

July 7, 1936.

E. W. PHILLIPS

2,046,790

SEMI-AUTOMATIC DOOR ANCHOR

Filed Dec. 19, 1934

2 Sheets-Sheet 1

Fig. 1.

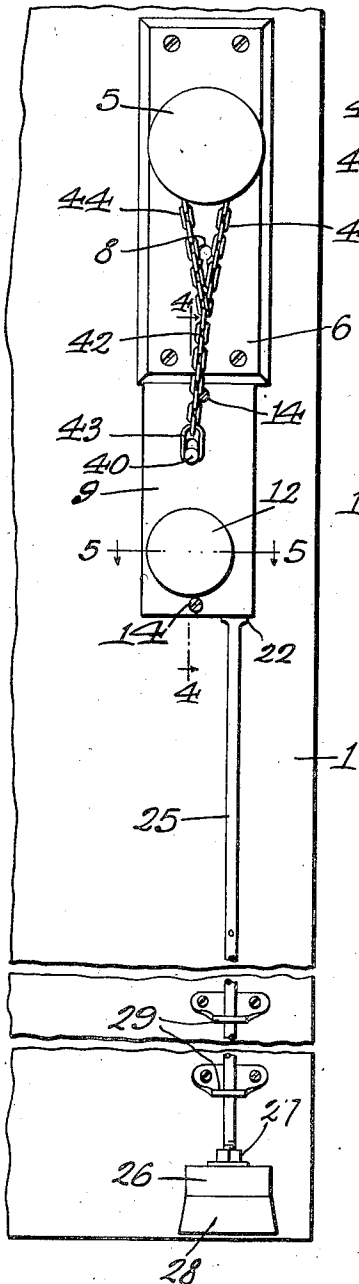


Fig. 2.

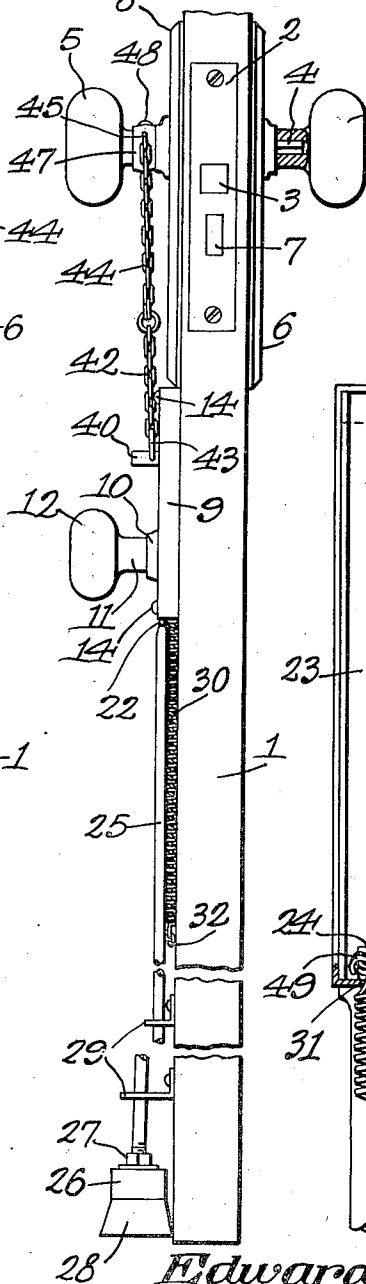
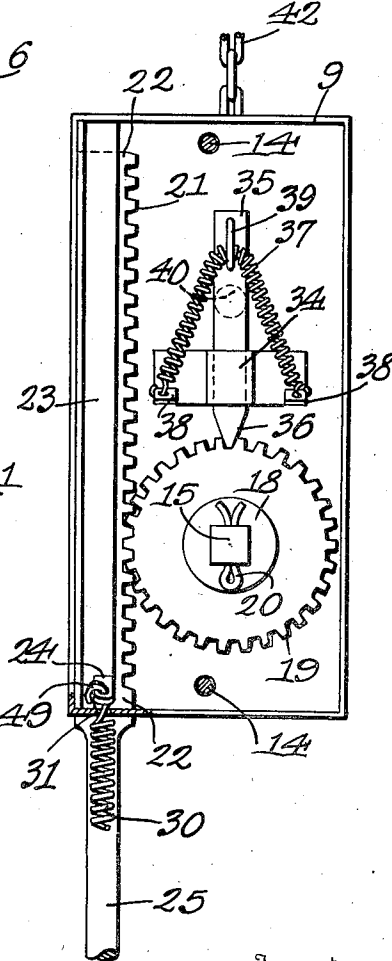


Fig. 3.



