Feb. 22, 1938. A. W. CARLSON 2,109,228

DOOR STOP AND HOLDER

Filed Aug. 28, 1937

Fig. 1

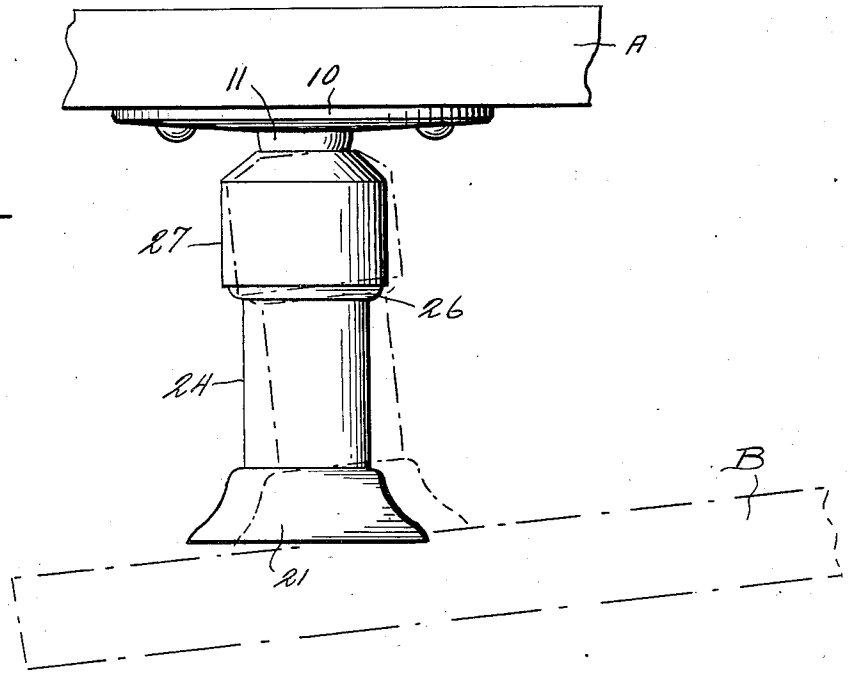


Fig. 2

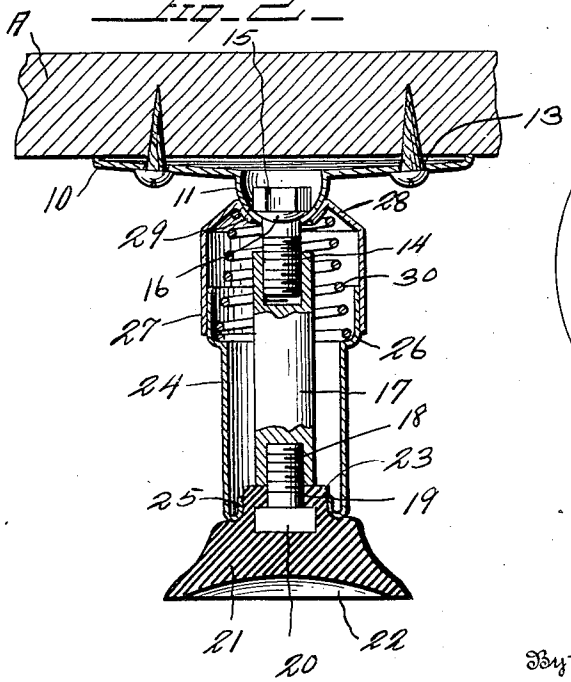
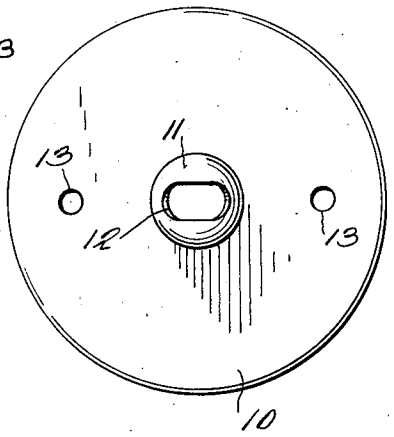


