July 20, 1937. J. L. HUNT 2,087,515

SASH CONSTRUCTION FOR WINDOWS

Filed March 19, 1936

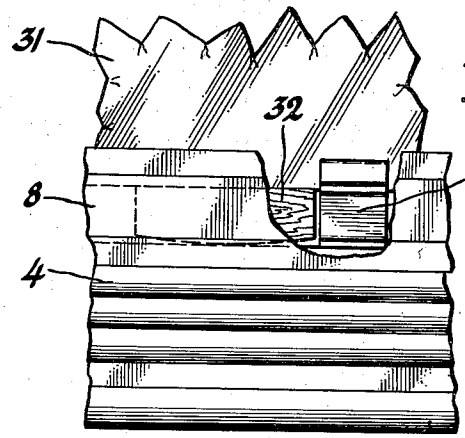



FIG. 1.

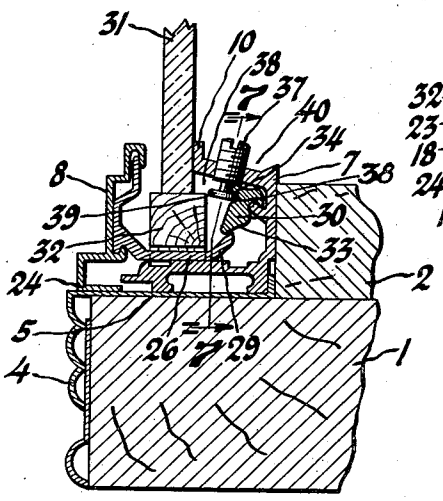



FIG. 2.

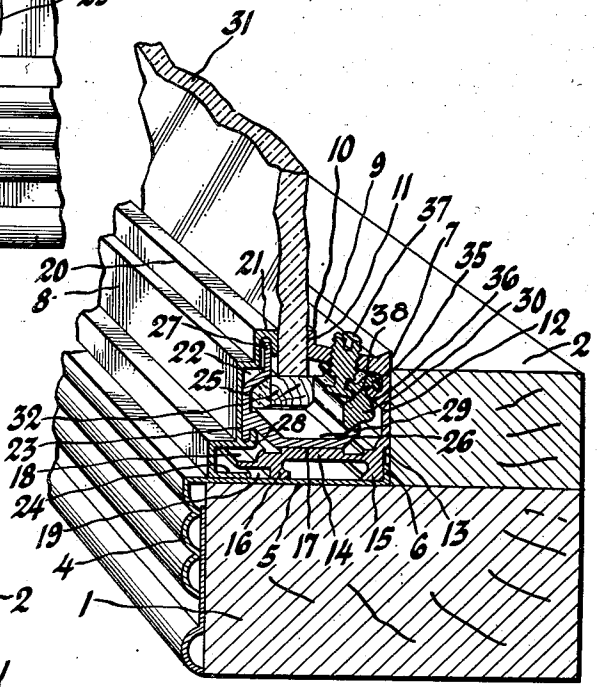



FIG. 3.

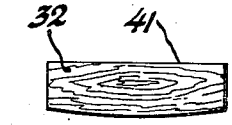



FIG. 6.

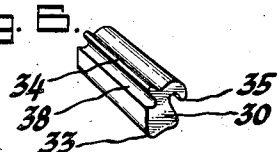



FIG. 5.

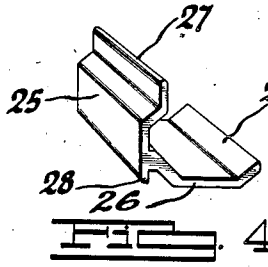



FIG. 4.

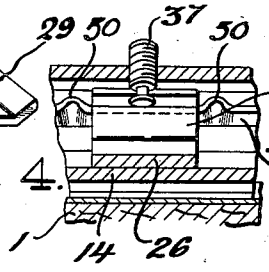



FIG. 7.

