Dec. 27, 1932. W. ANDERSON 1,892,200

DOOR CHECK AND CLOSER

Filed Nov. 9, 1931

Fig. 1.

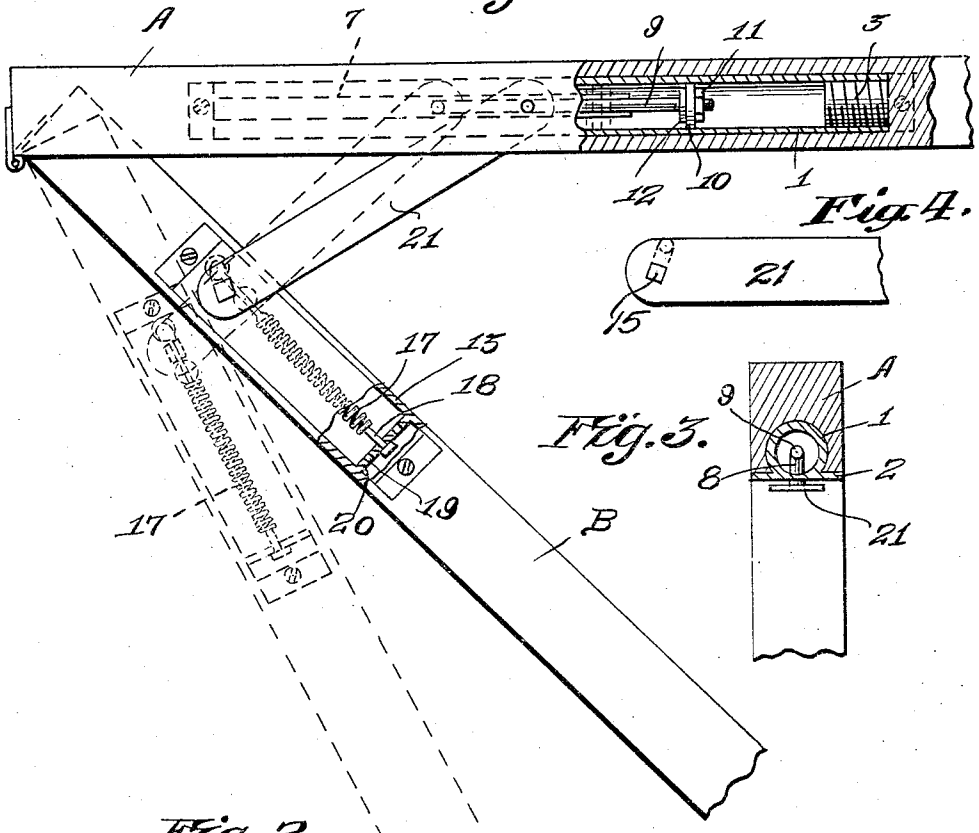
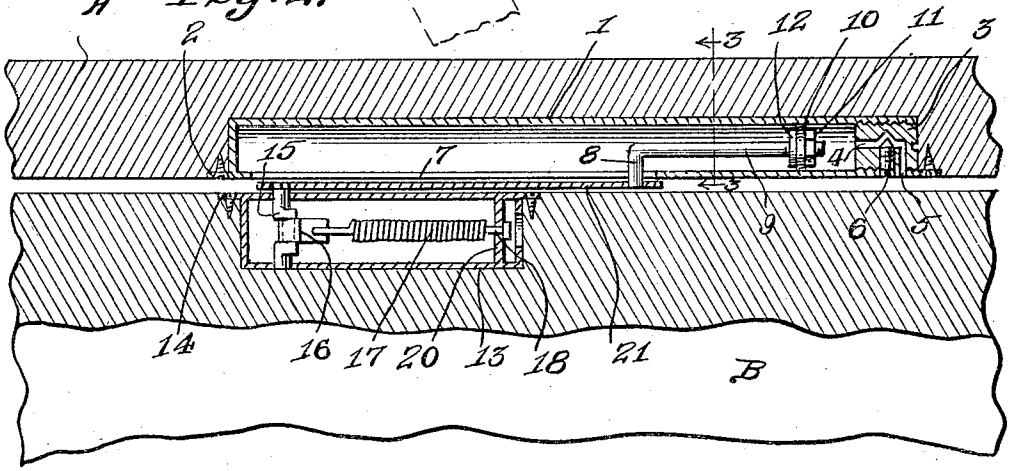


Fig. 4.

Fig. 3.

Fig. 2.



William Anderson,
INVENTOR

BY Victor J. Evans & Co.
ATTORNEY

Leo Hayes.
WITNESS:

Patented Dec. 27, 1932 1,892,200

UNITED STATES PATENT OFFICE

WILLIAM ANDERSON, OF SEATTLE, WASHINGTON

DOOR CHECK AND CLOSER

Application filed November 9, 1931. Serial No. 574,021.

