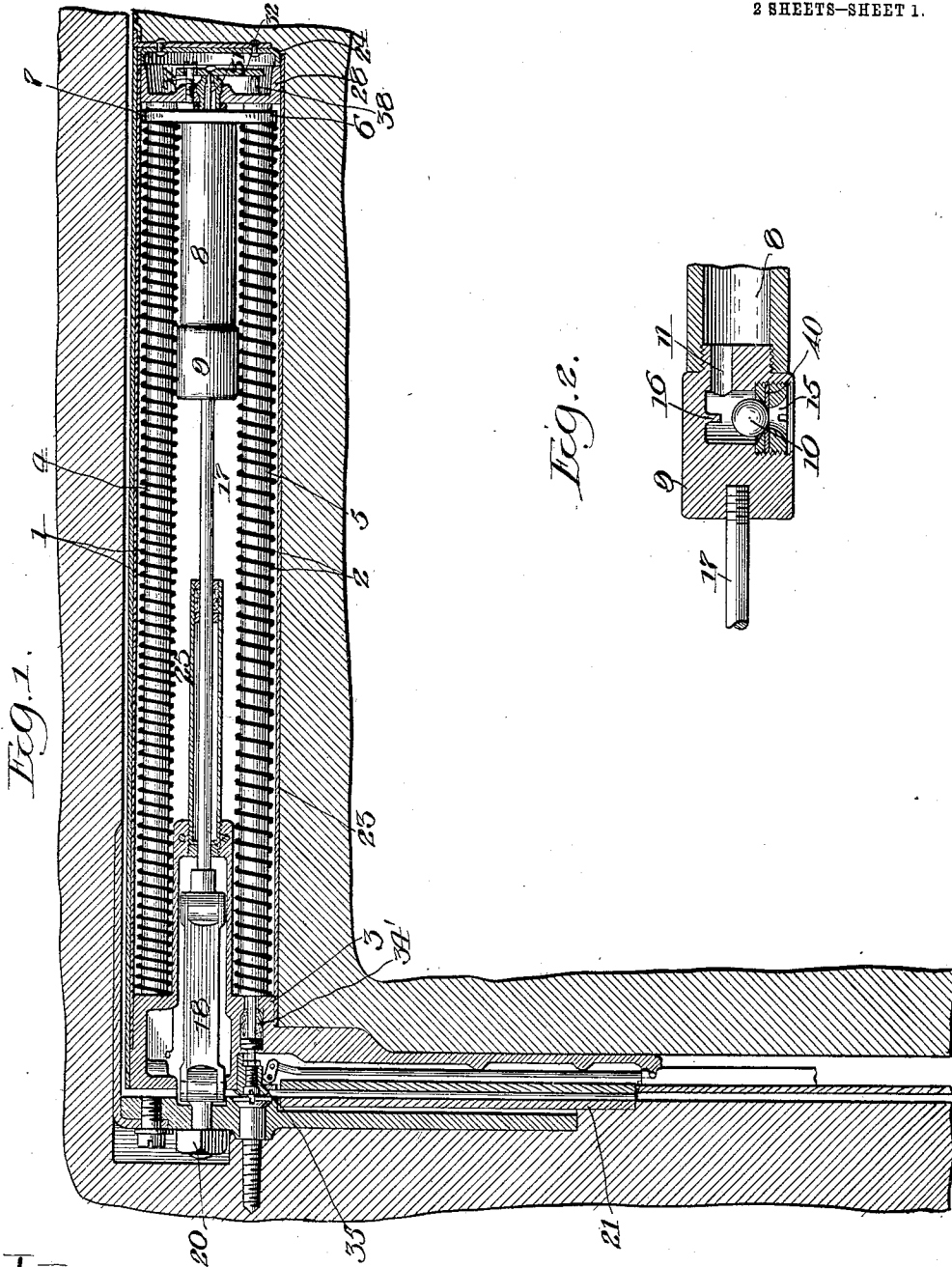


P. E. NORDQVIST.
DOOR CHECK MECHANISM.
APPLICATION FILED MAY 3, 1910.

1,041,856.

Patented Oct. 22, 1912.

2 SHEETS—SHEET 1.



Witnesses
C. M. Vermick
Hazel Jones.

Inventor
Per Erik Nordqvist
by May W. Label
att'y.

P. E. NORDQVIST.
DOOR CHECK MECHANISM.
APPLICATION FILED MAY 3, 1910.

1,041,856.

