2 Sheets--Sheet 1.

I. O. ENDICOTT.

Improvement in Nozzles for Hose-Pipes, Hydrants, &c.

No. 133,215. Patented Nov. 19, 1872.

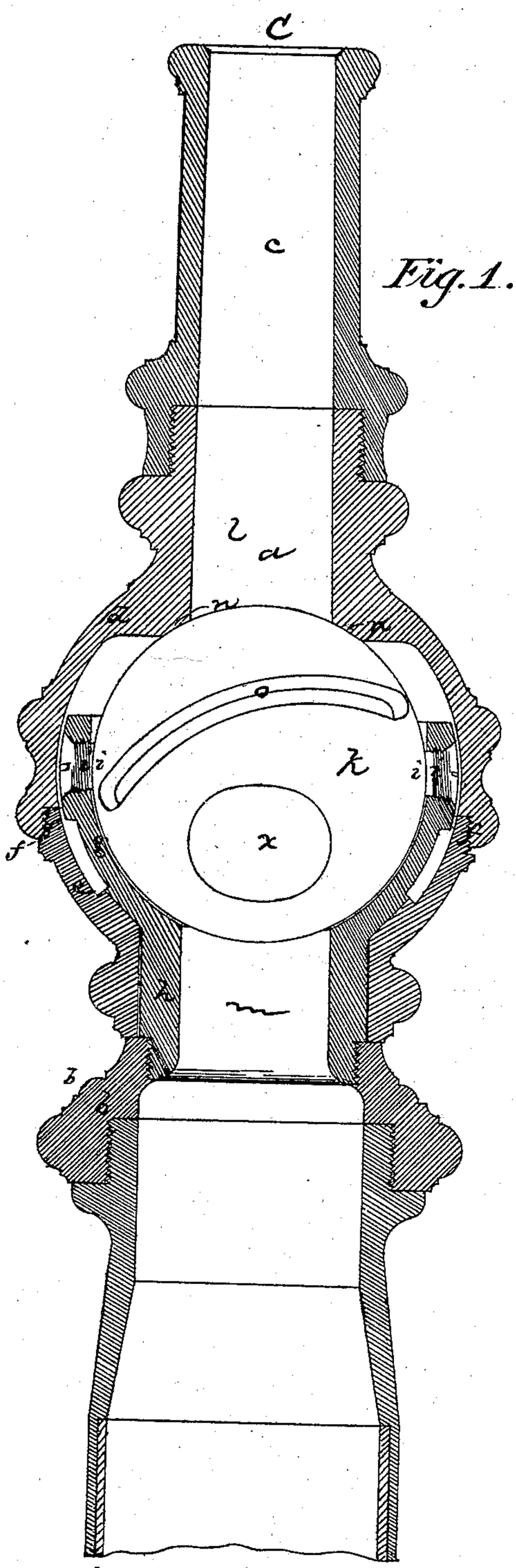
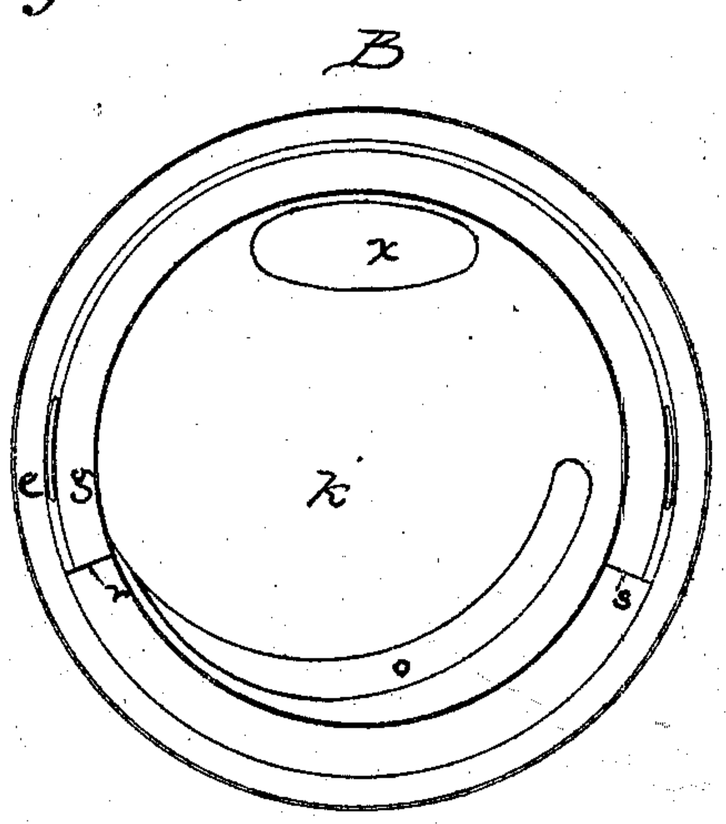


Fig. 1.

Fig. 2.



Witnesses. { M. W. Frothingham.
L. B. Kidder.

