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2,629,466

LATCHING DEVICE FOR STORM WINDOWS

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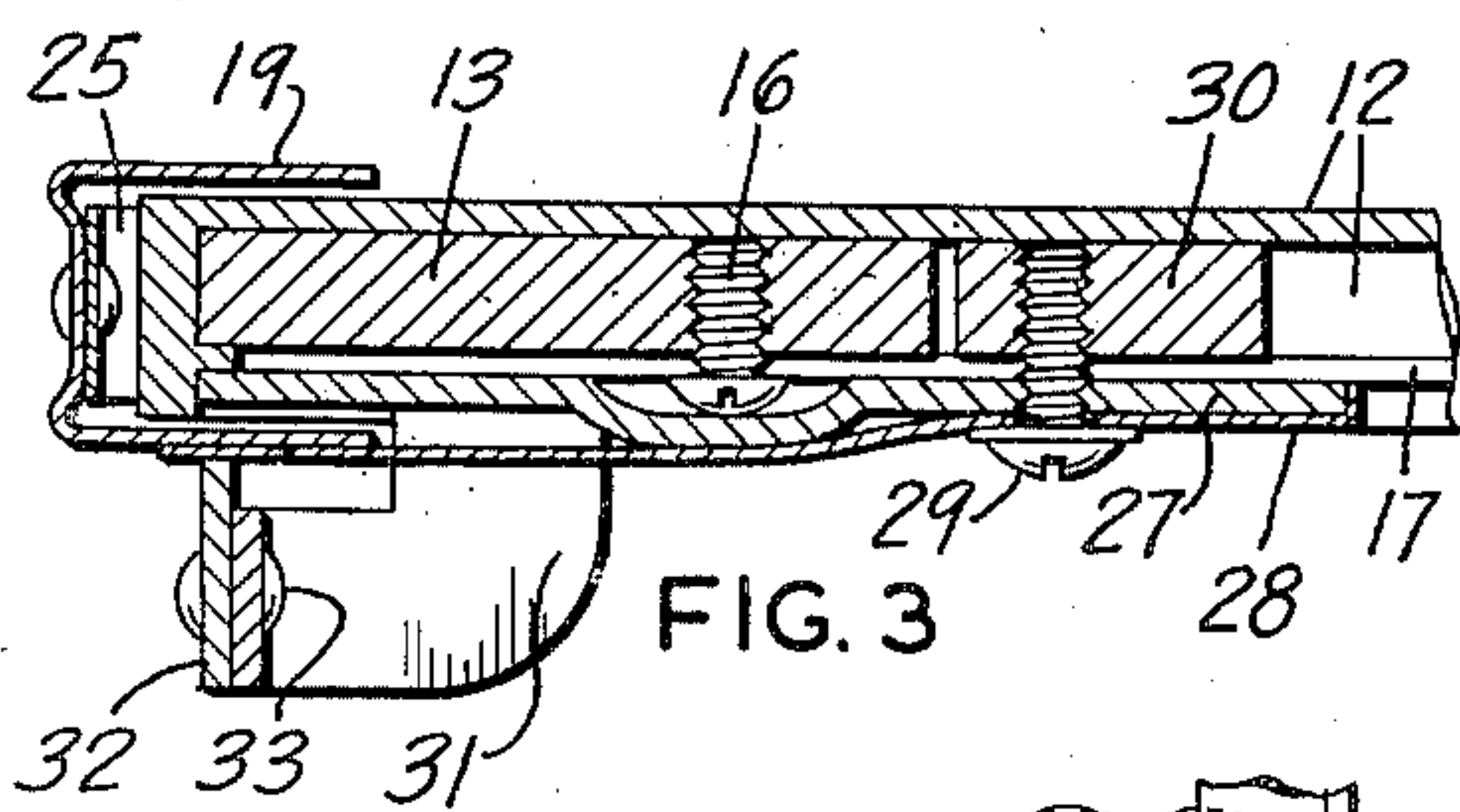
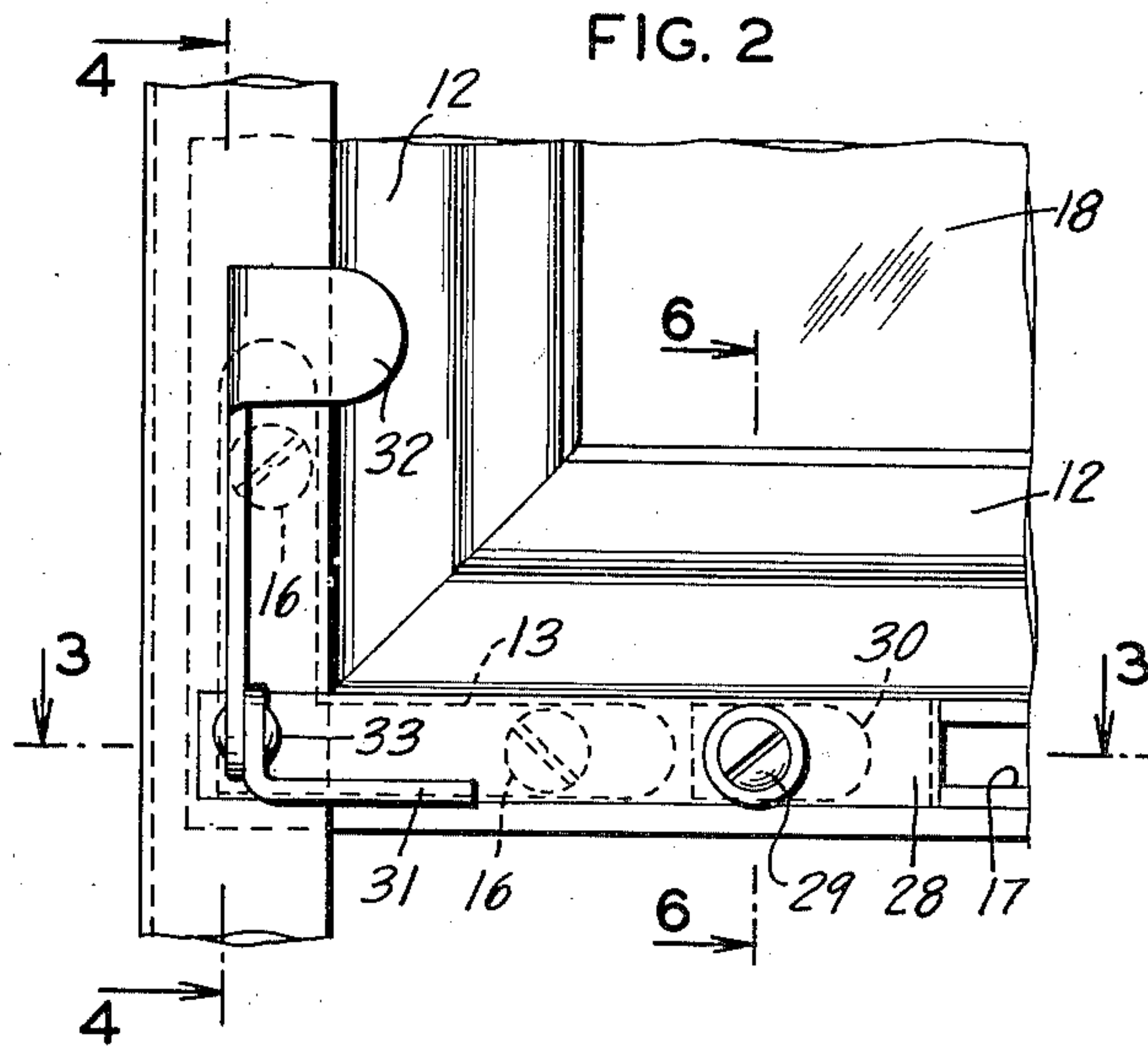
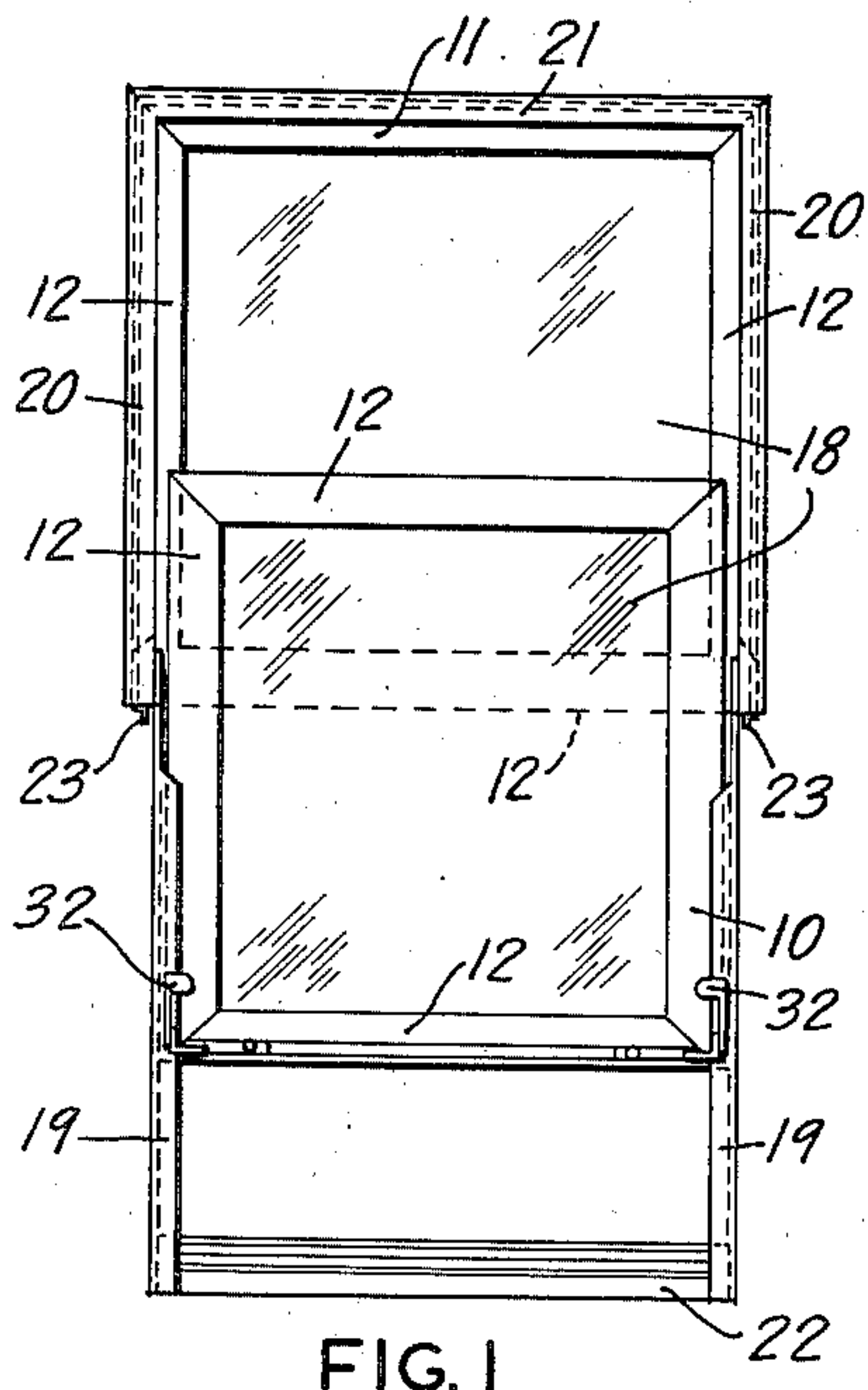


