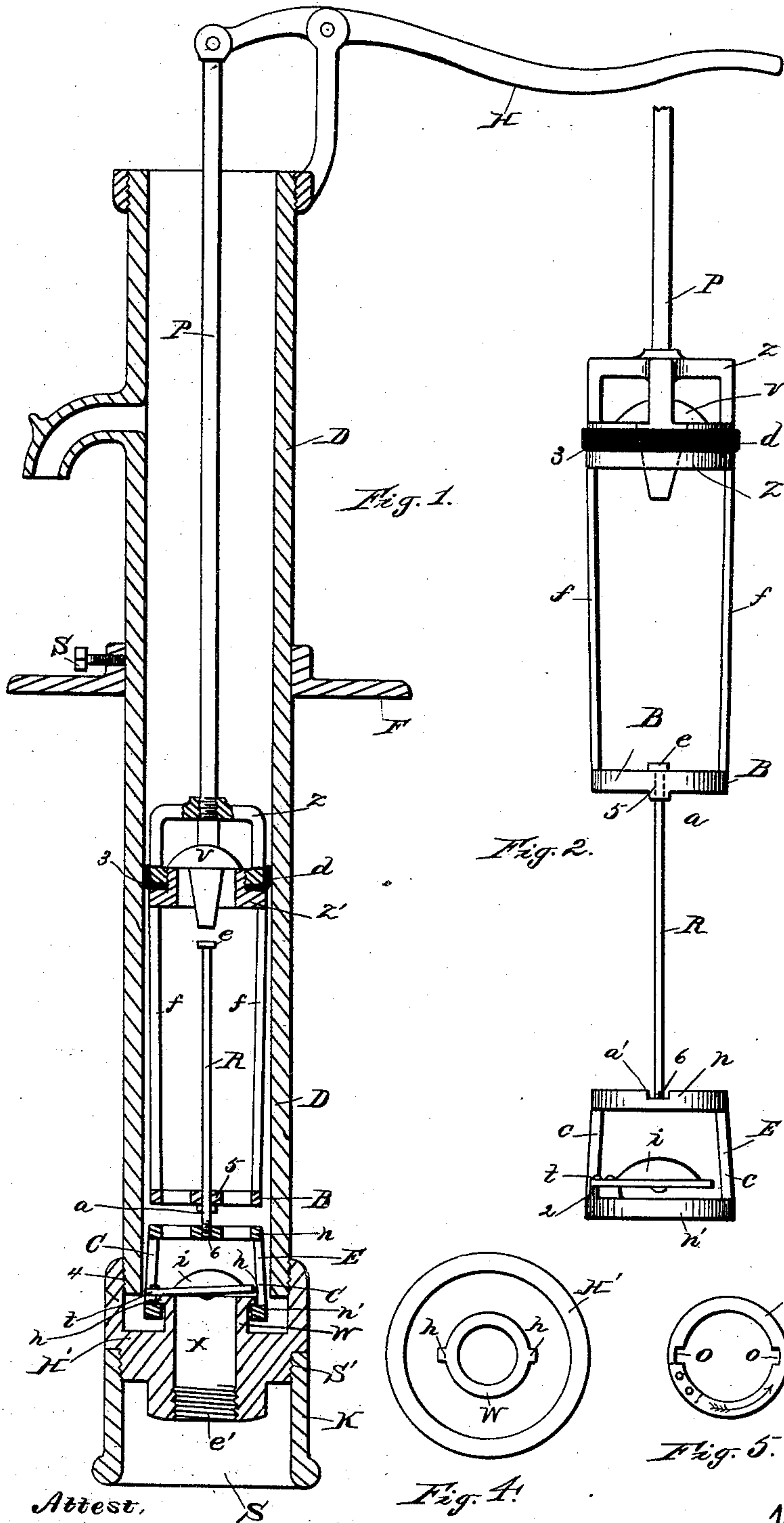


(No Model.)

W. H. CULVER.  
PUMP.

No. 422,383.

Patented Mar. 4, 1890.



Attest,

John E. Miles.  
Edgar S. Wheeler.

Inventor,  
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# UNITED STATES PATENT OFFICE.

WILLIAM H. CULVER, OF GRAND RAPIDS, MICHIGAN.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 422,383, dated March 4, 1890.

Application filed October 31, 1888. Serial No. 289,650. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. CULVER, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Pumps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to pumps, and has for its object the particular arrangement of parts whereby the check-valve may be attached to or detached from the base of the cylinder, the valve-seat being elevated and formed on the base of the cylinder. The form of the base is such that an iron or wooden pipe may be coupled to the lower end thereof. By this arrangement the removal, repair, and replacing of the check-valve in pumps is greatly facilitated, all of which will be hereinafter fully set forth, and the essential features of my device pointed out particularly in the claims.

