March 12, 1963 S. GREENE 3,080,950

METAL WINDOW FRAME, SASH AND WEATHER STRIP THEREFOR

Filed June 2, 1961

Fig. 1.

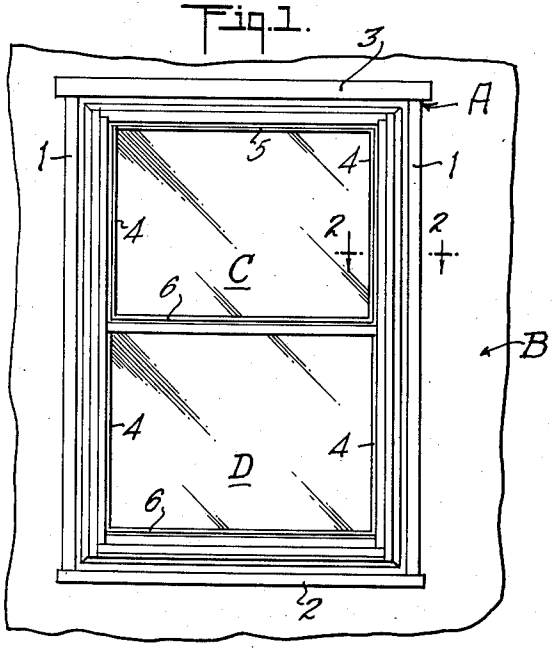
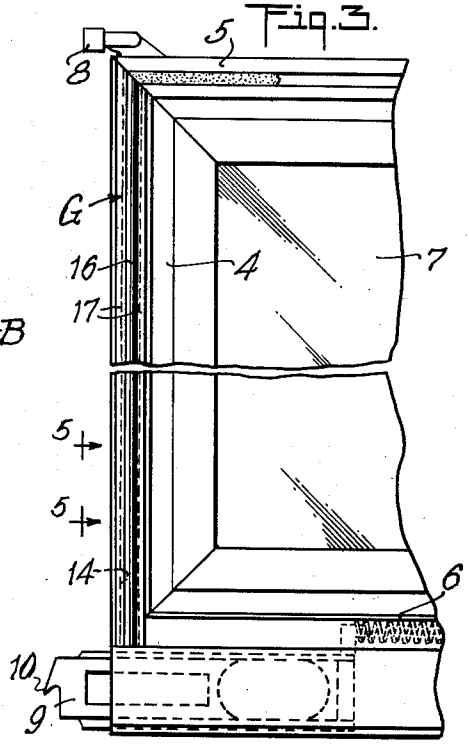



Fig. 3.



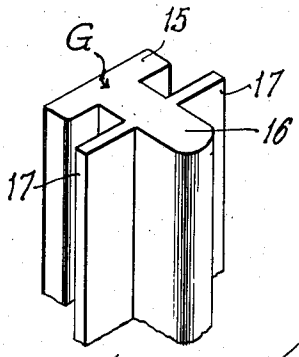




Fig. 4.

Fig. 2.

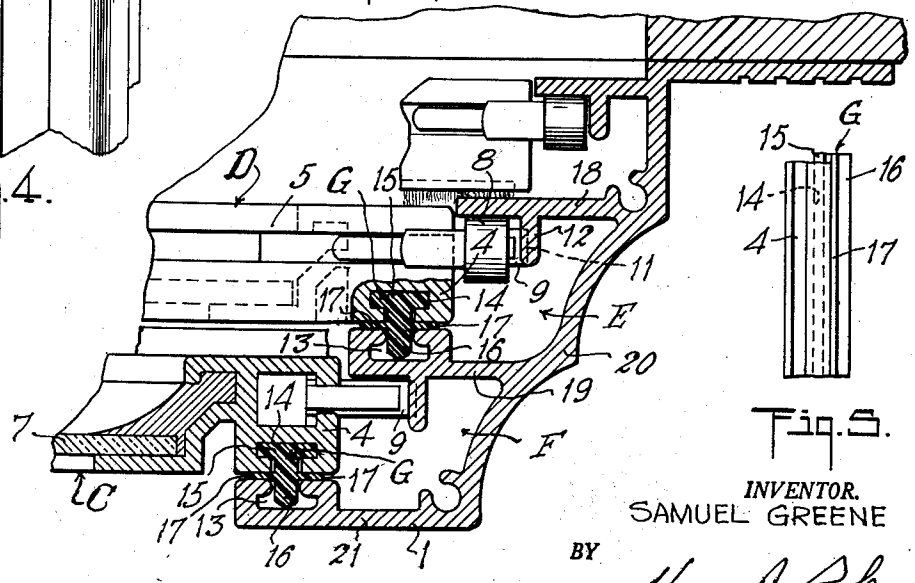






Fig. 5.

