

No. 615,623.

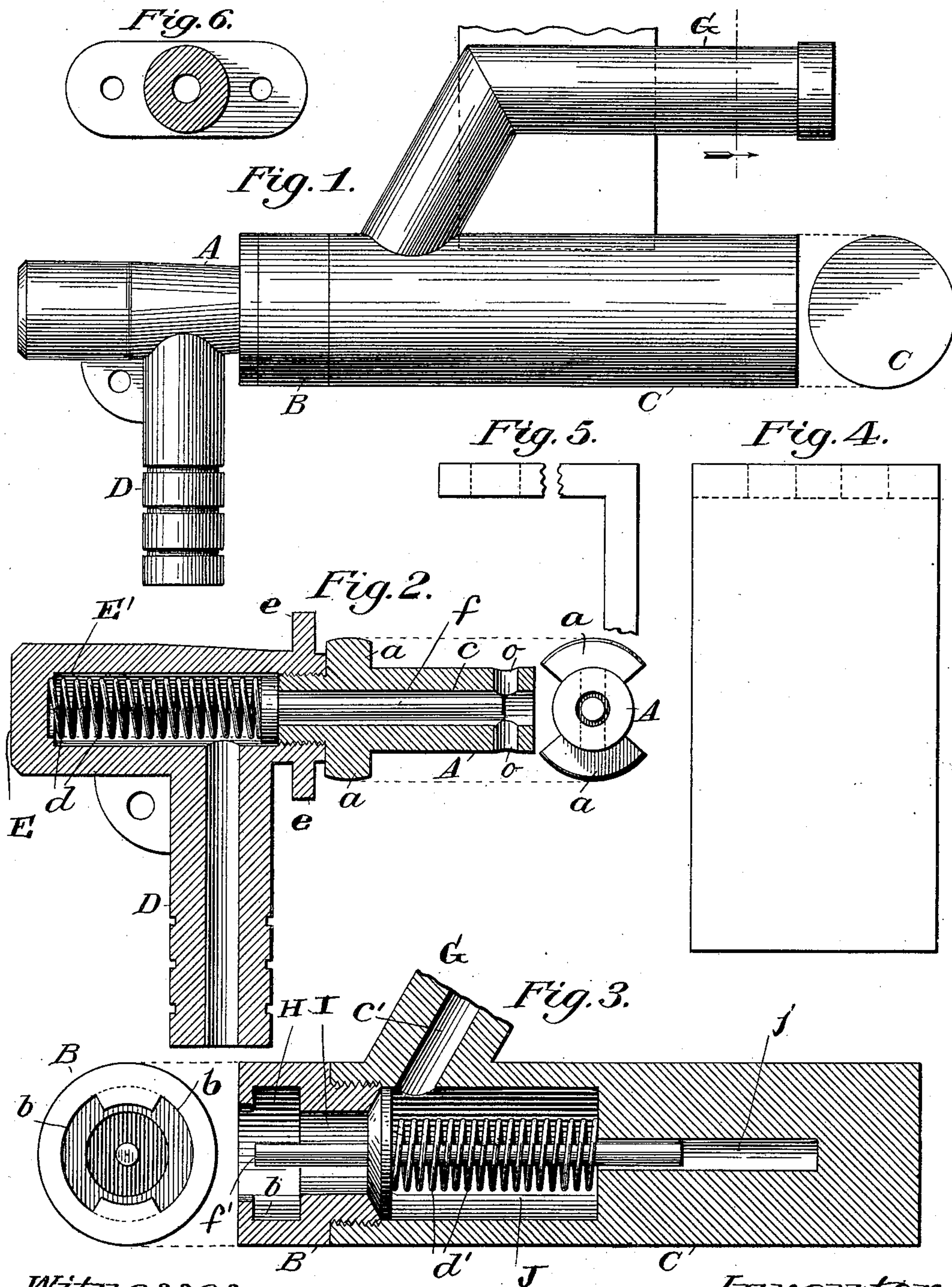
Patented Dec. 6, 1898.

