April 25, 1939. H. H. GOLDBERG 2,155,483

CASEMENT WINDOW

Filed Dec. 17, 1937

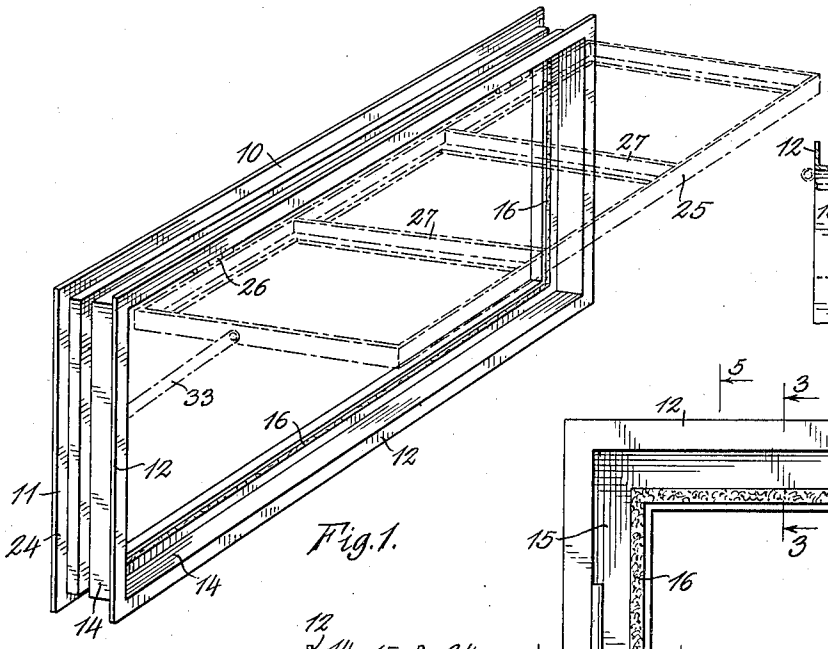


Fig. 1.

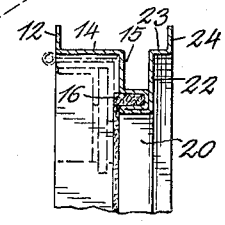


Fig. 3.

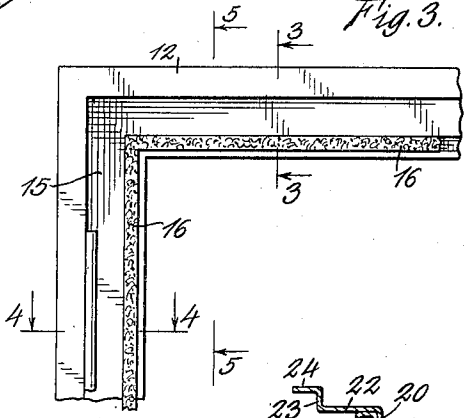


Fig. 2.

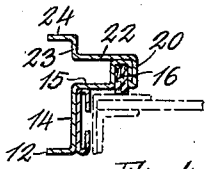


Fig. 4.

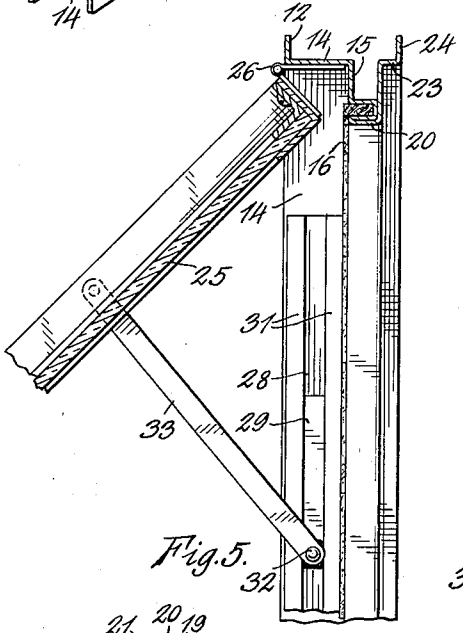


Fig. 5.

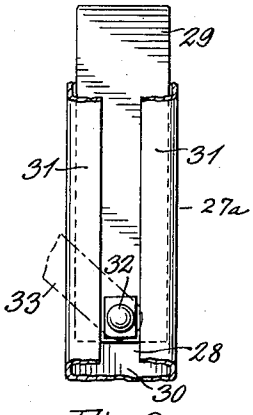


Fig. 6.

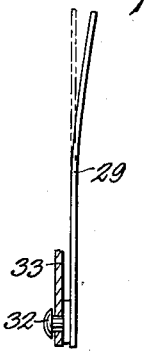


Fig. 7.

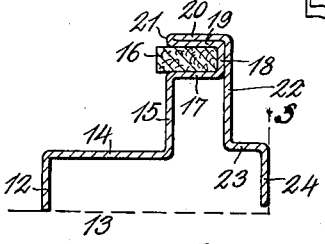


Fig. 8.

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CASEMENT WINDOW

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Application December 17, 1937, Serial No. 180,417

2 Claims. (Cl. 189—75)

This invention relates to the construction of casings for windows of the type known as casement windows.

It is now quite common practice to employ steel for the construction of window casings or frames and a large number of patents have been granted showing window casings and frames of different kinds.

The present invention relates more particularly to the construction of the window casing and its principal object is to produce a casing that can be formed from strips of sheet steel bent into the required cross sectional shape, as distinguished from casings that must be rolled or extruded.

A further object is to produce a casing of such construction that a groove will be provided for the reception of a weatherstrip.

A still further object is to produce a completed window in which the window sash is hinged along one side and movably attached to the casing by means of a link that has a slidable friction connection with the casing so that the window can be opened to any desired extent and will be held in such open position by the friction means.