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## SASH CONSTRUCTION FOR WINDOWS

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Application March 19, 1936, Serial No. 69,619

7 Claims. (Cl. 20—56.4)

This invention relates to sash construction for window glass of various thicknesses and is especially adaptable for use with glass for store front windows.

A feature of the invention resides in the provision of a fixed inner sash engaging element of channel like form and an outer companion element including a series of bars spaced along the outer element and a means operable from the interior side of the glass to draw the outer element to tight engagement with the outer face of the glass, the construction being such as to prevent a tilting of the outer element by the pressure applied to the draw bar.

My improved construction includes an inner sash element resting upon the window sill and having pawls corresponding in position to and engaging the respective spaced draw bar elements secured to the outer member.

My improved construction is of a character adapting the same for use with varying thicknesses of glass with equal facility.

It is further an object and feature of the invention to provide sash elements of such character and form as to permit the same to be manufactured by the extruding process and method and a pair of supporting blocks are provided to take the weight of the glass and of a form to automatically compensate for change in level of the lower edge of the glass due to faulty construction or settling of a building and relieving the sash elements from such strain.

These and other objects and novel features of the invention are hereinafter more fully described and claimed, and a sash construction embodying my invention is shown in the accompanying drawing in which—

Fig. 1 is a front fragmentary view of my improved sash with a glass supported therein.

Fig. 2 is a vertical section of the sash elements in the open position.

Fig. 3 is a sectional perspective showing the sash in closed position in respect to the glass.

Fig. 4 is a perspective view of the draw bar element utilized in drawing the sash elements to tight engagement with the glass.

Fig. 5 is a perspective view of a pivoted pawl for engaging the draw bar.

Fig. 6 is a side elevation of a desired form of setting block.

Fig. 7 is a section in elevation taken on line 7—7 of Fig. 2 showing the manner of securing the operating elements in place.

The window sill is indicated at 1 and an auxiliary sill is indicated at 2 more clearly shown in Figs. 2 and 3 forming a right angled recess to receive the sash elements.

Preferably, the outer face of the sill and the bottom of the right angled recess are covered by a sheet metal element 4 having a face configuration on the outer face of the sill 1 as may be desired for ornamental effect while ordinarily, the portion 5 of the element 4 lying on the top of the sill 1 is of flat sheet metal upturned as at 6 on the lower edge and outer face of the auxiliary sill 2.

The sash comprises the inner element 7 and the outer and movable element 8. The inner sash element 7 has the upper angular face 9 and is formed with an upturned edge 10 providing a face 11 to engage the glass. The vertical portion 12 of the inner sash lies in engagement with the outer face of the auxiliary sill 2 and is notched at 13 at the bottom to receive the upturned edge 6 of the portion 5 of the facing element 4.

The base 14 of the inner sash member 7 is formed with two longitudinally extending ribs 15 and 16 which support the sash element on the facing member 5 and the upper face of the base 4 is slightly raised to form a flat surface 17. The outer edge of the base element has a projecting flange 18 positioned above the bottom face of the ribs 15 and 16 and forming a small recess 19 between the facing member 5 and the flange 18.

The outer sash element 8 is also preferably of extruded metal and has what may be termed a "stepped" formation which may be varied considerably from the form shown if desired for ornamental effect.

Preferably the outer sash element 8 has a glass engaging edge 20 at the upper end which from its inner side is provided with a groove 21 for a purpose hereinafter described. The inner face of the element 8 between the upper flanged edge 20 and the bottom edge of the outer face has a recess 22 formed at its bottom with an upturned flange to provide a groove 23 and the sash element 8 is then inturned to provide a flange 24 lying on the member 5 and engageable in the recess 19 and in close association with the flange 18 of the inner sash base element.