Israel O. Endicott.
By his Attys.
Crosby & Gould

2 Sheets--Sheet 2.

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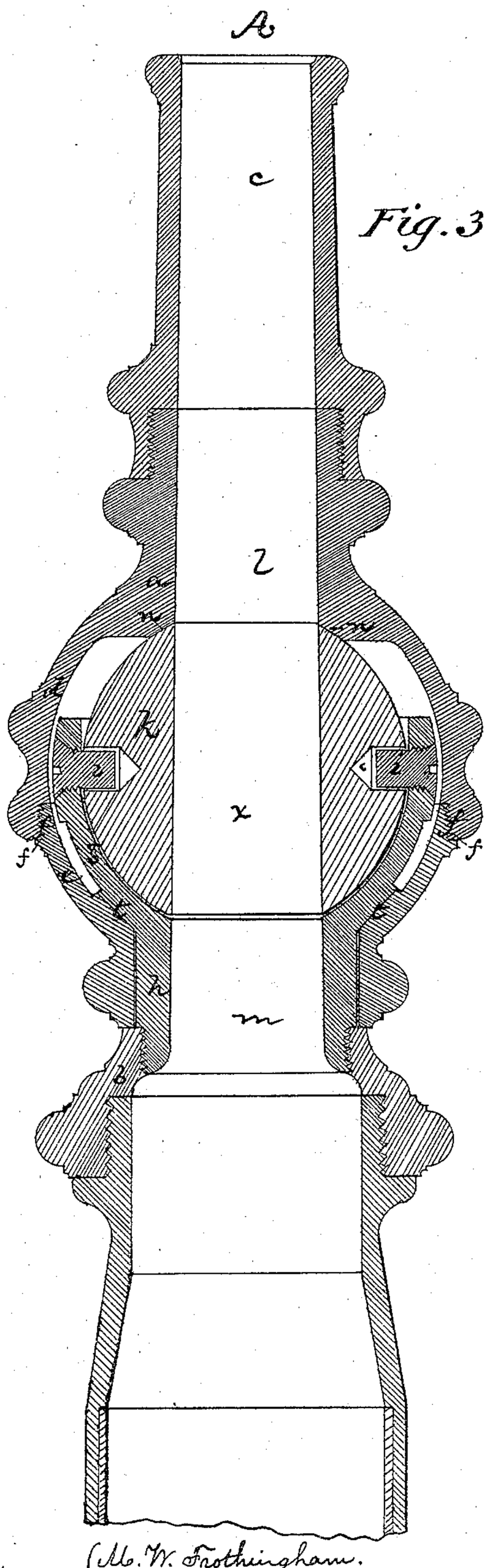

Fig. 3.

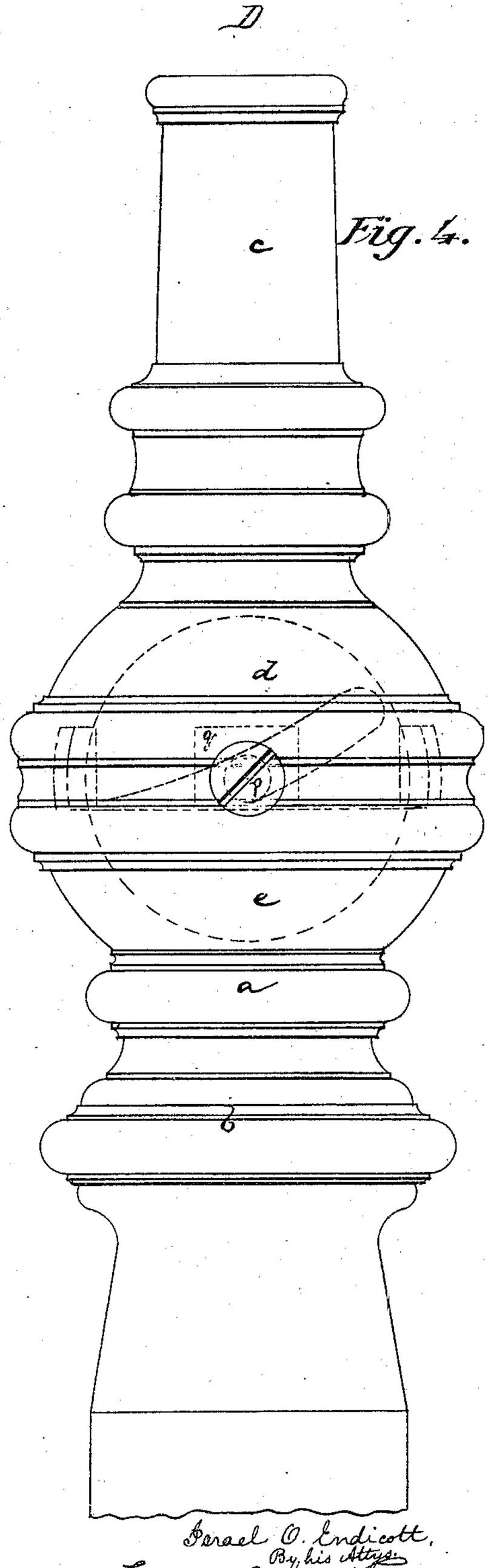

Fig. 4.