Patented Oct. 22, 1912.

2 SHEETS-SHEET 2.

Fig. 3.

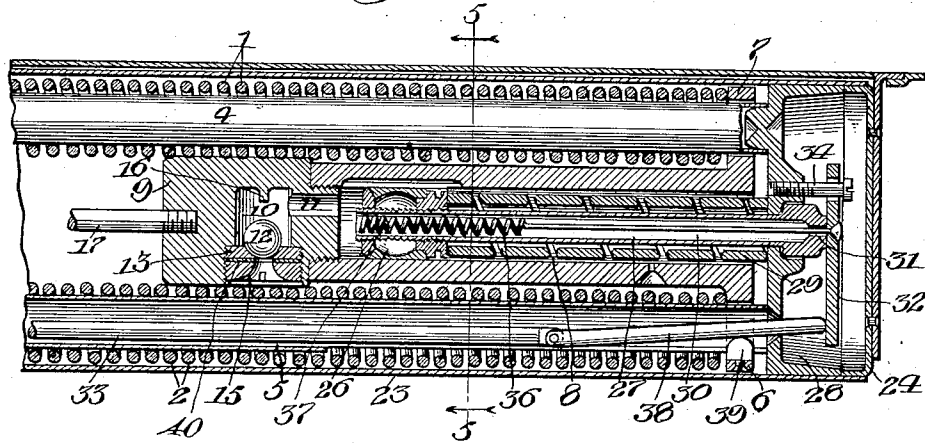


Fig. 4.

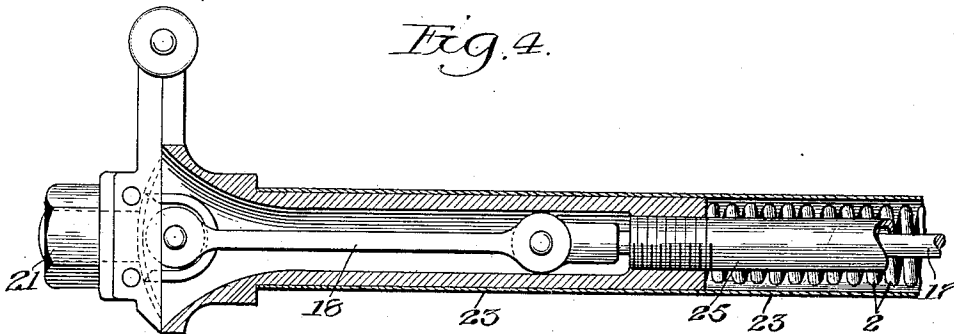
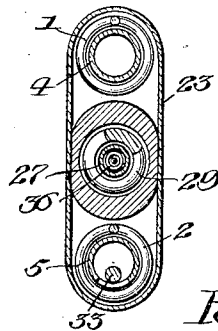


Fig. 5.



Witnesses
O. W. Vermich
Hazel Jones

Inventor
Per Erik Nordqvist
by May W. Zabel
Atty

UNITED STATES PATENT OFFICE.

PER ERIK NORDQVIST, OF CHICAGO, ILLINOIS, ASSIGNOR TO CONCEALED DOOR CHECK COMPANY, OF SANTA BARBARA, CALIFORNIA.

DOOR-CHECK MECHANISM.

1,041,856.

Specification of Letters Patent.

Patented Oct. 22, 1912.

Application filed May 3, 1910. Serial No. 559,213.

To all whom it may concern:

Be it known that I, PER ERIK NORDQVIST, a subject of the King of Sweden, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Door-Check Mechanism, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to improvements in door check mechanisms, and it consists in the constructions, combinations and arrangements herein described and claimed.

The object of my invention is to provide an improved reversible door check mechanism, adapted for ready attachment to either the top or bottom of a door for producing an increasing checking resistance during closing of the door and a device within the cylinder for causing a sudden release of such resistance when the door nears its closed position.

Cross reference is made to co-pending applications Serial Nos. 559207, 559208, 559209, 559210, 559211 and 559214, filed by applicant on May 3, 1910, which show general features of construction shown but not claimed in this application, which is drawn to an improved construction provided with means within the movable cylinder for causing a sudden release of the checking resistance when the door nears its closed position.

