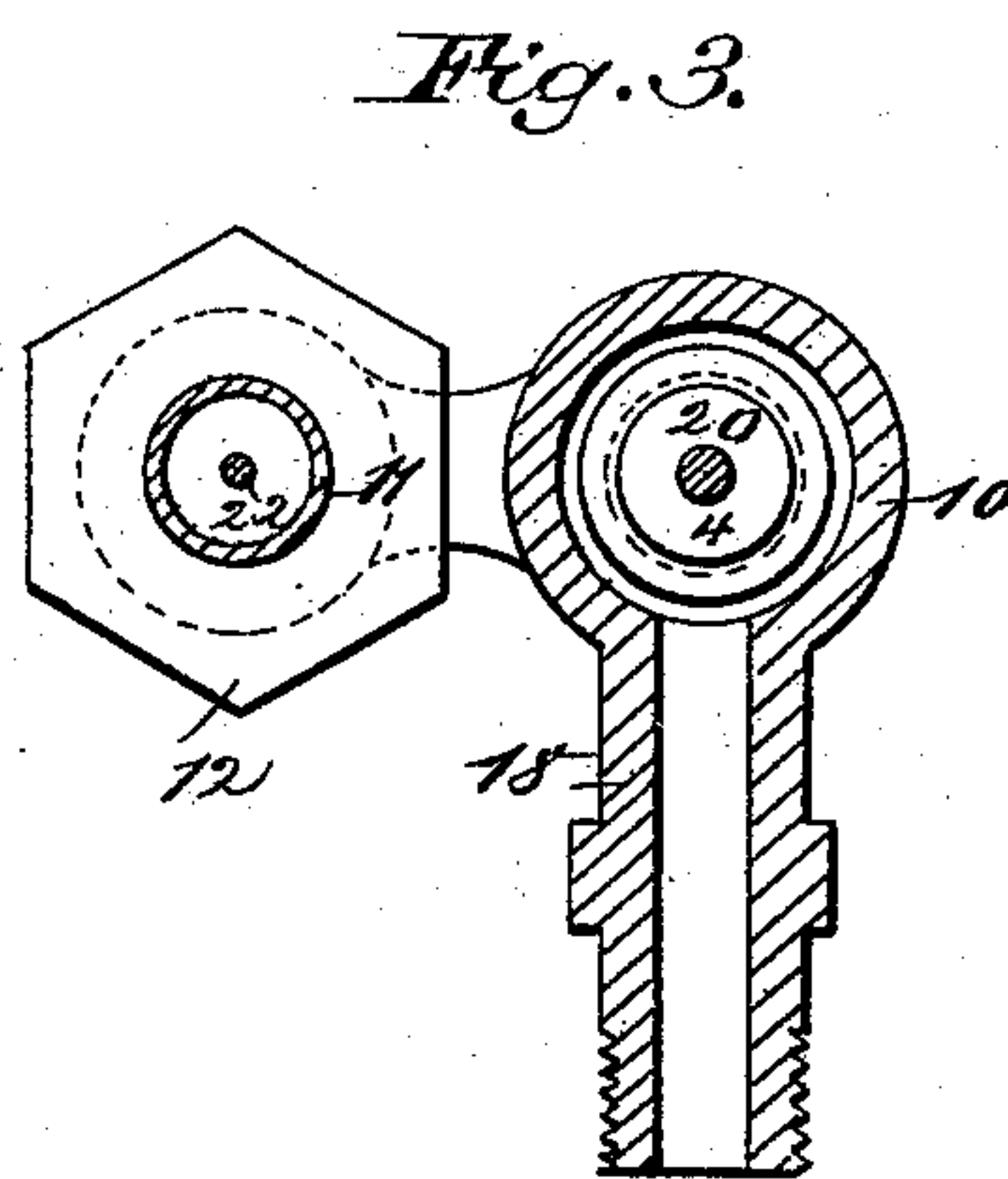
