May 19, 1953 G. CIVITELLI 2,638,620

DOORSTOP

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Fig.1.

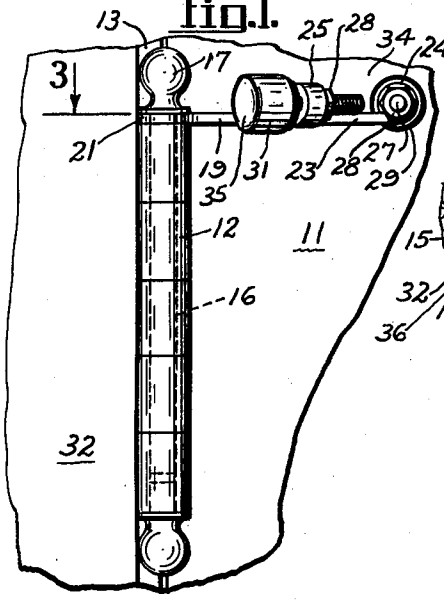


Fig.2.

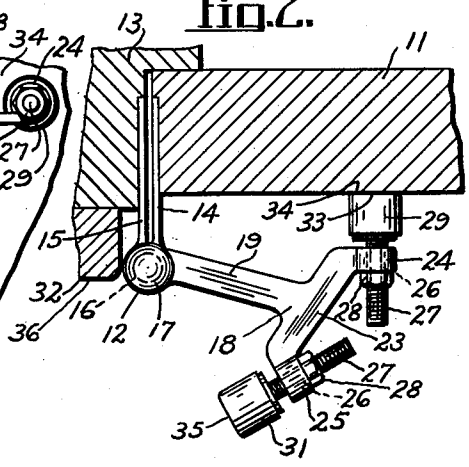


Fig.3.

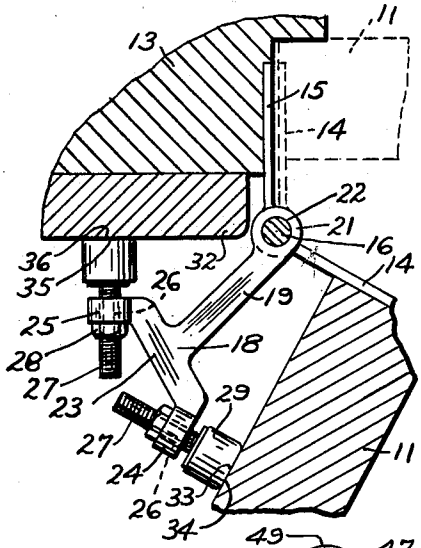


Fig.4.

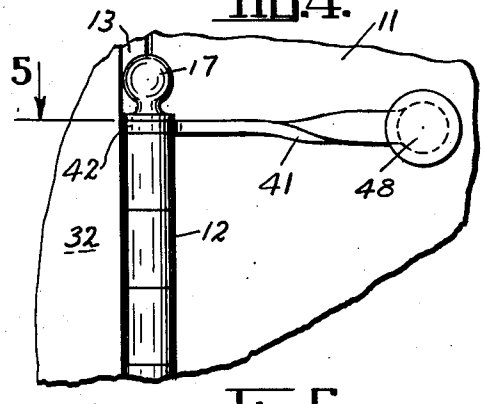


Fig.5.

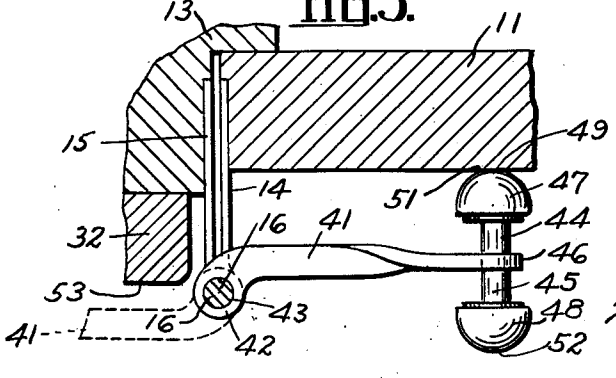
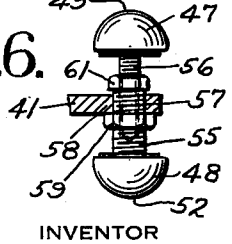


Fig.6.



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Fig. 7.