I preferably provide a draw bar 25 shown in perspective in Fig. 4 and in section in Figs. 2 and 3 supported in the grooves 21 and 23 of the sash 8. This draw bar has a horizontal portion 26 extending inwardly from the outer member and a vertical portion having a flange 27 engaging in the groove 21 and also has a rib 28 which lies in the groove 23 provided in the outer sash ele-

ment 8. The horizontal portion 26 has an upturned inclined edge 29. It will be observed that the outer sash element 8 is slidable relative to the inner sash element 7 and thus when not restrained by the pawl 30, hereinafter described, the inner element may be moved outwardly to a width greater than the thickness of the glass 31 to be inserted between the sash elements. The glass element may be introduced therebetween to rest upon the setting blocks 32 and the outer member 8 may be manually moved inwardly to the position shown in Fig. 2.

The pawl 30 has a pointed portion 33, a rib 34 on one side and the upper end thereof is inturned to provide a rib or flange 35 of arcuate form which rib 35 lies in a groove formed in the inner face of the inner sash 7 by an upturned rib 36. To operate the pawl from the interior face of the glass, the sash element 7 has a series of threaded apertures to receive the adjusting screws 37 one of which is here shown. Each screw is threaded at its upper end for engagement in its aperture and has a groove 38 in its body at its inner end in which the rib 34 of the pawl engages.

The body of the pawl 30 is formed with a groove 39 to receive the terminal end 39 of the screw and therefore the said end may bear upon the lower face of the groove in threading the screw downwardly. The point 33 of the pawl engages the inclined face of the flange 39 and this draws the outer sash element 8 into tight engagement with the outer face of the glass 31. Movement of the outer sash toward the inner sash is always in a plane parallel with the glass as the outer sash element is held from being tilted by the pressure applied to the draw bar flange 29.

It will be readily observed from Fig. 2 that various widths of glass may be used with my improved sash and that when the parts are in the final position as in Fig. 3 and it is desired to remove the glass the screw 37 is withdrawn by threading upwardly from the position shown in Fig. 3 to position shown in Fig. 2 which raises the pawl from its pressure engagement with the flange and permitting the outer sash element to be withdrawn manually to the position shown in Fig. 2. By this arrangement therefore the glass may be introduced into the space between the glass engaging faces of the two sash elements and the outer element drawn to tight engagement with the glass to prevent water running down the outer face of the glass from passing into between the sash elements and all the operating parts are therefore free from moisture or from sticking due to freezing.

The upper face of the inner sash element 7 is formed to provide a longitudinal groove 40. Moisture running down the inner face of the glass then flows away from the flange 10 and while not here shown, provision may be made for conducting water out of the groove 40 and to prevent an accumulation on the sill member 2 which is usually of wood to correspond with the interior finish.

The setting blocks 32 are shown in elevation in Fig. 6 and may be of any approved construction. A feature of the block structure resides in providing a straight upper face 41 preferably lead surfaced and a slightly curved lower face 42. In store front glass which is of considerable width, two of these blocks are used some little distance from the vertical edges of the glass and, due to this curved surface, the blocks may rock slightly and naturally taking position parallel with and contacting the bottom edge of the glass which may not be exactly parallel with the sill on which the blocks are supported. These setting blocks are positioned between the draw bars 26 connected with the outer sash element 8 and thus do not interfere with the movement of the draw bar and sash element and rest directly on the base 14 of the inner sash element which in turn is supported by and level with the sill element 1.

In Fig. 7 is shown a partial section and elevation of the inner sash element in which the inner face of the element is shown in elevation and the relationship therewith of the pawl 30 and draw bar 26. It is to be understood that the rib 36 extends the full length of the sash element 7 and it is also to be understood that the ribs forming the grooves in the outer sash element 8, which grooves support the part 25 of the draw bar structure, also run the full length of the sash element 8. The construction permits the draw bars and pawls to be moved into the sash from the end and slid along the respective sash to the required spaced position one from the other. As these pawls and draw bars are slidable, it is necessary to secure the same in their final spaced relation. For this purpose, as for instance with the pawl 30, the rib 36 is punched in as shown at 50 on opposite sides of the pawl 30 providing a means for preventing any material movement of the pawl longitudinally in the groove but the punched in parts 50 are spaced sufficiently to provide for freedom of movement of the pawl in its place. Although no illustration is made, the rib 28 of the outer sash member is to be understood as being secured in place in the same manner as is illustrated with the pawl 30 in Fig. 7. This prevents material longitudinal displacement of the draw bar from its predetermined position and the two sash elements are so arranged that the respective draw bars and pawls are in opposed relation when the sash elements are in place.

