

No. 725,640.

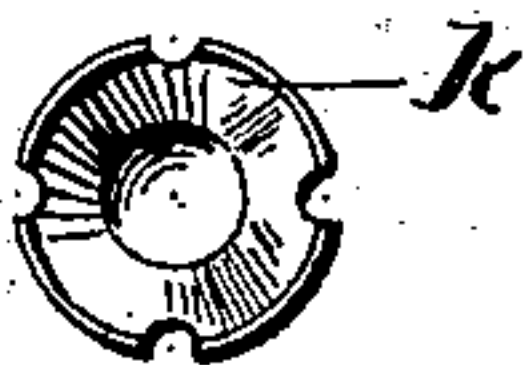
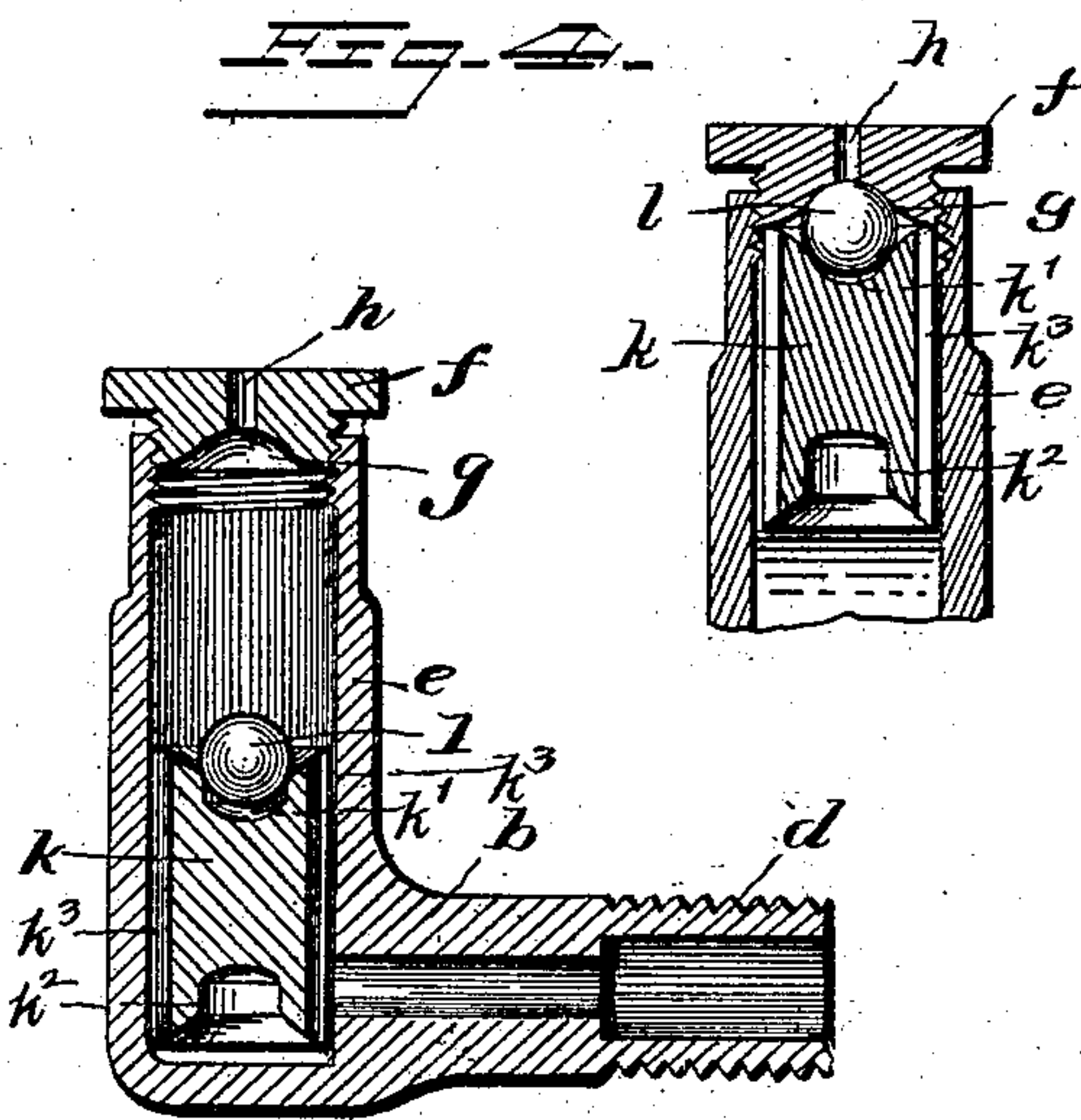
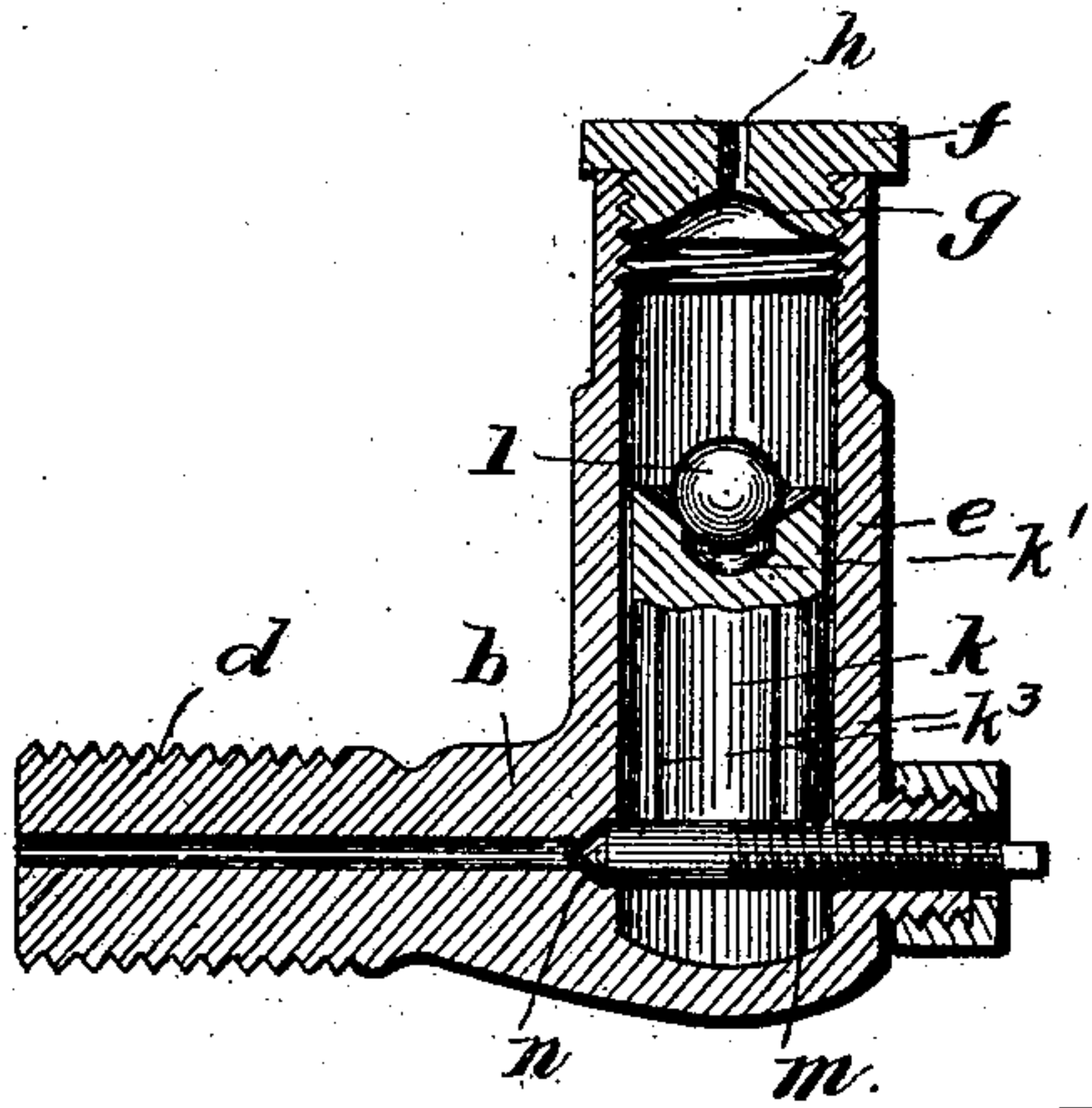
