

(No Model.)

2 Sheets—Sheet 1.

F. H. OGDEN.
DOOR CHECK.

No. 602,688.

Patented Apr. 19, 1898.

Fig. 1.

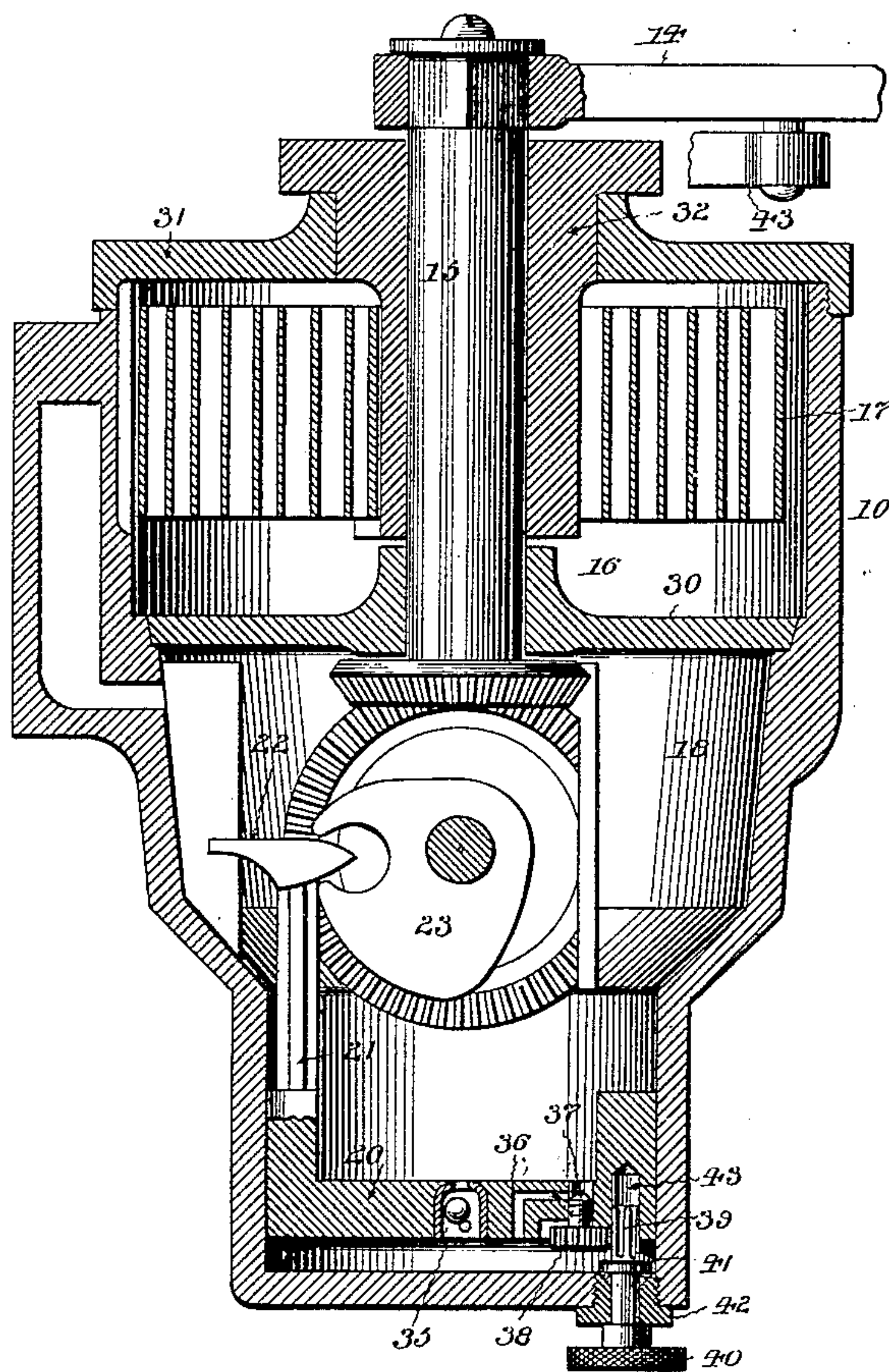
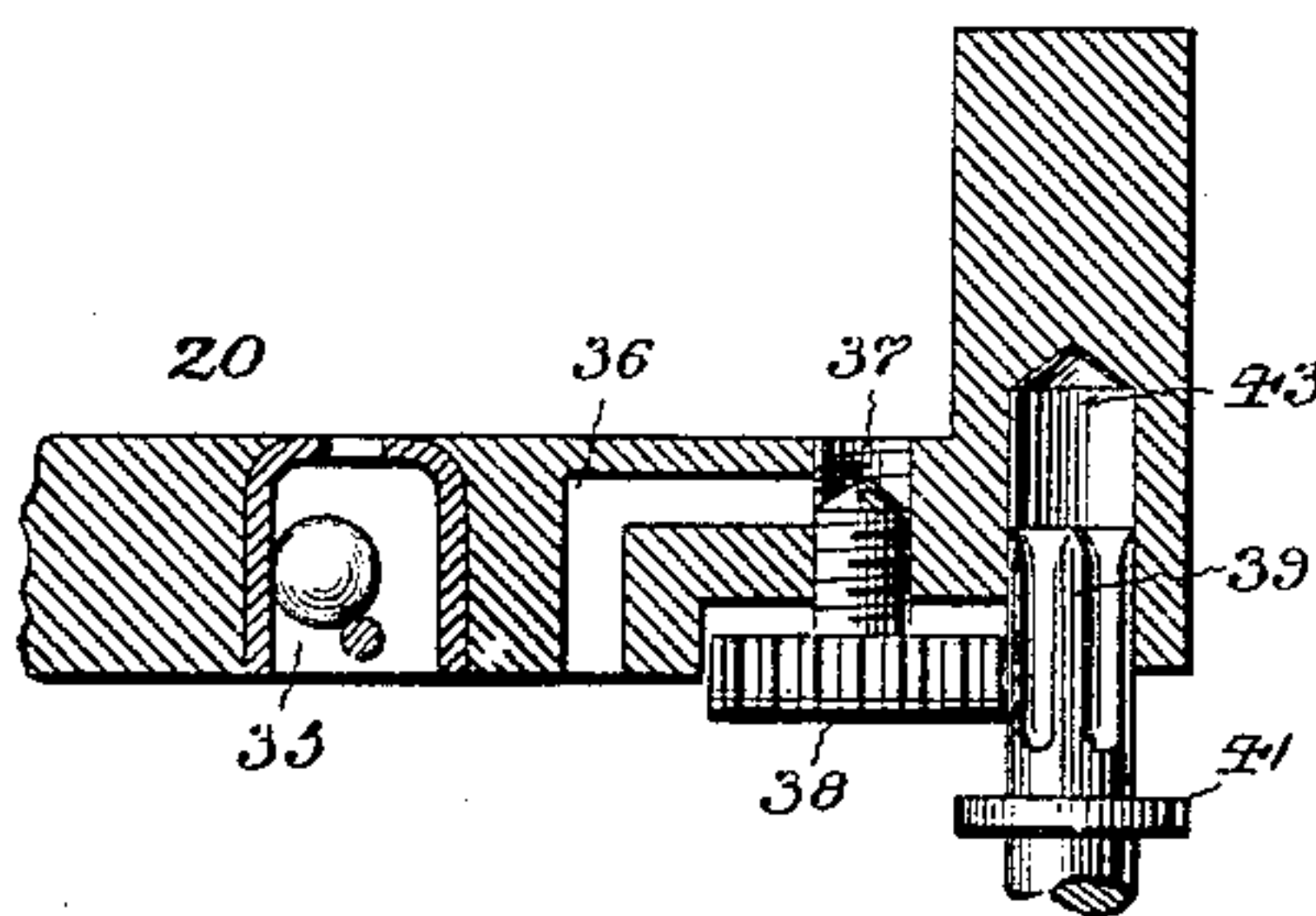