Inventor
Edward W. Phillips

By *C. A. Snow & Co.*
Attorneys

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Fig. 4.

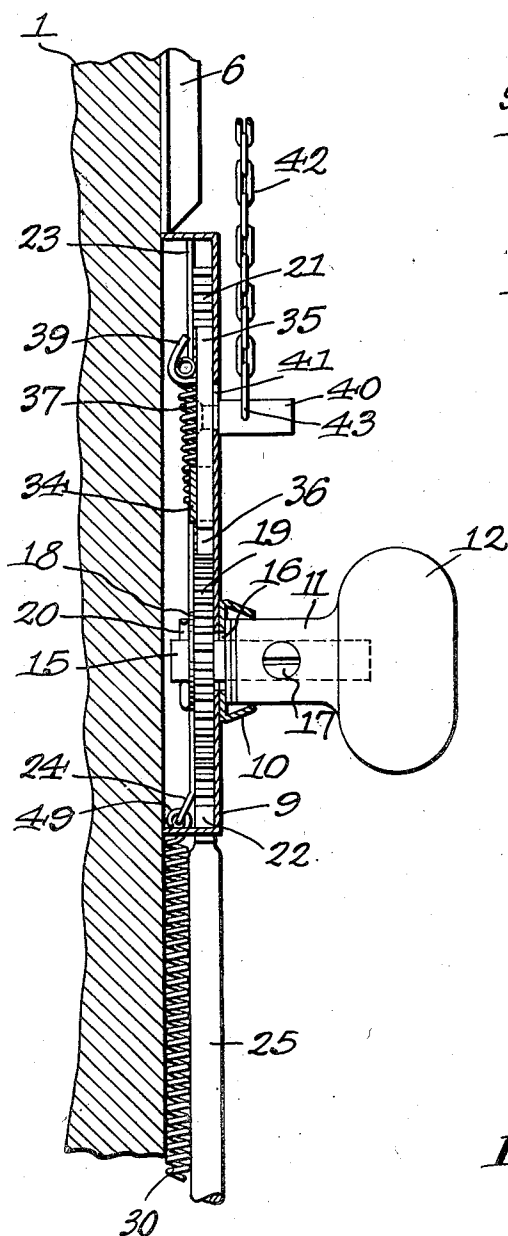


Fig. 5.

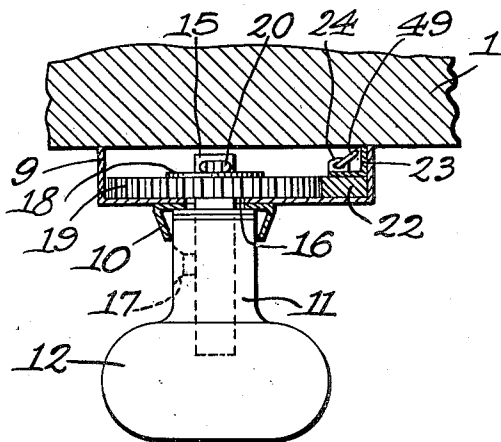


Fig. 6.

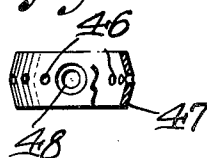
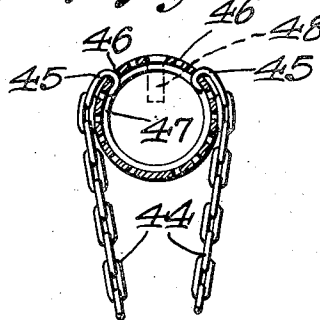


Fig. 7.



Inventor
Edward W. Phillips

By *Chas. H. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE

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SEMI-AUTOMATIC DOOR ANCHOR

Edward W. Phillips, Flint, Mich.