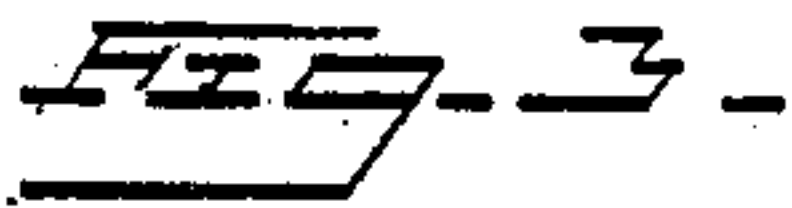
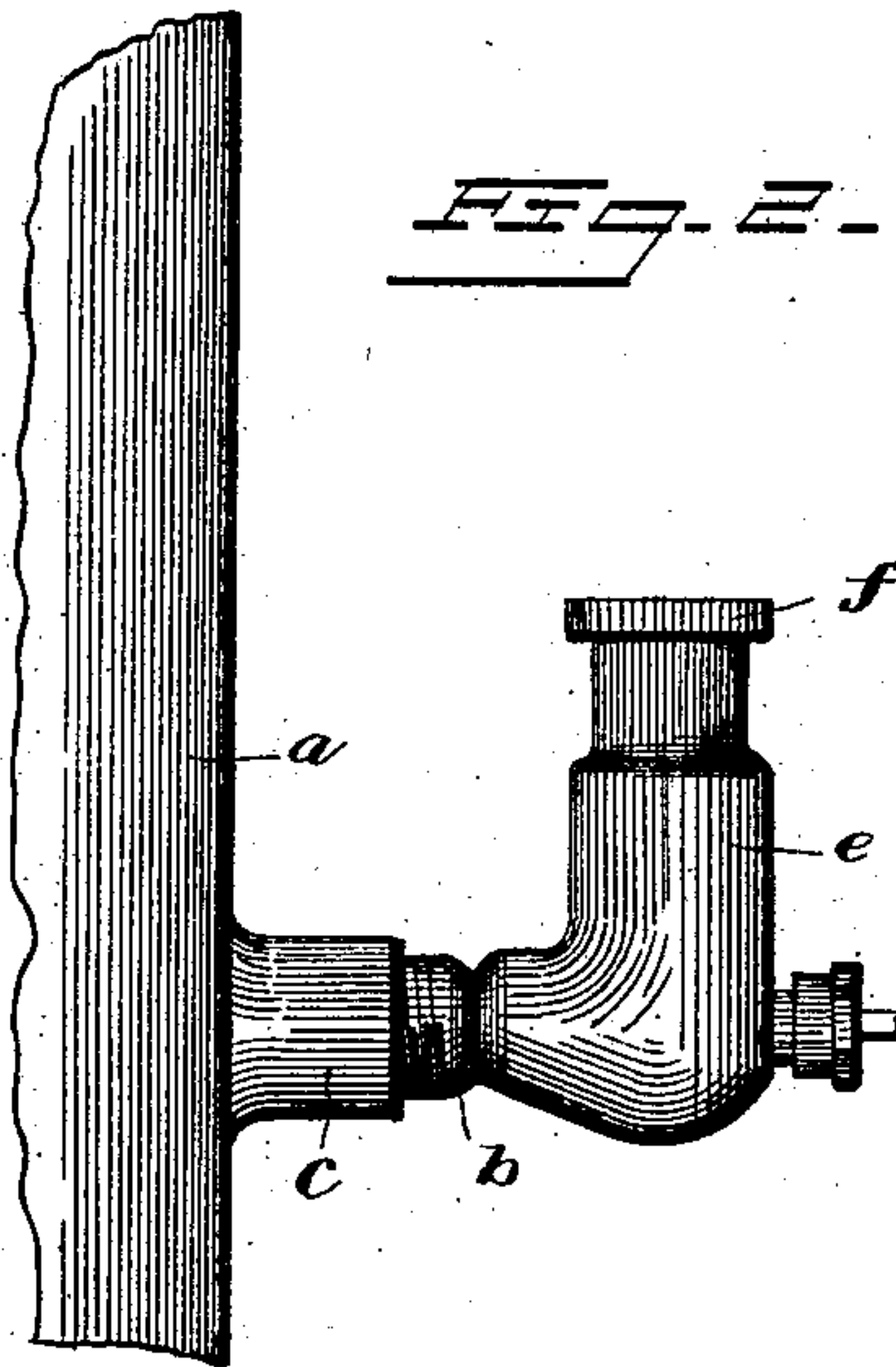
