Jan. 11, 1938. A. EVULICH 2,105,216

DOOR STOP

Filed July 1, 1936

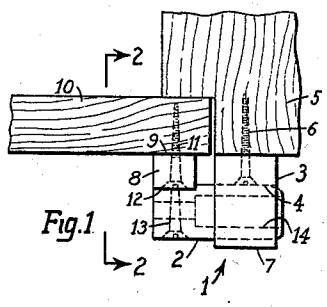


Fig. 1

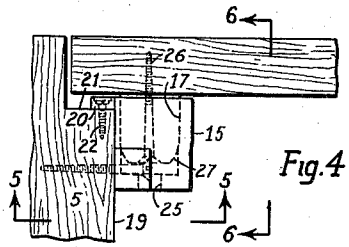


Fig. 4

Fig. 2

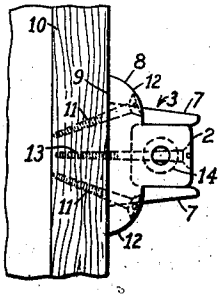


Fig. 3

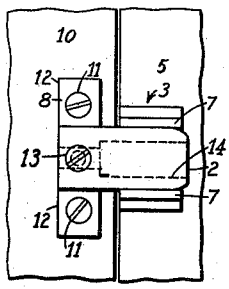


Fig. 5

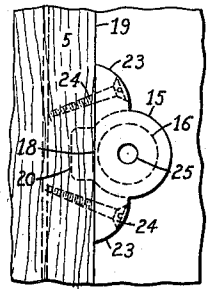
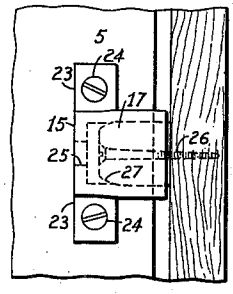


Fig. 6



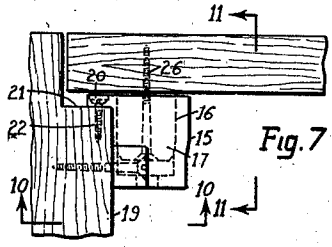
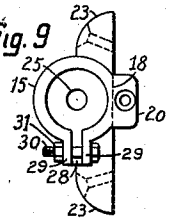


Fig. 7

Fig. 9



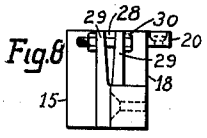


Fig. 8

Fig. 12

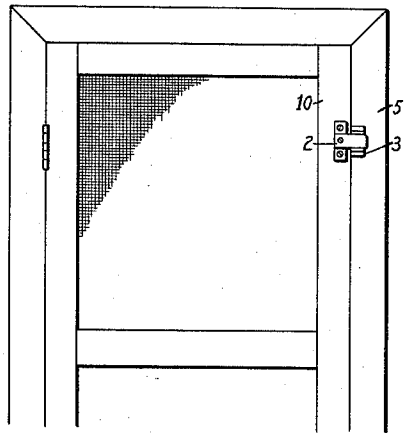


Fig. 10

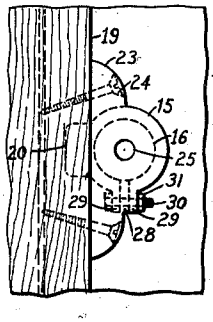
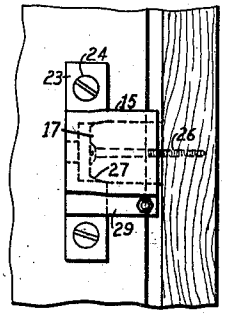


Fig. 11



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DOOR STOP

Anton Evulich, San Francisco, Calif.

Application July 1, 1936, Serial No. 88,402

2 Claims. (Cl. 16—86)

The present invention relates to improvements in a door stop and its principal object is to provide means for absorbing the shock of a closing door and for yieldingly holding the door in closed position.

A further object of the invention is to provide a doorstop of the character described which prevents the door when closed from sagging and thereby prevents or lessens wear and tear on the door, which allows the door to be shut tight and to remain automatically in the position and which eliminates the noise of slamming or rattling doors.

A further object of the invention is to provide a doorstop comprising a plug and a socket secured to the door and the frame in registering relation so that the plug enters the socket when the door is closed, the plug being made to wedge into the socket and to be firmly held therein.

A further object of the invention is to provide adjusting means on the socket whereby the same may be reduced in diameter after it has become expanded by the continuous coaction with the plug.

A further object of the invention is to provide a door stop which eliminates the necessity of using hooks or other fastening means.

Further and other objects and advantages of my invention will appear as the specification proceeds.

The preferred forms of my invention are illustrated in the accompanying drawing in which:

Fig. 1 shows a plan view of one form of my invention, the door and the door frame being shown in section,

Fig. 2, an end view of said form as seen from line 2—2 of Fig. 1,

Fig. 3, a front view of the same form,

Fig. 4, a plan view of a different form of my invention, the door and the door frame being shown in section,

Fig. 5, an end view of the same as seen from line 5—5 of Fig. 4,

Fig. 6, a side view of the same form as seen from line 6—6 of Fig. 4,

Fig. 7, a top plan view of a further modified form of my invention, the door and the door frame being shown in section,

Fig. 8, a bottom plan view of the same,

Fig. 9, a front view of a socket used in the form of Fig. 7,

Fig. 10, an end view as seen from line 10—10 of Fig. 7,

Fig. 11, a side view as seen from line 11—11 of Fig. 7, and

Fig. 12, a fragmentary front view of a door and frame to which the form of Fig. 1 has been applied.