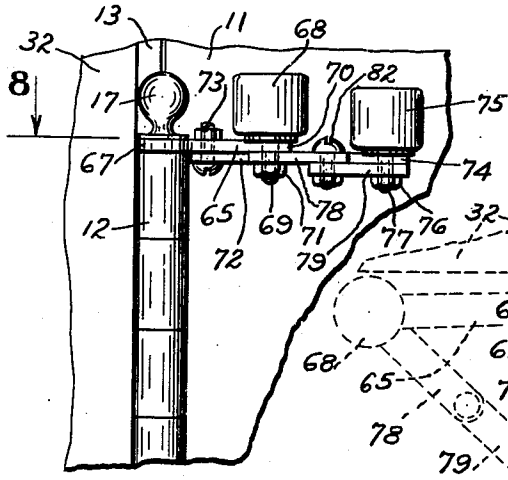


Fig. 8.

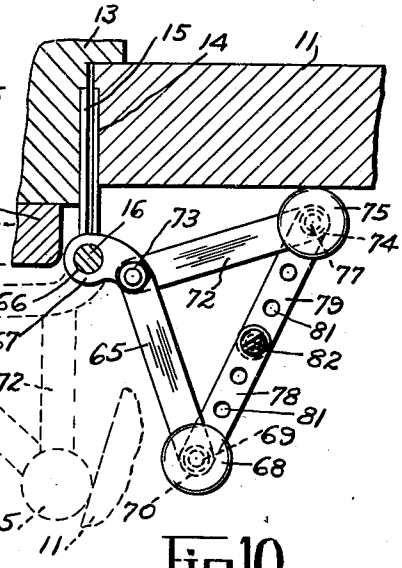


Fig. 9.

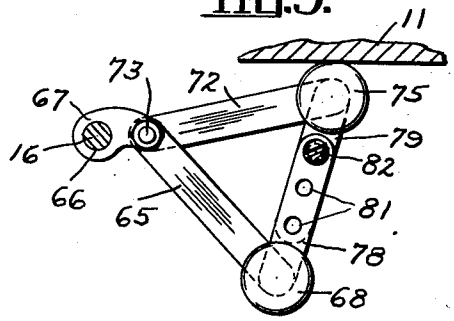
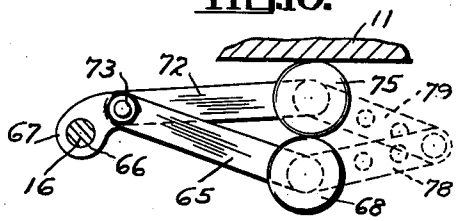


Fig. 10.



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DOORSTOP

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Application April 13, 1949, Serial No. 87,320

6 Claims. (Cl. 16—137)

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This invention relates to door stops and more particularly to a door stop which is adapted to be detachably associated with any one of the door hinges so as to be conveniently disposed away from the floor and free from interference by articles placed adjacent to the door or door frame.

One object of this invention is to provide an improved form of door stop having in its structure means whereby it may be secured to the door hinge, and be pivoted by the hinge pin upon which the door swings.

Another object is to provide in a door stop of the above nature door and door frame engaging bumpers which are adjustably mounted on a holding frame and whereby the amount the door is opened may be controlled.

A further object of this invention is to provide an improved door stop which will be relatively inexpensive to manufacture, simple in construction, being of few parts, pleasing in appearance, compact, and very efficient and durable in use.

With these and other objects in view which will appear as the description proceeds, there have been illustrated in the accompanying drawings several forms in which the features and principles of this invention may be conveniently and practically embodied.

In the drawings:

Figure 1 is a front view of a door stop embodying the features and principles of this invention shown applied to a door hinge and in operable association with a door and a door frame;

Figure 2 is a top plan view of the door stop and associated parts shown in Figure 1, the door being in closed position;

Figure 3 is a view similar to Figure 2 but with the door opened to the maximum amount allowed by the door stop, the door hinge pin being sectioned along line 3 of Figure 1;

Figure 4 is a front view of a modified form of door stop shown applied to a door hinge and in operable association with a door and a door frame;

Figure 5 is a top plan view of the door stop shown in Figure 4 with the door shown in closed position in full lines, showing the position of the door stop when the door is open in dotted lines, and the door hinge pin being sectioned on line 5 of Figure 4;

Figure 6 is a top plan view of a form similar to the one shown in Figures 4 and 5;

Figure 7 is a front view of a modified form of

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door stop embodying the features of this invention;

Figure 8 is a top plan view of the door stop shown in Figure 7, the door hinge pin being sectioned on line 8 of Figure 7; and

Figures 9 and 10 are views similar to Figure 8 of the door stop shown in Figure 7 but with parts thereof shown in other operative positions, or entirely omitted.