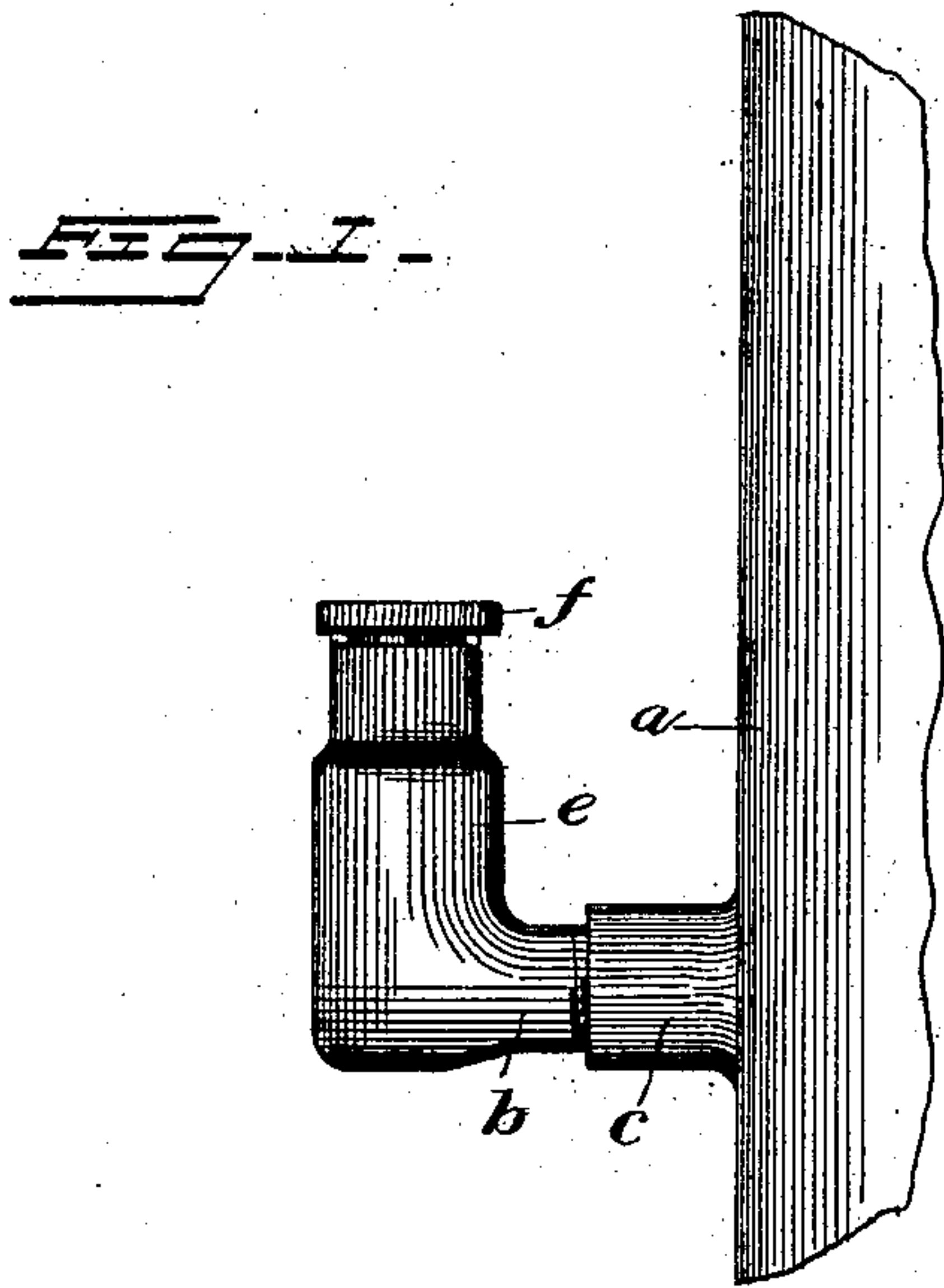
PATENTED APR. 14, 1903.

