L. C. NORTON.

DOOR STOP AND HOLDER.

APPLICATION FILED MAY 3, 1916.

1,275,980. Patented Aug. 13, 1918.

Fig. 1.

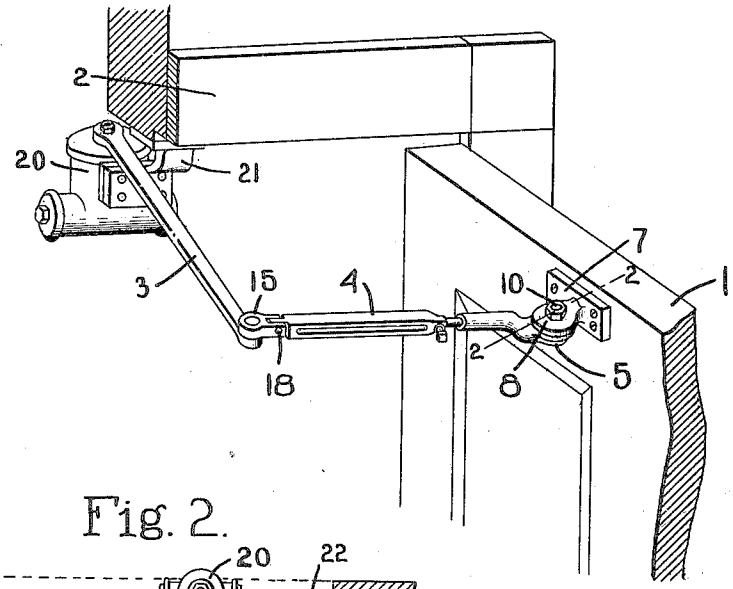


Fig. 2.

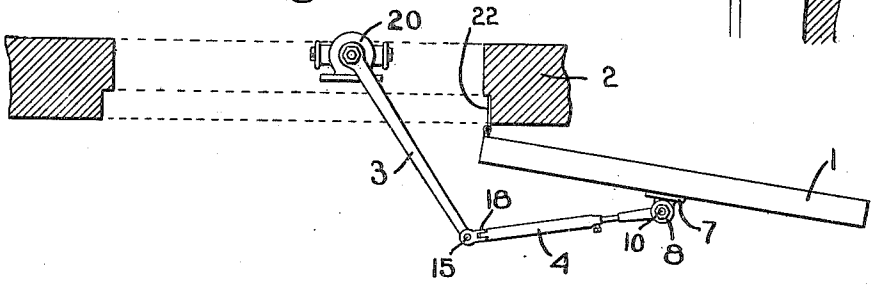


Fig. 3.

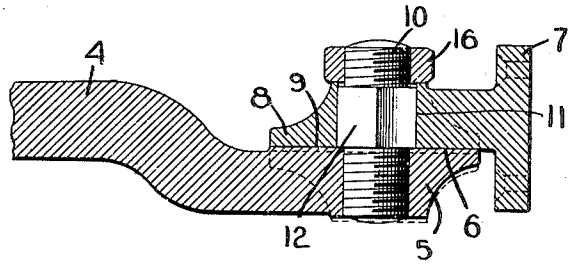
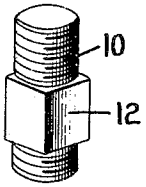


Fig. 4.



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UNITED STATES PATENT OFFICE.

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DOOR STOP AND HOLDER.

1,275,980. Specification of Letters Patent. Patented Aug. 13, 1918.

Application filed May 3, 1916. Serial No. 95,263.

To all whom it may concern:

Be it known that I, LEWIS C. NORTON, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented an Improvement in Door Stops and Holders, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to a door stop and holder of the general type illustrated in my Patent No. 1,071,172, dated August 26, 1913. The device of said application comprises two arms or members, each provided with a friction face adapted to engage that of the other member, one of said arms being pivotally connected to the door and the other to the door casing, and a pivotal connection between said arms or members which is so constructed that the friction faces are moved toward and into contact with each other as the door is opened.

The parts are so adjusted that the friction faces will be brought into firm frictional contact with each other when the door is opened to the desired point, the friction between said faces operating to hold the door in this position. The application of the right amount of force to the door tending to close it will relieve the friction, thereby unlocking the door and permitting it to close in the ordinary way.

While a device such as illustrated in my above-mentioned patent will operate satisfactorily to hold a door in any desired position between a closed position and an open position of a little more than 90°, yet it is not so satisfactory in holding the door firmly in an open position between 90° and 180°. It is often important that a door should be capable of opening through a complete 180°, and when this condition exists, it is often desirable to provide a stop which will hold the door firmly open at or near 180°.

One of the objects of my present invention is the provision of an improved door holder which will hold the door firmly open in any position between 90° and 180°.

Other objects of the invention are to provide an improved door stop and holder which is so constructed that the friction faces will always be maintained in proper alinement with each other so that they will come squarely into frictional engagement with each other when the door is opened, and also to improve door stops and holders of this type in other ways, all as will be more fully hereinafter set forth.