The above and other objects that may become apparent as this description proceeds are obtained by means of a construction and an arrangement of parts that will now be described in detail, reference for this purpose being had to the accompanying drawing in which the invention has been illustrated and in which:

Figure 1 is a perspective view of the improved casing, the window sash being shown dotted and in open position;

Figure 2 is a front elevational view of one corner of the casing;

Figure 3 is a section taken on line 3—3 Fig. 1, the window sash being indicated by dotted lines and shown in closed position;

Figure 4 is a section similar to that shown in Fig. 3, but taken on line 4—4 Fig. 1;

Figure 5 is a section, similar to that shown in Fig. 3, and shows the window sash in partly open position;

Figure 6 is a detail view, partly in section, showing the friction slide construction employed for holding the window sash in adjusted open position;

Figure 7 is an edge view of the spring friction member shown in Fig. 6; and

Figure 8 is a section through the window casing, showing the same to substantially full scale.

The window casing which forms the subject of this invention is shown in perspective in Fig. 1 and the sides 10 and end members 11 of which it is constructed are made from strips of sheet steel which are formed by suitable dies into the shape shown in Fig. 8. Strips of sheet steel are first cut to the right width and then bent, by a series of forming die operations, into the shape shown in Fig. 8.

The several steps in this operation and the several intermediate shapes assumed by the strip have not been shown because this invention does not relate to the method but to the finished article. Referring now more particularly to Fig. 8, it will be seen that the casing has a straight flange 12 that is adapted to rest against the wall 13 of a window opening. Flange 12 terminates in a wall 14 that extends at right angles and terminates in a flange 15 that is much wider than flange 12. Flanges 12 and 15 and wall 14 may be considered as being the flanges and web of a Z-bar having flanges of unequal width. Flange 15 is provided with a groove for the reception of a strip 16 of weatherstripping which may be of felt or rubber, or of any other suitable material. The three walls of the weatherstrip groove have been designated by numberals 17, 18 and 19. The edge of wall 19 is joined to the edge of flange 20 at 21 and terminates in a straight wall 22, which in turn terminates in wall 23 and the latter in flange 24. Side 22 and wall 23 form an angle for the reception of a screen frame which has been shown dotted in Fig. 8 and designated by S.

In constructing a window casing, two sides 10 and two ends 11 are cut the proper length from a straight section formed as shown in Fig. 8, the ends are mitered and welded together to form a casing. The groove for the weatherstrip 16 is continuous as shown in Fig. 2.

A window sash, shown dotted in Fig. 1 and designated by numeral 25, is connected to the upper side 10 of the casing by two or more hinges 26. With the present casing the window sash can be formed from standard angle bars, connected at spaced intervals by T-bars 27. It will be apparent that the window sash when in closed position will contact the weatherstrip 16 and form a seal that will exclude dust and air. A suitable catch or latch, not shown, may be provided to hold the window in closed position.

For the purpose of holding the window sash in adjusted open position the following means has been provided. Attached to the wall 14 of one, or both, of the ends 11 is a rectangular hollow tube having one side provided with a slot 28. The hollow tube is preferably spot welded

to the end of the casing. Mounted for frictional sliding movement in the tube is a flat strip 29 of spring steel. The thickness of strip 29 is preferably somewhat less than the distance between the inside surfaces of wall 30 and flanges 31 so that if the strip were straight it would slide freely. In order to provide friction, strip 29 is bent (see Fig. 7) before it is inserted, and the pressure exerted by it against wall 30 and flanges 31 produces sufficient friction to hold it in any adjusted position. The lower end of strip 29 is provided with a pin 32 that extends through the slot 28. A link 33 has one end pivoted to the pin 32 and the other end pivoted to the corresponding end member of the window frame. The length of the link 33 and the position of the pivot on the window frame must be such that the window can be closed and moved to fully open position.

The amount of frictional resistance offered by spring strip 29 is determined by its rigidity and the amount of its flexure and must be sufficient to hold the window in open position and should not exceed this to any appreciable extent because the window must be opened and closed against this resistance. The toggle action due to the arrangement of the window frame and the link 33 is such that it is most effective for moving the slide 29 just as the window opens and closes.

The window sash is not removable except by disconnecting the hinges and the novelty resides in the shape of the casing and the friction means for holding the window open. Particular attention is called to the angular relationship between sides 22, 23 and 24 by means of which a rabbet is formed for the reception of a screen frame.

Having described the invention what is claimed as new is:

1. A window frame constructed from sheet metal, comprising a Z-bar having flanges of unequal width connected by a web, the wider flange having the material along its free edge formed into a groove for the reception of a weatherstrip, and a second bar integrally connected with the outer edge of the flange having the groove, the second bar having two angularly related sides, one paralleling the bottom and the other the side walls of the weatherstrip groove, one of said sides being perpendicular to and the other parallel with the flanges of the Z-bar, the last mentioned side of the second bar terminating in a narrow wall extending outwardly at an angle of substantially 90 degrees, the outer end of the wall terminating in a flange substantially parallel with the flanges of the Z-bar, whereby a rabbet is formed for the reception of a screen frame.

2. A window frame structure comprising elements connected together at their ends to form the frame outline, each of said elements being of sheet metal and formed from two Z-bars whose flanges are of unequal width, the wide flange of one bar having a groove extending longitudinally thereof, parallel with the web, the other Z-bar having the wider flange bent at right angles and connected with that part of the first Z-bar that forms the inner wall of the groove, the bottom of the groove resting on the adjacent surface of the wide flange of the second Z-bar, the webs of the Z-bars being substantially coplanar and the narrow flanges substantially parallel and spaced apart.

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