March 5, 1940. F. J. ROBINSON 2,192,775

WINDOW FRAME CONSTRUCTION

Filed Dec. 23, 1937 2 Sheets-Sheet 1

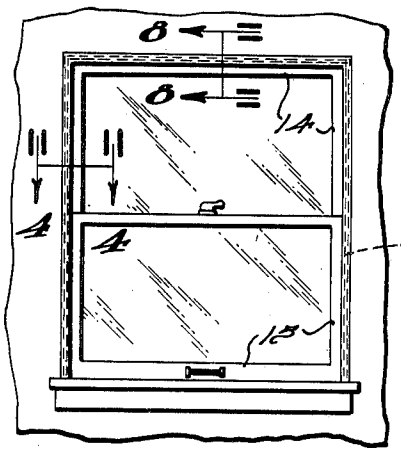


FIG. 1.

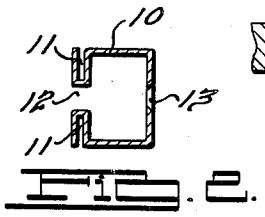


FIG. 2.

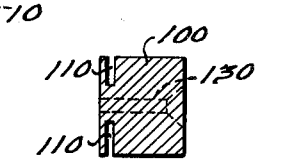


FIG. 3.

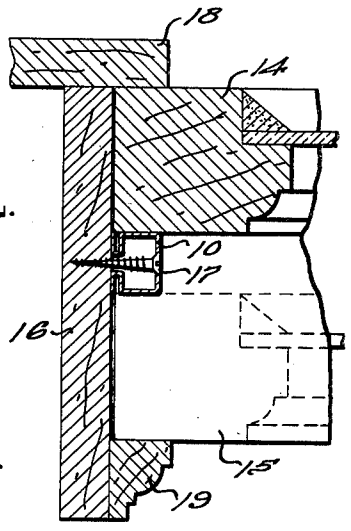


FIG. 4.

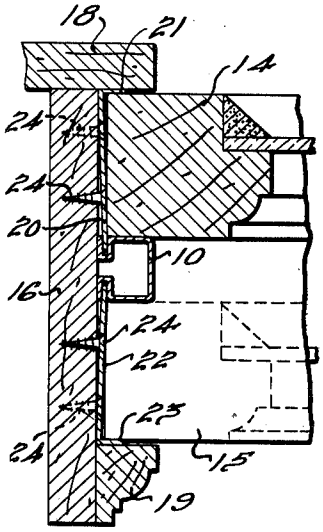


FIG. 5.

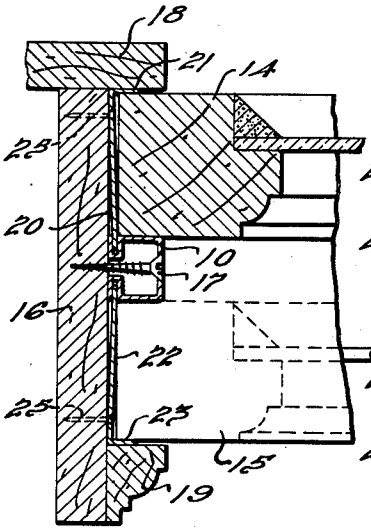


FIG. 6.

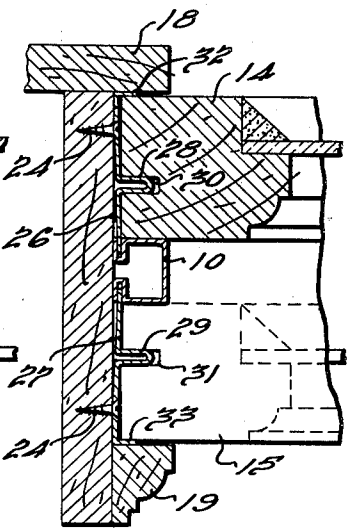


FIG. 7.

INVENTOR
Frederick J. Robinson.

