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(54) **Door holder assembly.**

(57) An overhead door holder assembly (10) for attachment between a door jamb (14) and a door (12) to hold the door in an open position includes a jamb bracket (16) attached to the door jamb and a jamb arm (18) pivotally attached to the jamb bracket. A channel assembly (22) having a channel (23) is attached to the door and a slide assembly (26) within the channel assembly is pivotally attached to the jamb arm. The slide assembly moves in response to opening and closing of the door until it reaches a stop block assembly (28) which absorbs the impact of the slide assembly at the limit of travel in the channel.

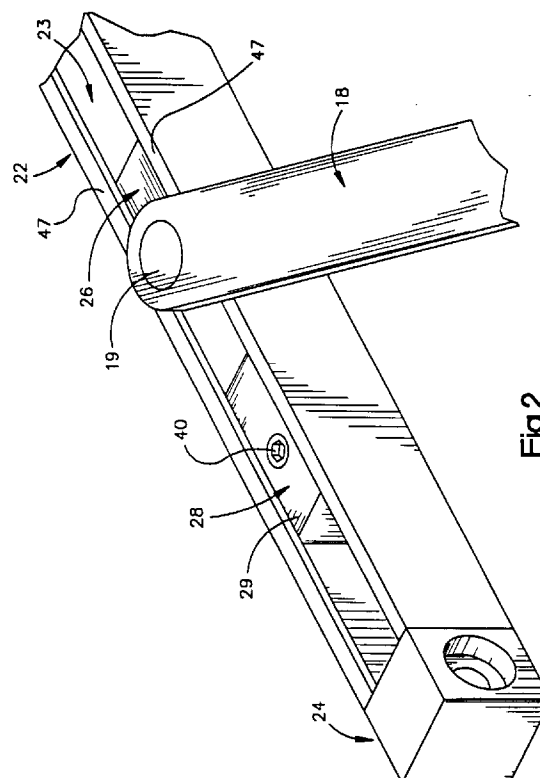


Fig.2

This invention relates generally to an overhead door holder assembly and more particularly to a stop block that is adjustably positionable to absorb force from a slide assembly connected to a door.

Conventional overhead door stops are not suited for use in conjunction with electronic door closers. Such conventional overhead door stops commonly include one or more springs or other elastically compressible elements. These springs transiently engage a slide assembly that is pivotally connected to the door and moves in response to the door opening and closing. The engagement with the springs protects the door, the slide assembly and components of the overhead door holder assembly from damage caused by forceful or violent door opening. However, conventional door stops do not merely absorb the force of a slide assembly. Instead, a substantial amount of the force is briefly stored by the spring and redirected against the slide assembly. This reverses the direction of movement of both the slide assembly and the connected door, causing the door to swing shut. Unfortunately, for many conventional electronic door closers, the door swings back past its stop point and the door is not properly engaged by the electronic door closer.

Proper installation is another common problem of conventional overhead stops. For normal operation, the stop position of the door holder and the electronic door holder should be coordinated. This requires precise adjustment of the stop block, and often requires several attempts before proper positioning is achieved. What is needed is an easily repositionable stop block that can be simply and quickly moved to different positions and locked into place, with the adjustments continuing until it matches the stop position of the electronic door closer.

According to the present invention, there is provided a door holder assembly for attachment between a door jamb and a door for selectively holding the door in an open position, comprising a jamb bracket for attachment to the door jamb; a jamb arm pivotally attached to the jamb bracket; a channel assembly having a channel therein, and a slide assembly within said channel pivotally attached to the jamb arm for movement in response to opening and closing of the door; characterised by a stop block assembly positioned in the channel for absorbing impact of the slide assembly as the door, in use, is opened.

The invention also extends to a door incorporating a door holder assembly essentially as just defined.