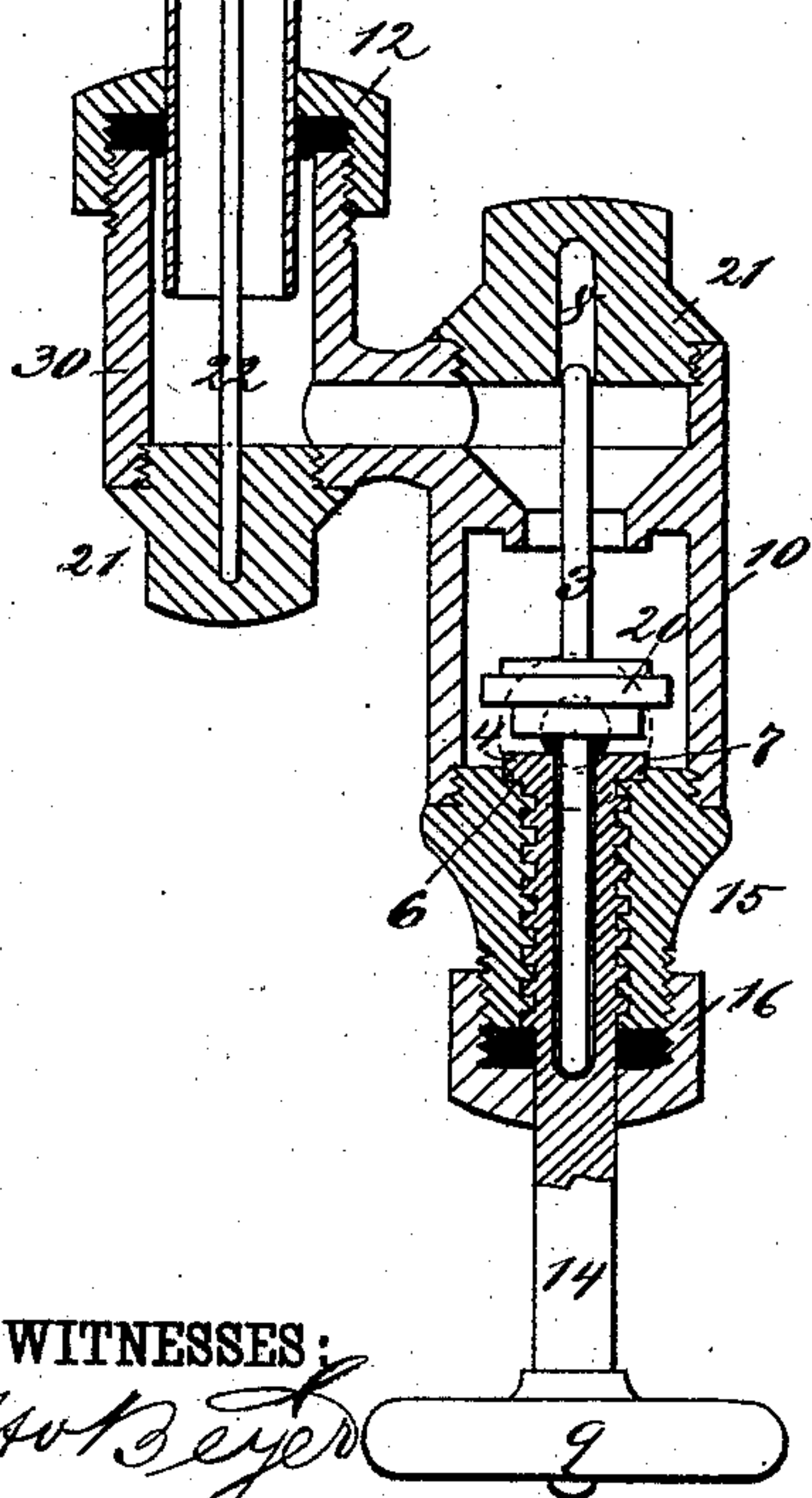