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# METAL WINDOW FRAME, SASH AND WEATHER STRIP THEREFOR

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This invention relates in general to window frames having sash slidably mounted therein, and more particularly the invention contemplates window frames and sash frames formed of metal, particularly aluminum.

It is well known that considerable friction is developed between window frames and sash frames that are slidable therein, particularly when the frames are made of aluminum; and it is also well recognized that there is considerable play or looseness between the sash frame and the window frame, which, without adequate weather stripping, permits air currents and moisture to pass between the juxtaposed surfaces of the sash frame and the window frame.

A primary object of the present invention is to provide a novel and improved construction and combination of a window frame, a sash frame and a weather strip which shall have the dual function of preventing ingress and egress of air and moisture between the sash frame and the window frame and also "taking up" the looseness or play between the two frames and insure smooth sliding of the sash frame in the window frame with consequent ease of operation and a minimum of noise.

Another object is to provide a sash comprising a novel and improved construction and combination of a metal frame and a weather strip mounted therein, and a window frame having a track in which a portion of the weather strip is slidable.

A further object of the invention is to provide a novel and improved construction and combination of a metal sash frame and a synthetic resinous weather strip and filler strip having a portion thereof mounted in the groove in the window sash, another portion to be interposed between the sash frame and the window frame and still another portion to slide in a track in the window frame.

Other objects are to provide a novel and improved combined weather strip and filler strip formed of a wear-resistant synthetic resinous composition such as a vinyl compound which shall serve to reduce friction and looseness between a sash frame and a window frame and also to prevent passage of moisture and air between the abutting surfaces of the sash frame and the window frame; and to obtain other objects and advantages that will be brought out by the following description in conjunction with the accompanying drawings in which

FIGURE 1 is a schematic front elevation of a window including an extruded aluminum frame, and two sashes having aluminum frames slidable therein, both sashes in closed position;

FIGURE 2 is a greatly enlarged fragmentary horizontal sectional view on the plane of the line 2—2 of FIGURE 1;

FIGURE 3 is a greatly enlarged fragmentary elevation of one of the sashes removed from the window frame;

FIGURE 4 is a fragmentary perspective view of a portion of the combined weather strip and filler strip; and

FIGURE 5 is a fragmentary side elevation of a portion of the sash taken from the plane of the line 5—5 of FIGURE 3.

For the purpose of explaining the principles of the invention, the invention has been illustrated in a window which comprises an extruded aluminum window frame generally designated A mounted, as usual, in a window



opening in a building wall B and having two sashes C and D slidably mounted therein. As usual, the frame includes side jambs 1, a sill 2 and a header or lintel 3. The invention is primarily concerned with the mounting of the sashes in the jambs.

As best shown in FIGURE 2, each jamb has two guideways generally designated E and F, one for each of the sashes C and D. Each sash has a side stile 4, a top rail 5 and a bottom rail 6, the rails and stiles being secured together in the usual manner. Within each sash frame is mounted a pane of glass 7 in the usual way. The top rail of each sash on each side thereof has a roller 8 that is rollable in the corresponding guideway and the lower rail 6 carries a latch 9 at each end thereof of known construction which also slides in the guideway and has a nose portion 10 to engage recesses 11 in a portion of the guideway generally designated 12 in FIGURE 2. The sash may swing outwardly into the room in the wall of which is located the window opening for removal of the sash, and of course the sash may slide up and down in the corresponding guideway E or F with the corresponding roller 8 and latch 9 holding it in the frame.

