H. FERR.

WINDOW.

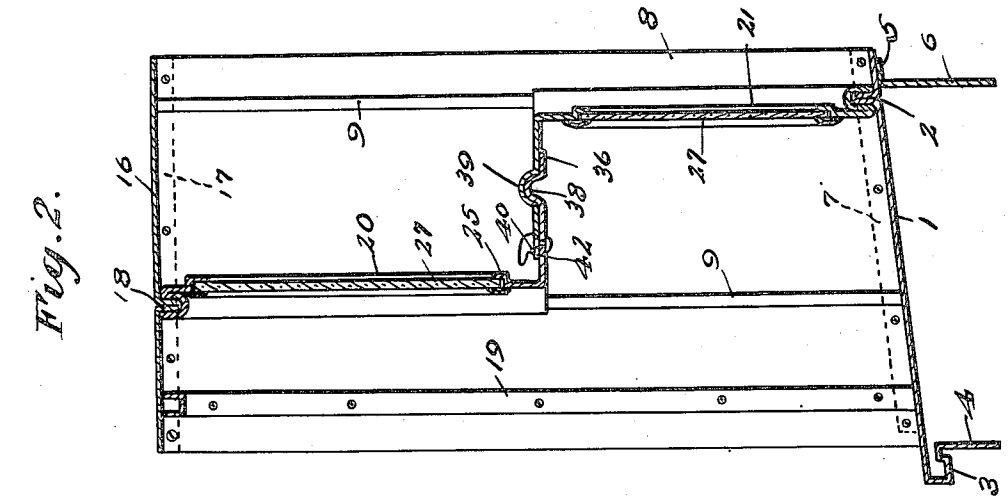
APPLICATION FILED MAY 8, 1920.

1,381,070.

Patented June 7, 1921.

3 SHEETS—SHEET 1.

Fig. 2.



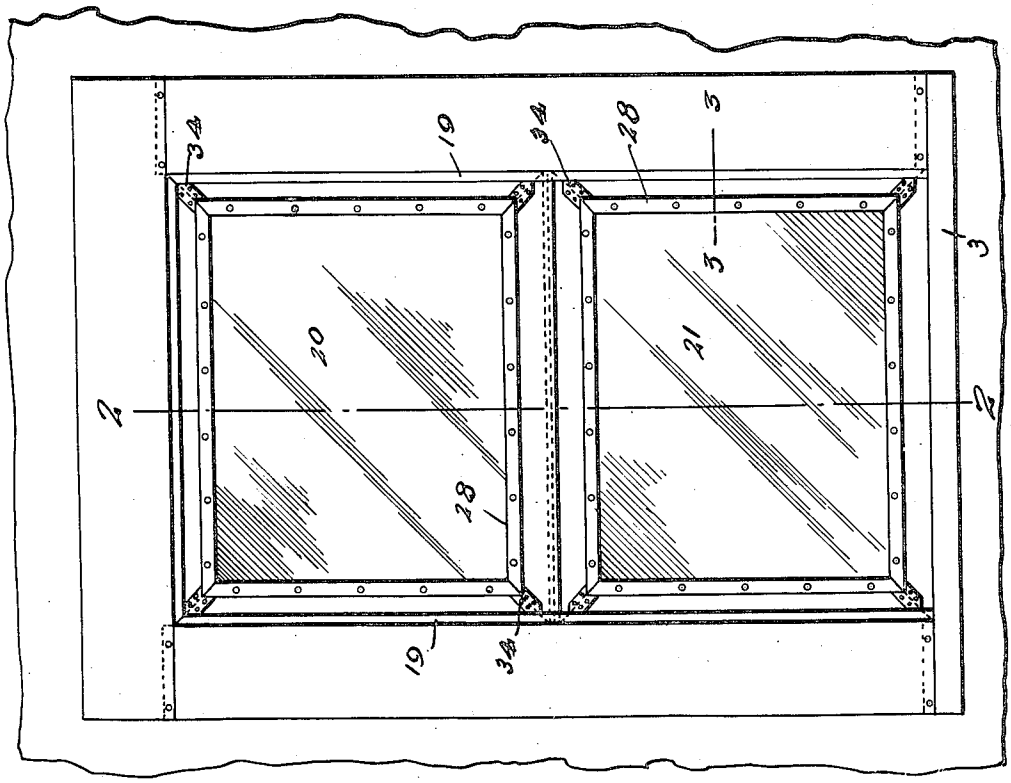


Fig. 1.

