H. G. VOIGHT.

DOOR STOP.

APPLICATION FILED NOV. 7, 1917.

1,305,676.

Patented June 3, 1919.

Fig. 1.

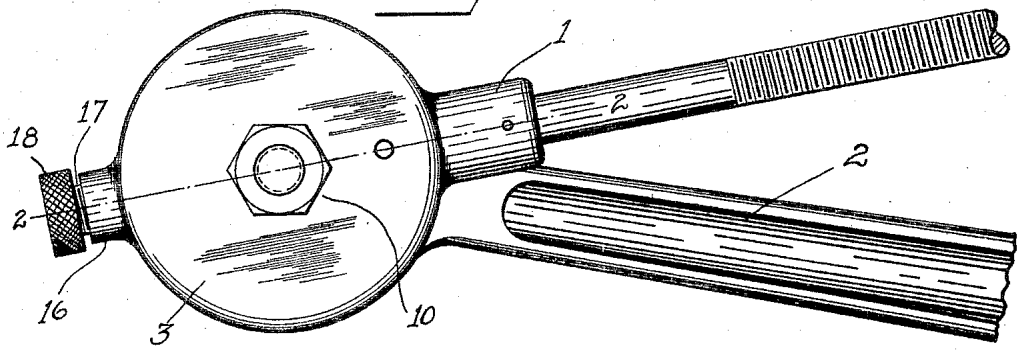


Fig. 2.

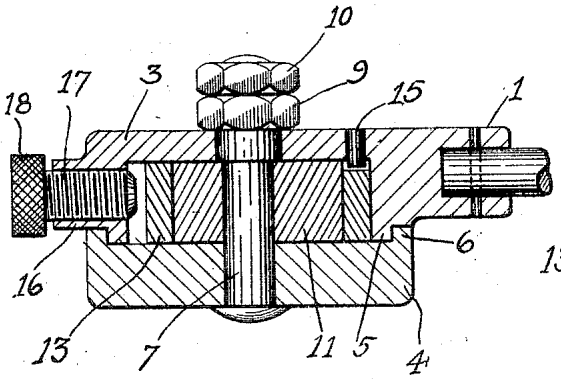


Fig. 3.

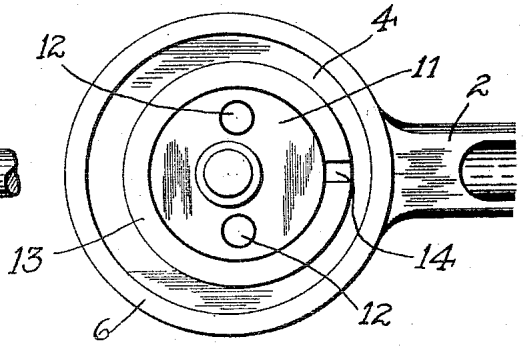


Fig. 4.

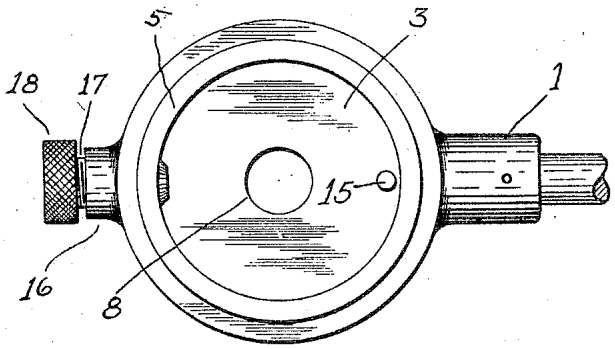
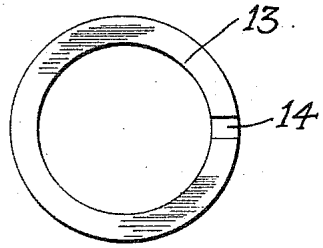


Fig. 5.



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DOOR-STOP.

1,305,676. Specification of Letters Patent. Patented June 3, 1919.

Application filed November 7, 1917. Serial No. 200,724.