The arrangement of the grooves to receive the parts of the pawl and the draw bar in the respective sash elements provides a very efficient and inexpensive means for the positioning and the assembly of the same in the respective sash elements and, once they are in position and the supporting ribs peened to prevent displacement, the sash elements may be handled freely without possibility of loss of these small parts.

The operation of the parts is simple in the extreme. With the position of the inner sash 7 as indicated in Fig. 2, the outer sash element 8 may be introduced thereinto by first inserting the upturned flange 29 of each of the draw bars 26 to beneath the point of the respective pawls 30 and then permitting the base flange 24 of the outer element 8 to rest on the sheet 5. The outer sash element may then be moved manually toward the glass if desired but to finally force the outer end inner sash elements to tight engagement with the glass, the screws 37 are operated to move the elements 30 from the position shown in Fig. 2 to the position shown in Fig. 3. This produces a clamping engagement of the glass between the portion 10 of the inner element and the portion 20 of the outer element. There are, of course, as before stated, a series of screws 37 extending longitudinally of the upper inclined flange of the inner element and a like series of pawls 30 and of draw bars 26 which are supported by the vertical portion 25 in the grooves provided in the outer sash element. Naturally, to replace a glass,

the screws 37 are outturned or upturned to raise the pawl 30 to the position shown in Fig. 2 whereupon the outer sash element 8 can be entirely removed if desired by slightly raising the outer vertical portion to release the inclined flange 29 of the draw bars from beneath the pawls 30.

From the foregoing description it will be seen that the device is simple in operation, is inexpensively constructed and that the various objects of the invention are attained by the structure described and as set forth in the appended claims.

Having thus fully described by invention, its utility and mode of operation, what I claim and desire to secure by Letters Patent of the United States is—

1. A sash construction for windows comprising an inner sash element having a base and a vertical portion having a glass engaging flange, an outer movable sash element having a vertical portion terminating in a glass engaging flange and a base portion, the edge of the base of the inner element having a rib extending toward the outer element and spaced above the lower supporting face of the base and the outer element having an inturned flange for engaging beneath the flange of the inner element and the supporting surface whereby in movement of the outer element toward the inner element it is held to movement in a plane substantially parallel with the face of the glass pane, a draw bar secured to the outer element and having an inwardly extending portion formed with a terminal inclined flange, a pawl pivotally associated with the inner sash element and having a face portion for engagement with the inclined flange of the outer element, and a screw for rocking the pawl to engage the draw bar and draw the outer sash element toward the glass to clamp the glass pane between the pane engaging flanges of the two sash elements or to raise the pawl to position to permit withdrawal of the outer sash from association with the inner sash.

2. A sash construction for windows comprising inner and outer sash members, the inner sash member having a base extending toward the outer sash member for engagement with a sill and a vertical portion at the inner edge of the base and an inclined glass engaging flange extending toward the outer sash member, said outer sash member having a glass engaging upper flange and a base for engagement with the sill, the edge of the base of the inner member having a flange spaced from the sill member and providing therewith a recess for the base engaging flange of the outer member, a series of draw bar elements attached to the outer sash member and having a flat portion extending toward the inner member substantially in sliding contact with the upper face of the base of the inner member, each of said draw bars terminating in an upturned edge, a series of pawls equal in number to the number of draw bars and pivotally supported on the vertical portion of the inner member, a series of screws in threaded relation with the inclined flange of the inner member and having a grooved end portion, the pawls each having a rib riding in the said groove of the respective screws whereby, through rotation of the screw in one direction, the respective pawl is moved to engage its draw bar and to draw the outer sash to engagement with the glass and the glass to engagement with the inclined flange of the inner member, and the screw, through rotation in the opposite direction, raising the pawl to enable the outer sash member to be manually withdrawn and reset for a more or less thickness of glass element.