FIG. 3

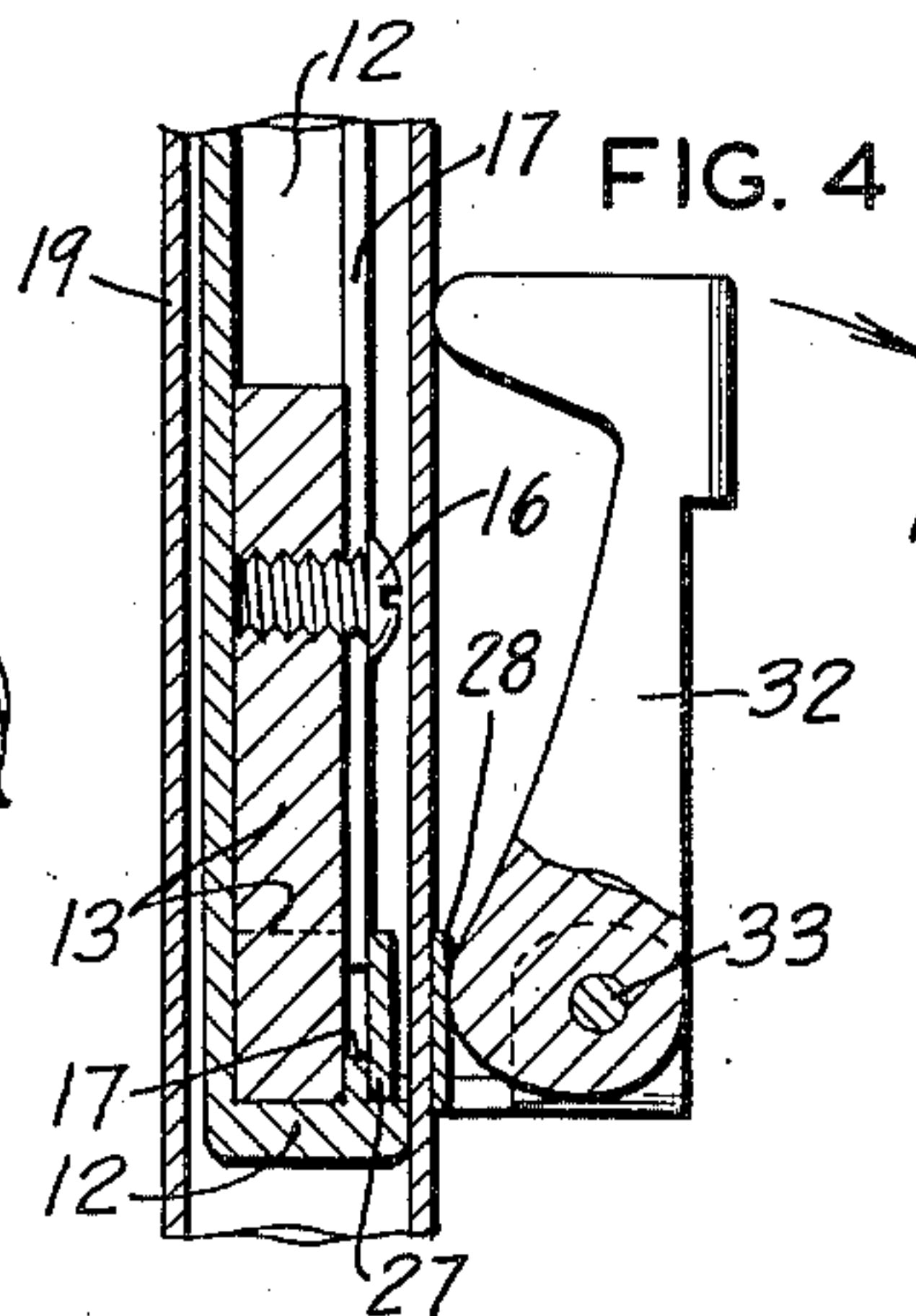


FIG. 4

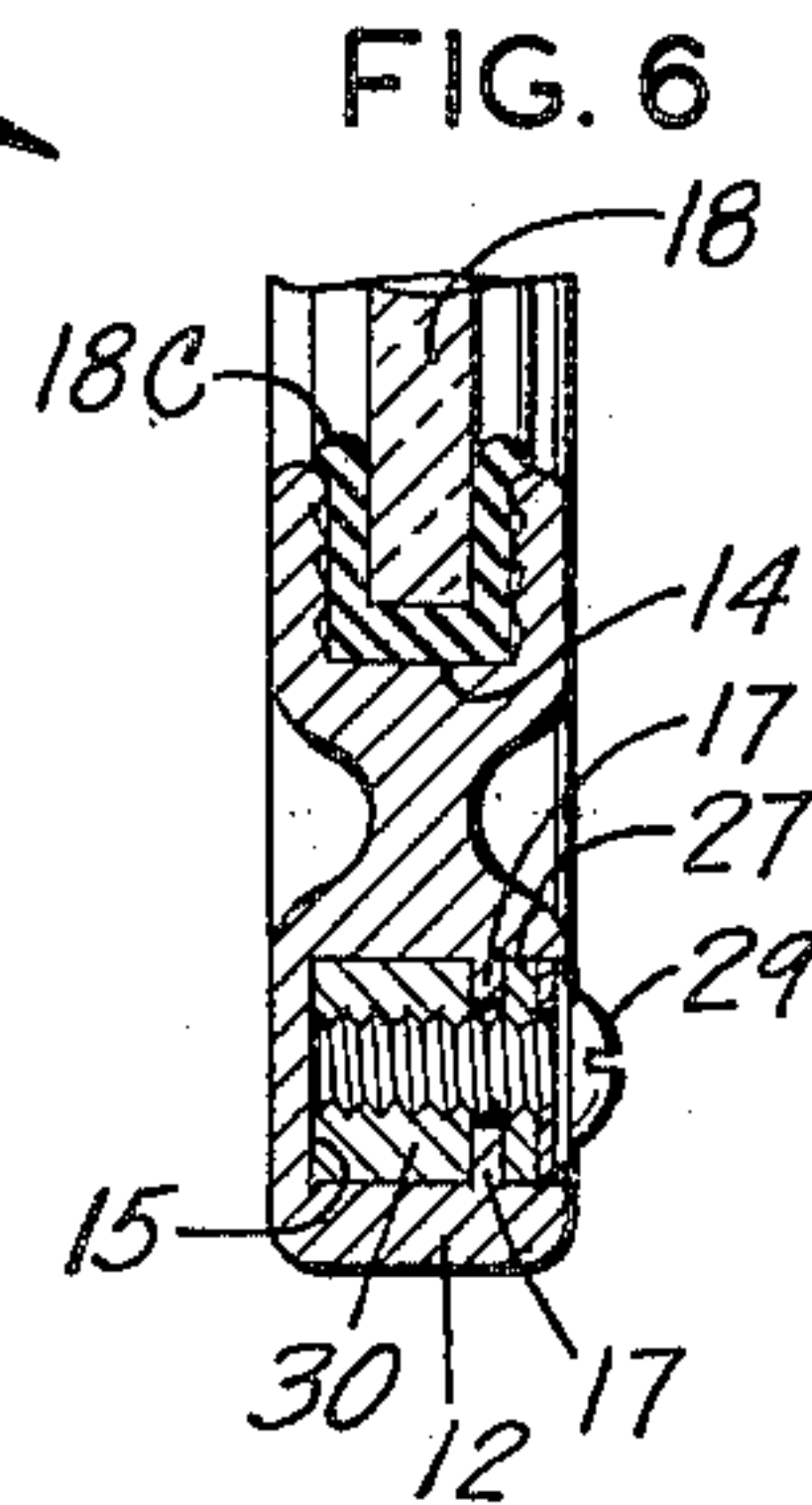


FIG. 6

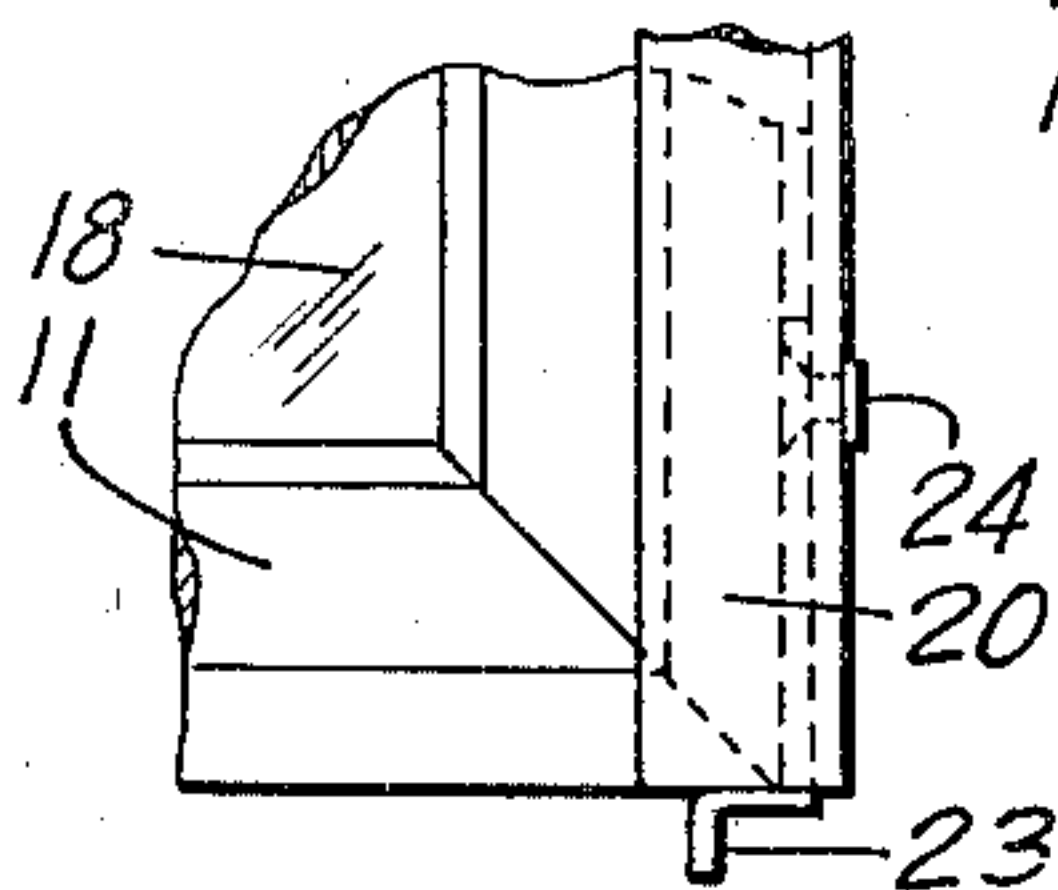


FIG. 9

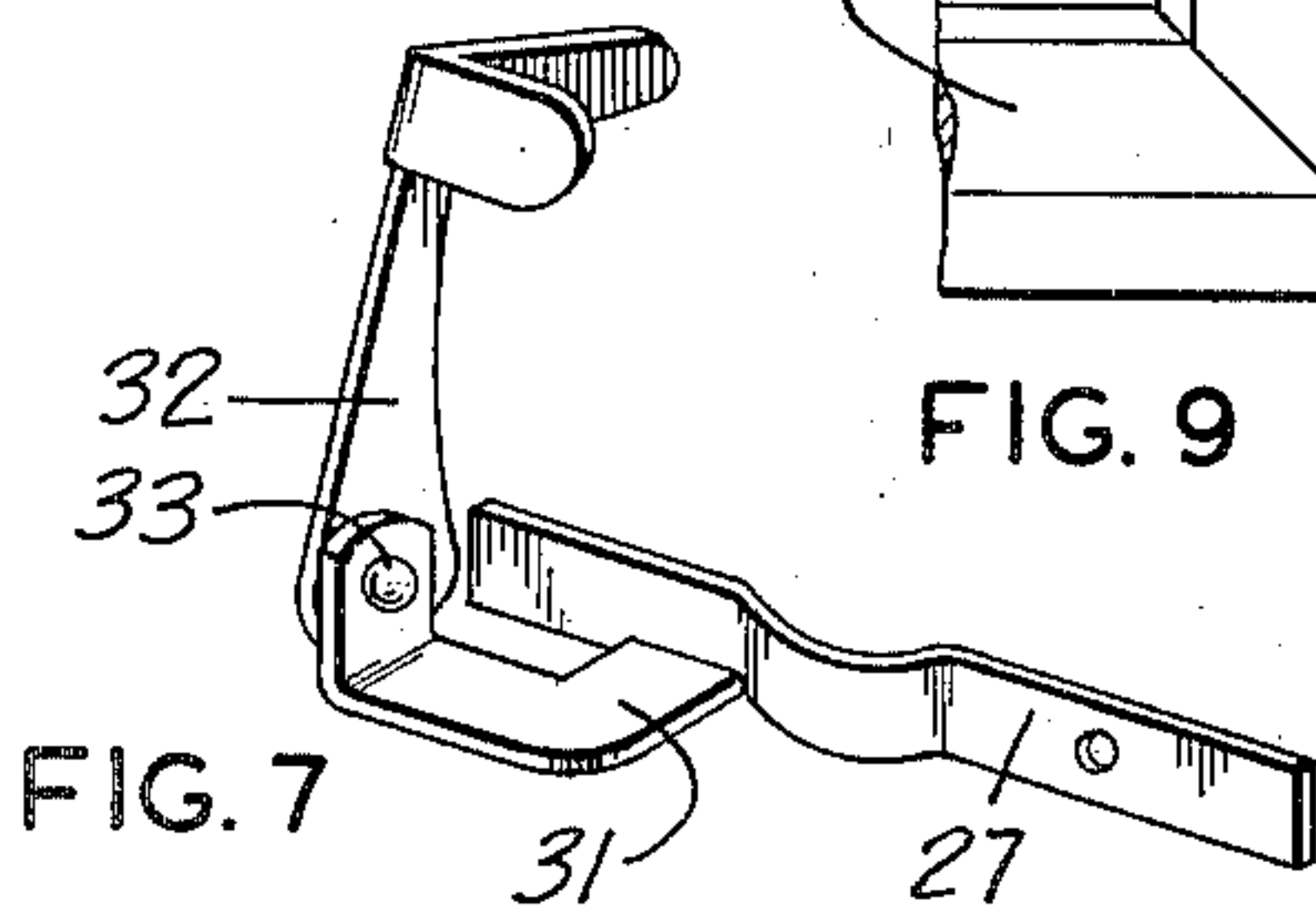


FIG. 7

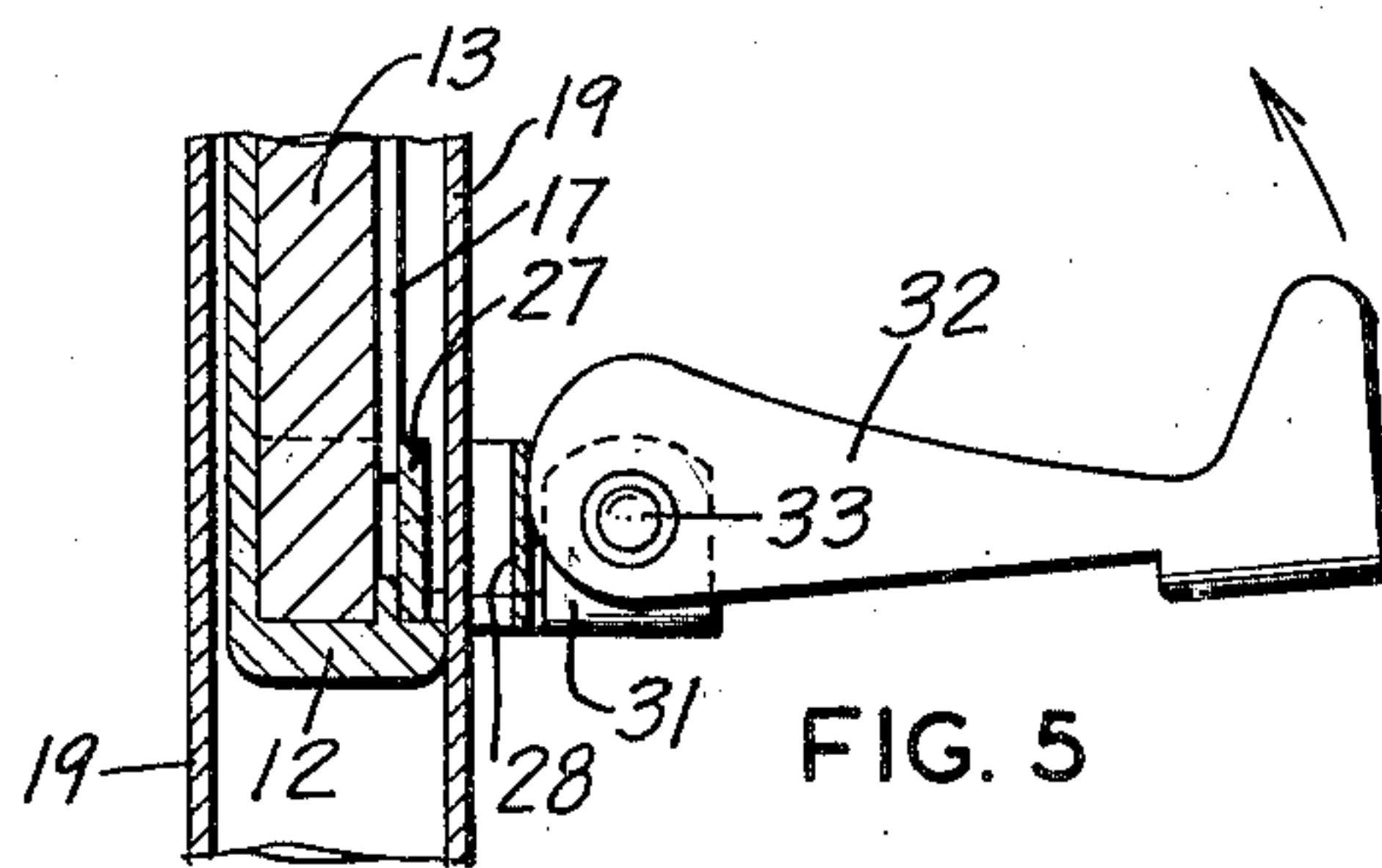


FIG. 5

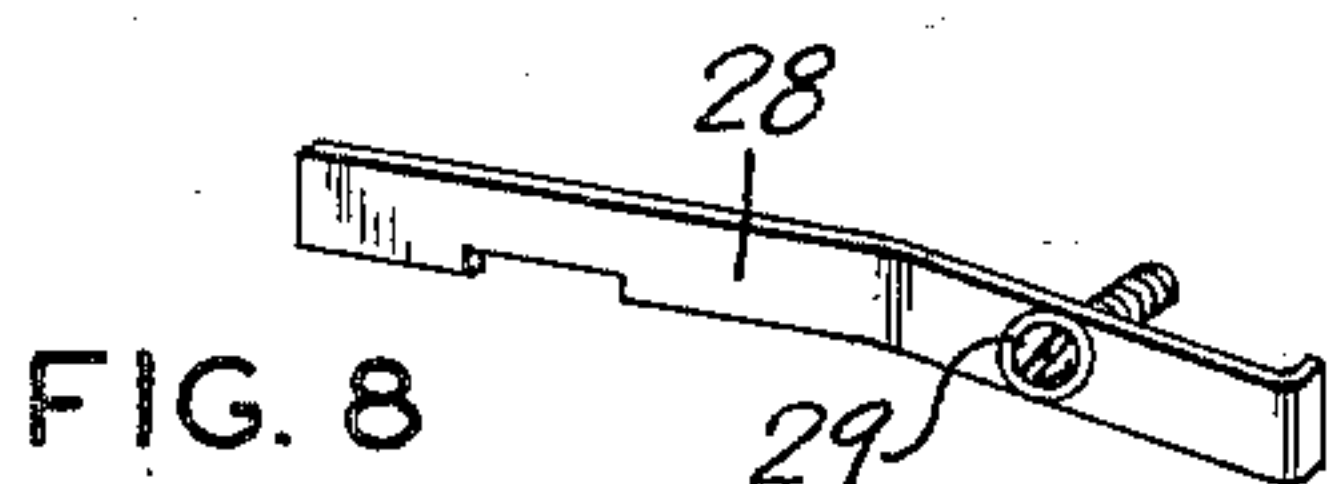


FIG. 8

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2,629,466

LATCHING DEVICE FOR STORM WINDOWS

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and known as "Western Engineering Trust"

Application August 15, 1950, Serial No. 179,515

3 Claims. (Cl. 189—72)

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This invention relates to storm windows or the like in which a closure member is mounted so as to be slidable between opposed channel members, and it has for its object the provision of a new and improved form and arrangement of parts by which a closure member may be held very strongly in centered position between the channel members and may be locked very securely in its normal lowermost position or in any other selected adjusted position longitudinally of said channel members. It is one of the objects of my invention to provide an improved structure of this type comprising channel members formed of sheet metal and secured in fixed position, extending vertically at opposite sides of a window opening, with my improved holding means mounted on the sash or other closure member at one side edge portion thereof and constructed and arranged so as to have strong gripping engagement with the adjacent channel member.

