

(No Model.)

E. I. BLOUNT.
DOOR CHECK OR CLOSER.

No. 527,584.

Patented Oct. 16, 1894.

FIG. 1.

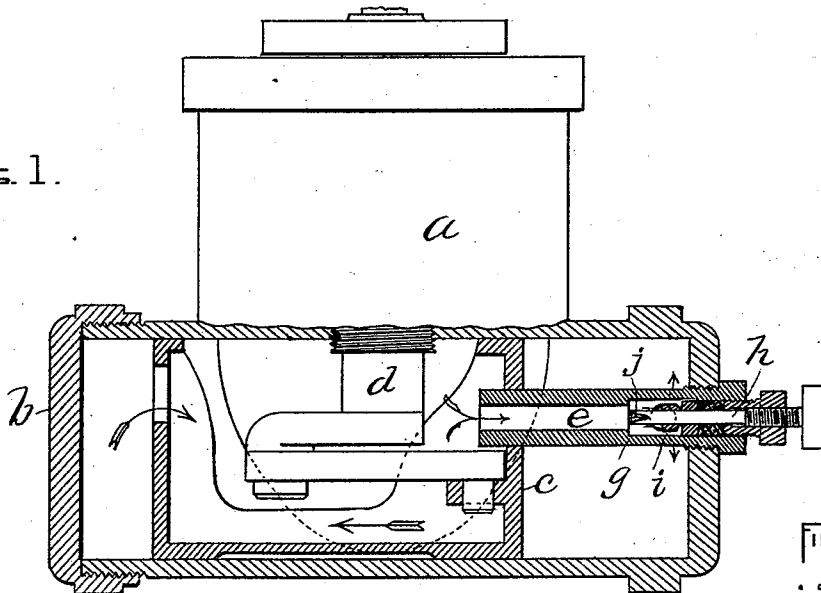


FIG. 4.

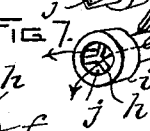
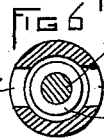
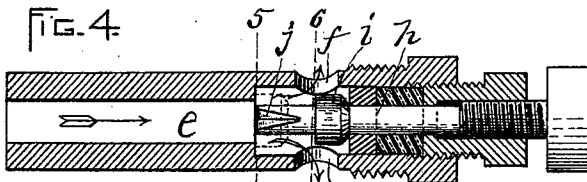


FIG. 2.

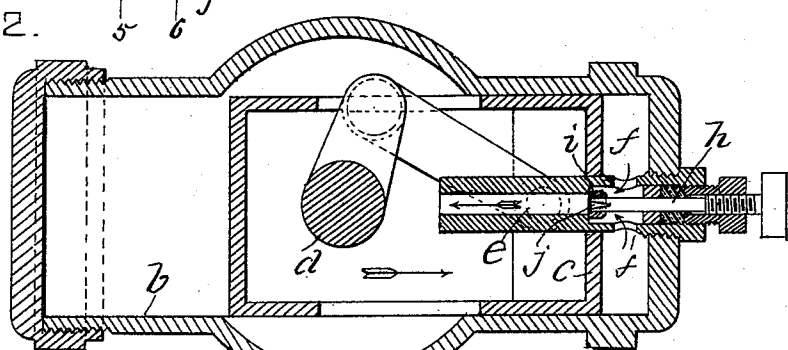
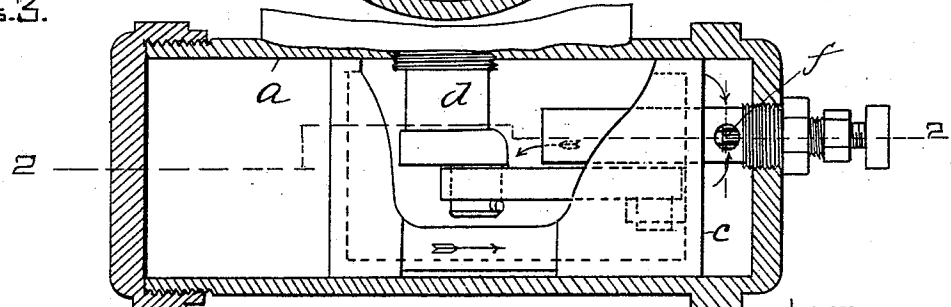


FIG. 3.



WITNESSES.

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UNITED STATES PATENT OFFICE.

EUGENE I. BLOUNT, OF GARDNER, MASSACHUSETTS, ASSIGNOR TO THE
BLOUNT MANUFACTURING COMPANY, OF PORTLAND, MAINE.

DOOR CHECK OR CLOSER.

SPECIFICATION forming part of Letters Patent No. 527,584, dated October 16, 1894.

Application filed December 27, 1893. Serial No. 494,867. (No model.)

To all whom it may concern:

Be it known that I, EUGENE I. BLOUNT, of Gardner, in the county of Worcester, and State of Massachusetts, have invented certain new and useful Improvements in Door Checks or Closers, of which the following is a specification.

This invention has relation generally to door checks and closers and particularly to the means whereby the flow of the liquid from the front to the rear of the piston is controlled.

It is the purpose of the invention to simplify the construction of the means aforesaid by doing away with one of the passage-ways connecting the ends of that portion of the cylinder or liquid chamber within which the cylinder reciprocates, and making one passage-way serve for the free operation of the piston and other parts in the opening of the door and checking or retarding the same in the closing of the door.

To these ends the invention consists in a door check and closer comprising in its construction a single passage-way connecting the ends of that portion of the cylinder in which the valveless piston operates, said passage-way being provided with a valve which is adapted to be opened automatically when the door is opened to permit of the free and practically unobstructed flow of the liquid from the rear to the front of the piston, and to be closed to restrict the flow of the liquid back through the said passage-way when the door is closing, all as I will now proceed to describe in detail and subsequently point out in the claims.