BY Everett G. Wright,
ATTORNEY

March 5, 1940. F. J. ROBINSON 2,192,775

WINDOW FRAME CONSTRUCTION

Filed Dec. 23, 1937 2 Sheets-Sheet 2

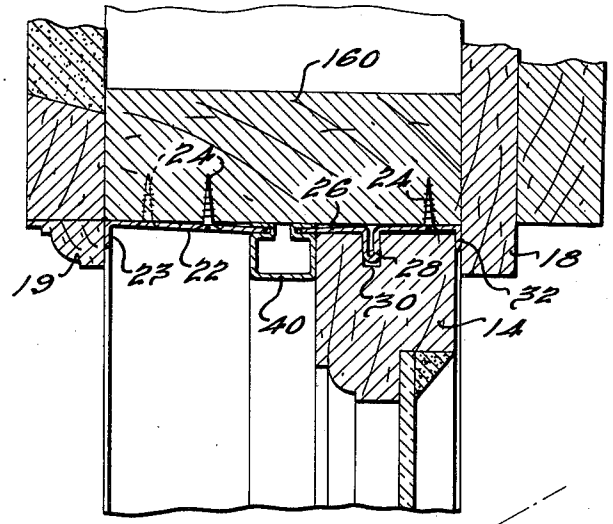


FIG. 8.

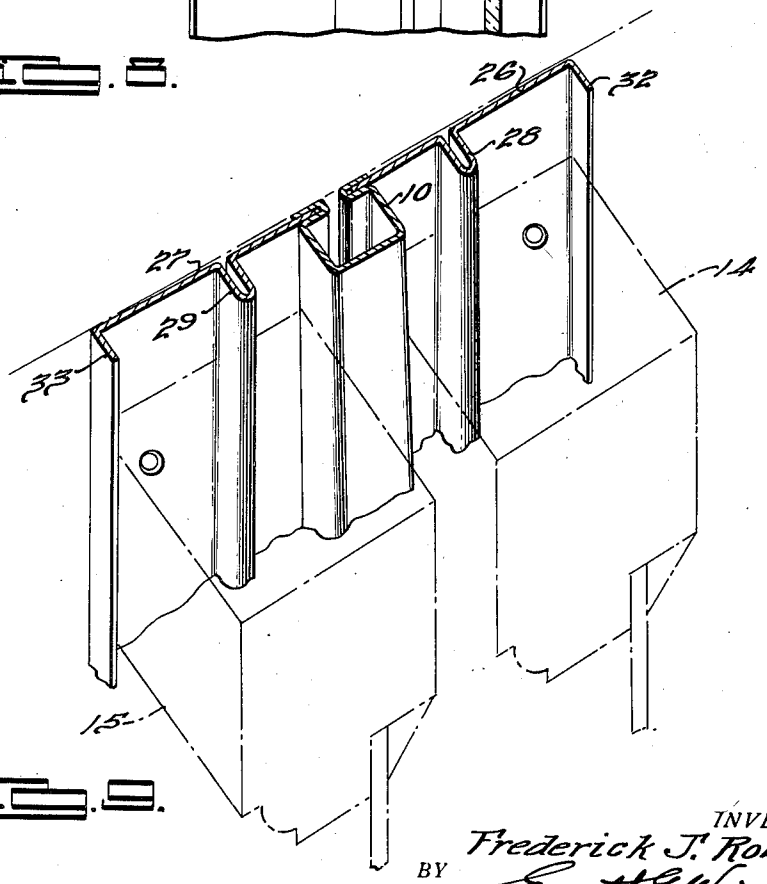


FIG. 9.

INVENTOR
Frederick J. Robinson.
BY Everett G. Wright.
ATTORNEY

Patented Mar. 5, 1940 2,192,775

UNITED STATES PATENT OFFICE

2,192,775

WINDOW FRAME CONSTRUCTION

Frederick J. Robinson, Detroit, Mich.

Application December 23, 1937, Serial No. 181,367

3 Claims. (Cl. 20—12)

This invention relates to window construction and in particular to parting strips, weather strips and metal lining for double hung wood sash and frames therefor.

The sealing of the joints between double hung sash and the window frame in which they are slidably mounted and the lining of wooden window frames to provide substantially frictionless surfaces against which sash may slide without binding has become essential in every home because of the insulating value of weatherstripped windows and because of the convenience of the easy opening and closing of the said slidable sash. However, in many instances a builder is forced to economize at the time the house is constructed and the installation metal weatherstripping and metal window frame lining is deferred to a later date.