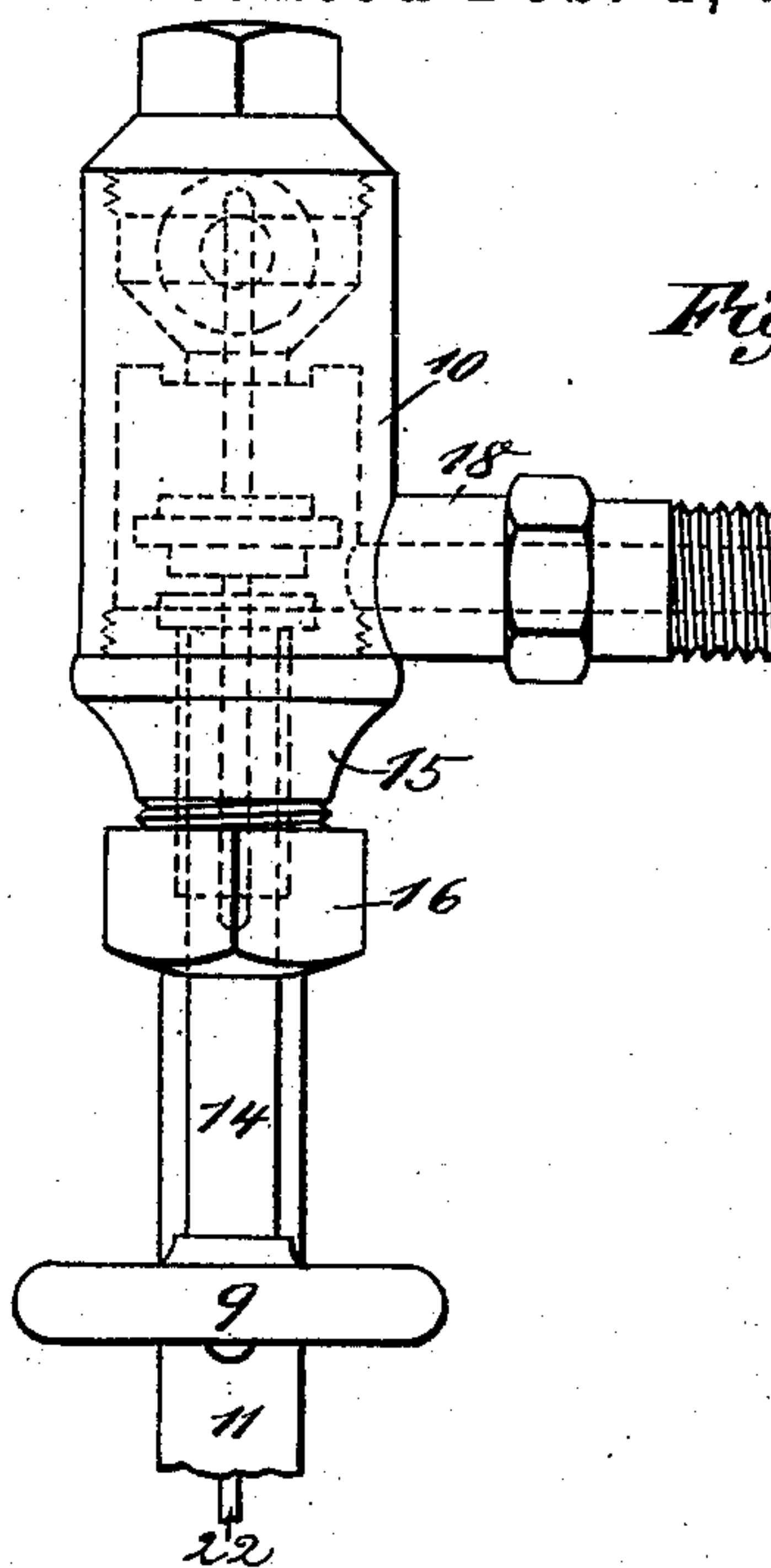
