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CONTROLLER FOR DOORS, &c.

APPLICATION FILED MAY 31, 1907. RENEWED MAY 6, 1909.

943,693.

Patented Dec. 21, 1909.

Fig. 2.

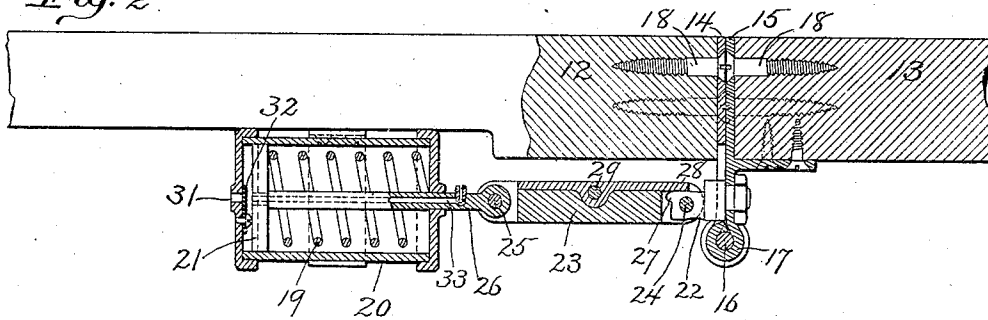


Fig. 3.

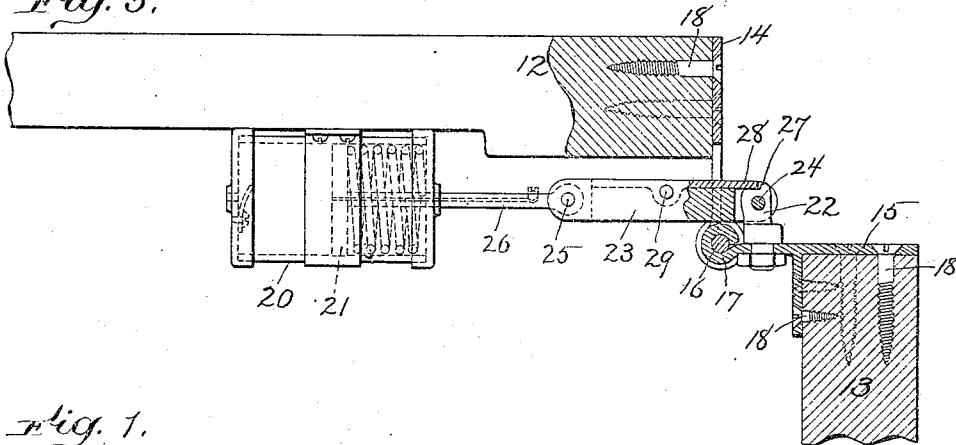
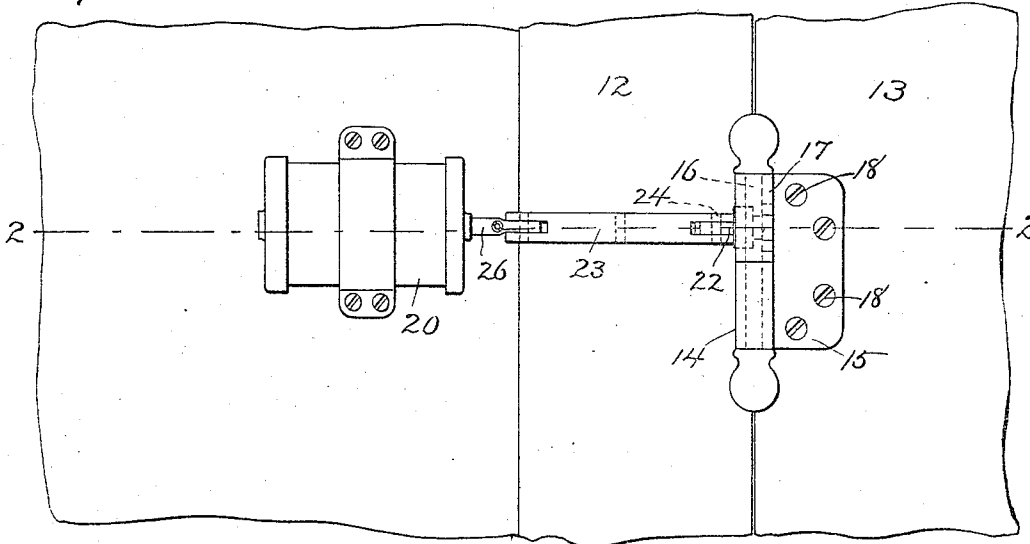


Fig. 1.



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UNITED STATES PATENT OFFICE.

MILO C. MILLER, OF BOSTON, MASSACHUSETTS.

CONTROLLER FOR DOORS, &c.

943,693.

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To all whom it may concern:

Be it known that I, MILO C. MILLER, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Controllers for Doors, &c., of which the following is a specification.

This invention relates to means for holding hinged swinging bodies, such as doors, yieldingly either in a closed or an opened position, the door being held yieldingly in its closed position by a spring or other suitable motor which acts to move the door toward its closed position until the door is moved to a predetermined opened position, when the action of the motor is prevented by automatic locking means holding the door in its opened position until a suitable degree of force is applied to release or disconnect the members of the locking means, and permit the motor to again act in closing the door.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification,—Figure 1 represents a side elevation of a portion of a door casing and of a door hinged thereto, a controller embodying my invention being shown connected with the hinge. Fig. 2 represents a section on line 2—2 of Fig. 1, the door being shown in its closed position in Figs. 1 and 2. Fig. 3 represents a view similar to Fig. 2, showing the door locked in its opened position.