Fig. 2.



WITNESSES:

Arthur Ashley
H. A. Case

INVENTOR

Frederick H. Ogden

BY

E. M. Marble & Sons

ATTORNEYS

(No Model.)

2 Sheets—Sheet 2.

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DOOR CHECK.

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Fig. 3.

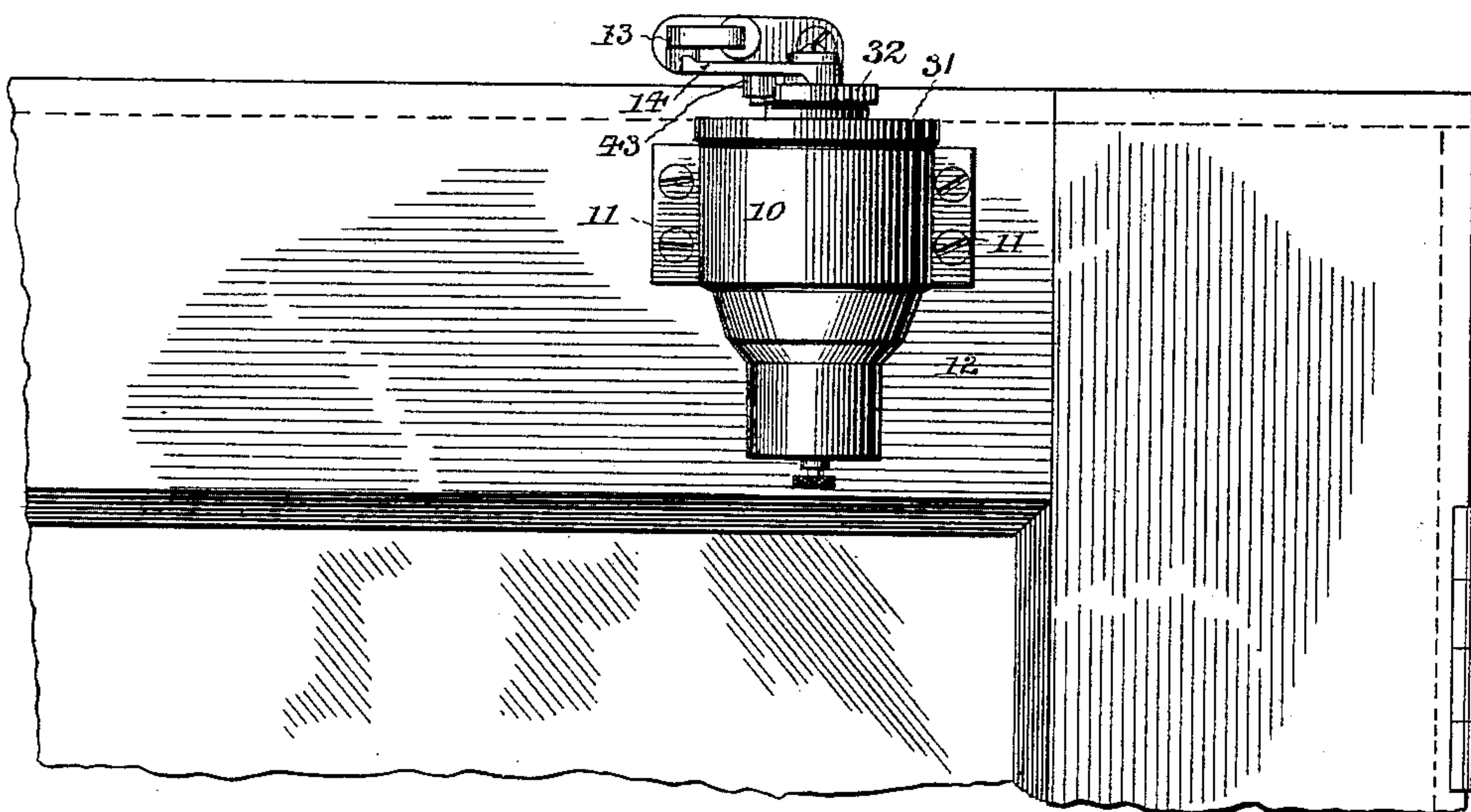
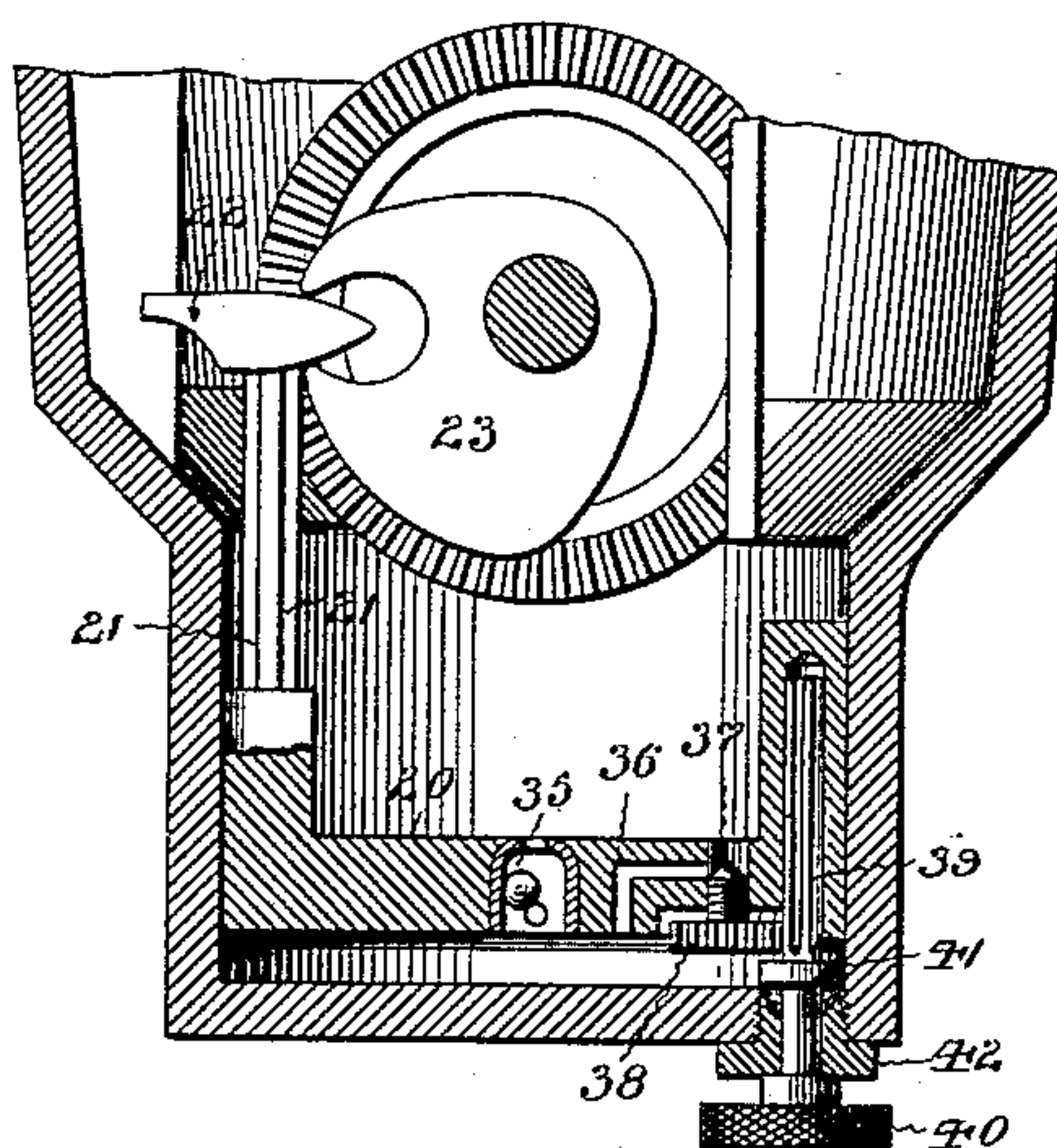


