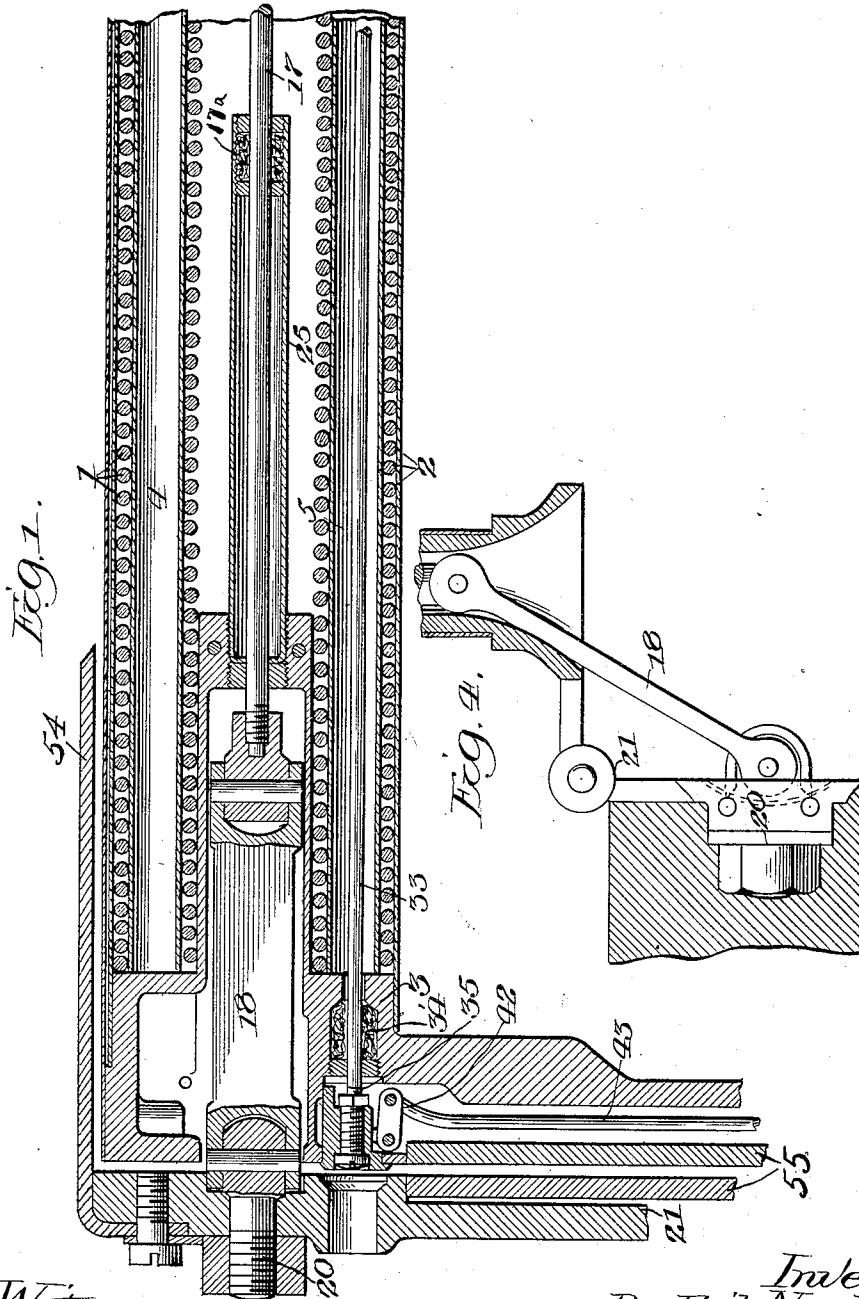


P. E. NORDQVIST.
 CONCEALED DOOR CHECK.
 APPLICATION FILED MAY 3, 1910.

1,041,857.

Patented Oct. 22, 1912.