T. A. KING.  
PRESSURE VALVE.

(Application filed Apr. 27, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses,  
James L. Moran  
Edward W. Coyle

Inventor,  
Thomas A. King

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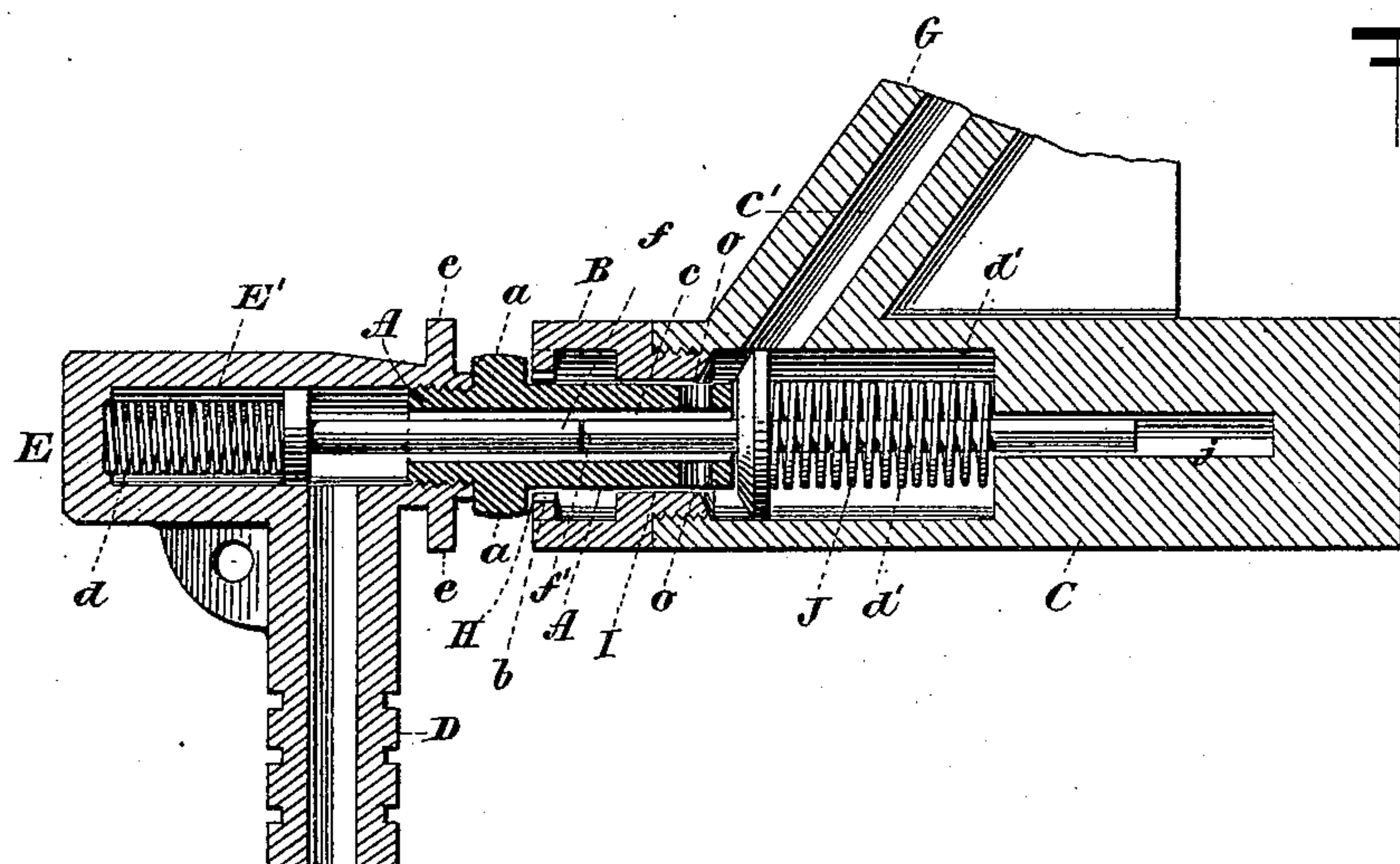


Fig. 7.