For a better understanding of the present invention, and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying drawings, in which:-

Figure 1 is a perspective view of an overhead mounted door holder assembly that includes a stop block at one end of a channel assembly;

Figure 2 is a perspective view of the channel assembly of Figure 1, showing greater detail of a slide assembly contacting the stop block;

Figure 3 is a cross sectional side view of the stop block assembly with a set screw disengaged to permit positioning of the stop block;

Figure 4 is a cross sectional side view of the stop block assembly of Figure 3 with the set screw engaged to stop movement of the stop block relative to the channel assembly; and

Figures 5 and 6 are cross sectional side views of another embodiment of the stop block.

As illustrated in Figures 1 and 2, an overhead door assembly 10 has a channel assembly 22 positioned at a top 13 of a door 12. The channel assembly 22 is attached to the door 12 by end caps 24 and 25 so that its longitudinally extending and generally U-shaped channel 23 is upwardly open. The end caps are detachable from the channel assembly 22, and can be attached to a side of the door adjacent to the top of the door, in addition to the inset attachment illustrated in Figure 1.

The overhead door assembly 10 also includes a jamb bracket 16 affixed by screws, bolts, rivets, or other fasteners to a door jamb 14. A jamb arm 18 is pivotally connected at one end to the jamb bracket 16 and at its opposite end is pivotally connected by pivot 19 to a slide assembly 26. In preferred embodiments, the jamb bracket 16, jamb arm 18 and channel assembly 22 are formed from extruded brass or other durable, wear resistant material such as steel.

The slide assembly 26 is positioned for longitudinal, back and forth, sliding movement within the channel 23. Although a simple slide assembly that does not otherwise engage the channel assembly is illustrated, it will be appreciated that alternative slide assemblies having door hold open features may be used. For example, a friction controlled door holder, a slide assembly engageable with a hold open stop fixed to the channel assembly, or other mechanisms for engaging and holding a slide assembly in the channel assembly can be used to hold open a door.

A stop block assembly 28 for protecting the overhead door assembly 10 from damage caused by forceful or violent door opening is also positioned within the channel. The stop block assembly 28 includes a shock absorbing stop block 29 that is constructed at least partially from steel or nylon filled thermoplastics. As best seen in Figures 3 and 4, the stop block 29 is shaped to define a threaded channel 41 through its centre that accommodates a threaded set screw 40. The stop block 29 additionally defines a cavity 43 into which a stop plate 42 can fit. The stop plate 42 is typically constructed from steel or other durable, low wear material.

Fixing the position of the stop block assembly 28 simply requires setting the stop block assembly 28 in the channel 23 at a desired distance from the end cap

24. The set screw 40 is rotated to advance it through the threaded channel 41 until it contacts the separate stop plate 42. As advancement of the set screw 40 continues, the stop block 29 is lifted (as seen in Figure 4) until it contacts inturned walls 47 of the channel assembly 22. Continued advancement of the set screw simultaneously increases perpendicular force applied by the stop plate 42 against the channel assembly and stop block 29 against the inturned walls 47. Concomitant with the increasing perpendicular force is an increased static frictional force between the stop block assembly 28 and channel assembly 22 that holds their position fixed with respect to each other.

In an alternative embodiment illustrated in Figures 5 and 6, frictional force applied by a stop block assembly 128 is augmented by intermeshing engagement of serrations 144 on a stop plate 142 with matching serrations or grooves 146 defined in a channel assembly 122. Fixing the stop block assembly 128 in position within a channel 123 is substantially similar to the embodiment previously discussed in connection with Figures 3 and 4. A set screw 140 is advanced to lift the stop block 129 with respect to the bottom of the channel assembly 122. Continued advancement of the screw 140 locks the stop block 129 in position in the channel 123 by frictional engagement and mechanical coupling of serrations 144 and 146.

