

(No Model.)

W. H. TAYLOR.
DOOR CHECK AND CLOSER.

No. 552,454.

Patented Dec. 31, 1895.

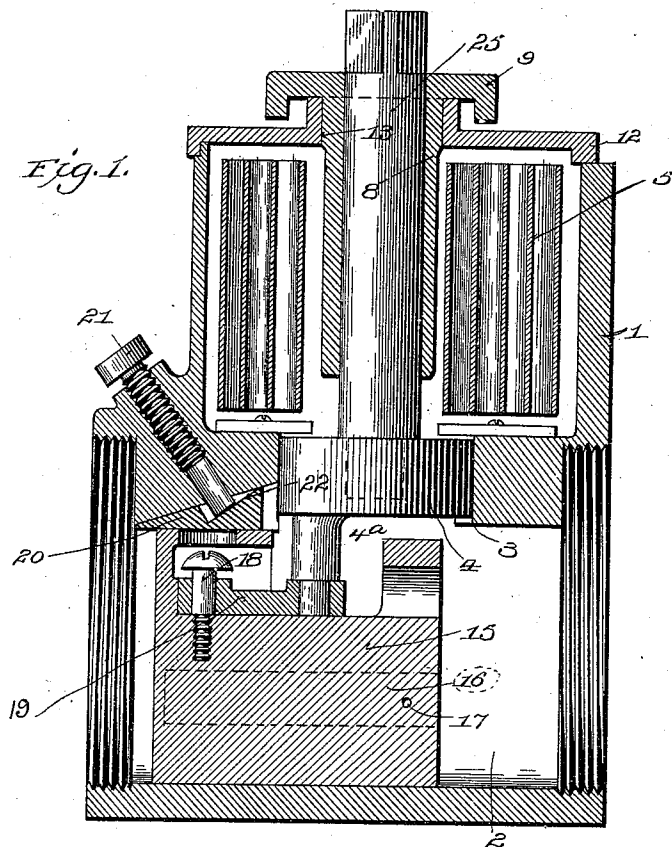
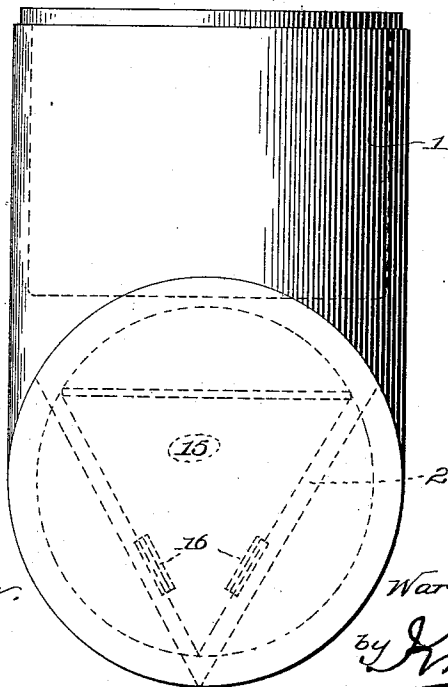


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

WARREN H. TAYLOR, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE
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DOOR CHECK AND CLOSER.

SPECIFICATION forming part of Letters Patent No. 552,454, dated December 31, 1895.

Application filed May 13, 1895. Serial No. 549,184. (No model.)

To all whom it may concern:

Be it known that I, WARREN H. TAYLOR, a citizen of the United States, residing at Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Door Checks and Closers; and I do hereby declare the following specification to be a full, clear, and exact description of my invention, such as will enable those skilled in the art to make and use the same.

My invention relates to improvements in the form of door checks and closers comprising essentially a door-closing spring which is wound up by the opening of the door, and a checking-piston working in a suitable chamber and suitably connected to the shaft of the closing-spring so as to exercise a checking or regulating action upon the closing of the door.

My present invention is constructed upon the same principle as the door check and closer covered by my co-pending application, Case C, filed May 13, 1895, Serial No. 549,183, in which the checking - piston is pushed through a body of liquid, which may be said to be stationary in a suitable chamber, in contradistinction to driving the liquid round and round or back and forth by the piston. The piston is smaller than the liquid-chamber in which it is supported, and provided with suitable springs which tend to raise it in the chamber to afford the proper opening for the liquid under the piston, while a suitable adjustable block tends to hold the piston in such position as to check its passage through the liquid.

In order that my invention may be fully understood, I will first describe the same with reference to the accompanying drawings, and afterward point out the novelty in the annexed claims.

Figure 1 is a vertical sectional view of my improved door check and closer, Fig. 2 is a detail end elevation of the same.