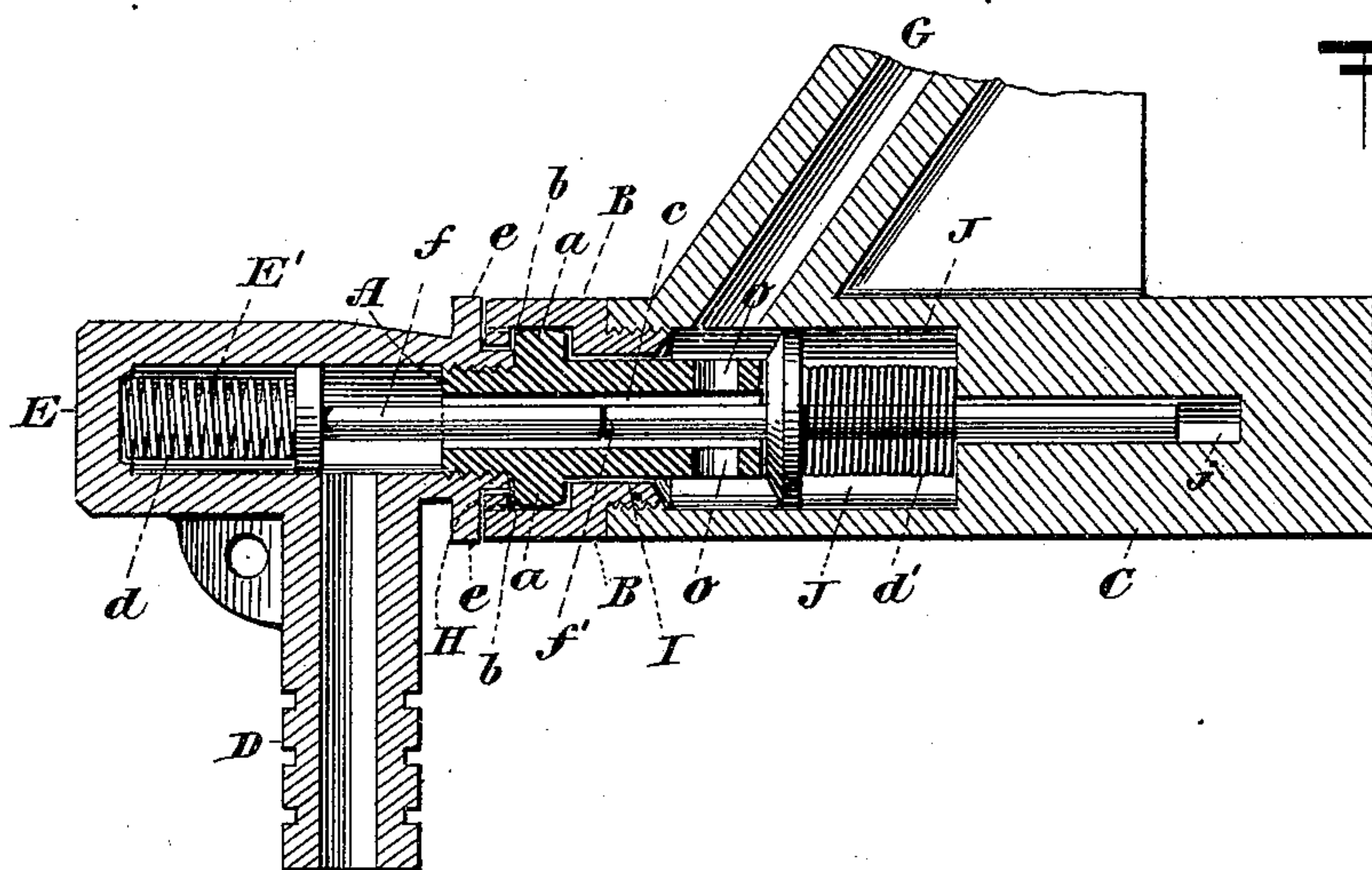


Fig. 8.

WITNESSES:  
*Gustave Dietrich*  
*John Schenck*

INVENTOR.

*Thomas A. King*



# UNITED STATES PATENT OFFICE.

THOMAS A. KING, OF JERSEY CITY, NEW JERSEY.

## PRESSURE-VALVE.

SPECIFICATION forming part of Letters Patent No. 615,623, dated December 6, 1898.

Application filed April 27, 1897. Serial No. 634,179. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS A. KING, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Automatic Pressure-Valve, of which the following is a specification.