W. N. WEMMER.

VALVE.

APPLICATION FILED JAN. 4, 1902.

NO MODEL.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM N. WEMMER, OF TRENTON, NEW JERSEY, ASSIGNOR OF ONE-HALF TO JOHN LUCAS, OF PHILADELPHIA, PENNSYLVANIA.

VALVE.

SPECIFICATION forming part of Letters Patent No. 725,640, dated April 14, 1903.

Application filed January 4, 1902. Serial No. 88,401. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM N. WEMMER, a citizen of the United States, and a resident of Trenton, in the county of Mercer and State of New Jersey, have made a certain new and useful invention in Automatic Valves for Hot-Water Radiators; 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 appertains to make and use the invention, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a side elevation of my valve as applied. Fig. 2 is a similar view showing modified form of valve. Fig. 3 is a side elevation of a modified form of the invention having a valve for cutting off the water. Fig. 4 is a similar view of the valve shown in Fig. 1. Fig. 5 is a detail end view of the valve. Fig. 6 is a detail fragmentary sectional view illustrating the valve-block and valve as raised to close the opening *h*.

The invention relates to automatic air-valves designed mainly for use in connection with hot-water heating apparatus; and it consists in the novel construction and combinations of parts, as hereinafter set forth.

The object of the invention is to let off the air which collects in the radiator, owing to change in the temperature of the water, and to accomplish this object in an automatic manner.

In the accompanying drawings the letter *a* designates the wall of a hot-water radiator, and *b* a tubular valve-box adapted to be secured in a threaded aperture *c* of said wall by means of its threaded end *d*. The valve-tube or valve-box *b* is provided with a vertical tubular offset *e*, extending upward from the outer portion of such valve-tube or valve-box and open at the top. This offset tube or chamber *e* is threaded at its upper end and provided with a threaded cap or stop *f*, which is fastened on its under side as a valve-seat *g*. This under side or bottom of the stop *f* is made concave, and the apex of the concavity communicates with a small aperture or perforation *h*, which is the outlet for the air. The tubular offset or chamber *e* is made long

enough to allow play to the loosely-sliding piston-form block *k*, which is made, preferably, of hard rubber. The top of this block is made concave, as at *k'*, as is also the bottom at *k''*, and its form is that of a cylinder, having, however, one or more grooves or an air-passage *k'''* along its side. This block is designed to fit loosely in the tube, so that it will readily move up or down therein, the tubular wall forming a guideway to keep the block in upright position.

The top of the block or plunger *k* is entirely concave from its outer edge to the center, this concavity being of bevel form, as shown. Upon the concave top of the block rests a small ball-valve *l* of smaller radius than said concave top, which is stemless. This ball-valve is made of metal, and when it is pressed upward by the block against the valve-seat of the stop *f* it is centered by the action of the concavities of the stop and of the block and closes the aperture *h*, thereby preventing the escape of the hot water. Whatever may be the position of the ball when the plunger is forced up by the action of the water it will automatically center itself, rolling upon the bevel concavity to its deepest portion, so as to close the valve-opening in the stop. The plunger, its casing, and ball-valve being entirely loose from each other are designed to avoid any sticking or adhesion of the parts on account of sediment or grime in such wise that the valve will act promptly and will not get out of order. Upon the removal of the threaded cap or cover *f* the slide-block *k* and the ball-valve may be removed from the top of the valve-box. The valve-box may also be provided with a positive valve *n*, having a threaded engagement with an aperture in the outer end of the valve-box, being adapted to engage a concave conical valve-seat *n'*, formed in said box around its tubular base.

When air accumulates in the valve-box in the upper portion of the offset chamber displacing the water the block *k* will fall, allowing the ball-valve to fall, and the air will then escape through the aperture *h*. The subsequent pressure of the water under the block raises it and also carries up the ball-valve and presses it against the valve-seat in the

bottom of the stop *f*, closing the aperture and preventing the water from escaping. The action is automatic and is designed to avoid the necessity of constant attention in this regard. 5

The concave bottom of the plunger *k* allows for an air-chamber therein to cause the plunger to float.

Having described this invention, what I claim, and desire to secure by Letters Patent, is— 10

In an automatic air-valve, the combination of a valve box or casing, a removable screw-top for said casing, said screw-top having a 15 central perforation and a concavity on the under side surrounding said perforation, a

loose plunger situated within the box or casing, and having a concave bottom and top, the concavity at its top extending from its outer edge to its center, an air-passage being provided between the plunger and sides of the casing, and a ball adapted to rest in the upper concavity of the plunger, and to close the perforation in the screw-cap when the plunger is raised, substantially as specified. 20 25

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

WILLIAM N. WEMMER.

Witnesses:

FRANK WHITE,
JOHN LUCAS.