In order to give an understanding of the invention I have illustrated herein a selected embodiment thereof which will now be described, after which the novel features will be pointed out in the appended claims.

Figure 1 is a perspective view showing my improved door stop and holder as applied to a door;

Fig. 2 is a plan view showing the operation of my device;

Fig. 3 is an enlarged section on the line 2—2, Fig. 1;

Fig. 4 is a perspective view of the stud 10.

In the drawings, 1 indicates a door and 2 the door casing. My improved door holder and stop comprises the two arms 3 and 4 which are pivotally connected together at 15, and one of which is connected to the door, and the other of which is connected to the door casing. In the illustrated embodiment of my invention the arm 4 is connected to the door and the arm 3 is connected to the door casing. The arm 3 may be connected directly to the door casing or may constitute the arm of a door check 20 which is shown as secured to a bracket 21 that is fastened to the door casing. This method of installing a door check is usually adopted where it is necessary to open the door through 180°. The arm 4 is provided at its end with a head 5 having a friction face 6. 7 is a shoe or bracket secured to the door casing and which is provided with a head 8 formed with a friction face 9 which coöperates with the friction face 6. The head 8 has rigid therewith a screw-threaded stud 10 which extends at right angles from the face 9 and has screw-threaded engagement with the head 5. When the door is opened the arm 4 will have a swinging movement relative to the door and to the shoe 7, and the construction of the screw-threaded stud is such that this movement will screw the two heads 5 and 8 toward each other so as to bring the friction faces 6 and 9 into engagement with each other, as shown by the full and dotted lines in Fig. 2. The stud 10 is so adjusted that when the door 1 is opened to the desired point the friction faces 6 and 9 will be brought firmly into frictional engagement, thus locking the door

in open position. A slight pressure on the door tending to close it will release the friction pressure, thus unlocking the door, all as described in the above-mentioned patent. By placing the friction locking device at the outer end of the arm 3, said device will operate to firmly hold the door in any position between 90° and 180°. This will be apparent from Fig. 2. If the friction faces are at the joint between the arms 3 and 4 as in my abovementioned Patent No. 1,071,172, then when the door is moved into the position shown in Fig. 2, so that the pivotal connection between the arm 4 and the door, the axis of the hinge 22 of the door and the pivotal connection between the arm 3 and the door check 20 are in approximately the same line, the door may have a slight movement without appreciably changing the angle between the arms 3 and 4 and hence the door will not be firmly held in any position. The angle between the arm 4 and the door, however, is varied appreciably by any swinging movement of the door between the 90° and the 180° position and by placing the friction faces as shown in the drawings, a device is provided which will firmly hold the door in any desired position between 90° and 180°.

In order that the door may be firmly locked it is desirable that the friction faces 6 and 9 should be maintained parallel to each other so that when they are in engagement, they will have firm contact with each other throughout their entire extent. To accomplish this it is necessary to hold the stud 10 exactly perpendicular to the faces. In the device illustrated in the abovementioned patent the stud is anchored to one of the heads by means of a key, but where a key is used, the stud is apt to be forced out of its exact right-angular position, and the result is that the two friction faces do not stand exactly parallel and when the door is open they engage each other at one side only. As an improvement on the construction illustrated in said patent I propose to make the head 8 with a non-circular opening 11, and to make the pin 10 with a non-circular portion 12 which tightly fits the opening 11. A nut 16 serves as a means for adjusting the pin or stud 10 in the head 8 so as to bring the friction faces into contact when the door is opened to the desired extent. By means of this construction the pin or stud will be always held in right angular position relative to the friction face 9 so that said faces will be brought squarely againts each other when the door is opened.

The arm 4 is shown as provided with a joint 18 so that said arm can swing vertically slightly relative to the arm 3. The purpose of this construction is to provide for shifting the arms 3 and 4 relative to each other in a vertical direction to permit the device to be readily attached to any door.

I claim:

1. In a door holder, the combination with a door and its casing, of a shoe secured to the door and provided with a head having a friction face, a bracket secured to the door casing, a door check sustained by said bracket, an arm pivotally connected to the door check, a link pivotally connected at one end to the arm and having at its other end a head provided with a friction face, one of said heads having a non-circular aperture therein, a stud having a non-circular portion fitting said aperture and provided with a screw-threaded portion having screw-threaded engagement with the other head whereby opening movement of the door will move said friction faces toward each other and closing movement of the door will separate said faces from each other.

2. In a door holder, the combination with a door and its door casing, of a door-holding device connecting the door and door casing and comprising two members, each having a head provided with a friction face, one of said heads having a non-circular opening extending therethrough at right angles to said face, a stud having a central non-circular portion fitting said opening and provided with screw-threaded portions at each end projecting beyond said head, one of said screw-threaded portions having screw-threaded engagement with the other head, and a nut on the other screw-threaded end of the stud whereby opening movement of the door will bring the frictional faces into frictional engagement and the stud will be maintained at all times at right angles to the friction faces.

In testimony whereof I have signed my name to this specification.

LEWIS C. NORTON.