Feb. 16, 1926. 1,573,512

A. J. BUSH

DOOR HOLDER

Filed Oct. 6. 1924

Fig. 1

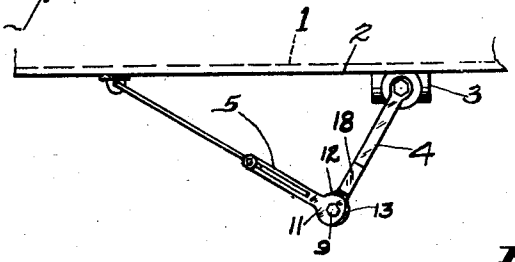


Fig. 2

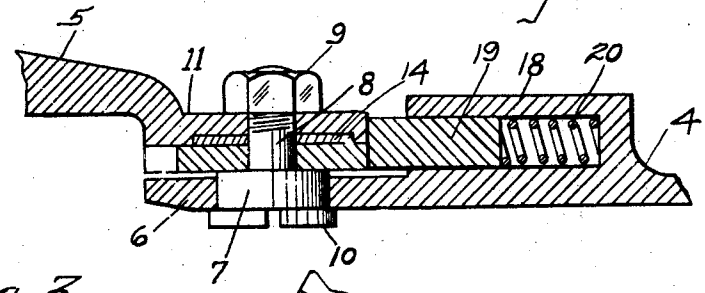


Fig. 3

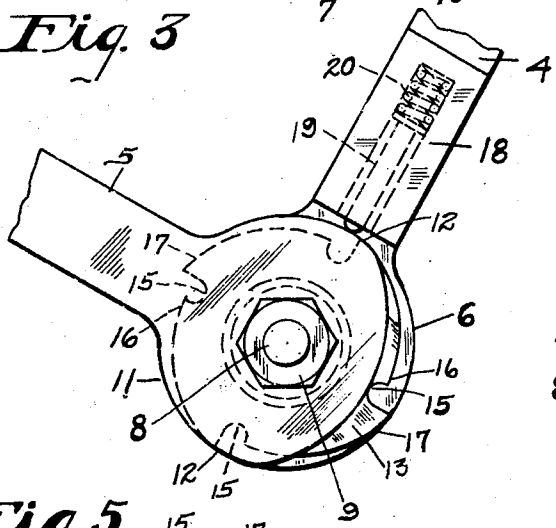


Fig. 4

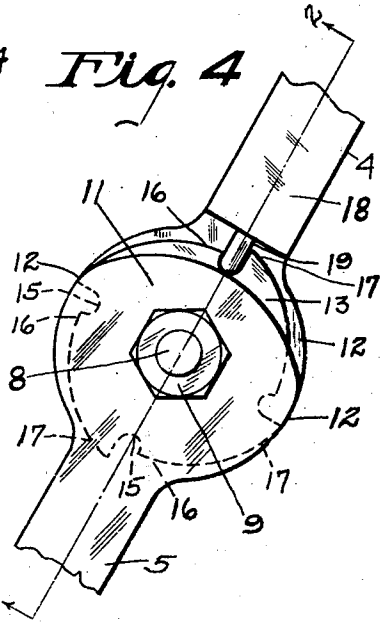
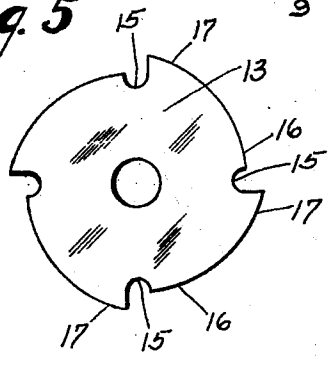


Fig. 5



Inventor

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UNITED STATES PATENT OFFICE.

ALDEN J. BUSH, OF COLUMBUS, OHIO.

DOOR HOLDER.

Application filed October 6, 1924. Serial No. 741,795.

To all whom it may concern:

Be it known that I, ALDEN J. BUSH, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Door Holders, of which the following is a specification.

My invention relates to door holders for holding a door in an open position and particularly to a holder for the purpose which is associated with and forms a part of the door closing and checking devices.

The object of my invention is to provide a simple and effective device for holding the door in an open position against wind pressure of such a nature that the door may be closed without the necessity of unlatching or otherwise manipulating any parts of the holding devices.

In the drawings:

Fig. 1 is a top plan view of a part of a door casing and door, showing door closing checking devices having my improved holding devices.

Fig. 2 is a section on the line 2—2 of Fig. 4.

Fig. 3 is a plan view of my improved devices showing the position assumed by the same when the door is closed.

Fig. 4 is a similar view showing the position of the parts in the open position of the door.

Fig. 5 is a view of the intermediate friction disk.

Referring first to Fig. 1 of the drawings, 1 represents the upper edge of a door and 2 the upper edge of a door casing to which the devices have been applied. A door closing and checking mechanism of well known form is shown applied to the door, the casing which contains the closing spring and checking devices being indicated at 3, an arm 4 which is connected with the mechanism in the casing, and an arm 5 which is pivotally connected with the outer end of the arm 4 and also pivotally connected with the door casing 2. My improved devices are applied at the point where the two arms are pivotally connected and will now be described.