Referring now to the drawings wherein like reference numerals designate like parts throughout the several views, the reference numeral 11 denotes a door, adapted by means of hinges 12, only one being shown, to swing into closed and open positions in a door casing 13. The hinge 12 is of standard form having a leaf 14 attached to the door 11 and a leaf 15 attached to the door casing 13, the leaves 14 and 15 being detachably secured together for relative swinging movement by a hinge pin 16. The hinge pin 16, in this instance is removable from the top of the hinge, and has a spherical knob 17 upon its upper end.

The door stop shown in Figures 1, 2 and 3 comprises a frame member 18 having an arm 19, the outer end 21 of which is circular in shape and has a hole 22 therein through which the hinge pin 16 may pass, the fit between the pin and the hole preferably being a light press fit. The other end of the arm 19 is integrally connected to a crossbar 23 having a circular lug 24 on one of its ends and a circular lug 25 on the other of its ends. It will be noted that the length of the bar 23 at one side of the arm 19 is greater than that at the other side. A threaded hole 26 is formed through each lug 24 and 25, and the axes of the threaded holes are substantially one hundred twenty (120) degrees apart.

A threaded stud 27 is screwed through each of the lugs 24 and 25, and a lock nut 28 is provided screwed onto each of the studs to lock each of the studs in any of its adjusted positions in the lug. Bumpers 29 and 31, of rubber, or like material, are fastened to the outer ends of each stud 27, the bumper 29 being adjacent the lug 24 and the bumper 31 being adjacent the lug 25.

When in position on a hinge pin 16, the door stop, above described, is disposed between the door 11 and the portion 32 of the door framing toward which the door 11 will swing when it is opened. When the door 11, while swinging open, reaches the point where the bumper 29 is in engagement with the door 11 and the bumper 31 is in engagement with the door frame portion 32, further swinging movement of the door is prevented. By adjustment of the studs 27 in the

lugs 24 and/or 25 the opening amount of the door 11 may be controlled from the maximum of approximately 120 degrees to a minimum determined by the length of the studs 27.

When the studs are set to permit maximum opening of the door 11, that is to approximately 120 degrees, the door engageable face 33 of the bumper 29 lies in a plane which is spaced outwardly from the axis of the hinge pin 16 an amount substantially equal to the amount the axis of the hinge pin 16 is spaced from the plane of the face 34 of the door 11, engaged by the face 33 of the bumper 29, whereby the axis of the stud 27, on which the bumper 29 is secured, will be substantially at right angles to the face 34 of the door 11, thus obviating any off-center strain being imposed on the stud. The frame engageable face 35 of the bumper 31 lies in a plane which is spaced outwardly from the axis of the hinge pin 16 an amount substantially equal to the amount the axis of the hinge pin 16 is spaced from the plane of the face 36 of the frame portion 32, engaged by the face 35 of the bumper 31, whereby the axis of the stud 27, on which the bumper 31 is secured, will be substantially at right angles to the face 36 of the frame portion 32, thus obviating any off-center strain being imposed on the stud.

In the form shown in Figures 4 and 5 an arm 41 is provided with a circular end 42. A hole 43 is provided in the end 42 to permit the hinge pin 16 to pass therethrough and detachably secure the arm 41 to the door hinge 12 as disclosed above in respect to the above described form. Studs 44 and 45 extend outwardly, one from each side of the other end 46 of the arm 41. The studs 44 and 45 are in alignment. Bumpers 47 and 48, of rubber, or like material, are fastened on the outer ends of the studs 44 and 45 respectively. The face 49 of the bumper 47, which engages the door 11, when the door is opened the maximum amount, lies in a plane which is spaced outwardly from the axis of the hinge pin 16 an amount substantially equal to the amount the axis of the pin 16 is spaced from the plane of the face 51 of the door 11, engaged by the face 49 of the bumper 47, whereby the axis of the stud 44, on which the bumper 47 is secured, will be substantially at right angles to the face 51 of the door 11, thus obviating any off-center strain being imposed on the stud. The face 52 of the bumper 48, which engages the frame portion 32, lies in a plane which is spaced outwardly from the axis of the hinge pin 16 an amount substantially equal to the amount the axis of the hinge pin 16 is spaced from the plane of the face 53 of the frame portion 32, engaged by the bumper 48 when the door 11 is opened, the maximum amount, whereby the axis of the stud 45, on which the bumper 48 is secured, will be substantially at right angles to the face 53 of the frame portion 32, thus obviating any off-center strain being imposed on the stud.

In the form shown in Figure 6 provision is made whereby the studs 55 and 56 of a door stop, similar to the one shown in Figures 4 and 5, may be adjustable. The hole 57 in the outer end 58 of the arm 41 is threaded and the stud 55 is screwed through this hole 57, being locked in place by a lock nut 59. The stud 55 is internally threaded to receive the threaded stud 56. A lock nut 61 locks the stud 56 to the end of the stud 55.