After positioning, the embodiments illustrated in Figures 1-4 and in Figures 5 and 6 have substantially equivalent function. When the door 12 is closed with its top 13 adjacent to the door jamb 14, the slide assembly 26 is positioned in the channel 23 distant from the stop block 29 or 129. As the door 12 is opened, as shown in Figure 1, the pivoting connection of the jamb arm 18 between the jamb bracket 16 and the slide assembly 26 allows the slide assembly 26 to move along the channel 23 toward the stop block 29 or 129. When force is applied to open the door, the slide assembly 26 moves along the channel toward the end cap 24 until the slide assembly contacts the fixed position stop block 29 or 129, absorbing the force of slider movement, and preventing damage to the door or door holder assembly 10.

Claims

1. A door holder assembly (10) for attachment between a door jamb (14) and a door (12) for selectively holding the door in an open position, comprising a jamb bracket (16) for attachment to the door jamb; a jamb arm (18) pivotally attached to the jamb bracket (16); a channel assembly (22) having a channel (23) therein, and a slide assembly (26) within said channel (23) pivotally attached to the jamb arm (18) for movement in response to opening and closing of the door; characterised

by a stop block assembly (28) positioned in the channel (23) for absorbing impact of the slide assembly (26) as the door, in use, is opened.

2. An assembly according to claim 1, wherein the stop block assembly (28) has a stop block (29) at least partially formed from nylon filled thermoplastics.
3. An assembly according to claim 1, wherein the stop block assembly (28) has a stop block (29) at least partially formed from steel.
4. An assembly according to claim 1, 2 or 3, wherein the stop block assembly (28) has a or said stop block (29) and means (42) for frictionally engaging the channel (23) to hold open the door, with the engaging means being adjustably connected to the stop block.
5. An assembly according to claim 4, wherein said engaging means (42) is a stop plate.
6. An assembly according to claim 4 or 5, wherein the stop block (29) has a channel (41) therethrough, with walls of the stop block channel having threads for engaging a set screw (40) positioned in the channel to engage said engaging means (42).
7. An assembly according to claim 4 or 5, wherein said engaging means (42) has serrations (144) for engagement with matching serrations (146) in said channel assembly (22).
8. An assembly according to any one of the preceding claims, wherein said channel assembly (22) is connected by end caps (24) for locating the channel assembly adjacent to a top of a door.
9. A door incorporating a door holder assembly according to any one of the preceding claims.

