

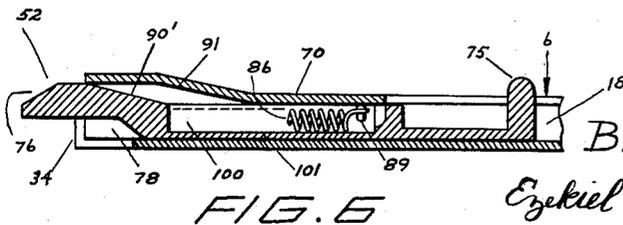
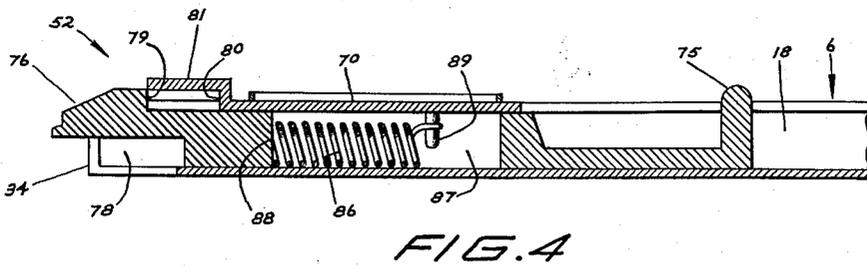
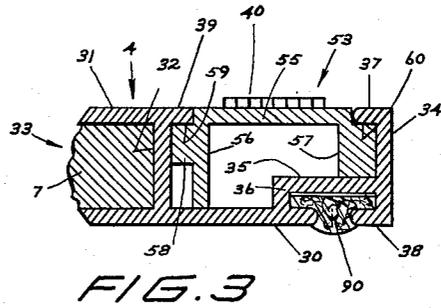
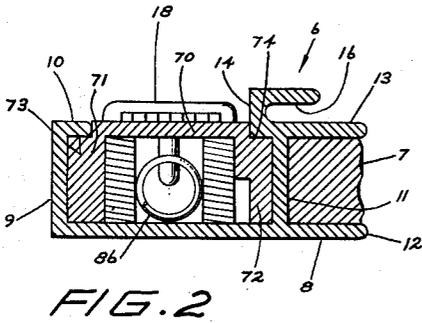
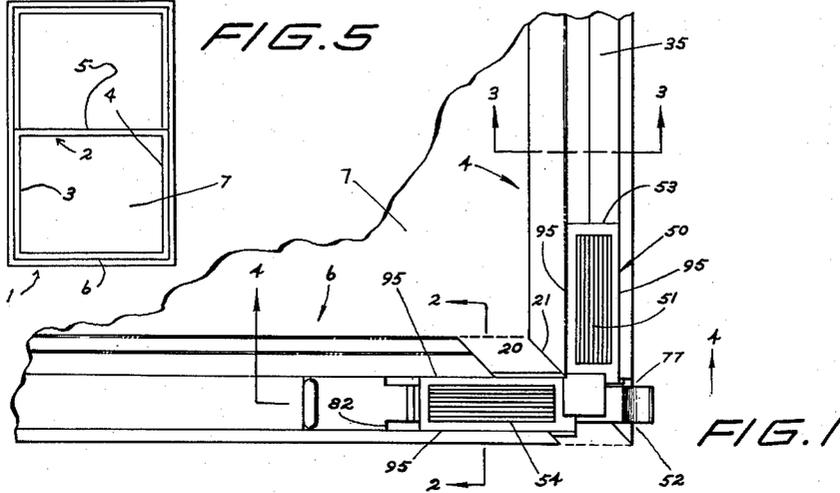
Oct. 10, 1961

B. E. MENDELSON

3,003,202

CONSTRUCTION FOR A WINDOW FRAME

Filed April 7, 1959



INVENTOR.
BERNARD E. MENDELSON
BY
Ezekiel Wolf, Wolf + Greenfield

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3,003,202

CONSTRUCTION FOR A WINDOW FRAME

Bernard E. Mendelsohn, Newton, Mass. (% Harvey Window Corporation, 5-7 Livingstone St., Dorchester, Mass.)

Filed Apr. 7, 1959, Ser. No. 804,611

3 Claims. (Cl. 20-56)

The present invention relates to an improved construction for a window frame.

In the art of window construction, there has been a considerable development in the use of extruded aluminum, particularly in the simplification of cross sectional shapes for the frame so as to reduce the costs of manufacture. Thus the present invention comprises a further simplification of window frame construction.

An important object of the present invention is to provide a window sash construction in which a locking member of simple design and efficient construction is integrally incorporated into the frame, and functions as a connecting member for adjacent channels as well as a locking member for securing the sash in a selected position in the frame.