Fig. 4.



WITNESSES:

Arthur Ashley
H. A. Case

INVENTOR

Fredrick H. Ogden

BY

E. M. Marshall

ATTORNEYS

UNITED STATES PATENT OFFICE.

FREDERICK H. OGDEN, OF NEW YORK, N. Y., ASSIGNOR TO HENRY ILL
AND CHARLES WINCKLHOFFER, OF NEWARK, NEW JERSEY.

DOOR-CHECK.

SPECIFICATION forming part of Letters Patent No. 602,688, dated April 19, 1898.

Application filed September 4, 1897. Serial No. 650,577. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK H. OGDEN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Door-Checks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in door-checks, and particularly to that class of checks in which a liquid is employed as the resisting medium; and my invention consists in the novel means employed for operating the regulating-valve of the check and in the novel combination, construction, and arrangement of the parts.

The object of my invention is to provide a simple, inexpensive, and efficient regulating-valve which may be located in the piston of a door-check and operated from the outside of the check. This object is attained in the invention herein described, and illustrated in the drawings which accompany and form a part of this specification, in which the same reference-numerals indicate the same or corresponding parts, and in which—

Figure 1 is a central vertical section of a door-check provided with the improved regulating-valve. Fig. 2 is a detailed sectional view of a portion of the piston, showing the regulating-valve on a larger scale. Fig. 3 is an elevation of the door-check and a portion of a door and door-frame, showing the external appearance of the check and the way in which it is attached to the door; and Fig. 4 is a central vertical section of the lower portion only of the check, showing a slightly different form of regulating-valve.

The general construction of the door-check herein illustrated is that of the check illustrated and described in an application for Letters Patent filed by me on June 19, 1897, Serial No. 641,434, and I make no claim herein for any such general features of construction, but claim only the regulating-valve in its combination with the parts of the check with which it is combined.

In the drawings, 10 is the main casing of

the check, provided with suitable flanges for its attachment to the door 12. 15 is a central shaft or spindle, to which and to the door-frame are connected suitable hinged levers for operating the check. The casing 10 is divided internally into an upper or spring chamber 16 and a lower chamber 18, in the upper portion of which are gears and a cam for operating the piston, the lower portion of this chamber (the working cylinder proper) being arranged for the movement within it of the piston 20. The piston is provided with an eccentric piston-rod 21, which at the top is provided with a projecting stud or cam-piece 22, engaging a cam 23, which is driven from the spindle 15 by the bevel-gears shown.

