

No. 745,316.

PATENTED DEC. 1, 1903.

R. C. BLAKE.
PLUG VALVE.

APPLICATION FILED SEPT. 29, 1902.

NO MODEL.

Fig 1

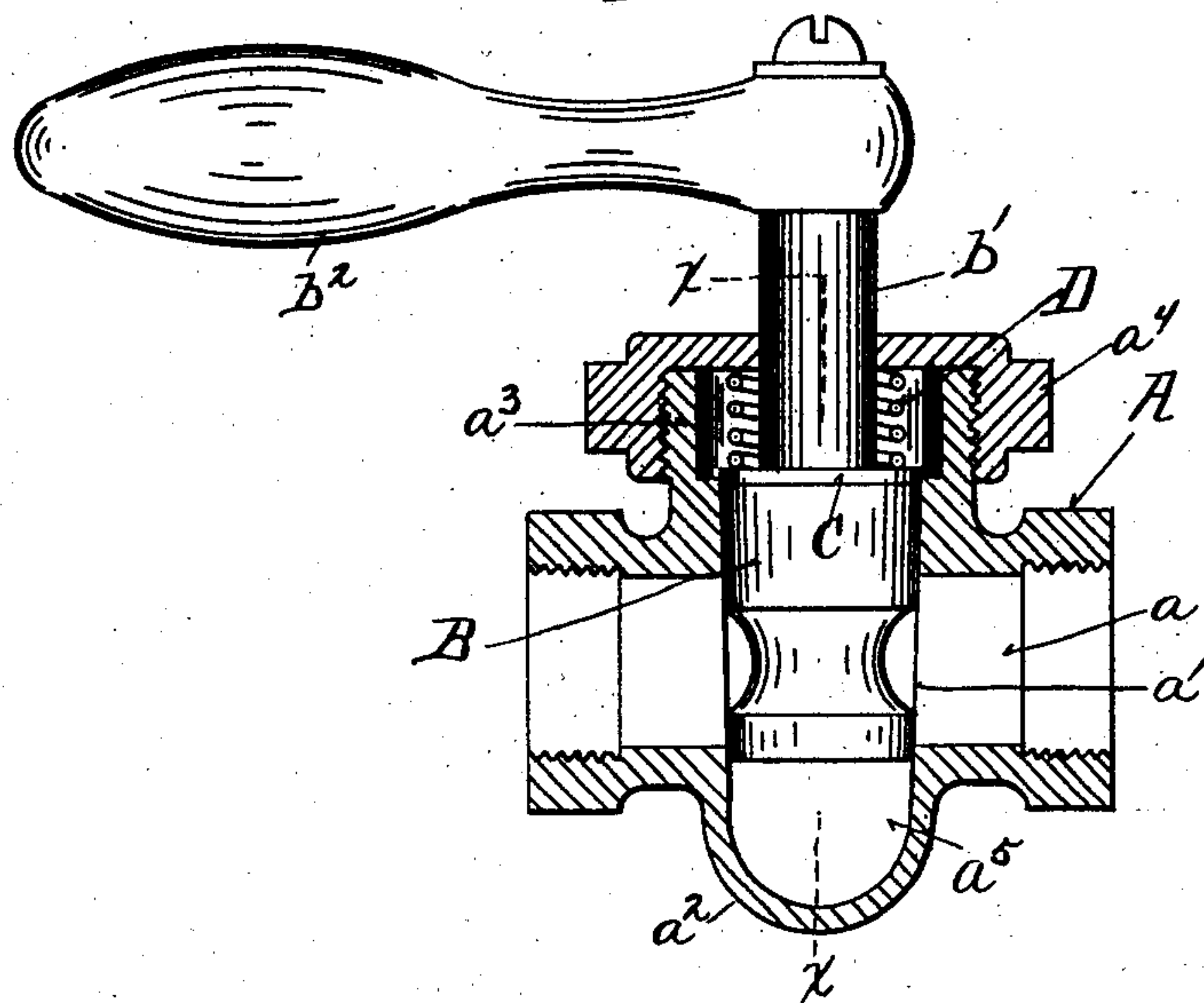


Fig 2

