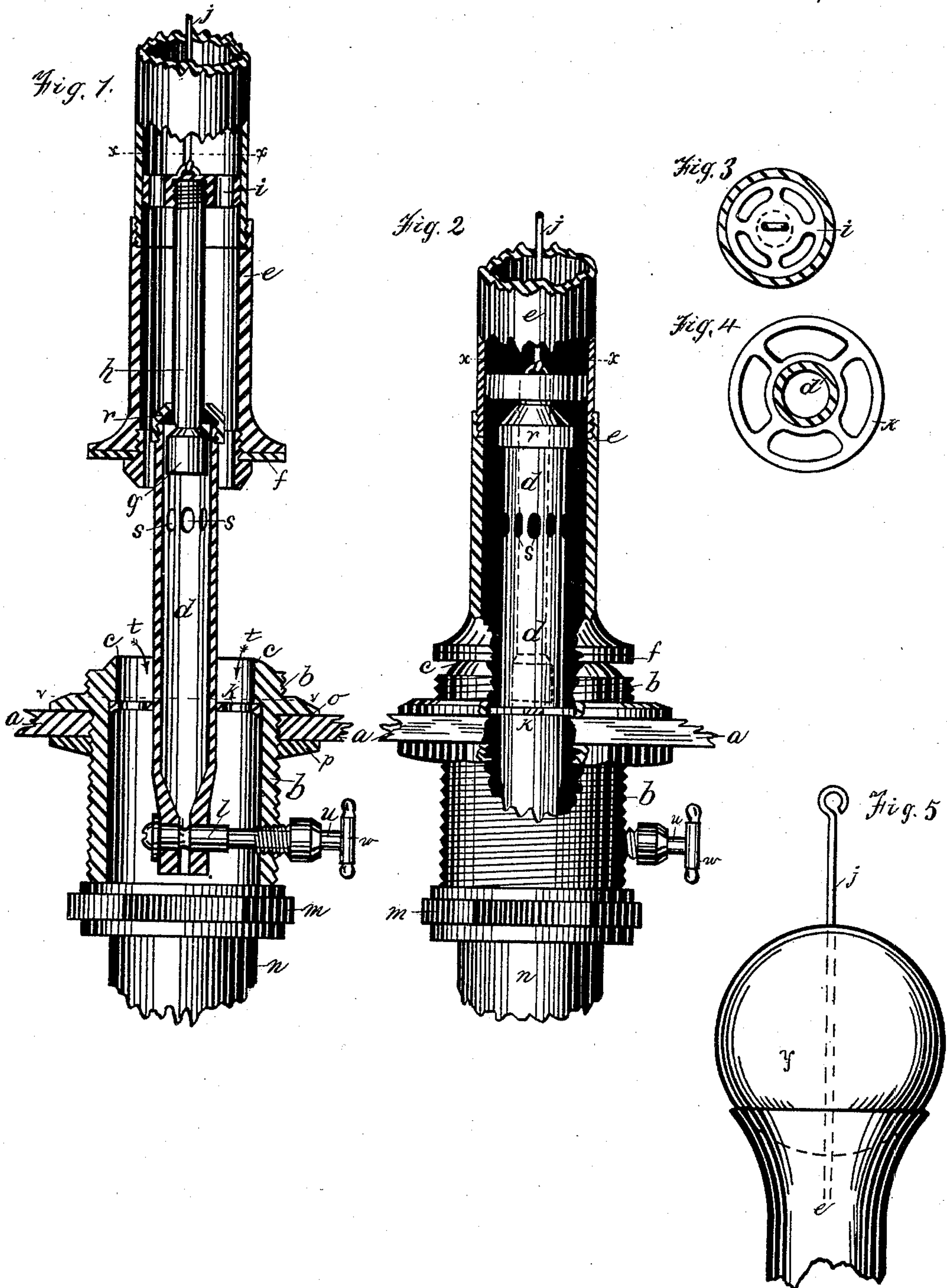


(No Model.)

G. B. MOORE.
SLOW CLOSING VALVE.

No. 443,052.

Patented Dec. 16, 1890.



Witnesses

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GEORGE B. MOORE, OF SPRINGFIELD, MASSACHUSETTS.

SLOW-CLOSING VALVE.

SPECIFICATION forming part of Letters Patent No. 443,052, dated December 16, 1890.

Application filed April 16, 1889. Serial No. 307,428. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. MOORE, a citizen of the United States of America, residing in Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Slow-Closing Valves, of which the following is a specification, reference being had to the accompanying drawings and letters of reference marked thereon.

The object of my invention is to provide a valve for tanks which shall be supplied with a suitable overflow, and wherein the valve will close upon its seat with a slow or gradual motion, and thus avoid all pounding, hammering, or jar which results from the use of quick-closing valves, and a valve also wherein the rapidity of descent of the valve to its seat may be varied and controlled.