The outer end of the arm 4 is enlarged in disk-like form as indicated at 6 and is bored to form a bearing for the enlarged cylindrical portion 7 of a bolt 8 which is threaded to receive a nut 9 and has a head 10 of larger diameter than the cylindrical portion 7. The outer end of the arm 5 is also formed of disk-like shape as indicated at 11, but this disk 11 is shaped to form a pair of cam surfaces 12 and 12′. The disk 11 is apertured to receive the bolt 8 and between the two disks 6 and 11 is placed an intermediate disk 13, this intermediate disk being clamped between the cylindrical portion 7 of the bolt and the inner face of the disk 11 which is preferably recessed to receive a washer 14 of leather or other suitable material. The length of the cylindrical portion 7 is somewhat greater than the thickness of the disk 6 so that the intermediate disk 13 is maintained out of contact with the inner face of the disk 6, but by reason of the nut 9 is held in frictional engagement with the disk 11 and its washer 14. The intermediate disk 13 is provided in the present case with a series of four equally-spaced notches 15 and the periphery of each portion of the disk between the notches is inclined so as to provide low portions 16 and high portions 17 adjacent each notch. The diameter of the disk 13 on a line which intersects any two of the high portions is substantially equal to the diameter of the disk 11 on a line which intersects the high portions of the cams thereon. The smaller radius of the disk 11 is equal to the distance between the center of the disk 13 and the bottom of any one of the notches 15. Thus, the edges of the highest point of the cams will be substantially flush with the edges of the adjacent high points 17 of the disk 13, while the edge of that portion of the disk 11 having the smallest radius will stand substantially on a line with the bottom of the adjacent notch 15 as clearly shown in Figs. 3 and 4.

Formed integrally with the arm 4 is a housing 18 containing a bolt 19 normally pressed outwardly by coil spring 20 interposed between the rear end of the bolt and the housing.

The operation is as follows: In the closed position of the door the bolt rests upon one of the cam surfaces 12 as shown in Fig. 3, the edge of which is shown as substantially flush with the edge of the adjacent high portion 17 of the intermediate disk, although it could extend slightly beyond the same if desired. As the door is pushed open the intermediate disk 13, by reason of its frictional engagement with the disk 11 of the arm 5, rotates with said arm and as soon as the cam 12 is removed from the bolt, the

bolt will ride upon the edge of the disk 13 until a notch 15 registers with the bolt, whereupon the bolt, springing into the notch, arrests the disk 13 so that any movement of the door must be in opposition to the friction exerted between the disks 11 and 13. This friction is sufficient to hold the door in open position. To close the door the door is pushed manually to closing position against the friction exerted between the disks 11 and 13, as the intermediate disk 13 will be held from rotation by the bolt until near the closing movement of the door, at which point the cam 12 engaging the end of the bolt will gradually press the same into the housing and finally disengage it from the notch 15, so as to leave the intermediate disk free to rotate with the disk 11 when the door is again opened. By reason of the fact that the arm 5 and intermediate disk 13 are clamped between the cylindrical member 7 and nut 9 of the bolt, and that this cylindrical member 7 is journaled in the disk 6 of the arm 4 the door will be free to open with but little friction so far as the door holding devices are concerned.

While in the present case the intermediate disk is shown with four notches to permit the door to be held after it has been opened a distance of ninety degrees, yet if desired other disks with more or less notches may be substituted. For instance a disk with only three notches may be employed so that the door may be swung to a distance of one hundred twenty degrees and held open in that position. The purpose of providing the disk 11 with two cam surfaces 12 is to adapt the devices to either a right or left hand door. In the present case the cam 12′ is inactive.

Having thus described my invention, I claim:

1. In a device of the character described, the combination of a closure, connections to said closure, an automatic holding device for said connections normally in inoperative position but adapted to move into holding position at a predetermined point in the travel of said closure, means for maintaining the holding device in operative position during the further travel of said closure and until it reaches substantially the end of movement of said closure, and means for automatically releasing said holding device at or near the end of the movement of the closure.

2. In a device of the character described, the combination of a closure, connections to said closure, an automatic holding device for said connections normally in inoperative position but adapted to move into holding position at a predetermined point in the travel of said closure, and means for maintaining said holding device in holding position during the further travel of said closure, and means for automatically releasing same at a point at or near the end of said closure.

3. In a door holder, a pair of arms, one of which is pivotally connected with the door and the other with a stationary part, and means for pivotally connecting said arms together including a rotatable friction member for one of said arms provided with a series of equally-spaced notches, an automatically operating bolt carried by the other of said arms arranged to engage one of said notches and hold said friction member against rotation at a predetermined point in the opening movement of said door, in connection with a cam on the first mentioned arm for releasing said bolt at or near the closing movement of said door.

4. In a door holder, a pair of members connected together, one of which is pivotally connected with the door and the other pivotally connected with a stationary part, a friction device for the door member, and means for rendering said friction device inoperative during the opening movement of the door until the door has reached a predetermined point and for then rendering said friction device operative during the closing movement of said door.

In testimony whereof, I have hereunto set my hand this 24th day of September, 1924.

ALDEN J. BUSH.