In the form shown in Figures 7 to 10 inclusive an arm 65 has a hole 66 in one end 67 to receive

the hinge pin 16 and pivot thereon. A vertically disposed bumper 68 having a depending threaded stud 69 is secured to the other end 70 of the arm 65 by a nut 71, screwed onto the stud 69. A second arm 72 is pivoted, by a bolt 73, to the arm 65, adjacent its end 67, and on its outer end 74, the arm 72, has a vertically disposed bumper 75 secured thereto by a nut 76 screwed onto a threaded stud 77 depending from the bumper 75.

Identically formed links 78 and 79 having lengthwise spaced apart holes 81 provided therein, overlap and are joined together by a bolt 82 passing through a hole in each link. The outer end of link 78 is pivotally secured upon the stud 69 at the end 70 of the arm 65 by the nut 71, and the outer end of link 79 is pivotally secured upon the stud 77 at the end 74 of the arm 72 by the nut 76. As shown in Figure 8 the links 78 and 79 are secured together at their overlapping ends so that maximum spread of the arms 65 and 72 are obtained to hold the bumpers 68 and 75 sufficiently apart to allow the door 11 to open approximately 110 degrees. To increase the amount the door 11 will open, the links 78 and 79 may be overlapped a greater amount, see Figure 9, by passing the bolt 82 through other holes 81 in the links.

Maximum opening movement of the door 11 is obtained by detaching the links 78 and 79, and the arm 72 from the arm 65 whereby only the bumper 68 is in use. Where only an approximate maximum opening of the door is desired the links 78 and 79 may be removed whereby the bumpers 68 and 75 will abut as shown in Figure 10. If desired, the links 78 and 79 may be kept attached and swung into the position shown in dotted lines in Figure 10.

From the above description it will be understood that the inclusion of the features and principles of this invention in the structure of a door stop provides a door stop which is especially simple in structure, inexpensive to manufacture, and is particularly efficient and durable in use.

While there has been shown and described herein several forms in which the features and principles of this invention may be conveniently and practically embodied it is to be understood that the same may be embodied in other specific forms without departing from the spirit and essential attributes thereof, and it is therefore desired that the present embodiments be considered in all respects as illustrative and not restrictive, reference being had to the claims rather than to the foregoing description to indicate the scope of the invention.

Having thus fully disclosed the invention, what is claimed as new and for which it is desired to secure Letters Patent, is:

1. A door stop comprising an arm having a hole in one end to receive the hinge pin of a door, a cross-bar extending across the other end of said arm with its lengthwise axis at an acute angle to the lengthwise axis of said arm studs extending one from each end of said cross-bar, and a bumper on the outer end of each stud, the plane of the outer surface of one of said bumpers being offset from the center of the hinge pin hole in said arm more than the plane of the outer face of the other bumper.

2. A door stop comprising an arm having a hinge pin receiving hole in one end thereof, a cross-bar extending across the other end of said arm, a stud extending from each end of said cross-bar, and a bumper on the outer end of each stud, the plane of the outer surface of one

of said bumpers being offset from the center of the hinge pin hole in said arm more than the plane of the outer face of the other bumper.

3. A door stop comprising an arm having a hinge pin receiving hole in one end thereof, a cross-bar extending across the other end of said arm with its lengthwise axis at an acute angle to the lengthwise axis of said arm, a lug on each end of said cross-bar, and a bumper attached to each lug.

4. A door stop comprising an arm having a hinge pin receiving hole in one end thereof, a cross-bar extending across the other end of said arm with its lengthwise axis at an acute angle to the lengthwise axis of said arm, a lug on each end of said cross-bar, and a bumper attached to each lug, one of said bumpers having a threaded shank, and one of said lugs having a threaded hole therethrough to receive the threaded shank of said bumper for adjusting the amount said bumper extends from said lug.

5. A door stop comprising an arm having a hinge pin receiving hole in one end thereof, a cross-bar extending across the other end of said arm with its lengthwise axis at an acute angle to the lengthwise axis of said arm, the length of said cross-bar on one side of said arm being

greater than that on the other side thereof, a lug on each end of said cross-bar, and a bumper attached to each lug.

6. A door stop comprising an arm having a hinge pin receiving hole in one end thereof, a cross-bar extending across the other end of said arm with its lengthwise axis at an acute angle to the lengthwise axis of said arm, the length of said cross-bar on one side of said arm being greater than that on the other side thereof, a lug on each end of said cross-bar, and a bumper attached to each lug, one of said bumpers having a threaded shank, and one of said lugs having a threaded hole therethrough to receive the threaded shank of said bumper for adjusting the amount said bumper extends from said lug.

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