In construction where weatherstripping and metal window frame lining is not used, a wood parting strip is provided which is positioned in a groove in the window frame. Later, when metal weatherstripping is installed, the wood parting strip must be removed to permit the removal of the wood sash and installation of the weatherstripping after which the said wood parting strip is replaced if not too badly damaged by its removal or a new parting strip is installed. If the window frame is to be completely metal lined, the parting strip is removed and the groove in the frame which originally accommodated the said parting strip is filled before installing the said metal lining which generally includes a metal parting strip. All of the foregoing is expensive and time consuming especially after the original wood frames and double hung sash have become weathered and warped.

In the usual weatherstripping a rib is generally formed which extends into a suitable saw cut or kerf in the edge of wood sash. The saw cut or kerf in the sash is generally larger than the weatherstrip rib to admit of the said sash moving freely with respect to the said rib. If the saw cut or kerf in the sash is too large with respect to the weatherstrip rib, then the weather stripping is inefficient. If the saw cut or kerf in the sash is too small with respect to the weatherstrip rib, then the sash binds when slid along the said rib. Too often the sash immediately after weatherstripping slides freely with respect to the weatherstrip rib but in a short while warping of the said sash causes undue binding and sticking.

Also, when rib type weatherstrip is applied to window frames and sash after a structure has been completed and in use, it is necessary to saw cut or kerf the edges of the sash which cannot be done with positive accuracy because of the fact that the sash generally has been warped.

With the foregoing in view, it is one object of this invention to provide a metal parting strip for double hung sash adapted to be installed on plank type frames which will facilitate the present or future installation of either metal frame lining or metal weatherstripping or combinations thereof.

Another object of the invention is to provide the combination of a metal parting strip and metal window frame lining which, when installed in a plank type window frame in a manner herein described, will permit the said parting strip to be self adjusting with respect to normal irregularities and warping of the sash slidably mounted therein.

Another object of the invention is to provide the combination of a metal parting strip and metal window frame lining which when installed in a plank type window will provide a simple effective weatherstripping without the use of the usual weatherstrip ribs and kerfs in the sash slidably mounted in said frame.

Another object of the invention is to provide the combination of a metal parting strip and metal ribbed weatherstrip type window frame lining which is easy to install and which is self adjusting with respect to the normal irregularities and warping of the sash slidably mounted within a wood frame lined and weatherstripped thereby.

Another object of the invention is to provide in double hung window construction, the combination of a metal parting strip and metal ribbed weatherstrip type window frame lining which accomodates itself to irregularities in and the warping of the sash slidably hung therein and which provides a resilient surface against which the said sash rides whereby the efficiency of ribbed metal weatherstripping is materially increased.

Other objects of the invention will become apparent by reference to the following detailed description of the invention taken in connection with the accompanying drawings, in which:

Fig. 1 is a more or less diagrammatic view indicating a double hung sash and frame with the invention applied thereto.

Fig. 2 is an enlarged detailed sectional view of a sheet metal parting strip embodying the invention.

Fig. 3 is an enlarged detailed sectional view of an extruded metal parting strip which may

be used in place of the sheet metal embodiment of the invention disclosed in Fig. 2.

Fig. 4 is a fragmentary horizontal sectional view taken on the line 4—4 of Fig. 1 showing the installation of the parting strip disclosed in Fig. 2 in a window frame ready to accommodate frame lining and weaterstripping at a future date.

Fig. 5 is a horizontal sectional view similar to Fig. 4 showing a window frame metal lined and with the novel metal parting strip disclosed in Fig. 2 self-adjustingly retained in the said window frame by the metal lining thereof, the said metal window frame lining serving as weatherstripping means.

Fig. 6 is a horizontal sectional view similar to Fig. 5 showing the novel metal parting strip disclosed in Fig. 2 fixed with respect to the window frame and how metal window frame lining may be readily installed with respect thereto, the said metal window frame lining serving as weatherstripping means.

Fig. 7 is a horizontal sectional view similar to Fig. 5 showing the combination of the novel metal parting strip disclosed in Fig. 2 and metal rib type weatherstrip window frame lining with the said parting strip self-adjustingly retained in the said window frame by the said metal rib type weatherstrip frame lining.

Fig. 8 is a detailed sectional view taken on the line 8—8 of Fig. 1 showing how metal rib type weatherstrip frame lining and metal flat frame lining may be combined with the novel metal parting strip disclosed in Fig. 2 to fully line the head of a window frame.