My invention relates to a pressure-valve having a supply-hose attachment and a receiver separable from each other, said supply-hose attachment and said receiver each being provided with a plunger having a closing-cap held in place by a pressure-spring, whereby the flow is shut off when the two portions are not in connection with each other, and said supply-hose attachment and said receiver being so adapted that the insertion of the supply-hose attachment into the receiver releases or unseats the closing-cap of the supply-hose attachment in advance of the closing-cap of the receiver, and the uniting of the supply-hose attachment and the receiver releases or unseats the closing-cap of the receiver and allows the flow of a gas or liquid through the valve.

The objects of my invention are, first, to provide the quick, easy, and secure transfer of a gas or liquid from a supply tank or reservoir to a receptacle, and more particularly in reference to use in connection with railway-cars; second, to obviate the screwing process now in vogue, and also to do away with wrench or key. I accomplish these objects by the device illustrated in the accompanying drawings, in which similar letters are used to designate similar parts throughout.

Figure 1 is a side view of my pressure-valve. Fig. 2 is a vertical section of the supply-hose attachment thereof and a detail view of the segmental flange *a a*. Fig. 3 is a vertical section of the receiver of my pressure-valve and a detail view of the segmental flange *b b*. Figs. 4, 5, and 6 are views of means of attachment. Fig. 7 is a sectional view of my pressure-valve, showing the supply-hose attachment inserted in the receiver, the closing-cap of the supply-hose attachment being released or unseated and the closing-cap of the receiver being substantially closed. Fig. 8 is a sectional view of my pressure-valve, showing the supply-hose attachment and the receiver completely united, the closing-caps

of both being released or unseated to allow flow through the valve.

My pressure-valve is made of iron, brass, or other suitable metal or material, and is composed of two separable parts—the supply-hose attachment A D E and the receiver B C G.

The supply-hose attachment is provided with a cylindrical portion or casing E, having a cylindrical chamber E', a pipe extension or nozzle A, and a hose connection D, having a tunnel or channel through it entering the cylindrical chamber E'. The cylindrical chamber E' is of larger diameter than the channel *c* of the pipe extension A, and is of sufficient size to receive a coil-spring *d*, one end of the coil-spring *d* resting upon the end of the cylindrical chamber E' and the other end of said coil-spring resting upon the closing-cap of a piston or plunger *f*, which plunger *f* extends through the channel *c* of the pipe extension A for a portion of its length. The tendency of the coil-spring *d* is to hold the closing-cap of the plunger *f* in place against the end of the channel *c*. The pipe extension A is provided upon its exterior with a segmental flange *a a*. There is also a stop flange or collar *e e*, attached to the casing or cylinder E. The channel of the hose connection D enters the cylindrical chamber E' at a point a short distance behind the closing-cap of the plunger *f*, when the plunger is held in a closing position by the coil-spring *d*, as shown in Fig. 2.

The receiver B C G of my pressure-valve is composed of a casing or cylinder B C and a channeled exit G, connecting with it. The cylinder B C is provided upon its interior with an outer cylindrical chamber H, having a segmental flange *b b*, a middle cylindrical chamber I, and an inner cylindrical chamber J, having a channeled extension *j*. The outer chamber H and inner chamber J are of substantially the same diameter and are both larger than the middle chamber I. The inner cylindrical chamber J is provided with a double-ended plunger *f'*, having a closing-cap, one end of which plunger projects forward into the middle chamber I and outer chamber H and the other end projects rearward into the channeled extension *j*. The coil-spring *d'* is placed around the rear end of the plunger *f'*, one end of this spring resting upon



the closing-cap of the plunger  $f'$  and the other end resting upon the base of the inner chamber J, the tendency of the pressure of this coil-spring being to hold the closing-cap of the plunger  $f'$  in place against the inner edge of the middle cylindrical chamber I, Fig. 3. The channel of the exit G enters the inner chamber J at a point slightly behind the closing-cap of the plunger  $f'$  when the plunger  $f'$  is in the position above described. The plunger of the closing-cap  $f$  is longer than the front portion of the plunger of the closing-cap  $f'$  and extends to a point substantially in line with the inner edge of the ports  $o o$  of the pipe extension A when the supply-hose attachment is closed to flow, Fig. 2. The outer or front portion of the plunger of the closing-cap  $f'$  extends to a point substantially in line with the inner edge of the flange  $b b$  when the receiver is closed to flow, Fig. 3.