As above indicated, the invention contemplates a novel and improved construction and combination of the jambs 1, the sash frames and a combined weather strip and filler strip. As shown, each guideway has a recessed track 13 comprising an undercut groove extending longitudinally of the jamb and opening on the inside of the window frame, and the stile 4 of each sash has a groove 14 extending longitudinally thereof in which is secured a combined weather strip and filler strip generally designated G which is preferably composed of a wear-resisting but freely slidable synthetic resin such as a rigid vinyl compound. The strip G includes an elongated base portion 15 whose length approximately corresponds to the length of the stile and which is fitted into the groove 14. The stile is shown as mitered at its juncture with the top rail 5, the upper end of the strip G is beveled to correspond to the miter, and the upper end of the groove 14 is closed by the end of the top rail so as to prevent the strip G from slipping endwise upwardly out of the groove. The lower rail 6 is connected by a mitered joint with the lower end of each stile and the end of the base portion 15 of the strip is beveled to correspond with the mitered joint, although the other portions of the strip preferably extend beyond the miter joint as shown in FIGURE 3. The other portions of the strip comprise a flange 16 that projects integrally from one side of the base portion 5 intermediate the width of the latter and extends the full length of the base portion; and projecting integrally from opposite sides of the flange 16 in spaced relation to the outer longitudinal edge of the flange are fins or wings 17 that are disposed in a plane approximately parallel to the plane of the base portion and approximately perpendicular to the general plane of the flange 16. The distance between the wings 17 and the front side of the base portion is such that when the base portion is inserted in the groove 14 the wings will abut the face surface of the corresponding stile 4 as best shown in FIGURE 2; and the thickness of the wings is such that when the sash is installed in the guideway of the window frame jamb, the opposite side of the wing will slidably abut the surface of the window frame at opposite sides of the mouth of the track groove 13. The width and length of the portion of the flange 16 outwardly of the wings is such as to slidably fit into the track groove so as to practically close the mouth of the groove as shown in FIGURE 2.

With this construction, when the sash is mounted in the window frame, the strip G will move up and down with the sash and the wings 17 will close the space between the juxtaposed surfaces of the sash and the guideway of the window frame. Said wings thus take up any

looseness or play between the sash and the window frame, the strip can freely slide on the guideway surface at opposite sides of the track groove **13** so as to insure smooth sliding of the sash with a minimum of possibility of sticking or jamming thereof, and the wings and the portion of the flange **16** in the track groove prevent the passage of air or moisture between the juxtaposed surfaces of the sash frame and the window frame.

While the guideways E and F may be of different form, depending upon the sash, the guideway E is shown as comprising spaced parallel flanges **18** and **19** projecting from the main portion **20** of the jamb, while the guideway F includes the flange **19** and a flange **21**. The distance between the inner edges of the two flanges **18** is slightly greater than the width of the inner sash frame C and the distance between the inner edges of the flanges **19** is less than the width of the sash frame C so that the sash frame abuts the flange **19** but clears the flanges **18**; and the sash frame D clears the flanges **19** but abuts the flange **21**.

The now preferred embodiment of the invention has been illustrated and described, but it will be understood that this is primarily for the purpose of illustrating the principles of the invention and that modifications and changes can be made in the details of construction within the spirit and scope of the invention.

I claim:

1. The combination of a window frame and a sash having side stiles, said window frame having jambs each of which has a guideway for said slidable sash provided with a rear side along which is slidable the front side of the stiles of the sash, each guideway having a track groove extending longitudinally and opening through said rear side thereof, and a combined weather and filler strip



secured in and carried by each stile on the front side of the stile with a portion of the strip slidably mounted in the corresponding track groove and other portions of the strip interposed between the juxtaposed surfaces of the stile and the corresponding guideway.

2. The combination as defined in claim 1 wherein each stile of the sash has an undercut groove extending longitudinally thereof and opening through its front face, said combined weather strip and filler strip has a base portion fitted into said groove with a flange projecting from said base portion and extending into said track groove of the corresponding jamb, and wings projecting from opposite sides of said flange and interposed between the juxtaposed surfaces of the corresponding stile and guideway.

3. A window sash including a frame having side stiles, and a combined weather and filler strip mounted in and extending longitudinally of the front side of each stile, each stile having a longitudinal undercut groove in its front side and the combined weather strip and filler strip having an elongated base portion fitted into said groove, a flange portion extending integrally from the base portion perpendicularly to the plane of the sash and wing portions projecting from opposite sides of the flange portion in parallel and abutting relation to the front side of the stile.

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