Application December 19, 1934, Serial No. 758,326

3 Claims. (Cl. 292—179)

This invention aims to provide a novel means whereby a door may be held from swinging, without resorting to use of bricks, or other objects of like kind, placed on the floor to hold the door against swinging. The invention aims to provide novel means for raising and lowering the member which stops the swinging movement of the door, to provide novel means whereby the said member may be held elevated and or be held securely in engagement with the floor, and to provide novel means whereby the dog which keeps the floor-engaging member from moving, may be operated either directly, by an operator, or from the knob on the lock of the door.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:

Fig. 1 shows in elevation, the inside of a door whereunto the device forming the subject matter of this application has been applied, parts being broken away;

Fig. 2 is an edge elevation of the structure shown in Fig. 1;

Fig. 3 is an elevation showing the rear side of the housing which carries much of the working mechanism;

Fig. 4 is a section on the line 4—4 of Fig. 1;

Fig. 5 is a section on the line 5—5 of Fig. 1;

Fig. 6 is an elevation of one of the collars, parts being broken away;

Fig. 7 is a transverse section of the collar shown in Fig. 6.

The numeral 1 designates an ordinary hinged door or other closure. A lock casing 2 is mortised into the edge of the door 1. The beveled latch 3 of the lock casing 2 is operated by a rotatable shaft 4 carrying knobs 5. The face plates are shown at 6. The bolt 7 of the locking mechanism is actuated by a key (not shown) inserted through a key hole 8 in each of the face plates 6. The structure above described is common and well known, and no novelty is claimed for it, saving insofar as it may enter into combination with parts hereinafter described.

A box-like housing 9 is provided, and is open at the back, as shown in Fig. 3. The housing 9 is secured at 14 to the inner surface of the door 1, immediately below one of the face plates 6. On the outer surface of the housing 9 there is a fixed collar 10 in which is journaled the shank 11 of a knob 12. A shaft 15, preferably rectangular in cross section, extends through a hole 16 in the outer wall of the housing 9. The shaft 15 extends into the shank 11 of the knob 12, and is held therein by a securing element 17.

A pinion 19 is mounted on the shaft 15, within the housing 9, and in contact with the outer wall of the housing. A washer 18 is mounted on the shaft 15, within the housing 9, and a cotter pin 15 20 or the like in the shaft 15 cooperates with the washer 18 to hold the pinion 19 on the shaft 15.

A rack 21 meshes with the pinion 19 and forms part of a bar 22, mounted for right line sliding movement in the housing 9, against one edge wall of the housing, and behind a guide strip 23, secured to the said edge wall, the guide strip 23 preferably being an angle member, as shown in Fig. 5 of the drawings. An anchor 24 is formed on the lower end of the guide strip 23. The rack 25 bar 22 includes a stem 25, extended downwardly, and located below the lower part of the housing 9. Threaded for vertical adjustment on the lower end of the stem 25 there is a socket 26, which may be secured in place on the stem 25 by any suitable means, such as a nut shown at 27. A friction foot 28, preferably made of rubber or a rubber compound, is mounted in the socket 26. The stem 25 slides in vertically spaced guides 29 on the inner surface of the door 1. The upper 35 end of a pull spring 30 extends through a hole 31 in the bottom of the housing 9 and is connected by a hook 49 to the anchor 24 on the guide strip 23. The lower end of the pull spring 30 is secured detachably at 32 to the stem 25 of the rack bar 22.

Mounted on the inner surface of the outer wall of the housing 9, above the pinion 19 is a guide 34, in which a dog 35 is mounted for vertical reciprocation, the dog being supplied with a reduced lower end 36, adapted to be engaged with the teeth of the pinion 19. The guide 34 has outstanding ears 38, to which are secured the lower ends of a retractile spring 37, the intermediate portion of the spring 37 being engaged with a projection 39, preferably a hook, on the upper part of the dog 35. The dog 35 has an outwardly projecting handle 40, mounted to move in an elongated slot 41 formed in the housing 9.

The lower end of a flexible element 42, prefer-

ably a light chain, is connected at 43 to the handle 40 of the dog 35, outwardly of the housing 9. The flexible element 42 has two upwardly extended diverging branches 44 terminating in hooks 45 or the like, which are adapted to be engaged, detachably and for adjustment, in openings 46 formed in a transversely convexed collar 47 secured at 48 to the shank of one of the door knobs 5.