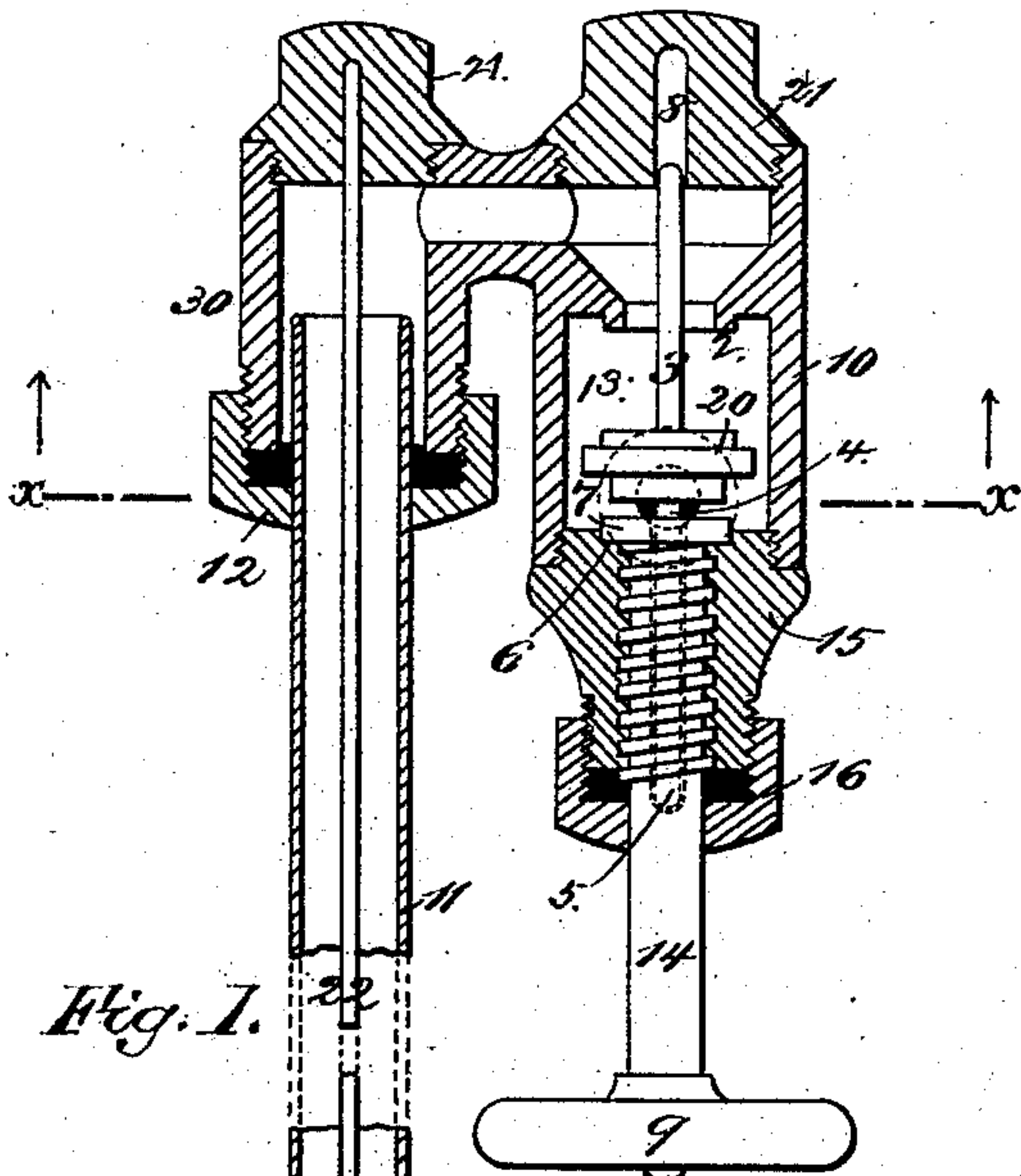