The object of my invention is, further, to provide a tank-valve which shall be effectual in its operation, simple in construction, and not easily gotten out of repair; and to that end my invention consists in the construction and arrangement herein pointed out.

Referring now to the drawings, in which like letters of reference indicate like parts, Figure 1 is a side elevation in section illustrating the construction of my device, the valve in this figure being shown as opened. Fig. 2 is a side elevation, with a portion of the outer shell in section, illustrating my device, the valve in this figure being shown as closed. Fig. 3 is a plan view of the portion immediately below line *xx*. Fig. 4 is a plan view of the interior portion immediately below line *ss*; and Fig. 5 is a side view of the top of the tube, showing a float in position.

Referring now to the drawings in detail, *a* indicates the tank-bottom; *b*, a shell fixed therein; *c*, a valve-seat secured to shell *b*; *d*, a tubular chamber secured within shell *b*; *e*, a tubular shell having openings through it; *f*, a valve-disk secured to shell *e*; *g*, a piston-head fitting chamber *d*; *h*, a piston-rod upon which said head is mounted; *i*, a support fixed in the shell *e*. This support has water-ways, as shown, and is also fixed to the end of the piston-rod. *j* is a lifting-rod secured thereto; *k*, a support having water-ways fixed within shell *b* and supporting chamber *d*; *l*, an outlet-

valve for chamber *d*; *m*, coupling, and *n*, inlet-pipe.

The construction and operation are as follows:

To the tank-bottom is secured a shell *b*, which is preferably of round tubular shape and threaded upon its exterior, and is held in position by clamping the tank-bottom *a* between a flange *o* and a clamping-ring *p*. Within the shell *b*, and projecting above it is arranged a tubular chamber *d*, which is preferably held in position by the support *k*. The lower end of the chamber *d* is provided with an outlet-opening, and provided, also, with a valve or stop-cock *l*, the stem of which projects through the shell *b* below the tank-bottom and at a convenient point where the same can be controlled.

The shell *b* is provided with a valve-seat *c*, which may be of any convenient form, a re-seating-seat being preferred.

The shell *e* consists of a tubular piece of metal, preferably cylindrical in cross-section and provided with an opening through it, and is arranged to be moved perpendicularly, any of the usual system of levers being employed for that purpose. The lower end of the shell *e* is provided with a valve-disk *f*, which registers with and is adapted to cover the valve-seat *c*, and thus close the valve.

A plunger or piston-head *g* fits within the chamber *d*, and is mounted upon a piston-rod *h*, which extends upward and is secured to the support *i*, rigidly fixed in the shell *e*. A cap *r* upon the top of chamber *d* prevents water flowing into this chamber from above, and a connecting rod or wire *j*, extending to the operating-lever, provides a means to raise the shell *e* and parts attached. Openings *s* in the side of the chamber *d* permit water to enter the chamber.

Fig. 2 illustrates the position occupied by the parts when the valve is closed. If now the valve be opened by raising the shell *e* to the position shown in Fig. 1, the rod *h* and plunger *g* will be likewise raised, and while the water is flowing from the tank through the main outlet, as indicated by the arrows lettered *t*, a portion will also enter the chamber *d* through the openings *s* below the plunger *g*, and upon the lever being released

the valve will close by reason of its own weight, and the rapidity with which it closes will be dependent upon the rapidity with which the plunger *g* descends in the chamber *d*, and the downward motion of the plunger *g* will be dependent upon the rapidity with which the water escapes from the chamber, so that the rapidity with which the valve closes is dependent upon the size of the outlet through which the water escapes from the chamber *d*, and this being controlled by a stop-cock *l*, it will be seen that the time employed in the closing operation may readily be varied and controlled by turning the stem *u* of the stop-cock *l*. The overflow is provided for by the tube *e*, through which the water will escape, should it rise above the top, and to prevent noises otherwise attending the overflow I construct the upper end of the tube flaring to form a seat for a float *y*, loosely arranged on the pull-rod *j*. The float is raised by the action of the overflow, and that ceasing it drops by gravity back into its seat on the top of the tube.

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

The combination of the tank-section *b*, having a valve-seat *c* on its upper end and provided with the support *k*, the vertically-arranged tubular chamber *d*, projected through and supported by the support *k* and having the cap *r* and water-ports *s*, the valve *l*, arranged in the tank-section *b* and lower end of the chamber *d*, the movable section *e*, having its lower end constituting a valve to engage the valve-seat of the tank-section and provided with an interior support *i*, the piston *g h*, secured in the support *i* and arranged with its head in the chamber *d*, and means, substantially as described, for lifting the movable section and piston, all as specified.

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Witnesses:

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