3. A sash construction for windows comprising inner and outer sash members, the inner member having a base extending toward the outer member, a vertical portion at the inner edge of the base and an upper inclined glass engaging flange extending toward the outer member, said outer member having a vertical portion and a flange for engaging the glass in opposed relation to the glass engaging flange of the inner member and a part riding beneath the base of the inner member, a draw bar having a flat lower face riding substantially in contact with the upper face of the base of the inner member and attached to the outer member, a manually operated means for engaging the said draw bar to thereby draw the outer member to clamping engagement with a glass positioned between the glass engaging flanges of the two members, and a pair of setting blocks respectively positioned near each vertical face of the glass and having curved lower faces resting on the base of the inner member and flat upper faces on which the glass rests, said setting blocks being in spaced relation with the draw bars and operating elements.

4. A sash construction for windows for association with a window sill comprising inner and outer sash elements, the inner sash element being fixed in relation to and supported by the sill and the outer sash element having slidable relation to the inner sash element and resting on said sill, a draw bar connected with the outer sash element having a face engaging the upper face of the base of the inner element, a pawl pivotally supported by the inner element, and a screw for rocking the pawl, said screw having a groove and the pawl having a part riding in the groove whereby threading of the screw inwardly of the said inner element forces the pawl to engagement with the draw bar in a manner to draw the outer sash toward the inner sash and to clamp the glass therebetween and threading the screw outwardly of the said inner sash element raises the pawl from pressure engagement with the draw bar permitting the outer sash element to be manually withdrawn from the glass clamping position.

5. A sash construction for windows for association with a window sill comprising inner and outer sash elements, the inner sash element being in fixed relation with and supported by the sill and the outer sash element being slidable on the sill in respect to the inner sash element, a draw bar connected with the outer sash element having a face slidably engaging in the upper face of the base and an inclined edge, a pawl pivotally supported by the inner element, and a screw for rocking the pawl, said pawl having a part for engaging the said inclined edge of the draw bar whereby on movement of the pawl in one direction on its pivot, pressure is exerted on the said edge to draw the outer sash toward the inner sash to clamp a glass pane therebetween, and means carried by the inner sash element and operable from the inner face of the glass to turn the pawl on its pivot to pressure engagement with the draw bar or to position to permit the draw bar and the outer sash to be withdrawn from its association with the inner sash.

6. A sash construction for windows for association with a window sill comprising inner and outer sash elements, the inner sash element being in fixed relation with and supported by the sill, the outer sash element being slidable relative

to the inner sash element and both the said sash elements opposite the base being formed with a glass engaging edge, a series of draw bars attached in spaced relation to the outer sash element each having a face for slidably engaging the upper face of the base of the inner element, a series of pawls pivotally supported by the inner sash element equal in number and in opposed relation respectively with the said draw bars, and a series of screws in threaded relation with the inner sash element for rocking the respective pawls to force the same to pressure engagement with the respective draw bars to draw the outer sash element toward the inner sash element and clamp the glass between said glass engaging edges thereof or through reverse operation of the screws to raise the pawls from pressure engagement with the respective draw bars.

7. A sash construction for windows comprising inner and outer sash elements adapted for positioning in opposed relation on a window sill, each of the sash elements on the opposed inner faces thereof having a rib providing a longitudinal groove, a pawl having a portion for engaging in the groove of the inner sash element to rock therein and movable to the desired position longitudinally of the inner sash by inserting the same in the end thereof, a draw bar having a part supported in the groove formed by the rib of the outer element permitting assembly by insertion of the draw bar in the end of the outer sash, the rib supporting the pawl and the rib supporting the draw bar being indented to partially close the groove on opposite sides of the respective draw bar and pawl whereby the same may be held from material displacement, the sash elements being so relatively assembled that the pawl is positioned for cooperative relation with the draw bar, and means for operating the pawl to release the draw bar to permit the outer sash to be moved away from the inner sash element or moved in reverse direction to engagement with the draw bar and draw the outer sash toward the inner sash.

JOHN L. HUNT.