Reference is to be had to the annexed drawings, and to the letters marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

Of the drawings—Figure 1 is a front view, (the liquid chamber or cylinder being represented in longitudinal vertical section,) of a door check and closer embodying my invention. Fig. 2 is a horizontal central sectional view through the liquid chamber or cylinder, the section being taken on the line 2—2 of Fig. 3. Fig. 3 is a side elevation of the parts within the liquid chamber or cylinder, the

casing being represented as in section. Fig. 4 is a longitudinal central sectional view on an enlarged scale of the tube herein shown as forming the passage-way, together with the valves and means for regulating the same. Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4, looking from the valve seat toward the valves, showing both of the latter and the passage-ways for the flow of the fluid. Fig. 6 is a sectional view taken on the line 6—6 of Fig. 4, showing the valve for controlling the free flow of the liquid back from its seat and the ports for the free escape of the liquid from the passage-way. Fig. 7 is a perspective view of both valves as they appear when seated. Fig. 8 is a perspective view of both valves, that for controlling the free flow of the liquid being shown as raised or back from its seat.

Of the drawings—*a* designates the casing of the spring chamber and *b* the casing of the liquid chamber or cylinder.

c is the piston adapted to be reciprocated in the forward part of the liquid cylinder by means of the spindle *d* adapted to be actuated as the door is opened and closed, and the crank and pitman connection between the said spindle and piston. Any other suitable means for reciprocating the piston may however be provided, as my improvements are not dependent upon any special form of the means thus far enumerated.

Instead of providing valve-controlled ports in the piston as has heretofore been done and constructing a restricted passage-way connecting the ends of the portion of the liquid cylinder within which the piston operates, I provide a single passage-way *e*, herein shown as a tube supported in one end of the liquid cylinder and extending through a hole or bore formed through the piston. The passage-way *e* formed in the tube opens at its rear end to the rear of the cylinder, and at its forward end communicates with the space in front of the piston by means of side ports or openings *ff*. To the rear of the ports *f* the tube in the passage-way is provided with a valve seat *g* down or forward to which the fluted end of the screw valve *h* may be turned, as shown in Fig. 4.

i designates a valve surrounding the stem

of the screw valve and adapted to be slid to and fro thereon, so that it may be seated upon the valve seat *g* as shown in Fig. 2, or be moved back from said valve seat as shown in Figs. 1 and 4.

The construction and arrangements of parts are such that when the door is being opened the valve *i* will be moved back from its seat *g*, and the liquid will flow unrestricted through the passage-way *e* around the fluted end of the screw valve *h*, and out through the ports *f* in front of the piston, but when the door is being closed the valve *i* will be forced to its seat *g*, and the liquid will flow through the restricted passage-way afforded by the grooves *j* formed in the fluted end of the screw valve. For it will be understood that while the valve *i* is closely seated there will still be a restricted opening for the flow of the liquid in front of the piston to the rear of the same, by reason of the grooves *j* formed in the fluted ends of the screw valve as is indicated by the arrows in Fig. 7. The screw valve may be turned in so that the fluted end shall extend inward beyond the valve seat *g*, thus still further restricting the openings *j* forming a passage-way from in front to the rear of the cylinder. Thus it will be seen that by a single passage-way I am enabled to provide means for the practically free and unrestricted flow of the liquid from the rear to the front of the piston when the door is being opened, and for the retardation or restricted flow of the liquid back from the front to the rear of the piston when the door is closing, so as to check the same and prevent its slamming.

I do not confine myself to any particular form or location of the passage-way *e*, as this may be constructed and arranged to suit circumstances.

The arrows in the drawings show the course of the liquid in the liquid chamber as the piston assumes its various positions; and it will be noted that as the door is opened the liquid will be drawn or sucked to the front of the piston thus relieving the force of the liquid on the packing between the liquid and spring chambers and avoiding liability of leakages through this source.

Having thus explained the nature of the invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may

be made or all of the modes of its use, it is declared that what is claimed is—

1. A door check and closer comprising a liquid cylinder, a piston therein, a tube or passage-way affixed to the cylinder and communicating between the front and rear of the piston, said tube having an internal valve-seat, and a valve movable in the tube toward and from said seat and adapted to be separated from the seat and permit an unobstructed outward flow of liquid through the tube when the door is opening and to be closed on said seat to restrict the inward flow of the liquid when the door is closing.

2. A door check and closer comprising a liquid cylinder, a piston therein, a tube or passage-way affixed to the cylinder and communicating between the front and rear of the piston, said tube having an internal valve-seat, a stem or guide in said tube, and an annular valve adapted to slide on said stem toward and from the valve-seat, said valve being adapted to be separated from the seat and permit an unobstructed outward flow of liquid through the tube when the door is opening and to be closed on said seat and at the same time co-operate with the stem in restricting the inward flow of the liquid when the door is closing.

3. A door check and closer comprising a liquid cylinder, a piston therein, a tube or passage-way affixed to the cylinder and communicating between the front and rear of the piston, said tube having an internal valve-seat, an adjustable stem or guide in said tube, an annular valve movable on the stem and adapted to be separated from the seat and permit an unobstructed outward flow of liquid through the tube when the door is opening and to co-operate with said stem in restricting the inward flow of liquid through said tube when the door is closing, and means for adjusting said rod or stem to vary the restriction of the inward flow.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 13th day of December, A. D. 1893.

EUGENE I. BLOUNT.

Witnesses:

ARTHUR W. CROSSLEY,
A. D. HARRISON.