

1,006,234.

Patented Oct. 17, 1911.

2 SHEETS-SHEET 1.

Fig.1.

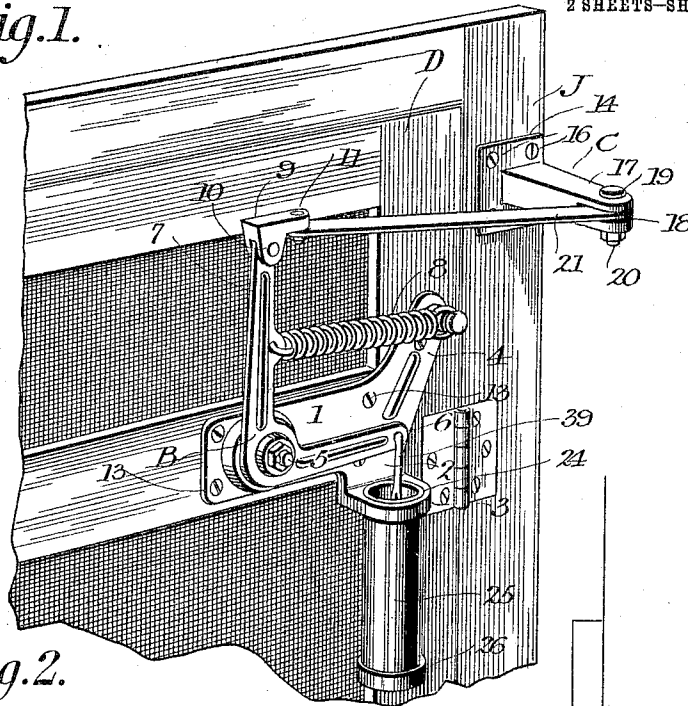


Fig.2.

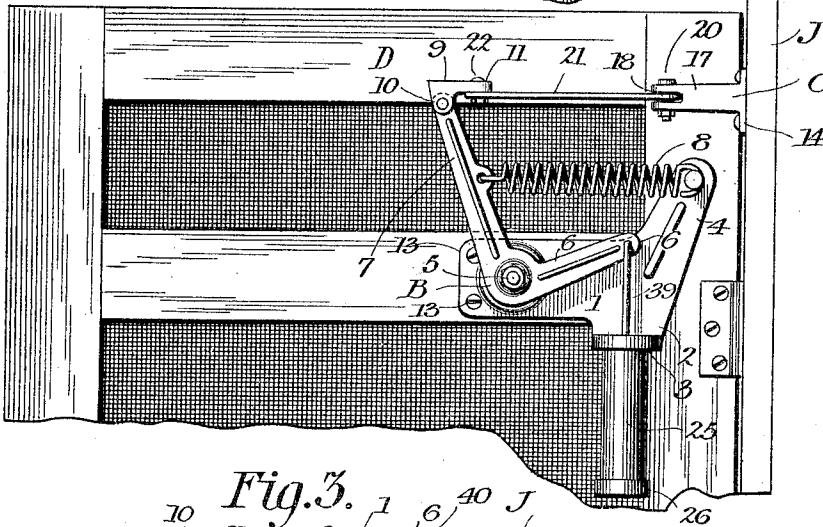
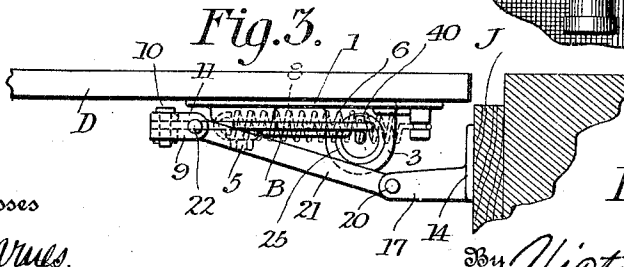


Fig.3.



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DOOR CHECK.
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1,006,234.