The coil-spring  $d'$  is of greater strength than the coil-spring  $d$ , so that when the pipe extension A of the supply-hose attachment is inserted into the receiver and the ends of the two plungers come in contact, the plunger  $f$  being longer than the front portion of the plunger  $f'$ , the closing-cap of the plunger  $f$  will be forced backward and unseated in advance of the unseating of the closing-cap of the plunger  $f'$  by the contact of the end of the pipe extension A, Fig. 7, the gas or liquid thus from the supply-hose attachment A D E immediately and without interruption entering the receiver B C G and expelling the air therefrom.

The pipe extension A is of sufficient length that when inserted into the receiver so that the segmental flanges  $a a$  and  $b b$  are in contact, but not engaged with each other, the end of the pipe extension will be in contact with and will slightly unseat the closing-cap  $f'$ , Fig. 7, and when the segmental flanges  $a a$  and  $b b$  are engaged and the supply-hose attachment and receiver are completely united it will force the closing-cap  $f'$  backward to a point in the rear of the channel of the exit G and bring the ports  $o o$ , with which the pipe extension A is provided, substantially in line with the channel of the exit G, Fig. 8.

The operation of my pressure-valve is as follows: The hose connection D of the supply-hose attachment A D E is affixed by suitable means to the source of supply. The pipe extension A of the hose attachment A D E is then inserted into the outer cylindrical chamber H of the receiver B C G, the end of the pipe extension A coming in contact with the outer face of the closing-cap  $f'$  and slightly unseating it and the segmental flange  $a a$  coming in contact with the segmental flange  $b b$ , but not yet engaging therewith, the plunger  $f$  and the shorter end of the plunger  $f'$  being in contact with each other and the closing-cap  $f$  being forced backward through the greater strength of the pressure-spring  $d'$ , as hereinbefore described, Fig. 7.

The supply-hose attachment A D E is then slightly twisted or turned, the segmental flange  $a a$  thus being thrust through and made to engage with the open segmental cuttings of the flange  $b b$ . A further twist of the hose attachment A D E causes the flange  $a a$  to catch behind the flange  $b b$ , thus holding the two portions of the pressure-valve together and locking them in this position. By this action the closing-cap of the plunger  $f'$  has also been forced backward by the pressure of the end of the pipe extension A upon it to a point in the rear of the channel of the exit G, the rear end of the plunger  $f'$  working backward into the channeled extension  $j$ , and an open channel is thus provided through the entire length of the pressure-valve—that is, through the channel of the hose connection  $d$ , into the cylindrical chamber E', thence around the plungers  $f f'$ , through the channel  $c$  of the pipe extension A, into the cylindrical chambers H I J, and thus to the channel-exit G, Fig. 8. By disengaging the supply-hose attachment A D E and withdrawing it from the receiver B C G the closing-caps of the plungers  $f f'$  are forced back by the pressure-springs  $d d'$  to their former positions and both portions of the pressure-valve are closed.

The stop flange or collar  $e e$  is intended to prevent too great insertion of the supply-hose attachment into the receiver.

Having fully described my invention, what I claim, and desire to protect by Letters Patent, is—

1. A pressure-valve comprising a supply-hose attachment and a receiver separable from each other and each having disposed within it a plunger, closing-cap and pressure-spring device whereby the flow through the supply-hose attachment and the receiver is shut off when the supply-hose attachment and the receiver are not connected; the supply-hose attachment and the receiver being so adapted that the insertion of the supply-hose attachment into the receiver releases the closing-cap of the supply-hose attachment in advance of the closing-cap of the receiver, and the uniting of the supply-hose attachment and the receiver allows flow through the valve, substantially as herein described and set forth.