This invention relates to door checks and closers, and its general object is to provide a device of that character that is adapted to be embedded in a door and door frame so that it cannot be seen when the door is closed, with the result that no unsightly hardware is employed with the device, yet it is simple in construction, easy to install, and extremely efficient in operation and service.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawing and specifically pointed out in the appended claim.

In describing my invention in detail, reference will be had to the accompanying drawing wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a top plan view showing my device installed, with parts in section and in dotted and full lines.

Figure 2 is a sectional view taken vertically through my device and showing the same applied to a door frame and the door with the latter in closed position.

Figure 3 is a sectional view taken approximately on line 3—3 of Figure 2, looking in the direction of the arrow.

Figure 4 is a fragmentary plan view of the link and illustrates the manner of securing the crank shaft thereto.

Referring to the drawing in detail, the letter A indicates the top of a door frame and B a door. My device is adapted to be embedded within the door frame and the door and includes a tubular casing 1 having formed therewith or otherwise secured thereto an attaching plate 2 which is countersunk in the door frame while the tubular casing is embedded therein as best shown in Figure 2. The tubular casing has one end closed while its opposite end is open and provided with internal screw threads for the purpose of threadedly receiving a plug 3 for closing the open end, and the plug is formed with a kerf for the application of a screw driver or the like as will be apparent.

Extending through the plug is a bore 4 of substantially right angle formation, with a portion of the bore passing through the center of the plug while the other portion extends laterally through the plug and communicates with an opening 5 formed in the attaching plate. The portion of the bore which passes centrally through the plug is provided with an offset portion of substantially triangle formation and the plug is provided with a threaded bore to accommodate a set screw 6 having a conical inner end aligned with the offset portion to control the passage of air through the plug, as the set screw is adjustable for that purpose. The attaching plate 2 extends beyond the tubular casing and the extending ends are provided with openings to accommodate screws for securing the attaching plate together with the tubular casing within the door frame.

Arranged longitudinally in the attaching plate 2 and communicating with the tubular casing 1 is a slot 7 through which extends the bent end 8 of a plunger rod 9 which is provided with a threaded end to accommodate a piston 10, the latter being in the form of a disk washer which snugly fits within the tubular casing for slidable movement therein and the piston 10 is secured to the rod through the instrumentality of a nut 11 which holds the piston against the collar 12 that is secured to the plunger rod 9 as will be noted upon inspection of Figure 2.

Embedded within the top of the door B is a frame 13 having open sides and closed ends, and this frame also includes an attaching plate 14, with openings in the ends thereof to receive screws for securing the attaching plate and its frame 13 within the door. A crank shaft 15 has the ends of its arms journaled within the attaching plate 14 and the inner plate of the frame 13 and the crank portion of the crank shaft is in the form of a block 16 which has fixed thereto in any well known manner one end of a coil spring 17, while its opposite end is secured to an adjusting screw 1 which is threadedly secured in any one of a number of openings 19 provided in a strip 20 which bridges the frame 13 and its attaching plate as best shown in Figure 2. By providing the adjusting screw

18 for the coil spring 17, it will be apparent that the spring can be adjusted and the tension of the spring can also be adjusted by moving the adjusting screw in its openings 19.

A link 21 has one of its ends secured to the crank shaft 15, while its opposite end is secured to the bent end of the plunger rod 9, and by this construction, it will be obvious that when the door is opened, the piston will be moved inwardly within its cylinder or tubular casing 1, with the result air will be drawn within the cylinder through the medium of the bore 4. When the door is released, the air will escape back through the bore 4, but the air within the cylinder between the piston and the plug will be compressed, with the result the door will close slowly, and this closing action is accomplished by the spring 17 acting upon the crank shaft 15, link 21, and piston rod 9.

By employing the crank shaft and connecting the coil spring 17 thereto as best shown in Figure 1, the door will remain in open position when the latter is arranged in the dotted line position as shown in Figure 1, as the crank of the crank shaft 15 is then aligned with the coil spring 17 which will hold the crank accordingly or in other words, the crank shaft is then held on dead center. However, when the door is moved from the dotted line position, it will automatically close.

The device not only efficiently operates with the usual hinged door, but is equally efficient when used with swinging doors, due to its double action which is brought about by the crank shaft.

It is thought from the foregoing description that the advantages and novel features of my invention will be readily apparent.

I desire it to be understood that I may make changes in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claim.

What I claim is:

In a device of the character described, a longitudinally slotted tubular casing adapted to be embedded and secured within a door frame and having a closed end, a plug closing its opposite end and being provided with a bore to allow for the ingress and egress of air with respect to the tubular casing, means for controlling the passage of air through the bore, a piston mounted for movement within the tubular casing, a piston rod carrying said piston, a right angle bent end included in said piston rod and extending through the slot of the casing, a metallic frame adapted to be embedded and secured within a door, a crank shaft journaled in the metallic frame, a coil spring having connection with the crank shaft, means for adjusting the tension of said coil spring, and a link having its ends connected to the crank shaft and right angle bent end of the piston rod respectively.

In testimony whereof I affix my signature.

WILLIAM ANDERSON.