I will describe my invention more in detail by reference to the accompanying drawings illustrating the preferred embodiment thereof, in which—

Figure 1 is a partial sectional view of my improved door check; Fig. 2 is a detail view of my improved construction in connection with the cylinder; Fig. 3 is a sectional view showing more in detail the coöperation between the devices of Fig. 2, and the remainder of the cylinder; Fig. 4 is a top view showing the connection between the door and the hinge; and Fig. 5 is a cross-sectional view on lines 5—5 of Fig. 3.

My improved door check consists of sets of draw springs 1, 2, which impinge against an abutment 3, and surround two stationary tubes 4 and 5. The opposite ends of the springs press against ears 6 and 7, provided upon a cylinder, which cylinder has a head 9. The head 9 has a chamber 10, which con-

nects by means of a duct 11 with the interior of the cylinder 8. The head 9 is screwed into the cylinder 8 in such manner that when the head is removed the cylinder can be properly bored from its left hand extremity, if so desired. The chamber 10 has a ball valve 12, seated preferably upon a lead seat 13, below which I provide a washer of fiber or similar material, all of which parts forming the valve seat are then held in place by means of the screw-threaded nut 15. From this, it will be apparent that the ball valve 12 permits fluid to enter the cylinder at its left hand extremity, but prevents its return through the same opening. A projection 16 prevents the ball from closing the aperture of the duct 11. The cylinder is connected, by means of the bar 17, with a link 18, which link, by means of a bolt 20, is pivotally fastened by a bolt 21 to the hinge. Suitable packing prevents egress of fluid through the opening, and accommodates the bar 17.

The entire door check is inclosed by a shell 23, which engages a portion of the abutment 3 at one end, and is closed by a cap 24 at the other end, thus to maintain fluid in said door check proper. When the door is opened, the link 18 and arm 17 draw the cylinder 8 to the left, against the action of the draw springs 1 and 2, at the same time permitting liquid or other suitable fluid, which fills the door check up to about the lower edge of the tube 25, to enter the cylinder through the valve 12. The precipitate return of the door, under the action of the springs 1 and 2, is then prevented by a piston 26, fastened upon the piston rod 27, which piston rod is loosely mounted in an open head, or bridge, 28. A spring 29, acting against the piston and the head, serves to hold the piston in its left-hand position. The piston has a longitudinal bore 30, through which the liquid in the cylinder can pass through a nozzle 31, the opening of which nozzle is closed by a valve 32, through the agency of an adjustable valve actuating rod 33, which holds the valve 32 slightly away from its seat. The action of the draw springs tending to push the cylinder toward the right forces the liquid in the cylinder past the valve 32 in a small quantity, so as to allow the door to close slowly. The valve 32 is held in its place by a screw 34 fastened

in the head 28. The rod 33 extends through the abutment 3, through suitable packing 34', and ends in a screw 35, by means of which the rod 33 can be adjusted so as to
 5 open the valve 32 more or less as it is desired, thus providing an adjustable feature for the action of the door check. A spring 36 holds the valve 32 against its seat, which
 10 33 has a hinged extremity 38, which serves the purpose of permitting the door to close more slowly as it approaches its closed position. This is due to a projection 39 upon
 15 the ear 6, which projection, as the cylinder moves toward the left, elevates the jointed rod 33 and extension 38, so as to press the valve 32 farther away from its seat. As
 20 the door approaches its normal or closed position, it will be seen that the projection 39 permits the lowering of the hinge portion of the rod 33, thereby reducing its effective length, and gradually bringing the
 25 valve 32 against its seat to make the door close more slowly. The rod 33 and its extremity 38 thus serve a dual purpose, making a permanent adjustment of the action of the valve 32, and at the same time a variable adjustment in the course of each operation.

I provide a non-metallic bushing 40 between the elements 13 and 15 as shown. 30

While I have herein shown and particularly described the preferred embodiment of my invention, I do not desire to limit myself to the precise construction and arrangement as herein set forth, but 35

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

In a door check and closer, the combination of a movable cylinder, a piston there- 40 for, a shiftable valve for throttling the escape of fluid from said cylinder, resilient means tending to maintain said valve in closed position, a hinged member engaging 45 said shiftable valve, means for swinging said hinged member to increase the throttling action of said valve during the stroke of said piston, and means within said cylinder for permitting free escape of fluid from 50 said cylinder during the final portion of the piston stroke.

In witness whereof, I hereunto subscribe my name this 9th day of March A. D., 1910.

PER ERIK NORDQVIST.

Witnesses:

HAZEL JONES,
 A. LYDA JONES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."