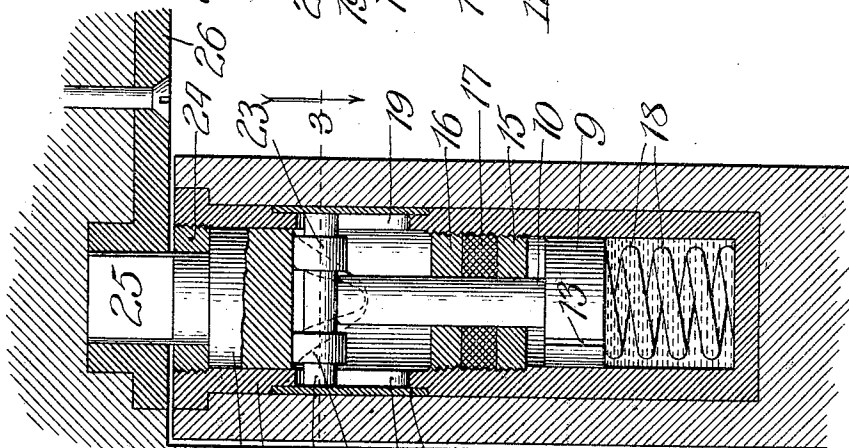


1,057,847.

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Witnesses:
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UNITED STATES PATENT OFFICE.

OSCAR KATZENBERGER, OF CHICAGO, ILLINOIS.

DOOR-CHECK AND PIVOTAL SUPPORT.

1,057,847.

Specification of Letters Patent.

Patented Apr. 1, 1913.

Application filed November 6, 1911. Serial No. 658,898.

To all whom it may concern:

Be it known that I, OSCAR KATZENBERGER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Door-Checks and Pivotal Supports, of which the following is a specification.

My invention relates to certain new and useful improvements in a door check and pivotal support, and is fully described and explained in the specification and shown in the accompanying drawing, in which—

Figure 1 is a central longitudinal section through my device as positioned in a door, the door being shown open; Fig. 2 is a section in the line 2 of Fig. 1, and Fig. 3 is a horizontal section in the line 3 of Fig. 2.

Referring to the drawings, 4 is a cylinder 20 let into the top edge of the door and formed with a top plate 5 riveted into and secured to the top part of the door. The cylinder 4 has on one side an auxiliary oil-reservoir 6 connecting through an opening 7 with the lower part of the cylinder 4 and closed at its upper end by a plug 8, which may be removed for filling purposes. Vertically movable within the cylinder 4 is a piston 9 connected to a stem 10. The piston 9 is provided with vertical openings 11 closed by ball-valves 12 of such a character that oil can readily pass downward through the piston, but not upward. The piston is provided on one side with a vertical groove 13 (Fig. 2) through which a predetermined amount of oil can pass the piston. It is found satisfactory to determine the size of this opening once for all at the factory, and thereby dispense with all adjustment-devices.

Wedge in the cylinder above the piston are two annular plates 15 and 16 which clamp a packing piece 17 between them, thereby substantially preventing the leakage of oil along the piston rod or stem. The piston rod is normally held up by a spring 18. The walls of the cylinder 4 are traversed by vertical slots 19 across which extends a steel pin 20, the center of which rests upon the upper end of the piston rod or stem 10. These slots 19 are closed by a plate 21 of sheet metal sprung around the cylinder.

Above the pin 20 is a cam-member 22 the lower part of which as the cam-track, plainly illustrated in the drawings, bears

against the rollers 23 carried by the pin 20. The cam-member is held in place within the cylinder by a ring 24 screwed down upon it and its upper end is carried upward to form a flattened tip 25 which engages a correspondingly-shaped opening in a plate 26 on the door-frame.

From the foregoing construction it will be evident that as the door is swung the cam-member 22 will remain stationary and the cylinder 4 and parts carried thereby will rotate, these parts being carried by the door. The door is thus given a free pivotal bearing at its upper end. The cam-member is so arranged that the uppermost part of its curved lower edge or track, in the present form of construction, lies lengthwise of the door-opening while the pin 20 lies across the door. Thus when the door is closed, the pin lies on the lowest part of the cam and when it is opened at right angles it lies on the highest point of the cam. As the door is opened the spring presses up the piston as fast as the movement of the pin and its rollers upon the cam-member permits thus assisting in such opening movement, any oil which is above the piston passing down through the valves, provided for the purpose, into the space below the piston. When the door is released and tends to swing shut under the influence of any spring which may be attached to it, the piston is forced down by the action of the cam upon it and only moves as fast as is permitted by the passage of the oil through the groove 13 which, as before stated, acts as a by-pass. Any leakage of oil which may occur from time to time will be compensated for by the supply in the reservoir.

While this construction has been described in detail as the preferred form of embodying my present invention and while the exact form shown is believed to have advantages in the way of construction and arrangement, still it is manifest that it can be varied materially without departing from the spirit of the invention. It will also be seen that the invention furnishes a completely invisible check which serves as well, as the upper hinge of a pivoting hinge door. The present device coöperates admirably as well with any double-swinging pivot hinge which may be mounted at the bottom of the door in accordance with usual practice, either in the floor or in the door proper. The device is also advantageous in that if desired, as is

actually the case in the present construction, that part of the cam upon which the pin-rollers rest when the door is closed can be slightly flattened so that the checking action 5 will be less just as the door is swinging to. In a double-swinging door, this is a point of considerable importance because a thoroughly efficient check of many ordinary types may prevent the door from going abso- 10 lutely shut, as the spring action which moves it drops to a minimum. By properly modifying or varying the piston-stem the checking action of the present device can be made of any desired amount at each time or period 15 of the movement of the door.

What I claim as new, and desire to secure by Letters Patent, is—

1. A combined check and pivotal support for a door, comprising a cylinder, a fixed 20 member having pivotal engagement with said cylinder, and means in said cylinder adapted to resist the movements of the door toward the closed position thereof and thereby check the same, and to assist in move- 25 ments of said door in directions to open the same.

2. As a new article of manufacture a combined door-check and pivotal support for a door, comprising a cylinder, a fixed cam in 30 the cylinder, a fluid-venting piston operating in the cylinder and moved in one direction by the cam, means for moving the piston in the opposite direction, a fluid reser-

voir adjacent the cylinder and communicating therewith, and valves for controlling the 35 passage of the fluid into the cylinder and from one side of the piston to the opposite side thereof, the first of said piston-actuating means serving to resist the movements 40 of the door toward the closed position thereof and thereby check the same, and the second of said piston-actuating means serving to assist in movements of said door in directions to open the same.

3. A combined check and pivotal support 45 for a door, comprising a cylinder, a piston therein, a valve-controlled passage from the space above to the space below the piston, a stem for the piston, packing-means about the stem, a cylindrical member adapted to be 50 stationarily mounted within the door-frame and fitting within the cylinder to afford pivotal support to the door and shaped on its lower face to form a cam, a pin running on 55 said cam engaging the piston-stem and guided in slots in the cylinder wall, an annular disk above said cylindrical member to hold the same in position, an auxiliary chamber to one side of the cylinder, and a valve-controlled port between the cylinder 60 and said chamber.

OSCAR KATZENBERGER.

In presence of—

A. U. THORIEN,
R. A. SCHAEFER.