(No Model.)

W. E. ROCHE.
SAFETY WATER GAGE.

No. 356,965.

Patented Feb. 1, 1887.



WITNESSES:
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UNITED STATES PATENT OFFICE.

WILLIAM E. ROCHE, OF PEABODY, MASSACHUSETTS.

SAFETY WATER-GAGE.

SPECIFICATION forming part of Letters Patent No. 356,965, dated February 1, 1887.

Application filed August 21, 1886. Serial No. 211,511. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM EDWARD ROCHE, of Peabody, in the county of Essex and State of Massachusetts, have invented a new and Improved Water-Gage Valve, of which the following is a full, clear, and exact description.

My invention relates to the construction of an automatic water-gage valve wherein the parts are so arranged that should the glass tube break the valve will close, and thus prevent the escape of steam or water.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a central sectional elevation of my improved form of water-gage valve. Fig. 2 is a side view of a portion of the same, and Fig. 3 is a cross sectional view taken on line *x x* of Fig. 1.

In the drawings, 10 represents the valve-case, to one side of which there is connected a socket, 30, which serves as the support for a glass tube, 11, a packing-ring, 12, being arranged about the tube, as clearly shown. Within the valve-case 10 there is a valve-seat, 2, said seat being arranged at the top of the valve-chamber 13. The valve-spindle 14 is threaded to engage with a central threaded aperture formed in a plug, 15, by which the lower end of the valve-chamber is closed, a packing-ring, 16, being arranged about the valve-spindle, as indicated; and in order that the packing held by said ring 16 may be renewed or adjusted at pleasure I form a valve-seat, 6, at the upper end of the plug 15, and provide the spindle with an annular flange, 7, that may be brought down upon said seat, and thereby prevent the passage of steam or water.

The valve 20 is formed with two stems, 3 and 4, the upper one of which projects upward and into a recess, 8, formed in a plug, 21, by which the upper end of the valve-case is closed, while the lower stem, 4, rests within a central longitudinal aperture, 5, that is formed in the spindle 14.

The sockets 30 are closed by plugs 21, and these plugs serve as the supports for a metal-lic sight-rod, 22, which rod is preferably nickel-

plated and extends through the longitudinal center or axis of the tube 11.

The valve-cases 10 are provided with side tubes, 18, that are formed with threaded ends, in order that they may be brought into engagement with threaded sockets that are formed in the boiler.

It will of course be understood that in using the gage hereinbefore described two of the valve-cases 10 will be used, said valve-cases being exactly alike, except that their sockets 30 are connected in inverse position, so as to receive the tube 11, the parts being arranged as indicated in Fig. 1.

Such being the general construction of the apparatus, it will be seen that in the ordinary working of the gage the pressure upon each side of the valves 20 will be equal; but should the tube 11 break the pressure upon the under sides of the valves would be greater than that upon the upper sides thereof, and consequently the valves would be at once forced against their seats 2, thus preventing the passage of hot water or steam and enabling the engineer to throw up the valve-spindle, so as to permanently hold the valve to its seat, which he would not be able to do without danger of scalding himself, as with the ordinary form of valve, where no provision is made for the automatic closing of the valve. By arranging the sight-tube as indicated the exact height of the water may be determined at once by a glance at the tube, owing to the fact that the water within the tube magnifies the rod, and that portion of the rod within the water will appear larger than the unmagnified portion above the water.

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

1. The combination, with the casing and a valve-spindle, of a valve fitted loosely in the casing and having two stems, one seated in the casing and the other in the valve-spindle, substantially as herein shown and described.

2. The combination, with the casing 10, provided with the valve-seat 2 and the recess 8, and the plug 15, provided with the valve-seat 6, of the spindle 14, provided with the flange 7 and the recess 5, and the valve 20,

provided with the stems 3 4, substantially as herein shown and described.

3. The combination, with the casings 10, provided with the sockets 30 in lateral extensions, and their valves, of the glass tube 11, the caps 12, the socketed plugs 21, and the sight-rod 22, secured in the sockets of the said

plugs, substantially as herein shown and described.

WILLIAM E. ROCHE.

Witnesses:

FRANK E. FARNHAM,
JAMES A. ROCHE.