No. 696,116. Patented Mar. 25, 1902.

W. H. TAYLOR.

DOOR CHECK.

(Application filed June 11, 1897.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

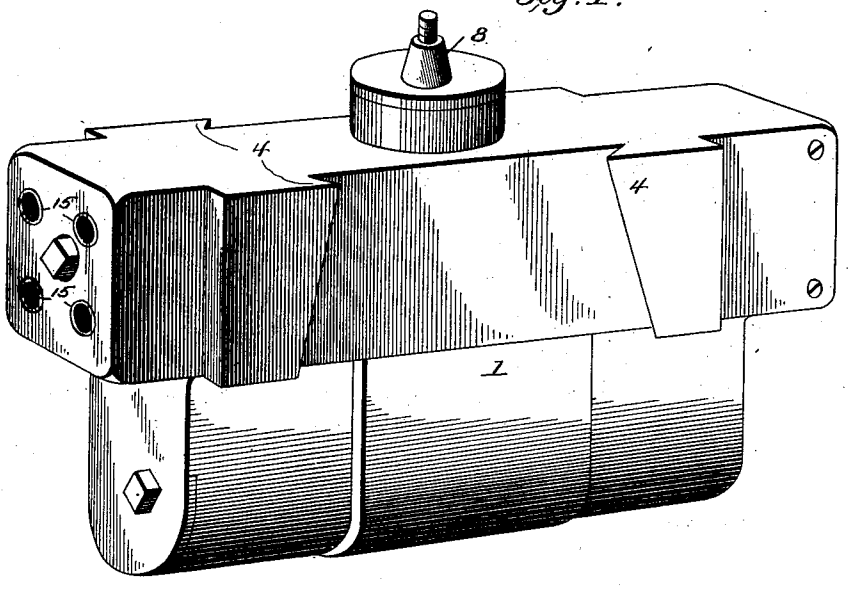
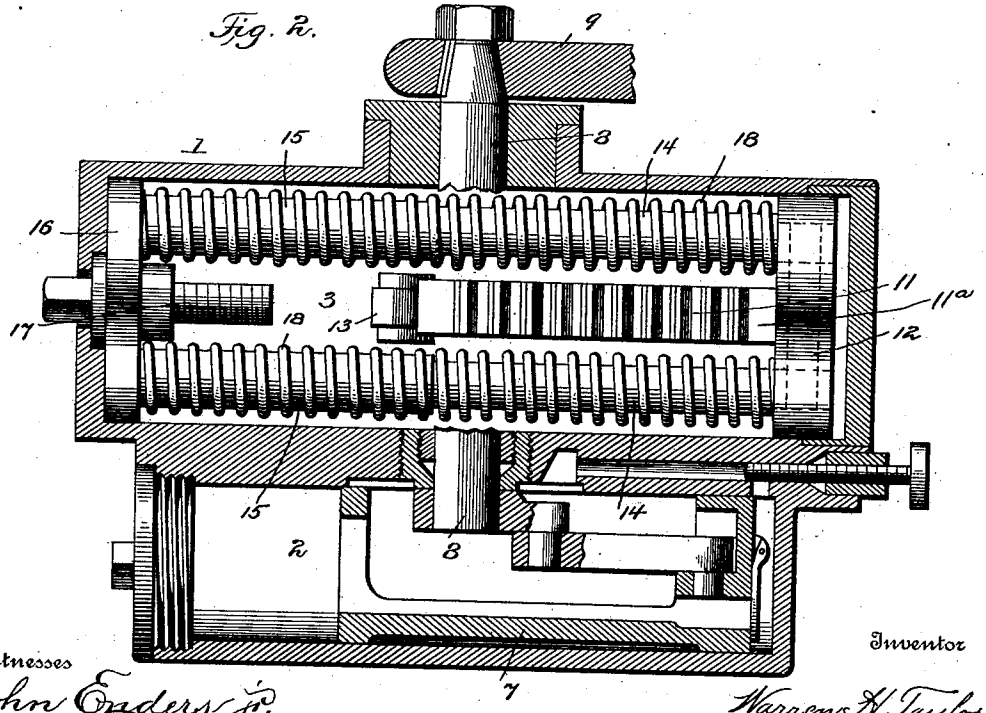


Fig. 2.



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Fig. 3.