Fig. 9 is an enlarged view in perspective showing in detail the construction disclosed in Fig. 7.

Referring now to the drawings wherein like numerals refer to like and corresponding parts throughout the several views, the novel parting strip 10 shown in detail in Fig. 2 as well as frame lining and weatherstripping used in conjunction therewith are all preferably formed of zinc, aluminum, copper, brass, bronze or other metal which will not rust readily and which will constantly present a smooth surface against which wood sash may slide freely. The said parting strip 10 is generally rectangular in shape with the base thereof formed to provide a pair of outwardly disposed longitudinal slots 11 of a width to slidably receive an edge of metal frame lining or weatherstripping and sufficiently deep to permit the said lining or weatherstripping to maintain engagement within the said slots 11 and at the same time admit of adjustment between the said parting strip 10 and the edges of metal frame lining or weatherstripping engaged in the said slots 11. A longitudinal space 12 is provided along the base of the said parting strip 10 to permit wood screws or other fastening means, if used, to be driven from the top thereof into a window frame without injuring the said slots 11 thereof. Apertures 13 may be provided through the top of the said parting strip 11 in alignment with the said longitudinal space 12 in the base thereof to accommodate wood screws or other suitable fastening means when required.

Fig. 3 shows a solid metal parting strip 100 similar to the sheet metal parting strip 10 disclosed in Fig. 2, the said parting strip 100 being preferably formed by an extrusion process with a pair of outwardly longitudinally disposed slots 110 therein at a distance above the base thereof substantially equal to the width of the said slots. The said slots 110 in the parting strip 100 being of the same size and for the same purpose as the slots 11 of the sheet metal parting strip 10 hereinbefore described. The parting strip 100 may be drilled and countersunk as indicated by the numeral 130 in Fig. 3 to accommodate wood screws or other suitable fastening means.

Fig. 4 shows the use of the metal parting strip 10 without the present installation of metal window frame lining or metal weatherstripping. The upper sash 14 and the lower sash 15 are slidably mounted in a window frame 16 with the parting strip 10 positioned therebetween and secured to the said window frame 16 by such suitable means as the countersunk head wood screws 17. The upper sash 14 slides in a channel formed by the parting strip 10, the window frame 16 and a blind stop 18 while the lower sash 15 slides in a channel formed by the parting strip 10, the window frame 16 and the trim stop 19.

However, if metal window frame lining is to be installed when double hung sash is first hung, the combination of metal frame lining with the metal parting strip 10 as shown in Fig. 5 may be used. Referring in particular to Fig. 5, a flat metal lining strip 20 having a flange 21 along one side thereof is urged against the window frame 16 and the blind stop 18, and the upper sash 14 is positioned in the said window frame 16 against the face of the said metal lining strip 20 and the flange 21 thereof. The flat edge of the said metal lining strip 20 is telescoped into a slot 11 of the parting strip 10. A second lining strip 22 having the lower sash 15 urged against the face and flange 23 thereof is positioned against the said window frame 16, and the flat edge of the said second lining strip 22 is telescoped into the other slot 11 of the said parting strip 10. The said lining strips 20 and 22 are preferably secured to the frame 16 by such means as the wood screws 24.

It will be noted that the relation between the width of the said lining strips and the thickness of the sash which slide thereagainst is such as will permit the flat edges of the said lining strips to extend into the slots 11 of the parting strip 10 short of the depth of the said slots 11 whereupon the said parting strip 10, which is held in position against the window frame 16 by the flat edges of the lining strips 20 and 22, will adjust itself to irregularities in the sash 14 and 15, compensate for slight inaccuracies in the installation of the said sash, and adjust itself to allow for shrinkage and warping of the sash and frame whereby to avoid binding and sticking of the sash within the frame.

It will be observed that the sides of the upper sash 14 and the lower sash 15 are parallel to the frame 16 and that the base of the metal parting strip 10 holds the lining strips 20 and 22 spaced away from the frame 16 and against the sides of the sash 14 and 15 adjacent the said parting strip 10. Also, there is no backing to the lining strips 20 and 22 adjacent the said metal parting strip 10. Thus, a resilient contact between the said sash 14 and 15 and the lining strips 20 and 22 is established which serves as weatherstripping and at the same time permits the sash 14 and 15 to swell laterally without binding inasmuch as the lateral swelling of the sash 14 and 15 will merely deflect the lining strips 20 and 22 adjacent the said parting strip 10.