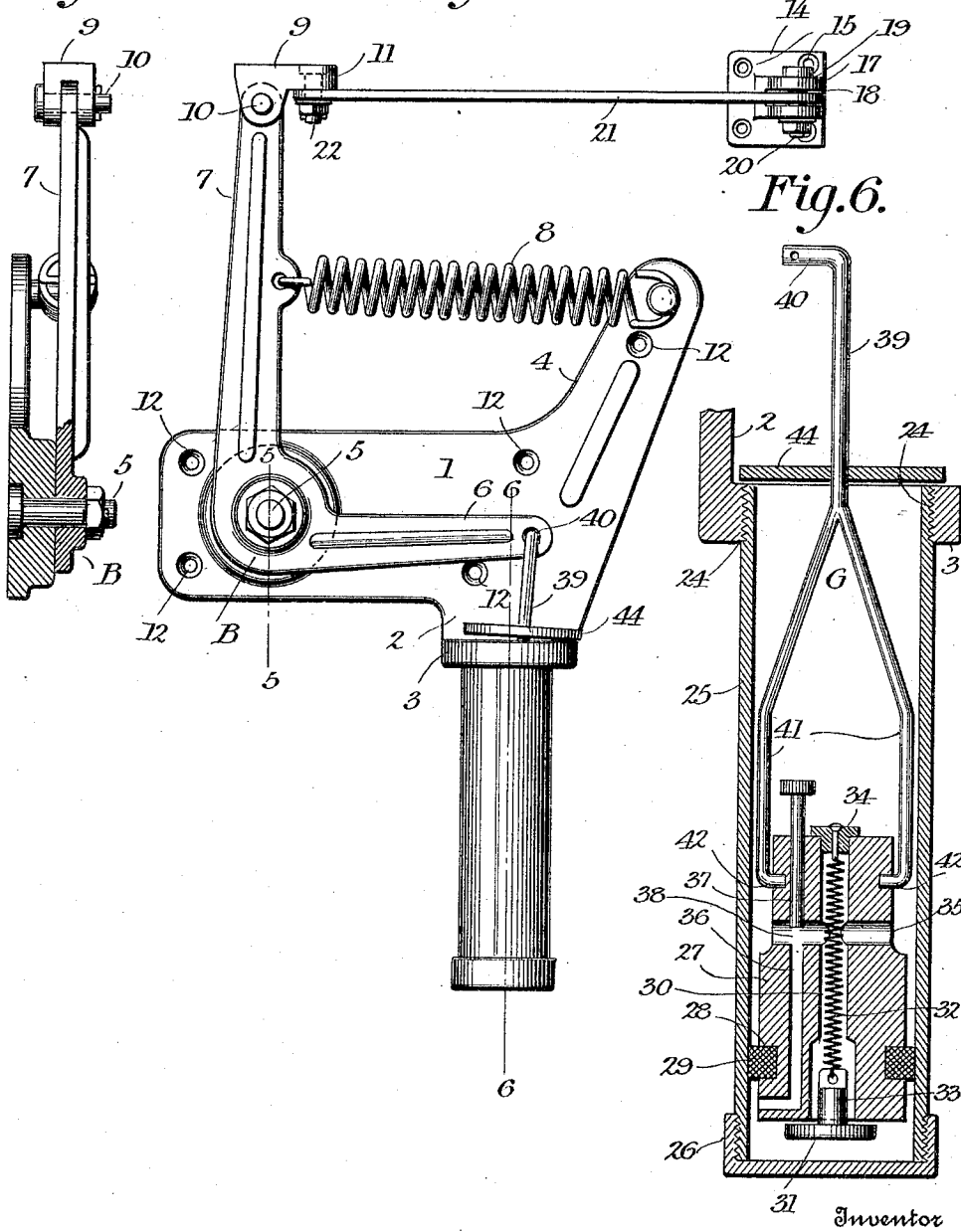
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2 SHEETS-SHEET 2.

Fig. 5.

Fig. 4.

Fig. 6.



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DOOR-CHECK.

1,006,234.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWARD J. KYLE, a citizen of the United States, residing at Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented new and useful Improvements in Door-Checks, of which the following is a specification.

This invention relates to door checks and springs, and it has for its principal object to produce a simple and improved device of this kind by means of which the tension of a spring will be exercised to close a door to which the device is applied, the tension of the spring being counteracted by a simple and efficient check device.

A further object of the invention is to produce a device of the character described which may be very easily and inexpensively constructed and applied to screen doors and other doors of ordinary construction.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claim.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claim may be resorted to when desired.

In the drawings,—Figure 1 is a perspective view showing the improved device as applied to a screen door in position for operation, showing the door closed. Fig. 2 is a side elevation, showing the door open. Fig. 3 is a top plan view showing the door open. Fig. 4 is a view in side elevation, showing the device detached. Fig. 5 is a sectional detail view taken on the plane indicated by the line 5—5 in Fig. 4. Fig. 6 is a sectional detail view, enlarged, taken on the plane indicated by the line 6—6 in Fig. 4.

Corresponding parts in the several figures are denoted by like characters of reference.

The base of the improved device consists of a breast plate 1 having a downwardly extending arm 2 provided with a laterally extending bracket 3. The breast plate is

also provided with an arm 4 that extends obliquely in an upward direction. Pivotaly mounted upon the breast plate by means of a pin or fulcrum 5 is a bell crank lever B having a laterally extending arm 6 and an upwardly extending arm 7, the latter being connected with the upwardly extending arm 4 of the breast plate by means of a coiled spring 8. Pivotaly associated with the upper extremity of the arm 7 is a hinge member 9, which is adapted to rock in an approximately vertical plane, the pin 10 upon which the hinge member is mounted being disposed in an approximately horizontal plane. The hinge member 9 is formed with a laterally extending arm 11.