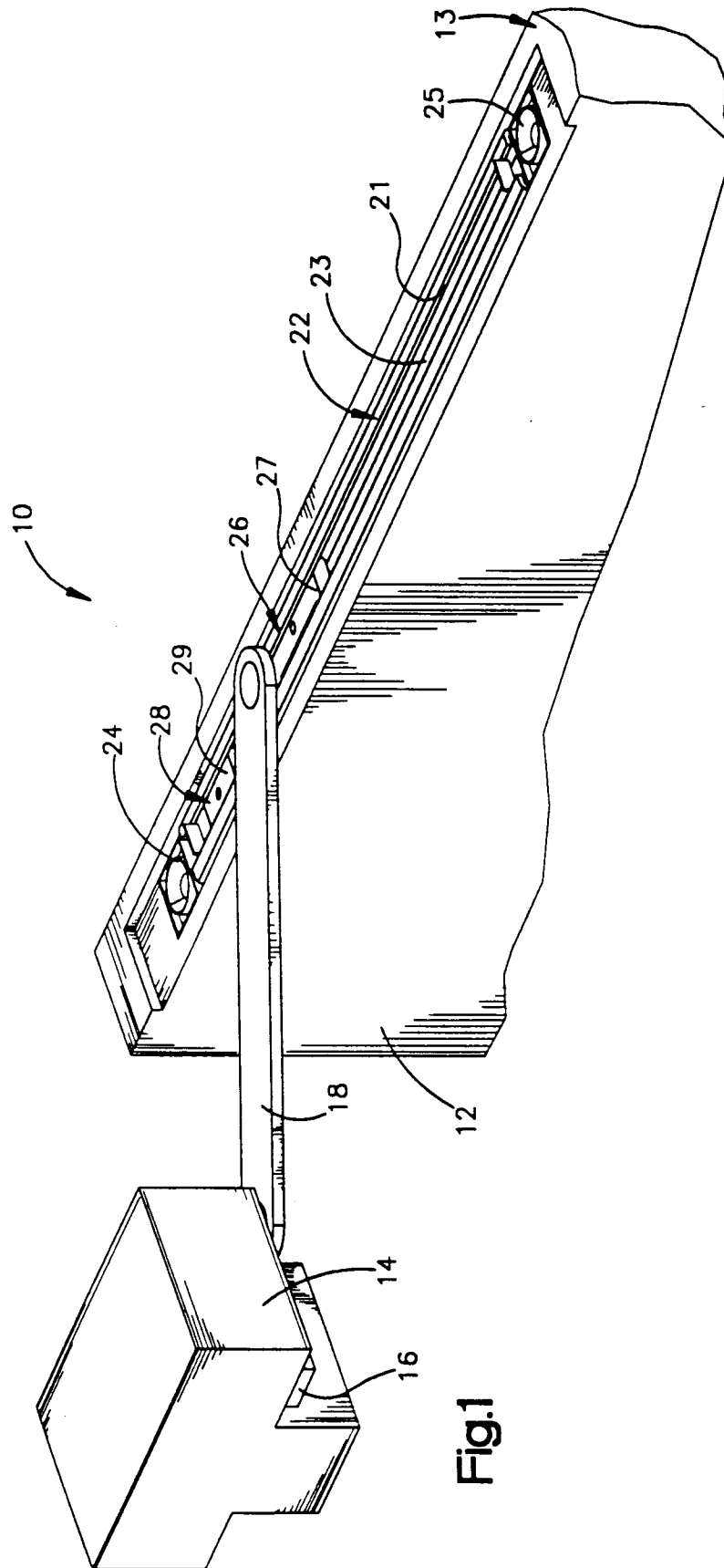


Fig.1

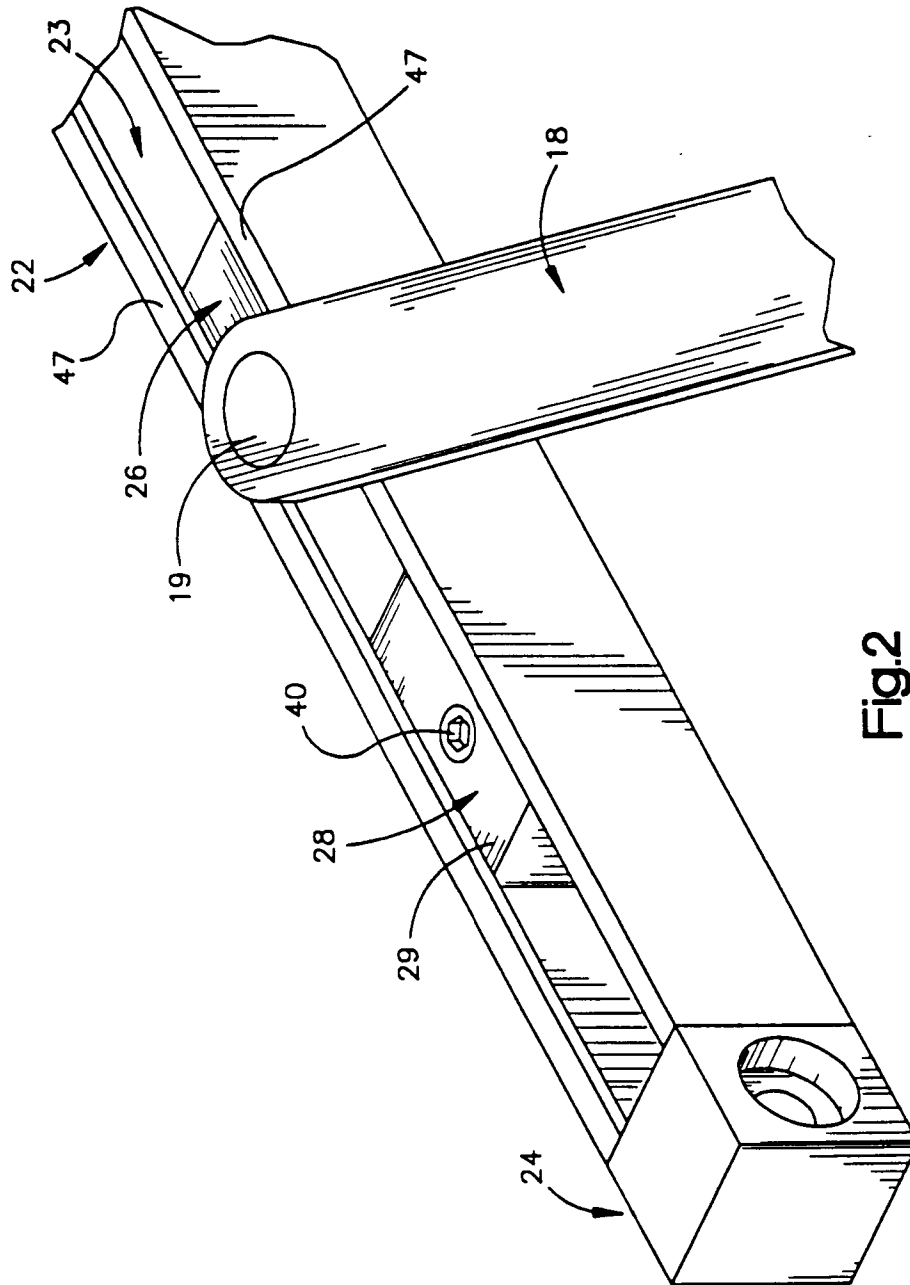


Fig.2

Fig.3

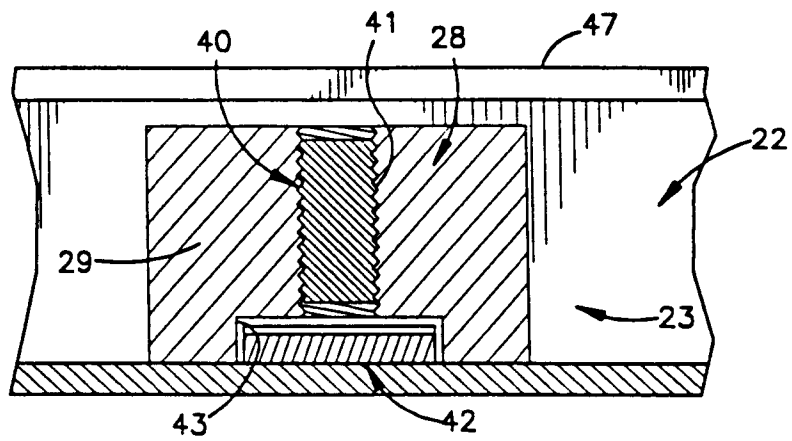


Fig.4

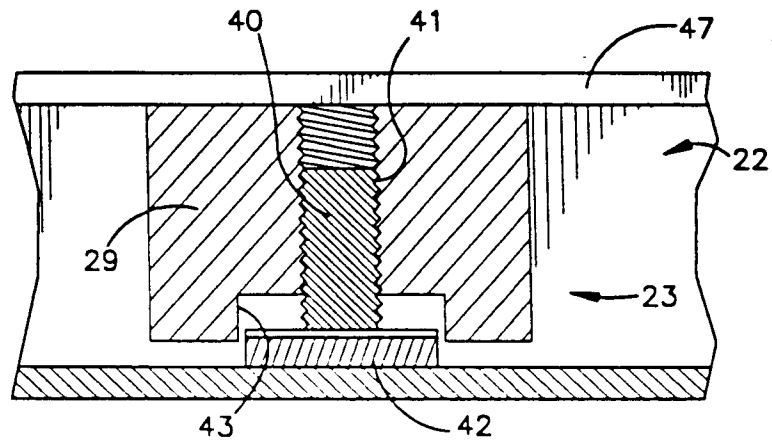


Fig.5

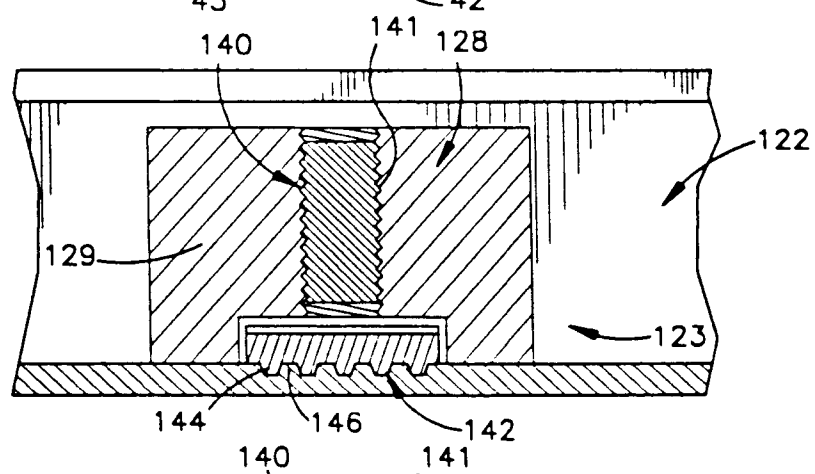
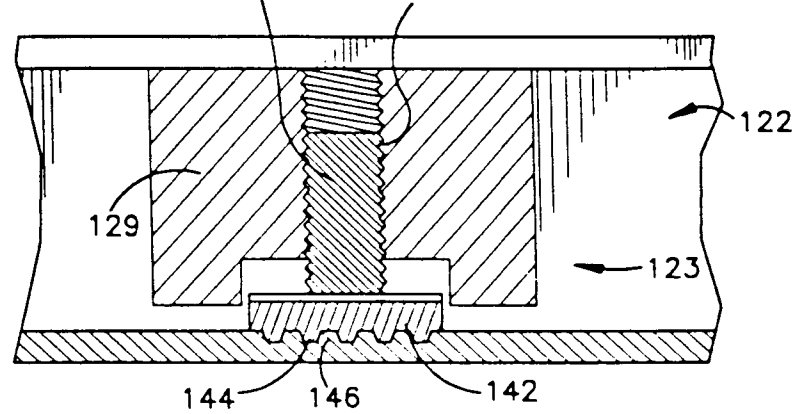


Fig.6





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 94 30 7549

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	FR-A-2 482 178 (BEZAULT) * the whole document *	1,3,4,6,9	E05C17/28
X	DE-A-39 27 817 (GEZE GMBH & CO) * the whole document *	1-6,9	
X	US-A-3 601 842 (MORRISON) * the whole document *	1,3,8,9	
X	US-A-2 535 981 (BERNHARD) * the whole document *	1,3,8,9	
X	WO-A-91 13229 (DORMA GMBH + CO. KG) * the whole document *	1,4,6,9	
X	US-A-3 986 742 (HEANEY) * the whole document *	1,9	
X	EP-A-0 495 233 (ROTO FRANK AKTIENGESELLSCHAFT) * the whole document *	1,4,6,9	
A		7	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
A	GB-A-478 117 (AUSTER LIMITED) * the whole document *	1,7	E05C
A	GB-A-214 186 (GIBBONS) * the whole document *	1,7	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 3 February 1995	Examiner Vestin, K
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