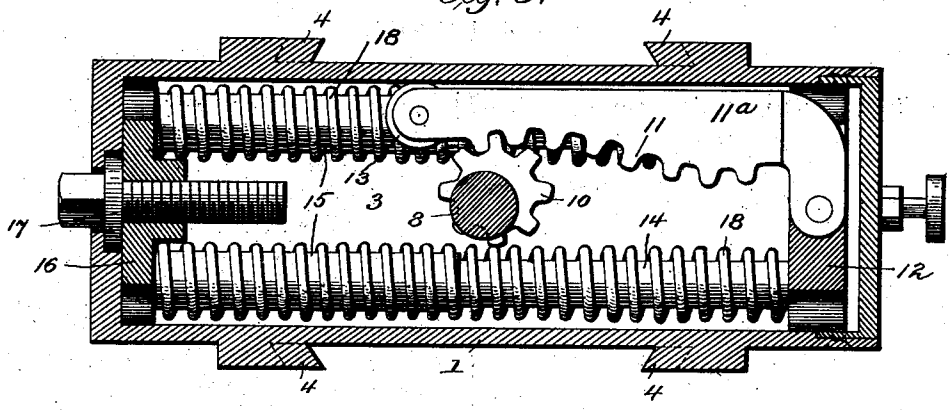


Fig. 4.

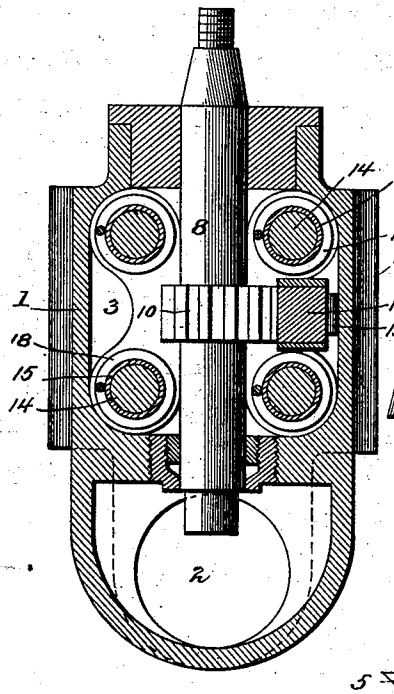


Fig. 5.

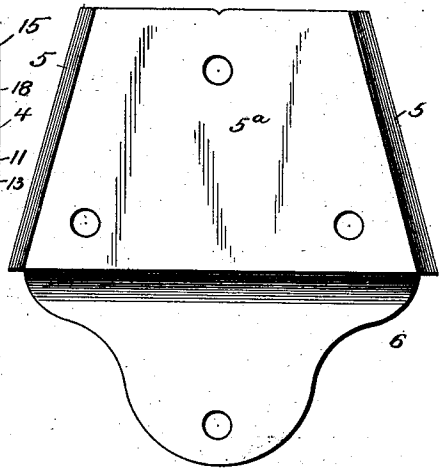
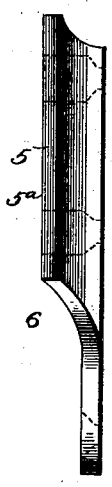


Fig. 6.



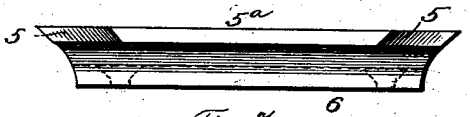


Fig. 7.

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UNITED STATES PATENT OFFICE.

WARREN H. TAYLOR, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE YALE AND TOWNE MANUFACTURING COMPANY, OF STAMFORD, CONNECTICUT.

DOOR-CHECK.

SPECIFICATION forming part of Letters Patent No. 696,116, dated March 25, 1902.

Application filed June 11, 1897. Serial No. 640,379. (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, of which the following is a specification.