Although the installation of the metal lining 20 and 22, the parting strip 10 and the sash 14 and 15 within the frame 16 has been described to be accomplished in a particular manner or sequence hereinbefore, it is obvious that the

said installation may be accomplished otherwise with like and similar advantageous results.

For example, by referring to Fig. 6, the construction shown therein contemplates the securing of the parting strip 10 in its proper position by wood screws 17 and tacking the lining strips 20 and 22 in position by brads 25 or the like through the face thereof near the flanges 21 and 23 thereof respectively. This means of fastening, though securing the said parting strip from floating with respect to the said lining strips 20 and 22, provides for free deflection of the said lining strips 20 and 22 adjacent the said parting strip 10 to prevent binding of the sash 14 and 15 due to the swelling thereof.

The installation disclosed in Figs. 7 and 9 shows the novel parting strip 10 combined with metal rib type weatherstripping 26 and 27 having ribs 28 and 29 respectively. The upper sash 14 and lower sash 15 are saw cut or kerfed at 30 and 31 to receive the weatherstrip ribs 28 and 29 respectively. The saw cuts 30 and 31 are slightly larger than the said ribs 28 and 29 respectively to admit of free sliding of the sash 14 and 15 with respect to the said weatherstripping 26 and 27 respectively. The weatherstripping 26 and 27 is preferably secured to the window frame 16 by wood screws 24 near the flanges 32 and 33 thereof respectively adjacent the blind stop 18 and trim stop 19 of the window frame 16. The parting strip 10 is retained in its free floating position by the weatherstipping 26 and 27 telescoped in the longitudinally disposed slots 11 thereof. As in the installations shown in Figs. 5 and 6, the weatherstripping 26 and 27 contacts the sides of the upper sash 14 and lower sash 15 only adjacent to the metal parting strip 10 which holds the said weatherstripping 26 and 27 spaced away from the frame 16 adjacent the said metal parting strip 10. The resilient contact provided between the sash 14 and 15 adjacent the said parting strip 10 obviously increases the efficiency of the weatherstripping 26 and 27 by providing an additional positive contact surface between the said sash 14 and 15 and the said weatherstripping 26 and 27.

Fig. 8 discloses how the construction shown in Figs. 5 and 7 may be combined to provide weatherstrip type frame lining for the upper sash 14 and flat frame lining 22 at the top of the run for the lower sash 15 at the head 160 of the window frame 16.

Although but several embodiments and installations of the invention have been shown and described herein, it is obvious that many changes may be made in the size, shape, details and arrangement of the various elements of the invention without departing from the spirit thereof as defined in the appended claims.

I claim:

1. In combination, a window frame, a blind stop and a trim stop secured to the said window frame in spaced relationship to each other, laterally spaced metal lining strips each having one flanged edge and one straight edge secured to the said window frame with the flanged edge of each metal frame lining strip oppositely disposed and positioned against one of the said stops, and a parting strip disposed between sash slidably mounted in the said frame telescopingly engaged by the said straight edges of the said frame lining strips in lateral floating relationship to the said frame lining strips and the said sash.

2. In combination, a window frame, a blind stop and a trim stop secured to the said window frame in spaced relationship to each other, laterally spaced metal lining strips each having one flanged edge and one straight edge secured to the said window frame with the flanged edge of each metal frame lining strip oppositely disposed and positioned against one of the said stops, and a parting strip disposed between sash slidably mounted in the said frame telescopingly engaged by the said straight edges of the said frame lining strips in lateral floating relationship to the said frame lining strips and the said sash, the said parting strip being adapted to hold the frame lining spaced from the window frame adjacent the said parting strip whereby to provide a resilient surface against which the said sash may slide and laterally expand.

3. In combination, a window frame, a blind stop and a trim stop secured to the said window frame in spaced relationship to each other, laterally spaced metal weatherstrips each having one flanged edge and one straight edge secured to the said window frame with the flanged edge of each piece of weatherstripping oppositely disposed and positioned against one of the said stops, and a parting strip disposed between sash slidably mounted in the said frame telescopingly engaged by the said straight edges of the said weatherstrips in lateral floating relationship to the said weatherstripping and the said sash.

FREDERICK J. ROBINSON.