To accomplish the stated object, the present invention includes a frame formed of extruded lengths of material having a simple, but unique and efficient cross sectional configuration, particularly useful in accommodating a locking member for rapid and efficient assembly of the frame.

Another object of the present invention is to provide a window sash frame having side members of unique cross sectional configuration, particularly adapted to contain an insulating pile which effectively seals the space between the side members and the channels of the sash in which they ride.

These and other objects and advantages of the present invention will be more clearly understood when considered in conjunction with the accompanying drawing, in which:

FIGURE 1 is a detailed elevation view of a corner of a window sash frame embodying my invention with the horizontal leg of the frame displaced a short distance to the left.

FIGURE 2 is a cross sectional view taken along the line 2-2 of FIGURE 1;

FIGURE 3 is a cross sectional view taken along the line 3-3 of FIGURE 1;

FIGURE 4 is a cross sectional view taken along the line 4-4 of FIGURE 1;

FIGURE 5 is a diagrammatic elevation view of a window frame and sash adapted to embody my invention, and

FIGURE 6 is a cross sectional view similar to FIG. 4 of a modification of the invention.

The present invention is adapted to be incorporated into a window of conventional shape having a frame 1 and sash 2. The sash is formed with side members 3 and 4 and a top cross member 5 and bottom cross member 6. The sash is formed preferably of extruded aluminum enclosing the glass 7. The bottom cross member 6 is formed of a continuous extrusion having a cross section best illustrated in FIGURE 2. In this cross section there is provided an outer wall 8, which faces outwardly of the frame 1. At the lower edge of the outer wall 8, is a bottom wall 9, continuous with the outer wall 8, and terminating at its inner edge in an inner lip 10, extending upwardly. An inwardly extending web 11 is formed parallel with the bottom wall 9. This web 11, is integral with the outer wall and spaced from its upper edge 12. An upwardly extending flange 13, coplanar with the inner lip 10 is integrally formed with the inner edge of the web 11. This upwardly extending flange 13 extends above and below the web 11. The upper portion of the flange 13 and the

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upper portion of the outer wall 8 cooperate with the web 11 to form a window channel within which the lower edge of the glass 7 is located. Extending inwardly from the lower edge of the flange 13 is a flange 14 terminating in an upwardly extending lip 16. The lower portion of the outer wall 8, bottom wall 9, web 11, inner lip 10 and the lower portion of upwardly extending flange 13 together form a lock receiving channel 18, having a constricted opening formed by the lip 10 and lower portion of the flange 13. This extrusion is formed with mitered ends, as illustrated at 20, in FIGURE 1. These mitered ends are adapted to register with the similarly formed mitered ends 21 of side members 4.

The side member 4 of sash 2 is best illustrated by FIGURE 3 and is identical with the side member 3. These side members are formed preferably of extruded aluminum, as is the rest of the frame and provide a cross sectional configuration which includes an outer wall 30 adapted to face outwardly of the frame 1. An inner flange 31 is formed parallel with a portion of the outer wall 30 and is connected to it by a cross web 32 to form the window channel 33 within which the glass 7 is secured at its side edges. A side wall 34 adapted to ride in channels of the frame 1 is connected to the outer wall by a connecting web 35, terminating at its inner edge in a flange section 36. An inner lip 37 and outer lip 38 are formed at either edge of the side wall 34. The side wall 34, connecting web 35, outer wall 30, cross web 32, inner lip 37 and a lip 39 which is a continuation of the inner flange 31 together form a lock receiving channel in the side member 4 as indicated at 40. This lock receiving channel 40 has a constricted opening formed by the lip 39 and inner lip 37.

The side member 4 and bottom member 6 are secured together by the locking means generally illustrated in FIGURE 1 at 50. These locking means comprise an angle member 51 and a dead bolt 52. The angle member 51 has two legs 53 and 54, extending respectively into the side member 4 and the bottom cross member 6. Leg 53 is formed with side wall 55 and end walls 56 and 57 continuous with the edges of the side wall 55. End wall 56 is formed with a projection 58, that defines a shoulder 59 adapted to engage the lip 39. The end wall 57 is formed with a shoulder 60 adapted to engage the inner lip 37. It will be noted that the end wall 57 is shorter in length than the end wall 56, and extends between the inner lip 37 and the connecting web 35, while the end wall 56 extends between the lip 39 and the outer wall 30.