My invention relates to that class of door-checks which employ a separate chamber containing the springs for closing the door, and in the present case I locate in the spring-chamber a number or series of spiral springs, which through suitable power-distributing means are compressed at different speeds in different positions of the opening movement of the door, so as they can act to give the required ease to start and a greater power to close the door. The power-distributing means consists of an eccentrically-arranged gear carried on the shaft or spindle connected with the door and piston in the piston-chamber and a peculiarly curvilinear or ogee shaped rack formed on a right-angle link connected with a sliding head or carrier against which the series of springs bear. The gear is so arranged with relation to the rack that the rack will act upon the longest radius of the gear when the door is closed, thus insuring the maximum force of the springs in closing the door and keeping it closed. It will be seen that by this construction the movement of the springs as the door is closing or just as it is opened is fastest and their power greatest, whereas as the door gets more and more open the speed of the springs becomes less and their power also less. The usual method has been to vary the piston speed under these conditions, without providing any means for varying the actual movement or efficiency of the spring. It will be seen that by this construction the movement of the springs just as the door is closing or just as it is opened is fastest and their power greatest, whereas as the door gets more and more open the movement of the springs becomes less and their power also less. The usual method has been to vary the piston speed under these conditions, without providing any means for varying the actual movement or efficiency of the spring. It is obvious that in place of a gear there might be used an eccentric-toothed cam or other equivalent.

My invention also consists of certain other details of construction, that will be hereinafter more fully described, and specifically pointed out in the claims.

In order that my invention may be fully understood, I will proceed to describe the same with reference to the accompanying drawings, in which—

Figure 1 is a perspective view; Fig. 2, a vertical longitudinal section; Fig. 3, a horizontal section; Fig. 4, a vertical transverse section; and Figs. 5, 6, and 7, respectively, a front, side, and top view of the fastening-plate.

In the said drawings, 1 represents the casing of the door-check, which is formed with the piston-chamber 2 and separate spring-chamber 3, both of which may be arranged with relation to each other as desired. The casing is adapted to be secured to the door-frame, as is usual, and to easily attach the same I provide the inclined and undercut projections 4 on each side the casing, between which the beveled edges 5 of the wedge-shaped part 5^a of the plate 6 fit. This plate is preferably of the form shown in Figs. 5, 6, and 7, which is such as to enable the casing to be easily put in position without interfering with the door-frame to which the plate is secured.

The chamber 2 is arranged in any desired manner and is provided with the piston 7, of any desired construction, and it is connected with the vertical shaft or spindle 8, which passes through the chamber 3 and has the usual connection 9 with the door. The shaft 8 is provided with the eccentrically-arranged gear 10 in engagement with a rack 11, of curvilinear or ogee form, which is formed on a right-angle link 11^a, connected at one end with the sliding head or carrier 12 and provided at its other end with a roller 13, which bears against one side of the chamber to reduce the friction at that point when the rack is moved.

The sliding head or carrier 12 is provided with the rods 14, the free ends of which fit in the open tubes 15, carried by the head 16

at the other end of the chamber, which is adjustably held by the screw 17. 18 represents spiral springs surrounding the tubes and rods and bearing against the heads, and they are compressed when the door is opened and serve to operate to close the door when it is released.

It will be observed from the drawings that the rack 11 is so arranged with relation to the eccentric gear that the springs will cause the rack to operate on the gear at its shortest diameter when the door is to be closed, thus giving the door the required easy start, and when the door is about closed the rack will then act upon the longest diameter, using the maximum power of the springs, thereby giving a strong movement to effectually close the door and keep it closed.

The operation of the rack will be readily understood. As the door is opened the spindle or shaft is turned to move the piston back in the piston-chamber and compress the spring. As the door is released the springs act upon the rack and eccentric gear in the manner above set forth to close the door, the piston serving to prevent a too-rapid closing of the door.

It is obvious that in place of a gear there might be used an eccentric-toothed cam or other equivalent.

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

1. In a door-check provided with spring and piston chambers, the combination of a sliding head or carrier within said spring-chamber, of springs also within said spring-chamber and bearing against said head or carrier, of an ogee-shaped rack pivoted to said head or carrier, an eccentrically-arranged gear engaging said rack, and a shaft or spindle connected to the piston in the piston-chamber and to the door, said gear carried by said shaft or spindle.

2. In a door-check provided with spring and piston chambers, the combination of a sliding head or carrier within said spring-chamber, of springs also within said spring-chamber, and bearing against said head, or carrier, of an ogee-shaped rack pivoted at one end to said head or carrier, of a friction-roller carried by the free end of said rack, of a shaft or spindle connected at one end to the piston in said piston-chamber and at the other end to the door, and an eccentrically-arranged gear carried by said shaft or spindle and adapted to engage said rack.

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