Witnesses. { Mc. W. Frothingham.
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UNITED STATES PATENT OFFICE.

ISRAEL O. ENDICOTT, OF MANCHESTER, NEW HAMPSHIRE.

IMPROVEMENT IN NOZZLES FOR HOSE-PIPES, HYDRANTS, &c.

Specification forming part of Letters Patent No. **133,215**, dated November 19, 1872.

To all whom it may concern:

Be it known that I, ISRAEL O. ENDICOTT, of Manchester, in the county of Hillsborough and State of New Hampshire, have invented an Improved Nozzle for Hose-Pipe, Hydrants, &c.; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The invention relates particularly to the construction of a nozzle-pipe (to be used in connection with the hose of steam fire-engines) with reference to the arrangement within the pipe of a valve, so constructed and applied that it is opened and shut by rotative movement of the nozzle, to permit discharge of water through the nozzle to be arrested at the nozzle instead of only at the engine, or as well as at the engine.

In my invention I form the nozzle-chamber with an enlargement, spherical or approximately spherical in shape, and containing an inner case or shell, in which is a ball-valve hung on trunnions, the valve having a cylindrical water-passage extending diametrically through it, (of the size of the nozzle-bore above and below it,) which passage is in line with the nozzle-passage when the valve is open, and forms part of said passage, the valve also having a spherical valve-face, which, as the valve is turned to shut off the discharge of water, slides under a concave seat at the opposite end of the valve-chamber, thereby cutting off all passage of water through the nozzle, the pressure of the water tending to force the valve upon its seat and keep it tight. In the outer surface of the valve is a cam-slot or groove, into which a pin enters from the valve-case, and by turning the nozzle the movement of this pin turns the valve and opens or closes the water-passage through the nozzle. It is in this globular or globular-faced valve, having the water-passage extending through it, and operated as described, that my invention primarily consists.

The drawing represents a nozzle embodying my invention. A shows the nozzle in sectional elevation. B is a plan of the valve and valve-shell. C is a section through the closed valve. D is a side elevation.

a denotes the nozzle-pipe, nut-threaded at its lower end *b* to couple to the hose-pipe, and having the eduction-tube *c* at its upper end. Below this tube is the valve-case, made in two hemispherical parts, *d e*, united by a screw-connection, as seen at *f*. In the lower half *e* is a shell, *g*, having a neck, *h*, uniting it to the end *b* of the nozzle-pipe, the valve-case piece *e*, and the part *d*, and its tube *c*, turning on this neck, the connection being water-tight, but permitting free relative rotative movement. From opposite sides of the shell *g* extend two trunnions or pins, *i*, upon which is hung the globular valve *k*, the valve turning freely upon these trunnion-pins, with a slight space between its surface and the shell. Through the valve extends the axial water-passage *x*, opening into the passage *l* above it and the passage *m* below it, when the valve is opened, as seen at A, the passage *x* being then vertical. Over the valve, at the bottom of the tube *l*, is a valve-seat, *n*, against which the globular surface of the valve fits snugly when the valve is closed, as seen at C. In the outer surface of the valve is made the cam-slot *o*, into which slot a pin, *p*, extends, said pin being a projection from the valve-case *d*. When the nozzle is turned, a piece, *q*, through which the pin passes, travels between two stops, *r s*, and the movement of the pin in the slot *o* causes the valve to turn; so that by turning the nozzle to carry the piece *q* up to the stop *r* the valve is opened, and by turning it back and carrying the piece *q* up to the stop *s* the valve is closed. To prevent leakage between the valve-shell and neck and the case *e* a ground or turned joint is made between the case and shell at *t*, the two surfaces exactly fitting and forming a joint impervious to passage of water, the pressure of the water tightening the joint. The valve is supported loosely on its trunnions, and has a capability of play, so that the pressure of the water, when the valve is closed, forces the valve against its seat, the valve and seat forming an impervious water-joint.

The construction is simple and efficient, and enables the stream of issuing water to be easily and instantaneously cut off at the nozzle and without recourse to the engineer who drives the engine—a suitable relief-valve being pref-

erably used at the engine, which valve automatically operates by the back pressure of the water.

I claim—

1. In combination with the ball-valve, the cam-slot *o* and the pin *p*, operating to turn the valve, substantially as described.

2. A nozzle or nozzle-pipe having the ball-valve, which valve has the axial water-passage *x*, and is operated to permit or to cut off discharge of water through the nozzle by means of a pin entering a slot in the ball, substantially as described.

3. In combination with the ball-valve, the trunnions *i*, projecting inward from the shell and into the ball, for supporting the valve, substantially as shown and described.

4. In combination with the valve, the shell *g*, in which the ball is hung and turns, substantially as described.

5. The shell *g* and the ring *e*, constructed and arranged to form the impervious joint *t*, substantially as shown and described.

ISRAEL O. ENDICOTT.

Witnesses:
N. S. BEAN,
D. W. MORSE.