Fig. 3



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DOOR STOP AND HOLDER

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6 Claims. (Cl. 16—86)

This invention relates to devices in the nature of door stops adapted to be applied to the base board or skirting board of a room and to be engaged by a door when the door is swung open for the purpose of cushioning the impact of the door and stopping it from striking the wall, and particularly the invention relates to a device of this character which is so formed as to provide not only a stop but a holder which will engage the door when the door is swung fully open and against the stop.

The general object of the invention is to provide a very simple, cheaply constructed and effective device for this purpose, which includes cushioning means and also includes a suction cup which, when the door strikes it, will adhere to the door and will hold the door open.

Another object is to provide a door stop and holder of the character stated in which the stop is swingingly mounted upon the base so that the face of the suction cup will always be brought into proper engagement with the face of the door without the stop being set with its axis at an angle other than a right angle to the base board or skirting board.

Still another object is to provide a stop of this character including two telescopic elements urged outward by a spring to thus resiliently resist and cushion the impact of the door with the stop.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawing wherein:

Figure 1 is a top plan view of the stop and a portion of the skirting board, the door being shown in dotted lines.

Figure 2 is a vertical section through the stop.

Figure 3 is a face view of the base of the stop.

Referring to this drawing, 10 designates the base which is preferably of metal and which at its center is formed with a hemi-spherical boss 11, this boss having a transversely extending slot 12. The base is formed with openings 13 whereby it may be attached to the base board A by screws or other attaching means. It will be particularly noted from Figure 2 that the base 10 is slighty dished so that the central portion of the base is out of contact with the base board A and only the periphery of the base comes in contact with the base board. By dishing the base, as described, the screws will more tightly hold the base to the base board A than if the base were flat.

Extending through the slot 12 in the boss 11 is a bolt 14 having a head 15, that portion of the head connecting with the shank of the bolt being a segment of a sphere, as at 16, which is complementary to the curvature of the inside face of boss 11. The shaft of the screw 14 passes through the slot 12 and has screw-threaded engagement with a post 17, which is interiorly threaded at one end to engage said bolt. The opposite end of the post is formed with a socket 18 for engagement with the screw-threaded shank of a bolt 19, the head 20 of this bolt being embedded within the central portion of a rubber suction cup 21. The outer face of this cup is recessed at 22 in the usual manner of suction cups so that the edge of the cup is relatively thin. The center of the cup is formed with a central hub 23 within which the screw 19 and its head 20 is embedded.

Disposed concentrically to the post 17 is a cylindrical shell 24 whose outer end is flanged at 25 to fit within an annular seat formed in the base of the cup 21. The inner end portion of this shell 24 is outwardly expanded at 26. Coacting with the shell section 24 is a second shell section 27 open at its outer end and having an interior diameter the same as the exterior diameter of the expanded portion 26 of shell 24, thus the shell 24 has telescopic engagement with the shell 27.

The inner end of the shell 27 is extended inward at 28 to define a central opening and this portion 28 is inwardly flanged at 29, this annular flange 29 having a curvature complementary to the curvature of the boss 11 and fitting snugly against this boss. Disposed between the inner end of the shell 27 and the expanded portion 26 of shell 24 is a coiled compression spring 30.