The breast plate is provided with apertures 12 for the passage of fastening devices, such as screws 13, whereby it may be mounted securely upon an ordinary door. A bracket C is provided, the same consisting of a base plate 14 having apertures 15 for the passage of fastening screws 16, whereby it may be securely mounted upon the jamb J adjacent to the hinged edge of the door D, said bracket member including an arm 17 that extends outwardly from the base plate 14. The outer extremity of the arm 17 has a horizontal notch 18 intersected by a vertical aperture 19 for the passage of a pin or pivotal member 20 extending through one end of a link or connecting bar 21, the opposite end of which is pivotaly connected with the arm 11 of the hinge member 9 by means of a pin or pivotal member 22.

The flange 3 extending from the arm 2 of the breast plate is provided with an internally threaded opening 24 for the reception of the upper end of a cylinder 25, the lower end of which is provided with a cap constituting a closure 26. Arranged to move freely in the cylinder 25 is a piston 27, said piston being of a sufficiently smaller diameter than the interior diameter of the cylinder to enable it to move very freely therein. Said piston, however, is provided near its lower end with an annular groove wherein is seated a packing ring 29 closely engaging the inner wall of the cylinder. The piston is provided with an axial opening or bore 30, the lower end of which is obstructed by a valve 31 which is suspended by means of a light spring 32 that extends through the bore, one end of said

spring being connected with the valve stem 33 and the other end with a cross piece or cap member 34 supported upon the piston at the upper end of the bore. The piston is provided at a suitable distance above the packing ring 29 with a transverse channel 35 which is connected by an angular or L-shaped passage 36 with the side of the piston below the packing ring 29. The angular passage 36 is located, as will be seen, at one side of the axial bore, and the upper end of said passage is capable of being obstructed by means of a regulating screw 37, the point of which constitutes a needle valve 38 which may engage the upper extremity of the passage 36 so as to partly obstruct the latter and to regulate the passage of fluid there-through. The piston 27 is connected with the horizontal arm 6 of the bell crank B by means of a connecting member consisting of a yoke G having an upwardly extending arm 39 provided with a terminal hook member 40 pivotally engaging an aperture in the arm 6 of said lever. The lower ends of the arms 41 of the yoke are provided with lugs 42 pivotally engaging recesses in diametrically opposite sides of the piston near the upper end of the latter. In practice, the cylinder may be partly filled with oil or other liquid, although atmospheric air or other fluid may be depended upon for the operation of the device, if desired. A cap 44 of leather or other suitable material may be suitably associated with the connecting member G to prevent dust and other foreign substances from entering into the cylinder as far as possible.

When the device is assembled and mounted for operation, as illustrated in Figs. 1 and 2 of the drawings, it will be seen that the bracket arm 17 extends outwardly from the door jamb and that said arm is connected by the link or rod 21 with the hinge member at the upper end of the arm 7 of the bell crank B. The spring 8 is operative to close the door and hold the same closed, as will be readily understood. When the door is opened, the connecting rod or link 21 operates to move the upwardly extending arm 7 of the bell crank against the tension of the spring 8, and lift the piston in the cylinder 25. When the piston is lifted, the fluid or liquid contained in the cylinder will pass through the channel 35 and axial bore 30 from the upper into the lower end of the cylinder, the upward stress being sufficient to unseat the valve 31 which is merely held

in position by the light spring 32. When the door is released, the spring 8 acts to restore the bell crank to its initial position, and the piston 27 will now be forced downwardly in the cylinder. The liquid in the latter must now pass from the lower to the upper end, and as the valve 31 is seated upon the downward stroke, the transfer can take place only through the angular passage 36 which may be obstructed to any desired extent by the regulating screw 37, thus forming a check upon the force of the spring, and regulating the speed at which the door will be closed, and thus enabling the closure to be so regulated as to avoid any possibility of the door being slammed.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood by those skilled in the art to which it appertains. The device is simple in construction, and it may be easily applied to screen and other doors to prevent the unpleasant slamming of such doors either accidentally, by the force of the wind or under the tension of the spring for the automatic closing of such door. The working of the device may be very easily and correctly gaged by the regulating screw 37 which is in such a position as to be conveniently accessible.

Having thus described the invention, what is claimed as new, is:—

In a device of the character described, a breast plate having a flange provided with an opening, a cylinder connected therewith, said cylinder being closed at its lower end, a piston operable in the cylinder and having a packing ring intermediate its ends, an axial valved passage, a transverse channel above the packing ring, an angular passage connecting said channel with the side of the piston below the packing ring, and a regulating valve to obstruct said passage, a spring actuated bell crank pivoted upon the breast plate, a member connecting one arm of the bell crank with the piston, and operating means including a hinge member and a connecting rod associated with the other arm of the bell crank.

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

EDWARD J. KYLE.

Witnesses:

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