10 The operator pulls up on the handle 40 of the dog 35, thereby raising the dog, so that its end 36 is not engaged with the pinion 19, the spring 37 being elongated. The operator then rotates the shaft 15 by way of the knob 12, and the pinion 19, cooperating with the rack 21, forces the rack bar 22 downwardly, until the foot 28 on the lower end of the stem 25 of the rack bar engages the floor, to hold the door in open position, the spring 30 being elongated. The operator then releases the handle 40 of the dog 35, and the dog 35 resumes the position of Fig. 3, under the action of the spring 37, the end 36 of the dog being engaged with the teeth of the pinion 19. The door, thus, is held securely but frictionally in an open position. It is possible, of course, to use the mechanism to aid in holding the door closed, as well as open. The hold of the foot 28 on the floor may be relieved by pulling up on the handle 40 of the dog 35, thereby disengaging the dog from the pinion 19. The spring 30 then pulls up the rack bar 22, the rack 21 rotating the pinion 19, the shaft 15 and the knob 12.

The device may be referred to as semi-automatic, in that the dog 35 need not be raised by putting the hand of the operator directly on the handle 40 of the dog. That observation holds true regardless of whether the dog 35 is raised to permit the rack bar 22 and parts associated therewith to be forced down into working position through the instrumentality of the pinion 19, the shaft 15 and the knob 12, or is raised to permit the rack bar to move upwardly responsive to the spring 30. The operator can rotate the shaft 4 of Fig. 2 by the inside knob 5, a pull being exerted on one of the branches 44 of the flexible element 42, the dog 35 being raised, because the flexible element 42 is connected to the handle 40 of the dog. The length of the branches 44 of the flexible element 42 may be adjusted, so that the dog 35 will be raised when the knob 5 is rotated, by mounting the hooks 45 on the branches 44 of the flexible element 42 in any selected ones of the openings 46 in the collar 47, that collar being secured at 44 to the shank of the knob 5 which has been turned.

The device is advantageous for many reasons, not the least of which is that it is not necessary for the operator to stoop down and move a door weight, or kick a door weight out of the way with corresponding damage to footwear.

Having thus described the invention, what is claimed is:

1. In a door holder, a housing, a floor-engaging rack bar mounted for reciprocation in the housing, a pinion journaled on the housing and meshing with the rack bar, means for rotating the pinion from a point without the housing, a dog mounted on the housing and engaging the pinion to hold the pinion against rotation, a member supported for rotation above the housing, a collar on said member and provided with circumferentially spaced openings, diverging flexible elements provided at their upper ends with means for engagement, releasably, in the openings of the collar, and means for connecting the lower ends of the flexible elements to the dog.

2. In a door holder, a box-like housing open at the back and having a front wall and an edge wall, an angle strip one flange of which is secured to the edge wall, the other flange of the angle strip cooperating with the front wall to form a guideway, the lower end of the angle strip being provided with an anchor, a floor-engaging bar slidable in the guideway and provided with a rack, a shaft journaled in the front wall of the housing, a pinion on the shaft and meshing with the rack and holding the bar for right line sliding movement in the guideway, with the bar in contact with the edge wall, a pull spring connected to the bar and to the anchor, and releasable means for holding the bar depressed, against the effort of the spring.

3. In a door holder, a face plate, a door knob journaled on the face plate, a housing, a floor-engaging rack bar mounted for reciprocation in the housing, a pinion journaled in the housing and meshing with the rack bar, a handle operatively connected with the pinion and constituting means for rotating the pinion from a point without the housing, to cause the rack bar to attain a hold on the floor, spring means for moving the rack bar to release it from the floor, a dog movably mounted on the housing and engaging the pinion to hold the pinion against rotation and to keep the rack bar engaged with a floor, a member secured to the dog and movable in the housing, a flexible element connected to said member and to the door knob, whereby the dog may be released from the pinion by way of the door knob, the flexible element being shorter than the combined length of the face plate and the housing, and means for securing the face plate and the housing to a door, with one end of the housing in contact with one end of the face plate, whereby the housing and the face plate, together, will constitute a wear-receiving means, interposed between the flexible element and a door.

EDWARD W. PHILLIPS.