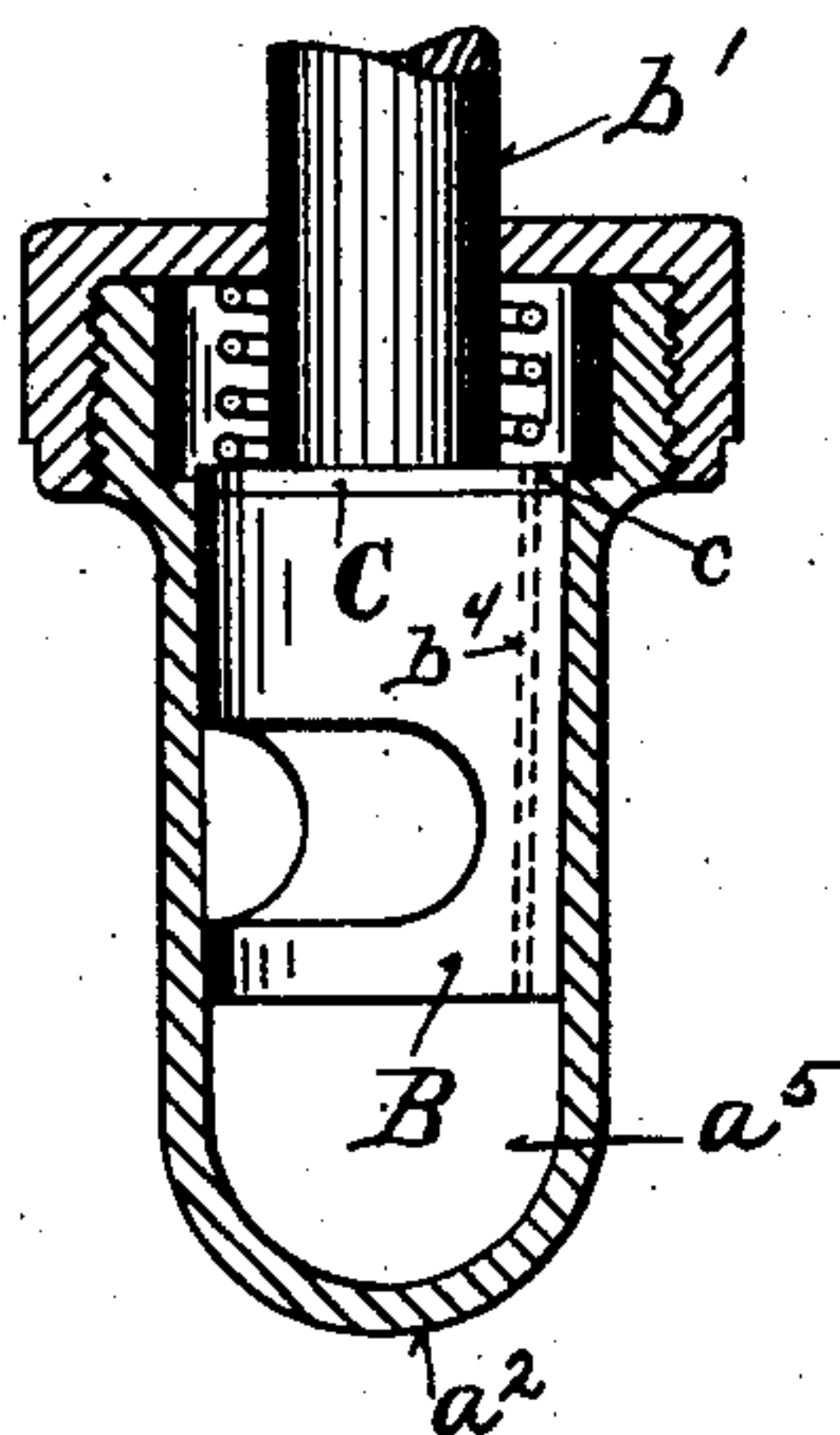
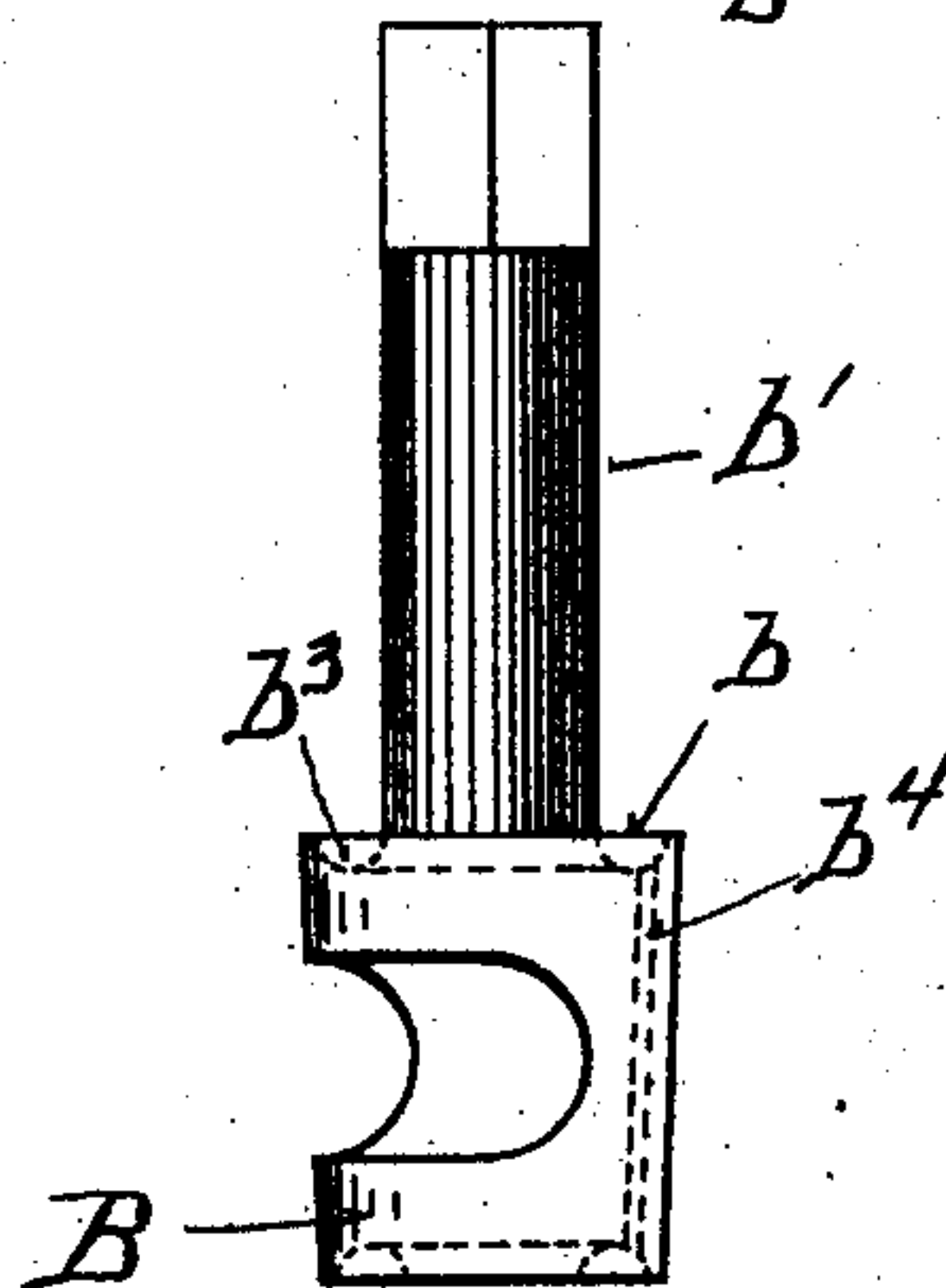