While I have shown only the preferred forms of my invention I wish to have it understood that various changes or modifications may be made within the scope of the claims attached hereto without departing from the spirit of the invention.

In the form shown in Figures 1–3 my door stop 1 comprises the plug 2 and the socket 3. The latter is shown as comprising a base 4 which is fastened to the outer face of the door frame 5 by means of a screw 6 and two spaced prongs 7 rising therefrom. The plug 2 has a base 8 secured transversely to the rear end thereof, the base having a flat face 9 adapted to lie against the face of the door 10 and being secured thereto by means of two screws 11 passing through wings 12 of the base and a third screw 13 passing through the center of the plug and the base into the door material. In this construction the plug runs parallel to the door face and is spaced therefrom and the positions of the plug and the socket register so that when the door is closed the projecting end of the plug is received between the prongs of the socket.

The socket is made of elastic material so that the prongs have a clamping effect on the plug and not only take the shock of the closing door but also hold the door in closed position.

The plug is shown here as being square in cross-section, with rounded corners, but any other cross-section may be substituted for the same, in this form as well as in the other forms to be described later. The plug is made of rigid material, such as hard rubber, wood, "bakelite", metal or the like. It is formed with a central aperture 14 to prevent the formation of a compressed air chamber in case the plug is used for endwise engagement with a cup-shaped socket as described in the other forms and care should be taken that the central screw 13 is not sufficiently heavy to completely close the aperture.

While in the form shown the doorstop is placed on the outside of the door, with the socket fastened to the frame and the plug to the door it is apparent that the positions may be readily reversed by placing the doorstop on the inside of the door with the plug fastened to the frame and the socket to the door. Fig. 12 shows the stop as applied to the upper portion of the door, but in actual practice I preferably provide a second stop on the lower portion of the door.

In the form shown in Figures 4–6 a cup-shaped

socket 15 is employed with a preferably cylindrical opening 16. The shape of the opening may be changed as long as it corresponds substantially to that of the coacting plug 17. The outer surface of the socket is flattened on one side as shown at 18 to allow it to lie flat against the inner face 19 of the door frame 5 and a lip 20 projects from the front end of the socket to lie against the front face 21 of the door frame and to be fastened thereto by a screw 22.

The rear end of the socket is formed with a base having two projecting wings 23 which lie against the flat inner face 19 of the door frame and are fastened thereto by screws 24. A small central opening 25 in the base of the socket prevents the formation of a compression or vacuum chamber upon the insertion or removal of the plug 17.

The plug 17 is cylindrical in form so that it may be received in the socket and is fastened to the door by means of a screw 26 extending centrally through the same into the door and its front edge is rounded as at 27 to facilitate its entry into the socket. The plug is made of rigid material such as hard rubber, wood, metal or the like while the socket is made of elastic material such as soft rubber and the plug is of a diameter slightly larger than that of the inside of the socket so that the plug upon entering the socket slightly expands the socket material and is firmly held therein. It is apparent that in this form the plug and the socket may be readily reversed by securing the plug to the wings 23 and the socket to the door.

The form shown in Figures 7 to 11 is substantially similar to that shown in Figures 4 to 6 and corresponding parts have been numbered correspondingly. The principal difference is that the socket is made adjustable in circumference whereby a longer life is insured. Since the plug upon entering the socket expands the same, the socket will gradually become permanently expanded and the object of the adjustment is to allow the expanded socket to be reduced to its original size.

For this purpose the wall of the socket is formed with a tapered slit 28 extending from the end of the socket toward its base and being wider at the end. The edges defining the slit are provided with registering flanges 29 and a bolt 30 extends through the flanges and allows the same to be drawn together by tightening a nut 31 thereon.

The operation of my invention will be readily understood from the foregoing description. When the door is closed the plug of hard and rigid material enters the socket which is made of yielding material and in wedging itself into the socket absorbs the shock of the closing door. The material of the socket clamps itself upon the plug and holds the same against removal except by manual force. The door is thus held, on one side by the conventional hinges and on the other side by the stops whereby any sagging of the door as well as rattling and accidental opening is prevented. If due to the continuous and often repeated engagement between the plug and the socket the latter becomes expanded it may be easily contracted back to its original size by tightening of the nut 31.

It should be noted that while in the drawing the socket and the plug are shown as being cylindrical in form and this is the preferred form, the cross-section of the same might be changed to any other form without the exercise of invention.

I claim:

1. In a door stop, a cup formed of elastic material, a plug of rigid material and means for securing the cup and plug to a door and a door frame in registering relation whereby the plug is caused to enter the cup when the door is closed, the plug being dimensioned to exert expansive pressure on the cup whereby the shock of the closing door is absorbed and the door is yieldingly held in closed position, the cup having a tapered slit extending from the opening thereof into the material and having means for adjusting the width of the slit.

2. In a door stop, a cup formed of elastic material, a plug of rigid material and means for securing the cup and plug to a door and a door frame in registering relation whereby the plug is caused to enter the cup when the door is closed, the plug being dimensioned to exert expansive pressure on the cup whereby the shock of the closing door is absorbed and the door is yieldingly held in closed position, the cup having a tapered slit extending from the opening thereof into the material, flanges rising from the edges of the slit and threaded means for drawing the flanges together whereby the width of the slit may be adjusted.

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