It will be seen that the flange 29 forms a socket for the reception of the hemi-spherical boss 11 and that the face 16 of the screw head 15 bears against and conforms to the curvature of the inner face of this boss 11. Thus a ball and socket joint is formed between the section 27 and the boss 11 and between the post 17 and the boss 11. It is to be noted that the inner face of the screw head 15 is spaced from the base board A so that the post 17 may move inward a distance before striking the face of the base board. Obviously the section 24 of the shell may also move inward against the action of the spring 30. When the door B is swung open and toward the wall, the door will strike one margin of the suction cup 21 and this will cause the door stop to swing freely to the position shown in dotted lines in Figure 1, and the further movement of the door will cause the flattening of the suction cup against the face of the door. The impact of the door against the suction cup will force the section 24 of the shell inward against the action of the spring 30 and

will force the post 17 inward so that the impact of the door will be cushioned but the striking of the door against the suction cup will act to hold the door in place against the stop until the door is manually or forcibly pulled away from the suction cup. The air that is enclosed within the shells 24 and 27 will be forced out through the ends of the slot 12 and into the space between the dished base and the face of the base board A, thus acting as a pneumatic cushion.

It will be seen that by rotating the bolt 14 by means of the head 15, the post 17 may be drawn inward and this will draw the suction cup inward and force the shell section 24 inward into the shell section 27, thus this device has a certain range of adjustment and may be re-adjusted from time to time by removing the screws holding the base to the base board A, then re-setting the screw 14 to the desired amount.

In actual practice, this structure acts as stated, in that if the door be forcibly thrown open against the suction cup, the blow of the door will be cushioned and the suction cup will hold the door from reverse movement until the door is pulled open.

What is claimed is:—

1. A door stop and holder, including a base for attachment to a base board, a two-part shell, one section of which has free rocking engagement with the base at all times, the other section having telescopic engagement with the first named section, a spring urging the sections outward relative to each other and resisting inward movement of the outer section, and a suction cup attached to the outer end of the second named section.

2. A door stop and holder, including a base formed for attachment to the base board of a room, a two-part shell, one section of which has free rocking engagement with the base at all times, the other section having telescopic engagement with the first named section, a spring disposed within the sections bearing against the inner section and urging the outer section outward, a suction cup attached to the outer end of the outer section, and means limiting the outward movement of the outer section under the action of said spring.

3. A door stop and holder, including a base formed for attachment to the base board of a room, a two-part shell, one section of which has free rocking engagement with the base at all times, the other section having telescopic engagement with the first named section, a spring disposed within the sections bearing against the inner section and urging the outer section outward, a suction cup attached to the outer end of the outer section, and a post attached to the center of the suction cup and extending loosely through said sections of the shell and having rocking and sliding engagement with the base.

4. A door stop and holder, including a base having means whereby it may be attached to a base board, the center of the base having a hemi-spherical boss formed with a transversely extending slot, a shell formed of two telescopically related sections, the inner section of the shell having a central opening and formed with an inwardly extending annular flange forming a socket coacting with the hemi-spherical boss, the socket being free to swing upon the boss at all times, a suction cup mounted upon the outer end of the outer section of the shell, a spring disposed in the shell and urging the outer shell outward, and means extending between the suction cup and the boss and limiting the outward movement of the outer section of the shell with its suction cup but permitting inward movement of the outer section of the shell and the suction cup.

5. A door stop and holder, including a base having means whereby it may be attached to a base board, the center of the base having a hemi-spherical hollow boss formed with a transversely extending slot, a shell formed of two telescopically related sections, the inner section of the shell having a central opening and formed with an inwardly extending annular flange forming a socket coacting with the hemi-spherical boss, the socket being free to swing upon the boss at all times, a suction cup mounted upon the outer end of the outer section of the shell, a spring disposed in the shell and urging the outer shell outward, a post having interior screw-threads at its inner end and disposed within the two sections of the shell, the outer end of the post having means for anchoring it to the suction cup, and a bolt extending through the slot of the boss and having screw-threaded engagement with the post, the bolt having a head, the outer face of the head being rounded to fit against the inner rounded face of the boss.

6. A door stop and holder, including a base for attachment to a base board, a two-part shell, one section of which has free rocking engagement with the base at all times, the other section having telescopic engagement with the first named section, a suction cup engaging the outer end of the second named section, and means urging the sections outward relative to each other.

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