Fig 3



Witnesses
A. McLeams
F. F. Oldham

Inventor
Richard C. Blake
By Murray & Murray
Attorneys.

UNITED STATES PATENT OFFICE.

RICHARD C. BLAKE, OF CINCINNATI, OHIO.

PLUG-VALVE.

SPECIFICATION forming part of Letters Patent No. 745,316, dated December 1, 1903.

Application filed September 29, 1902. Serial No. 125,189. (No model.)

To all whom it may concern:

Be it known that I, RICHARD C. BLAKE, a citizen of the United States of America, and a resident of Cincinnati, county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Plug-Valves, of which the following is a specification.

The object of my invention is a plug-valve which is held to its seat with a pressure which prevents leakage, but which does not create any binding effect and which cannot be regulated by an unskilled person so as to create such an effect and in which the pressure in the chambers at the ends of the valve due to the expansion of heated air therein is released. This object is attained by the means described in the specification and illustrated in the accompanying drawings, in which—

Figure 1 is a view of a plug-valve embodying my invention, showing the valve-casing in central section and the plug-valve, valve-stem, and handle in elevation. Fig. 2 is a sectional view of the same, taken upon line $x-x$ of Fig. 1, the valve-stem being shown broken off. Fig. 3 is a detail view in elevation of the valve and valve-stem.

Referring to the parts, valve-casing A has a straight channel a passing through it, through which the fluid to be regulated is to pass. Crossing channel a is a tapered bore a' , which upon one end is closed by a wall a^2 and upon the open end has an exteriorly-screw-threaded extension a^3 , which receives a cap a^4 . Plug-valve B is tapered similarly to bore a' and is seated therein across channel a , leaving a chamber a^5 between its end and the wall a^2 . Upon its opposite end the valve B is reduced, forming a shoulder b and a valve-stem b' , which projects out through cap a^4 and upon its end receives a handle b^2 for turning the valve. Shoulder b has an annular groove b^3 cut into it, from which a channel b^4 extends through the plug-valve to its opposite side. Upon shoulder b is seated a washer C, in which is a perforation c . Surrounding valve-stem b' , between washer C and the cap a^4 , is a coiled spring D, which holds the plug-valve to its seat.

It is seen that with my construction the valve is held yieldingly to its seat by the spring D, so that it cannot become wedged into the seat so as to become stiff in action, as is the case with plug-valves which project through the valve-casing and upon their ends receive nuts to hold them in place. It is seen, likewise, that an unskilled person could not grind this valve so tightly to its seat that it would become bound, since the pressure with which it may be pushed to its seat is limited by the pressure which can be brought upon spring D, which cannot be increased after cap a^4 is seated against the end of extension a^3 .

The channel b^4 puts chamber a^5 in communication with the chamber surrounding the valve-stem, which itself is in communication with the air, since cap a^4 has no packing surrounding the valve-stem. When the air in chamber a^5 becomes expanded by reason of heat, it does not push the valve away from its seat, but is released through channel b^4 into groove b^3 and thence out through perforation c in the washer into the chamber surrounding the valve-stem.

What I claim is—

1. The combination of a casing, a fluid-channel therethrough, a plug-valve crossing the channel forming chambers at the ends of the valve and having a channel passing through it and putting the chambers in communication with each other and a vent in the walls of one of the chambers substantially as shown and described.

2. The combination of a casing having a fluid-channel therethrough, a tapered bore crossing the channel from one side of the casing having one end of the bore closed, a tapered plug-valve to fit the bore leaving a chamber at the closed end of the bore and having a channel passing through the valve into the chamber, a means for venting the other end of the bore and a means for holding the plug yieldingly to its seat substantially as shown and described.

3. In a plug-valve the combination of a casing having a channel therethrough, a tapered bore transverse to the channel hav-

ing one of its ends closed, a tapered plug-
valve seated within the bore forming a closed
chamber at one end and having a channel
passing longitudinally therethrough, a cap
5 surrounding the stem of the valve forming a
chamber about it, which communicates with
the air, and a spring between the cap and the

valve to hold the same yieldingly to its seat,
substantially as shown and described.

RICHARD C. BLAKE.

Witnesses:

M. J. SCANLAN,
W. F. MURRAY.