In the accompanying drawings, forming a part of the specification, Figure 1 is a longitudinal central section through a pump-cylinder and base embodying my invention, showing relative position of parts when in place as in operation. Fig. 2 is a plan in elevation of a piston-head and lifting-valve in common use, to which is attached the extended base, lifting-rod, and lower or check-valve frame of my device, showing the position of the parts before being placed in the pump. Fig. 3 is a perspective of the check-valve frame with the valve removed. Fig. 4 is a top plan of the detachable base of the pump-cylinder, showing the lugs that engage with the base of the check-valve frame. Fig. 5 is an inverted plan of the base of the check-valve frame, showing the slots in its inner annular face that receive the lugs of the detachable base.

Referring to the letters and figures of reference in the accompanying drawings, D represents the cylinder of a pump.

F is a circular base for supporting the pump, and is held in position by the set-screw s.

P is the piston-rod, to the upper end of which is attached the pump-handle H and to the lower end the piston-head carrying the lifting-valve v. Said piston-head is made in two sections Z and Z'. These sections are screw-threaded together at 3, (see Figs. 1 and 2,) and firmly secures between their annular shoulders the piston-head packing d. To section Z' of said piston-head, by means of the arms f f, is attached the circular base B, having the central hole 5, through which loosely passes the lifting-rod R, and said base also having the downwardly-projecting lugs a, which engage with the slots a' a' in the upper face of the rim n of the check-valve frame E. By forcing the piston-rod P downward said base B is caused to move downward along the rod R until the lugs a meet the upper face of the rim n of the frame E. Then by rotating the piston-rod P the lugs a are caused to register with and enter the slots a' a'. When thus engaged, said lugs afford the means for turning said valve-frame E when attaching to or detaching said valve-frame from the raised center w of the base H'.

In applying my improved "check-valve extractor" to pumps I first provide the pump-cylinder with the base H', which is screw-threaded to the lower end of the cylinder D at 4, (see Fig. 1,) said base having the raised center w, forming a valve-seat provided with the lugs h h, projecting from its periphery horizontally, and the induct x, which is screw-threaded at e' to receive the iron piping when such is used. The auxiliary base K, which is screw-threaded to the base H' at S', (see Fig. 1,) is provided with the chamber S to receive the tapered end of a wooden stock. When wooden piping is used, the base H' and the auxiliary base K may be made integral.

The valve-frame E, carrying the check-valve i, is connected with the extended base B by means of the lifting-rod R, which is passed down through the hole 5 in said base. The lower end of the rod R is screwed into the hole 6 in the top of the valve-frame E, and the head e of said rod prevents it from drawing out of the hole 5 in the base B, thus uniting all the parts, as shown in Fig. 2. When



thus united, the parts are placed in the pump for operation by entering them at the top of the pump-cylinder and letting them down until the annular base-rim  $n'$  of the valve-frame E rests on the lugs  $h h$  of the base  $H'$  and the downwardly-projecting lugs  $a$  on the base B enter and engage with the slots  $a' a'$  in the upper rim  $n$  of the valve-frame E. Then by rotating the piston-rod P the valve-frame E is turned until the slots  $o o$  in the inner annular face of the base-rim  $n'$  of said valve-frame register with the lugs  $h h$  on the raised center  $w$  of the base  $H'$ , when the valve-frame E will slip down over the raised center  $w$ , the lugs  $h h$  on said raised center passing through the slots  $o o$  of the inner annular face of the base-rim  $n'$  of the valve-frame E. Then by a half-turn of the piston-rod P the lugs  $h h$  of the base  $H'$  are caused to engage with the upper face of the base-rim  $n'$  of the valve-frame E, thus firmly locking said valve-frame to the base  $H'$ , as clearly shown in Fig. 1. The piston-rod P is then coupled to the handle H and the pump is ready for operation.

To remove the check-valve from the pump, the piston-rod P is detached from the handle H and let down until the lugs  $a$  on the extended base B enter and engage with the slots  $a'$  in the upper rim  $n$  of the check-valve frame E. Then by a half-turn of the piston-rod P in an opposite direction to that used in locking the valve-frame E to the base  $H'$  the slots  $o o$  in the inner annular face of the base-rim  $n'$  of the valve-frame E are caused to register with the lugs  $h h$  on the raised

center  $w$  of the base  $H'$ , thus disengaging said valve-frame from said base, when the valve-frame E may be readily removed from the pump by drawing up the piston-rod until the extended base B engages with the head  $e$  of the lifting-rod R, the lower end of said lifting-rod being attached to the top of the valve-frame E, whereby said valve-frame is withdrawn from the pump.

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

1. In combination with the cylinder of the pump, the base having the induct-port, the threaded portion  $e'$ , the elevated valve-seat, and horizontally-projecting lugs of the valve-frame and its check-valve, said valve-frame having means of engagement detachably with the lugs on the base of the cylinder, substantially as and for the purposes specified.

2. A pump comprising the following elements: the cylinder, the base screw-threaded thereto, said base having the induct-port, the valve-seat, horizontally-projecting lugs, chamber S, and the valve-frame carrying the check-valve, said valve-frame adapted to be detachably coupled to the base of the cylinder, in the manner and for the purposes specified.

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

WILLIAM H. CULVER.

Witnesses:

H. C. TAFT,  
LORENZO DAY.