2 SHEETS—SHEET 1.



Witnesses
 O. W. Wennich
 Hazel Jones

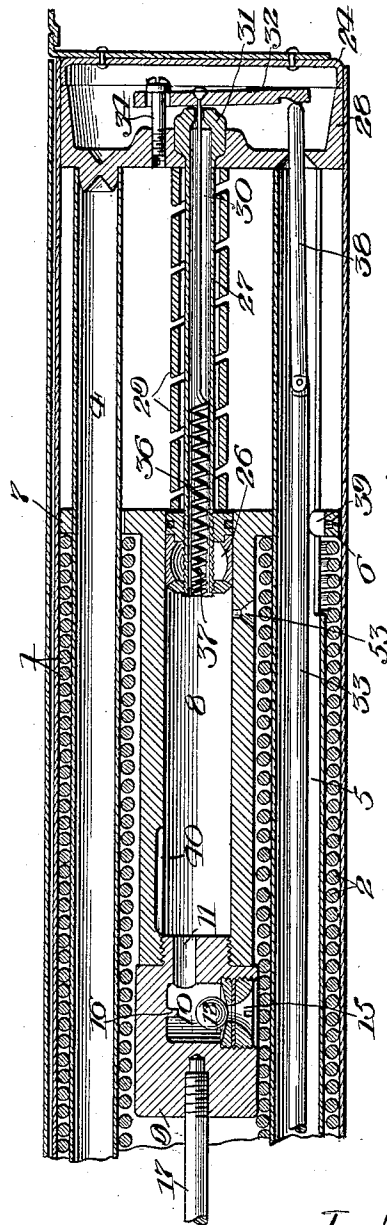
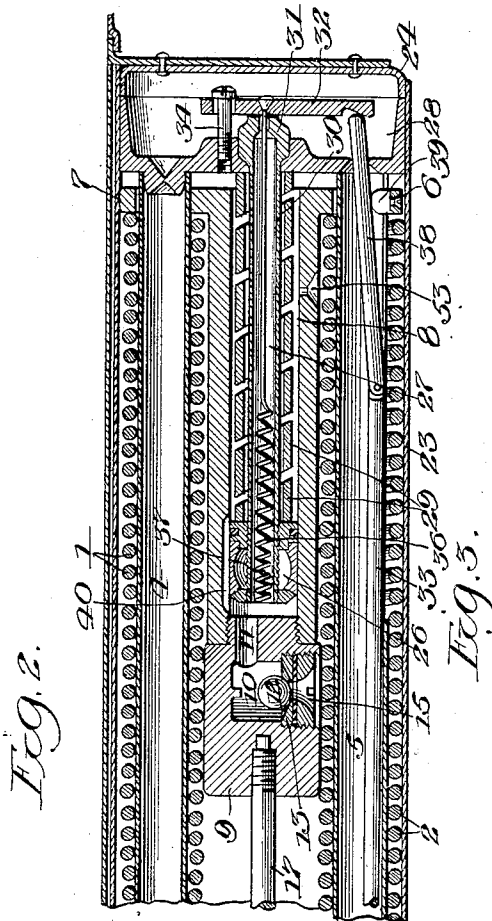
Inventor
 Per Erik Nordqvist
 by May W. Label
 Atty.

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UNITED STATES PATENT OFFICE.

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

CONCEALED DOOR-CHECK.

1,041,857.

Specification of Letters Patent.

Patented Oct. 22, 1912.

Application filed May 3, 1910. Serial No. 559,214.

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 Concealed Door-Checks, 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 mechanism, and it consists in the constructions, combinations and arrangements herein described and claimed.

My invention relates particularly to an improved door check mechanism provided with a special cylinder construction having a by-pass in combination with a throttling valve provided with an irregular surface for engaging suitable valve-actuating means.

Cross reference is made to co-pending applications Serial Nos. 559,207, 559,208, 559,209, 559,210, 559,211 and 559,213, filed by applicant on May 3, 1910, which show general features of construction shown but not claimed in this application.