To all whom it may concern:

Be it known that I, HENRY G. VOIGHT, of New Britain, in the county of Hartford, State of Connecticut, have invented certain new and useful Improvements in Door-Stops, of which the following is a full, clear, and exact description.

This invention relates to door stops, and it has particular reference to devices of this class having means connecting the door with the door casing in such a manner that when the door is opened to a predetermined, but regulable degree, the opening movement will not only be arrested, but the door will be held fixed in the open position.

One of the primary objects of the invention is to furnish a door stop of the general character indicated which is applicable, without adjustment, either to a right hand door or to a left hand door. My improved door stop is especially designed for association with a combined door check and closer, and as it is double acting so as to be applicable to doors of either hand, it may be used with satisfaction on any preferred kind of double acting door check and closer, thereby imparting to the latter an added and very desirable function.

A further object of the invention is to provide a very reliable, efficient door stop which can be readily and cheaply manufactured and assembled, and which is not liable to get out of order.

To these and other ends, the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawing,

Figure 1 is a plan view of the pivoted arms of a door stop;

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a view, showing the interior of the head of one of the arms of the door stop;

Fig. 4 is a view similar to Fig. 3, showing the interior of the head of the other arm of the door stop; and

Fig. 5 shows the collar or sleeve removed from its coöperating elements.

Each of the pivoted arms 1 and 2 of the door stop is provided with an enlarged head 3 and 4 respectively. The head 3 is formed with a projecting annular rib or rabbet 5, which fits snugly inside of a similar rib 6 formed upon the head 4. These coöperating ribs or circular rabbets form bearings upon which the arms 1 and 2 rotate and which prevent one arm from being displaced laterally to the other by the lateral thrust exerted by the stop mechanism hereinafter described. The heads 3 and 4 are held in their pivoted relation against separation by a bolt 7 mounted in the head 4 concentric with its rib 6 and extending through an opening 8 formed at the center of the head 3. The threaded end of the bolt 7 may be provided with a nut 9 which contacts with the outer face of the head 3. This nut 9 is conveniently locked in place by a lock nut 10.

The mechanism so far described is disclosed and claimed in my Patent No. 1,296,240, granted March 4, 1919, and is therefore not claimed in this application.

The stop mechanism for the coöperating arms consists of a round boss or lug 11 mounted eccentrically upon, and rigidly secured to, the head 4 by any desired securing means such as pins 12. Rotatably mounted upon the eccentric boss 11 is a collar 13. This collar 13 is provided with a notch 14, which notch is adapted to receive the projecting end of a pin 15 rigidly secured in the head 3. The notch 14 and coöperating pin 15 provide means by which a rotation of the head 3 will rotate the collar 13 upon boss 11. Mounted upon the head 3 diametrically opposite the projecting arm 1 is a threaded boss 16 in which is mounted an adjustable stop screw 17, having a knurled head 18 by which the screw may be rotated.

The operation of my device is as follows: Since the collar 13 is rotatably mounted on the eccentric boss 11, which boss is rigidly secured to the head 4, and this collar is non-rotatably connected to the head 3, any relative angular movement of the arms 1 and 2 will cause the collar 13 to rotate upon the eccentric boss 11, which rotation will move the collar toward or away from the adjustable stop screw 17, depending upon the relative position of the eccentric boss 11 and the stop screw 17. When the movement of the arms 1 and 2 is such that the collar 13 is moved into contact with the adustable screw 17, the arms will be positively locked against further movement in one direction, and will be frictionally locked against movement in the opposite direction. Thus my device serves

not only as means for limiting the extent to which the door on which it is placed may be opened, but serves also as a means for holding the door in its open position.

By providing the eccentric boss with the collar 13 instead of increasing the diameter of the boss to that of the outer diameter of the collar 13, and by non-rotatably securing the collar 13 to the head 3, I am able to obtain stopping engagement between the end of the stop screw 17 and the outer surface of the collar 13 without any relative rotation between these two elements. If the collar 13 should be omitted, it would be impossible to obtain stopping engagement between the eccentric boss 11 and the end of the screw 17 without a relative rotation between these two elements, which rotation is undesirable in that it would injure the outer surface of the eccentric boss 11.