The leg 54 is best illustrated in FIGURE 2 and is formed with a side wall 70 having end walls 71 and 72 extending from either edge. The end walls 71 and 72 are formed with shoulders 73 and 74, respectively. Shoulder 73 formed by end wall 71 engages the inner lip 10 while shoulder 74 engages the lower edge of the flange 13, thereby retaining the leg 54 within the lock receiving channel 18. An elongated passage is formed between the side wall 70 and the end walls 71 and 72 of the leg 54 and the wall 8 of the cross member 6. Within this passage there is positioned the dead bolt 52 as illustrated in FIGURE 4. The dead bolt 52 is adapted to slide longitudinally within the lock receiving channel 18 with its ends projecting beyond either end of the elongated passage formed between the side wall 70 of the leg 54 and outer wall 8. The bolt includes an elongated member having a tab 75 projecting inwardly and adapted to be grasped by one's finger. At the other end of the dead bolt is a tongue 76 adapted to engage slots intermittently formed in the sides of the frame 1 so as to lock the sash in various selected positions or degrees of opening. To permit movement of the tongue outwardly beyond the side wall 34, a section of that wall, as indicated in FIGURE 1 at 77, it cut away. The tongue, more-

over, is recessed, as illustrated at 78 in FIGURE 4 to permit clearance over the connecting web 35. The dead bolt 52 is restricted in longitudinal motion inwardly by a shoulder section 79 formed on the upper surface of the tongue 76, that engages the shoulder section 80 formed by the interconnecting web 81. The web 81 is continuous with the side wall 70 on leg 54 and side wall 55 on leg 53. The outward movement of the dead bolt is limited by a shoulder section best illustrated in FIGURE 1 at 82. This shoulder section on the dead bolt engages the ends of the end walls 71 and 72. The dead bolt is normally tensioned outwardly by means of a helical spring 86 positioned within a slot 87. This slot 87 is formed between the end walls 71 and 72. One end of the helical expansion spring 86 engages the end 88 of the slot 87 nearer the tongue 76, and the other end of the spring engages a boss or tab 89 extending inwardly from the side wall 70 into the slot 87.

An elongated length of pile of felt or other similar insulating material is positioned within the channel formed by the connecting web 35, as indicated at 90. This pile 90, is adapted to engage the inner side of the channels formed in the side of the frame so as to minimize rattling of the window and effectively insulate the window in that area. The outer wall 8, being coplanar with the outer wall 30, when the side member 4 and cross member 6 are interlocked, closes off the ends of this channel within which the insulating pile 90 is mounted.

The lock means may be permanently secured to the members 4 and 6 by staking the legs 53 and 54 to the members 4 and 6 respectively. For example, this may be readily done by pressing the aluminum extrusion over the locking means in a conventional manner at such points as indicated at 95 in FIGURE 1 in a conventional manner. The lock means 50 may be used at each corner of the sash since side members 3 and 4 are similar and top and bottom cross members 5 and 6 may be similar. However, if desired, conventional stakes may be used to secure the upper portion of the sash together.

The embodiment of FIGURE 6 is very similar to that of FIGURE 4 and like parts are identified by like numbers. In the embodiment of FIGURE 6 there is provided a tapered surface 90' on the upper surface of the tongue 76, which engages a parallel tapered inner surface 91. The engagement of the surfaces 90' and 91, in part limits the inward movement of the dead bolt. The helical spring 86 is positioned within a recess 100 in the dead-bolt 52. This recess 100 is formed with opposite side walls and a bottom wall 101 on which the spring rests.

Having now described my invention, I claim:

1. In a window sash construction having a side mem-

ber and cross member interengaged by a lock means to form a corner of said sash, said side member having a cross sectional configuration comprising means forming a channel including a cross web and side wall forming opposite sides of said channel, means including an outer wall and members forming a second channel interconnecting said sides, said cross member having a cross sectional configuration comprising means forming a third channel normal to said first two mentioned channels including a cross web and bottom wall forming opposite sides of said third channel and an outer wall interconnecting said sides, inwardly extending lips continuous with the free edges of said sides partially closing said first and third channels, said lock means comprising two legs forming an L-shaped member with each leg having in cross section opposite walls interconnected by a third wall, shoulders formed at the intersection of said opposite and third walls with said shoulders interengaging said lips, and said opposite walls of said legs in facing adjacent relation with the inner surfaces of said opposite sides of said first and third channels, and an insulating pile secured within said second channel.

2. A device as set forth in claim 1 wherein said members forming a second channel comprise a connecting web having an L-shaped cross section with the ends of the L-shape integral one with said sidewall and the other with said outerwall of said side member, and with means forming a longitudinal slot in said outerwall of said side member through which said pile projects.

3. In a window sash, a side member having vertically extending first and second channels disposed back to back and facing in opposite directions, a cross member having a horizontally extending third channel terminating immediately adjacent the lower end of the first channel of the side member, locking means having two integrally connected legs disposed perpendicular to one another with one leg lying in the first channel and the other leg lying in the third channel, means forming part of the side member and the cross member for retaining the legs of the locking means in their respective channels, and an insulating pile mounted in the second channel.

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