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

Figure 1 illustrates the left-hand portion of the door check in longitudinal section; Fig. 2, the right-hand half thereof; Fig. 3, a view similar to Fig. 2, but showing the piston and cylinder in position to permit fluid to escape from the cylinder; Fig. 4, a top view of the link-connecting mechanism between the door and the check.

My improved door check, of which the two halves are shown respectively in Figs. 1 and 2, 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 8, which cylinder has a head 9. The head 9 has a chamber 10, which connects 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. A ball valve 12 within the chamber 10 is seated by gravity to control the port through an annular member 13, preferably

of lead, which is secured in position by a nut 15; a washer of fibrous material being shown clamped between said valve seat 13 and nut 15. The valve 12 permits free entrance of a fluid to the chamber 10, and is confined by a projection 16 against seating on the upper port 11. The cylinder is connected by a rod 17 with a link 18, which latter is pivoted by a bolt 20 to the hinge 21. A tube 25 supported on the abutment 3 has a flanged inner end closely surrounding the rod 17, and carries at its outer end a packing 17^a for said rod; thereby providing a simple and efficient packing means.

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. 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 a port controlled by the valve 12. The precipitate return of the door, under the actuation of the springs 1 and 2, is then prevented by a piston 26, fastened upon the piston rod 27, which piston rod is provided with a nozzle 31 adapted to be firmly seated on a bridge piece 28, by a spring 29 confined between said piston and bridge piece. The piston rod 27 and nozzle 31 are provided with registering bores communicating with the interior of the cylinder 8 and controlled by a valve 32, through the agency of an adjustable valve-actuating rod 33, which holds the valve 32 slightly away from its seat. A spiral spring 36 extends axially within the hollow piston rod 27 and has its respective ends secured to a pin 37 within said rod and a valve 32; said spring tending to yieldingly maintain the valve 32 seated on said nozzle 31. The action of the draw springs tending to push the cylinder toward the right forces the liquid of the cylinder through the piston rod and nozzle past the valve 32 into the shell 23 so as to allow the door to close slowly. The valve 32 is held in its place by a screw 34 fastened in the bridge piece 28.

The rod 33 extends through the abutment 3, through the interposition of suitable packing 34', and ends in a screw 35, by means of which the rod 33 can be adjusted so as to

open the valve 32 more or less as it is desired that the valve close rapidly or slowly, thus providing an adjustable feature for the action of the door check. The rod 33 has a
 5 hinged member 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 the ear 6, which projection, as the cylinder moves toward the
 10 left, elevates the jointed rod 33 and extension 38, so as to press the valve 32 farther away from its seat.

As the door approaches normal position, it will be seen that the projection 39 permits
 15 the lowering of the hinged portion 38 of the rod 33, thereby reducing its effective length, and gradually permitting the valve 32 to come more closely against its seat to make the door close more slowly. The rod 33 and
 20 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.

25 When the door is nearly closed, it is well to provide means for the rapid exodus of the fluid, in order to give a sudden jerk to the door to be sure that it closes effectually, and for this reason, I provide a by-pass 40,
 30 which serves the purpose above outlined in permitting the liquid from the operative

cylinder 8 to pass to the other side of the piston 26.

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

Having thus described my invention, what I claim as new and desire to secure by Let- 40 ters Patent is:

In a door check, the combination of a cylinder and springs for actuating the cylinder to close a door, a piston in the cylinder, an inlet valve for said cylinder, said piston 45 having an outlet therethrough, a valve for controlling the outlet and provided with an irregular surface, a spring for holding the valve in closed position, means for adjusting said valve including a rod, means for ad- 50 justing said rod, a member hinged on said rod for engaging said valve, and a by-pass in said cylinder for permitting communication from one side of the piston to the other when the door is almost closed, substantially 55 as described.

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.