The same numerals of reference indicate the same parts in all the figures.

In the drawings 12 represents a fixed support, such as a door casing, and 13 represents a swinging body, such as a door, connected with the support 12 by a hinge composed of a fixed member 14 secured to the casing, and a movable member 15 secured to the door, the two members jointed together by means of a pintle or pivot 16 affixed to one member, and a socket 17 affixed to the other member, and adapted to turn on the pintle. The inner portions of the hinge members are adapted to be secured by suitable attaching screws 18, or otherwise, to the casing and door, the joint of the hinge being at the outer portions of the members, as shown in Figs. 2 and 3, the joint thereof projecting from the door and casing.

A door-closing motor is employed to act on

the movable hinge member, and hold the door normally in the closed position shown in Figs. 1 and 2, said motor being preferably a helical spring 19 supported by a holder 20 mounted on a fixed support, such as the casing 12. The holder 20 is preferably a cylinder, in which a piston 21 has a sliding fit. The motor spring 19 bears at one end against one of the heads of the cylinder, and at the other end against the piston 21. A jointed connection is provided between the motor spring and the movable hinge member, the arrangement being such that the spring will be compressed by an opening movement of the door, and will normally react to move the door to its closed position, shown in Figs. 1 and 2, the said jointed connection being movable endwise and caused by an opening movement of the movable member to compress the spring, and to assume an angular position. The said jointed connection is provided with locking means which act automatically to maintain the said angular position and the compression of the spring, and thus prevent the door-closing action of the spring when the door is opened, as shown in Fig. 3. The said jointed connection, as here shown, includes a section 22, affixed rigidly to the movable hinge member, and a section 23 connected at one end by a pivot 24 with the section 22, and at the other end by a pivot 25 with a rod 26 affixed to the piston 21. The spring acts on the piston 21 to move the same away from the cylinder head, which constitutes the abutment for the spring, the jointed connection 22 23 imparting movement from the piston to the movable hinge member so that when the door is free to close, it is drawn to its closed position by the spring and the intermediate jointed connection.

The locking means whereby the door is held and the spring made inoperative when the door is in the position shown in Fig. 3, as here shown comprises a shoulder 27 formed on the section 22, and a spring detent 28 secured by a pin 29 to the section 23. The spring detent 28 bears yieldingly against the section 22 at one side of the shoulder 27 when the door is in the position shown in Figs. 1 and 2, and against one end of the section 22 at the opposite side of the shoulder 27 when the door is in the position shown in Fig. 3. It will be seen therefore that when the door is being opened from the position shown in Fig. 2, the shoulder 27 ap-

proaches the outer end of the detent 28, and when the shoulder passes said outer end, the detent 28 springs inwardly against the end of the section 22, and engages the shoulder 5 27 in such manner as to lock the door in the opened position shown in Fig. 3. The lock is not a positive one, but is sufficient to prevent the spring from closing the door. The shoulder 27 has rounded sides, its form being such that when the door is pushed with some 10 force toward its closed position, the shoulder will be pressed against the end of the detent 28, and will force the latter outwardly so that the shoulder passes again under the detent, and toward the position 15 shown in Fig. 2. When the shoulder passes under the end of the detent, the spring again acts on the movable member of the hinge, and moves the door to its closed position.

20 To retard the closing movement of the door by the spring, I provide the cylinder 20 with an air inlet 31 at one side of the piston, said inlet having an outwardly-closing valve 32. When the door is being opened, the piston 25 moves away from the inlet 31, and draws air therethrough, the valve 32 yielding to admit the air. When the piston is being moved by the spring toward the air inlet, the valve 32 closes. The only outlet for the 30 air thus confined between the piston and the air inlet, is a restricted air outlet 33, which is preferably formed in the piston rod 26, and is so restricted that the escape of air from between the piston and the air inlet is 35 retarded, and the spring is caused to move the door slowly to its closed position.

From the foregoing it will be seen that the spring acts to close the door at all times excepting when the door has been opened to 40 the position shown in Fig. 3, and that when opened to said position the door is locked by the locking means on the jointed connection between the movable hinge member and the spring motor, the door being thus held 45 opened but adapted to be released and put

under the control of the spring by the application of sufficient force to cause the shoulder 27 to displace the spring detent 28.

I claim:

1. In a controller for doors, etc., in combination, a hinge having a fixed member and a movable member, a hinge-closing motor, and a jointed connection between the motor and the movable member, said connection being composed of two sections, one affixed 55 to the movable member and provided with a shoulder, while the other is connected with the motor and provided with a spring detent adapted to engage said shoulder when the hinge is opened. 60

2. In a controller for doors, etc., in combination, a hinge having two members jointed together at their outer portions and adapted at their inner portions for attachment respectively to a fixed support and a 65 swinging part, such as a door, a cylinder adapted for attachment to a fixed support, a piston movable in said cylinder, a spring interposed between the piston and one head of the cylinder, and provided with a rod extending through the said spring and head, 70 and a jointed connection between the piston rod and the movable hinge member, said connection being composed of two sections, one affixed to the movable hinge member, 75 and provided with a shoulder, while the other is connected with the piston rod and is provided with a spring detent adapted to engage said shoulder when the hinge is opened, the cylinder being provided with 80 means for admitting air when the hinge is being opened, and for permitting a retarded escape of air when the hinge is being closed by the spring.

In testimony whereof I have affixed my 85 signature, in presence of two witnesses.

MILO C. MILLER.

Witnesses:

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