The spring-casing 1 and piston-chamber 2 are preferably formed integral, having a circular bearing 3 for the reception of the crank-wheel 4 formed in the wall between them. The piston-casing 2 is of triangular cross-section, as indicated in the drawings.

5 is the customary spiral door-closing spring

having its outer end suitably attached to the spring-casing, and its inner end engaging the sleeve 8, which is formed with the customary ratchet-rim 9, and is journaled in the central flanged opening 13 of the cover 12, which fits on top of the spring-chamber.

15 is the triangular piston resting in the triangular liquid-chamber 2, and provided with a pair of leaf-springs 16, (indicated by dotted lines,) which are secured by pins 17 at their ends, and adapted to rest in suitable longitudinal grooves formed in the sides of the piston and bearing against the sides of the casing, so as to tend to raise the piston in the casing and form more or less of a passage or opening between the piston and the casing. The piston 15 is connected to the crank-wheel 4 by means of the crank-pin 4^a, pitman 19, and pin 18, so that the rotation of the crank-wheel will move the piston in the liquid-chamber. Above the forward end of the triangular piston, the casing is beveled inwardly toward the crank-wheel to form a suitable chamber or recess for the reception of a wedge-shaped block 20, which rests upon the horizontal portion of the piston-head. The block 20 extends entirely across the top of the piston-head and tends to move with the piston.

21 is an inclined adjusting-screw resting in a suitable threaded opening in the casing, and having its ends projecting into a pocket or recess 22, formed in the upper face of the block 20. The purpose of the screw 21 is to confine the block in position and regulate its pressure upon the piston.

25 is a spring-shaft passing loosely through the sleeve 8 and formed with a squared lower end which fits in the socket formed in the crank-wheel 4, and a squared upper end which is adapted to engage the customary crank-arm (not shown) which is provided with a suitable dog adapted to engage the ratchet-rim 9 of the sleeve 8, so that the opening of the door will wind the spring 5 in addition to reciprocating the piston 15 through the crank-wheel and pitman. The crank-arm above referred to and the casing are suitably attached to the lintel and door.

The operation of the device may be briefly described as follows: The parts are shown in the position they assume when the door is

closed. The chamber 2 is supplied with the proper amount of oil or other liquid. When the door is opened the spiral spring 5 will be wound up and the piston 15 will be moved backward, causing the wedge-block 20 to move back slightly also in its inclined pocket, which will allow the springs 16 to raise the piston slightly in the casing and open a passage between the bottom of the piston and chamber, so that the movement of the piston will be unobstructed. When, however, the piston is forced forward by the closing of the door, the wedge will travel forward with it for an instant until its inclined socket strikes the end of the screw, the forward movement of the wedge tending to force the piston down and close the opening at the bottom of the cylinder, so as to slow up the movement of the piston and regulate the closing of the door.

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

1. The combination of a fluid chamber, a piston in the fluid chamber smaller than the internal bore of the chamber, and means for automatically and alternately moving the piston toward and away from the wall of the chamber when it reciprocates, substantially as and for the purpose set forth.

2. The combination of a fluid chamber, a piston in the fluid chamber smaller than the bore of the fluid chamber, a spring for moving the piston away from the wall of the chamber when the piston is moved in one direction, and means for forcing it back against the wall of the chamber when it is moved in the other direction, substantially as and for the purpose set forth.

3. The combination of a fluid chamber, a piston in the fluid chamber smaller than the bore of the fluid chamber so as to be capable of moving away from and back to the wall of the chamber in addition to reciprocating lon-

gitudinally therein, a spring for forcing the piston away from the wall of the chamber, and a wedge engaging the piston for forcing it toward the wall of the chamber against the action of the spring, substantially as and for the purpose set forth.

4. The combination of a fluid chamber of substantially triangular cross-section, a piston of substantially triangular cross-section working in said fluid chamber, and means for automatically and alternately moving the piston toward and away from the wall of the fluid chamber and thereby controlling the reciprocation of the piston, substantially as set forth.

5. The combination of a fluid chamber of substantially triangular cross-section, a substantially triangular piston working in a fluid chamber, springs located between the sides of the piston and the casing tending to move the piston away from the wall of the chamber, when it reciprocates, and a wedge block engaging the piston on top and tending to crowd it down against the springs, substantially as set forth.

6. The combination of a door-closing spring, a fluid chamber of substantially triangular cross-section, a substantially triangular reciprocating piston located in the fluid chamber and suitably connected to the door-closing spring, flat springs resting in suitable grooves in the sides of the piston and suitably secured thereto and working against the sides of the fluid chamber, a wedge block resting in the top of the fluid chamber and bearing against the top of the piston, a pocket or recess in the block, and a screw engaging in the pocket or recess and confining the block, substantially as set forth.

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Witnesses:

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