The cam mechanism for raising and lowering the piston is illustrated and described in Patent No. 525,830, dated September 11, 1894, granted to Charles Wincklhofer for an automatic door-closing device. The spring-chamber and the working chamber are separated by a plate 30, which closes the working chamber, so that no liquid can pass into the spring-chamber. The spring-chamber 16 has a cover 31. A bushing 32, having at its upper end ratchet-teeth adapted to be engaged by a suitable pawl, so as to prevent rotation of said bushing under the action of the spring, surrounds the stem 15 and has a bearing in the cover 31. The spring 17 is an ordinary coiled spring, one end of which engages a slot in the bushing, the other end engaging a slot in the side of the chamber 16.

In piston 20 is a check-valve 35, which permits free passage of liquid from the upper side of the piston to the lower side thereof when the piston rises, but which prevents the passage of liquid through it when the piston descends. In the piston there is also a passage 36, arranged to be partly or completely closed by a screw valve-plug 37, upon the end of which is a spur-wheel 38, adapted to mesh with a pinion-rod 39, which passes through the bottom of the casing of the check and has upon its end a milled head 40. Pinion-rod 39 has also a collar 41 and a bushing 42, seated in an opening in the casing and provided with screw-threads engaging corresponding screw-threads of the casing, by which said pinion-

rod is held in place. A suitable packing material may be placed between the collar 41 and the bushing 42 to prevent the escape of liquid.

The upper end of the pinion-rod 39 enters
5 a socket 43 in the piston 20 when the piston is at the lower end of its travel. It is in this position that the pinion is in engagement with the spur-wheel 38 of the regulating-screw 37. By turning the milled head 40, therefore, when
10 the door is closed and the piston is in its lower position the flow of fluid through the passage 36 may be regulated.

When the piston rises, the spur-wheel 38 moves out of engagement with the pinion 39;
15 but when the piston descends the spur-wheel will again mesh with the pinion. To facilitate the meshing of the spur-teeth of the gear and pinion as the piston descends, the ends of the pinion-teeth are beveled. If it be thought,
20 however, that it is preferable not to permit the spur-wheel and pinion to be disengaged, the pinion may be prolonged, as shown in Fig. 4, so that in the normal operation of the door-check the piston will never rise so far as to
25 move the spur-wheel 38 out of engagement with the pinion.

The passage 36 in the piston is a right-angled passage, so that the pressure as the piston descends is squarely against the side of
30 the screw 37, and there is no tendency, therefore, due to this pressure for the screw to revolve and so change the adjustment of the valve.

The operation of the invention is as follows:
35 When the door is opened, the piston is raised, the fluid above the piston passing through the check-valve 35 into the space below the piston as the latter rises. When the door is closed, the piston descends and the check-
40 valve 35 closes automatically and causes the fluid below the piston to pass through the restricted passage 36 into the space above the piston. As the passage of the fluid through this restricted passage is slow, too violent closing of the door is prevented. When the door
45 is closed, the valve in this passage may be

regulated by turning the milled head 40, or if the valve be constructed as shown in Fig. 4 it may be regulated in any position of the door.

This invention is not limited to use in liquid door-checks, but is equally suitable for use in regulating the passage of air through a restricted passage in the piston of a pneumatic door-check.

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

1. In a door-check, the combination, with a working chamber, a piston therein, and
60 means for reciprocating the same, of a check-valve adapted to permit free passage of a liquid or other fluid from one side of the piston to the other, a valve-plug in said piston adapted to restrict a passage therein through which
65 reverse flow of the fluid may take place, an operating-rod projecting through the wall of the working chamber, and gearing connecting said valve-plug and operating-rod, by which said valve-plug may be adjusted, substantially as described.

2. In a door-check, the combination, with a working chamber, a piston therein, and means for reciprocating the same, of a check-
75 valve adapted to permit free passage of a liquid or other fluid from one side of the piston to the other, a screw in said piston adapted to restrict a passage therein through which reverse flow of the fluid may take place, a gear-
80 wheel upon the end of said screw, and an operating-rod projecting through the wall of the working chamber, and provided with teeth adapted to mesh with the teeth of said gear-wheel, by which said screw may be adjusted, substantially as described.

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

FREDERICK H. OGDEN.

Witnesses:

HARRY M. MARBLE,
EDWIN L. KERR.