2. The combination of the supply-hose attachment having the casing, the channeled inlet, the cylindrical chamber, the pipe extension and the plunger, closing-cap and pressure-spring disposed within said cylindrical chamber and pipe extension and closing the flow through the supply-hose attachment when not in connection with the receiver, and the receiver having the casing, the channeled exit, the outer, middle and inner cylindrical chambers and channeled extension and the double-ended plunger, closing-cap and pressure-spring disposed within said outer, middle and inner cylindrical chambers and channeled extension closing the flow through



the receiver when not in connection with the supply-hose attachment; the supply-hose attachment and the receiver being so adapted that the insertion of the supply-hose attachment into the receiver releases the closing-cap of the supply-hose attachment in advance of the closing-cap of the receiver and the uniting of the supply-hose attachment and the receiver allows flow through the valve substantially as herein described and set forth.

3. The combination of the supply-hose attachment having the casing, the channeled hose connection, the cylindrical chamber, the pipe extension and the plunger, closing-cap and pressure-spring disposed within said cylindrical chamber and pipe extension, and the receiver having the casing, the channeled exit, the outer cylindrical chamber, the middle cylindrical chamber and the channeled extension and having the double-ended plunger, closing-cap and pressure-spring disposed within said outer, inner and middle cylindrical chambers and channeled extension, the plunger of the hose attachment being of greater length than the forward end of the double-ended plunger of the receiver, and the pressure-spring of the receiver being of greater stiffness than the pressure-spring of the hose attachment, substantially as herein described and set forth.

4. The combination of the supply-hose attachment having the casing, the channeled hose connection, the cylindrical chamber, the pipe extension provided with the segmental flange, the plunger, closing-cap and pressure-spring disposed within said cylindrical chamber and pipe extension, and the receiver having the casing, the channeled exit, the outer cylindrical chamber provided with the segmental flange, the middle cylindrical chamber, the inner cylindrical chamber and the channeled extension, and having the double-ended plunger, closing-cap and pressure-spring disposed within said outer, middle and inner cylindrical chambers and channeled extension, substantially as herein described and set forth.

5. In a pressure-valve having the supply-hose attachment provided with the casing, the channeled hose connection and cylindrical chamber substantially as described and the receiver provided with the casing, the channeled exit, the outer, middle and inner cylindrical chambers and channeled extension substantially as described, the combination of the pipe extension, the plunger, closing-cap and pressure-spring disposed within said first-mentioned cylindrical chamber and pipe extension and closing the flow through said supply-hose attachment when not in connection with the receiver and the double-ended plunger, closing-cap and pressure-

spring disposed with said above-mentioned outer, middle and inner cylindrical chambers and channeled extension and closing the flow through said receiver when not in connection with the supply-hose attachment; said pipe extension and said first-mentioned plunger, closing-cap and pressure-spring and said double-ended plunger, closing-cap and pressure-spring being so adapted that by the insertion of the pipe extension into the receiver the pressure-spring of the supply-hose attachment will be compressed and the closing-cap released in advance and also operating when the supply-hose attachment and the receiver are united to fully release the closing-cap of the receiver and allow flow through the valve, substantially as herein described and set forth.

6. In a pressure-valve having the supply-hose attachment provided with the casing, the channeled inlet and the plunger-closing cap and pressure-spring, and the receiver having the casing, the channeled exit, the outer, middle and inner cylindrical chambers and channeled extension and the double-ended plunger, closing-cap and pressure-spring, said plunger of the hose attachment being of greater length than the forward end of the double-ended plunger of the receiver and said pressure-spring of the receiver being of greater stiffness than the pressure-spring of the hose attachment, the combination of the pipe extension adapted to be inserted into the receiver and united therewith and when so united to release the closing-cap of the receiver and allow flow through the said receiver, substantially as herein described and set forth.

7. In a pressure-valve having the supply-hose attachment provided with the casing, the channeled hose connection and the cylindrical chamber substantially as described and the receiver having the casing, the channeled exit, the outer cylindrical chamber provided with the segmental flange, the middle cylindrical chamber, the inner cylindrical chamber and channeled extension substantially as described, the combination of the pipe extension having the segmental flange, the plunger, closing-cap and pressure-spring disposed within said first-mentioned cylindrical chamber and pipe extension and the double-ended plunger, closing-cap and pressure-spring disposed within said outer middle and inner cylindrical chambers and channeled extension, substantially as herein described and set forth.

THOMAS A. KING.

Witnesses:

JAMES F. MORAN,  
EDWARD W. CAYNE.