It is one of the objects of my invention to provide highly effective means for securing my improved holding devices strongly in the desired adjusted position transversely of the sash or other closure member at opposite sides thereof, so as to have effective cooperation with the channel members for gripping purposes and also for insuring that the closure member shall provide the desired degree of completeness of closure of the window space between the vertically disposed side channel members with the necessity for precision fitting of the parts with respect to each other.

It is another object of my invention to provide an improved form of releasable device for pressing the edge portion of a closure member facewise against one of the flanges of a channel member in which said closure member is mounted, such device being adapted preferably to be released readily and quickly whenever a change in position of the closure member is desired.

Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawing which, by way of illustration, shows a preferred embodiment of the present invention and the principle thereof and what I now consider to be the best mode in which I have contemplated applying that principle. Other embodiments of the invention embodying the same or equivalent principle may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

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In the drawing:

Fig. 1 is an inside face view of two cooperating storm window sash in position in the channel members carried by a conventional window frame, not shown;

Fig. 2 is an enlarged detail view showing the lower left-hand corner of the lower one of the two cooperating sash shown in Fig. 1;

Fig. 3 is a horizontal sectional view taken substantially at the line 3—3 in Fig. 2;

Fig. 4 is a vertical sectional view taken substantially at the line 4—4 in Fig. 2;

Fig. 5 is a view similar to Fig. 4 but showing a changed position of the locking parts;

Fig. 6 is a vertical sectional view taken substantially at the line 6—6 in Fig. 2;

Fig. 7 is a perspective view of the major portion of the mechanism provided for holding the sash pressed releasably against the face of one of the flanges of the channel member, as shown in Fig. 3;

Fig. 8 is a perspective view of a bar arranged for cooperation with the parts as shown in Fig. 7; and

Fig. 9 is an enlarged detail view of the lower right-hand corner of the upper sash, as shown in Fig. 1, in position in a channel member and showing the means for holding the sash releasably in its raised position.

Referring now to the several figures of the drawing, in which corresponding parts are indicated by the same reference characters, 10 and 11 indicate, respectively, the lower and upper sash members of a storm window assembly of the type disclosed by my earlier application, Serial No. 109,470, filed August 10, 1949, in which each sash member comprises four bars 12 connected together by corner brackets 13 in the form of angles, as shown in Fig. 2. Each of the bars 12 is made of metal in the form as shown in Fig. 6, having a deep groove 14 in its inner edge for the reception of the edge portion of a pane of glass, and having an undercut groove 15 in its face for reception of the arms of the corner brackets 13. Set screws 16 in suitable screw threaded openings in the corner brackets 13 serve, when tightened, to draw the arms of the corner brackets into strong gripping engagement with the ribs 17 at opposite sides of the undercut grooves 15. With two bars 12 having mitered ends, as shown in Fig. 2, and with the arms of a corner bracket 13 positioned in the undercut grooves 15, two of said set screws 16 are adapted to provide a very strong connection between the bars. With four of such bars 12, connected by four corner brackets

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so as to extend about a glass pane 18 and the usual resilient cushioning channel 18C, a very strong, rigid sash structure is provided.

In the construction as shown in Fig. 1, the lower sash 10 is slidably mounted between two channel members 19 formed of sheet metal and secured rigidly in position between the blind stops at opposite sides of a window opening, as described in my Patent No. 2,514,349, patented July 4, 1950, and the upper sash 11 is slidably mounted between two channel members 20 formed of sheet metal and secured rigidly in position in the blind seats at opposite sides of said window opening. A channel member 21 similar to the channel members 20 is provided across the top of the window opening in position to receive the upper sash 11 when moved to its topmost position, and a channel member 22 is provided at the lower end of the window opening to receive the lower edge of the sash 10.

As is best shown in Fig. 9, the upper sash 11 is held in its raised position in the channel members 20 by means of clips 23 pivotally mounted on the inner faces of the channel members by pivot pins or rivets 24. Said clips 23 are so positioned that they engage the bottom face of the upper sash member when turned into operative position for supporting the sash, and are readily movable out of supporting position when it is desired to lower the sash from its normal raised position, as when the sash is to be removed from the channel members. This arrangement as here described is substantially in accordance with the disclosures of my prior application, Serial No. 35,461, filed June 26, 1948, and now abandoned. The arrangement as shown in Fig. 3, comprising light leaf springs 25 mounted in position by means of rivets 26 on the inner faces of the webs of the channel members 19, so as to apply pressure on the sash 10 for centering it between the channels 19, is also illustrated by my said prior application, Serial No. 35,461, filed June 26, 1948, and now abandoned.