Should the means which I have provided for preventing relative rotation between the collar 13 and the adjustable stop 17 be omitted, my door stop would still perform its intended function of limiting the extent to which the door upon which it is mounted may be opened, and of holding the door in its opened position, but the device would operate less satisfactorily than it would if the collar is prevented from rotating relatively to the stop 17, for when the collar is prevented from rotating relatively to the stop 17 it is moved radially toward this stop by the eccentric boss 11 to abut squarely against the end of the screw 17 so that there will be practically no tendency for the screw to mar or injure the outer face of the collar, but if relative rotation between the screw and collar is not prevented the screw will not abut firmly against the collar but an edge of the screw adjacent the abutting face of the same will tend to dig into or damage the outer face of the collar.

Various changes may be made in the details of the construction without departing from the scope of the invention as defined in the claims.

What I claim is:

1. In a stop device, a pair of pivoted arms movable angularly with respect to each other, means for retaining said arms in pivoted relation, an eccentric member non-rotatably secured to one of said arms adjacent its pivot, a stop mounted on the other arm, a collar rotatably mounted on said eccentric member and movable thereby into stopping engagement with said stop by a relative movement of said arms.

2. In a stop device, a pair of pivoted arms movable angularly with respect to each other, means for retaining said arms in pivoted relation, an eccentric member rigidly secured to one of said arms adjacent its pivot, a stop on the other arm, a stop-engaging member rotatably mounted on said eccentric member and movable thereby into and out of locking engagement with said stop by a relative movement of said arms.

3. In a stop device, a pair of pivoted arms movable angularly with respect to each other, means for retaining said arms in pivoted relation, an eccentric member rigidly secured to one of said arms adjacent its pivot, a stop mounted on the other arm, a collar mounted on said eccentric member and provided with means to prevent relative rotation between it and the second mentioned arm, the collar being moved into locking engagement with said stop by a relative movement of said arms.

4. In a stop device, a pair of pivoted arms movable angularly with respect to each other, means for retaining said arms in pivoted relation, an eccentric member non-rotatably secured to one of said arms adjacent its pivot, an adjustable stop mounted on the other arm, an abutment non-rotatably connected to the arm carrying the stop and rotatably mounted on said eccentric member and movable thereby into engagement with said stop when the arms are moved relative to each other, whereby the arms are positively locked against further movement in one direction and frictionally locked against movement in the opposite direction.

5. In a stop device, a pair of pivotally mounted arms, a cam member rigidly secured to one arm adjacent its pivot, a collar rotatably mounted on said member, a stop mounted on the other arm and means for preventing said collar from rotating relatively to the arm carrying the stop whereby when said arms are rotated the collar is moved into locking engagement with the stop to positively lock the arms against further movement in one direction and frictionally lock them against movement in the opposite direction.

6. In a stop device, the combination of two pivoted members, a pivot therefor, a member rigidly secured to one of said arms adjacent said pivot but located eccentrically relatively to the latter, a stop on the other member, and a stop-engaging member rotatably mounted upon said eccentric member between the same and said stop and carried by said eccentric member toward and from said stop in a radial direction.

7. In a stop device, the combination of two pivoted arms, a pivot therefor, a member rigidly secured to one of said arms adjacent said pivot but located eccentrically relatively to the latter, a stop on the other arm, a stop-engaging member adjustably mounted upon said eccentric member and interposed between the same and said stop, and means for preventing said stop engaging member from rotating relatively to said stop, said stop being constituted by an adjustable screw.

8. In a device of the class described, a pair of arms pivotally secured together, means for limiting the angular movement of said arms, comprising a stop upon one of said arms, an eccentric member upon the other arm, a stop-engaging element rotatably carried by said eccentric member and movable thereby toward and from said stop, and means for preventing said element from rotating relatively to said stop.

In witness whereof, I have hereunto set my hand on the 5th day of November, 1917.

HENRY G. VOIGHT.