My improved means for pressing the lower sash 10 facewise against the face of one of the flanges of the said channel member 19, in which the sash is slidably mounted, comprises two metal bars 27 and 28 adjustably mounted on the transversely extending bottom bar 12 of such lower sash 10. The bar 28 is relatively thin and flexible, and as shown in Fig. 3, the end portion of the bar 28 is bent at an angle so as to fit snugly against the end of the bar 27 for holding said bars from swinging movement with respect to each other on the screw 29 by which said bars are secured in position.

In my improved construction, the screw 29 is mounted by means of screw threads in a block or supporting member 30 slidably mounted in the undercut groove 15 of the bottom bar of the lower sash 10. The arrangement is such that when the screw 29 is tightened, the block 30 and the bars 27 and 28 are brought into tight gripping engagement with the ribs 17 of the bar 12, so as to hold the block and said bars 27 and 28 strongly in adjusted position to which they have been moved. As will be appreciated from an inspection of Fig. 3, the block 30 may be adjusted to such position along the bottom bar 12 of the sash 10 as to insure that the bar 27 shall have the desired position with respect to the side bar 12 of the sash. As is shown in Fig. 3, the end portions of the bars 27 and 28 are positioned at opposite faces of the outer flange of the channel member 19, with the bar 28 extending only

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slightly beyond the end of the bar 27. Means are provided in my improved construction for pressing the end portions of the bars 27 and 28 strongly toward each other with a clamping action for applying the desired pressure on the flange portion of the channel member. These means comprise an arm 31 connected with the bar 27 at right angles thereto, being preferably formed integrally with such bar 27. On the outer end of said arm 31, I have mounted a cam lever 32 pivotally supported in position by means of a rivet 33. When such lever 32 stands in horizontal position, as shown in Fig. 5, the bars 28 and 27 are adapted to move into substantially spaced relationship to each other so as to stand free of the flange of the channel 19. When such member is swung upwardly into the locked position as shown in Fig. 4, however, the face of the lever by a camming action forces the bars 27 and 28 toward each other into tight gripping relationship to the flange of the channel 19. The construction is such that the lever 32 is held releasably in a locking position by its frictional engagement with the face of the bar 28. Moreover, the thin strip or bar 28 is so arranged that the camming action of the member 32 is exerted on the strip 28, thereby to avoid damage to or objectionable roughening of the face of the channel 19.

With the screw 29 holding the block 30 in desired adjusted position, transversely of the sash so as to hold the bars 27 and 28 in their effective working positions, as shown in Fig. 3, when the lever 32 is standing in its raised locking position, the sash 10 is held firmly in adjusted position to which it has been moved. When the levers 32 are swung downwardly to their lowered unlocked positions, such levers 32 serve as handles whereby the sash 10 can be moved very easily to the desired raised position for ventilation or for removal of the sash from the channels 19.

By the use of my improved construction, a very effective and convenient control is provided for the sash, and the latch arrangement is of such a character that it may readily be put into position on the sash, and when so positioned is effective both as a handle and a latch. Moreover, the present latch structure is effective to accomplish its latching or securing operation without damage to the face of the channel 19. The structure is readily produced without difficult manufacturing operations, and is highly effective and of such strength and durability as to be reliable for use for many years without replacement or repair.

Thus, while I have illustrated and described the preferred embodiment of my invention, it is to be understood that this is capable of variation and modification, and I therefore do not wish to be limited to the precise details set forth, but desire to avail myself of such changes and alterations as fall within the purview of the following claims.

I claim:

1. A closure structure comprising in combination an elongated member formed of sheet metal in the form of a channel mounted in fixed vertical position in a window opening, a closure member having one side edge portion slidably mounted in said channel member, the closure member having a bottom bar, a supporting member mounted in the bottom bar, means allowing adjustment of the supporting member in the bottom bar, inner and outer metal bars carried by the supporting member and held thereon by the adjustment

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means, the metal bars respectively engaging the inside and outside faces of one of the flanges of the channel member, and manually operable means acting between the metal bars for pressing the outer bar strongly toward the flange to draw the closure member into locking engagement with the flange.

2. A closure structure comprising in combination an elongated member formed of sheet metal in the form of a channel mounted in fixed vertical position in a window opening, a closure member having one side edge portion slidably mounted in said channel member, the closure member having a bottom bar, a supporting member mounted in the bottom bar, means allowing adjustment of the supporting member in the bottom bar, inner and outer metal bars carried by the supporting member and held thereon by the adjustment means, the metal bars respectively engaging the inside and outside faces of one of the flanges of the channel member, an arm carried by the inner bar and extending outwardly beyond the outer bar, and a cam lever movably mounted on the arm and in one position pressing the outer arm strongly toward the outer face of the flange to draw the closure member into locking engagement with the flange.

3. A closure structure comprising, in combination, an elongated member formed of sheet metal in the form of a channel mounted in fixed

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vertical position in a window opening, a closure member having one side edge portion slidably mounted in the channel, the closure member having a bottom bar, a supporting member comprising a block slidably mounted in an undercut groove longitudinally of the bottom bar, a screw allowing adjustment of the block in the undercut groove and fixedly holding the same after adjustment, and means comprising a metal bar carried by the supporting member and pressing the closure member strongly facewise against the inner face of one of the flanges of the channel member, an opening in the metal bar means, the screw passing through the opening and securing the metal bar in position on the supporting member.

MICHAEL J. NARDULLI.

REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
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887,470	Flagg -----	May 12, 1908
1,597,405	Davenport -----	Aug. 24, 1926
2,195,893	McGann -----	Apr. 2, 1940
2,430,615	Levine -----	Nov. 11, 1947