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3 SHEETS—SHEET 2.

Fig. 6.

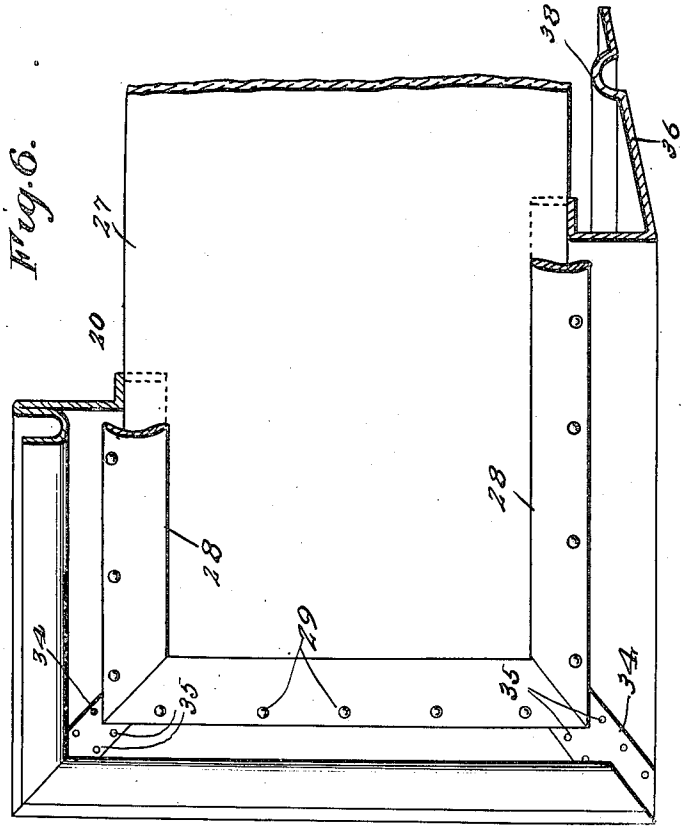


Fig. 4.

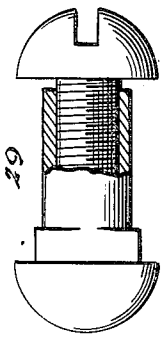
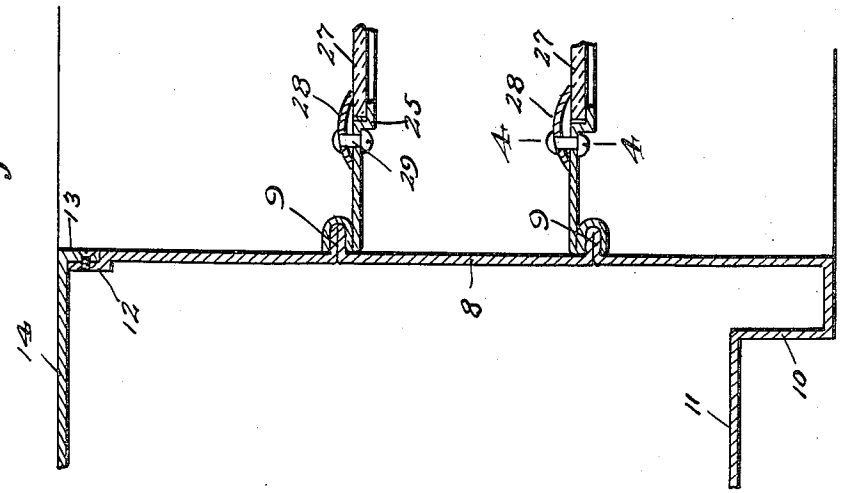


Fig. 5.



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3 SHEETS—SHEET 3.

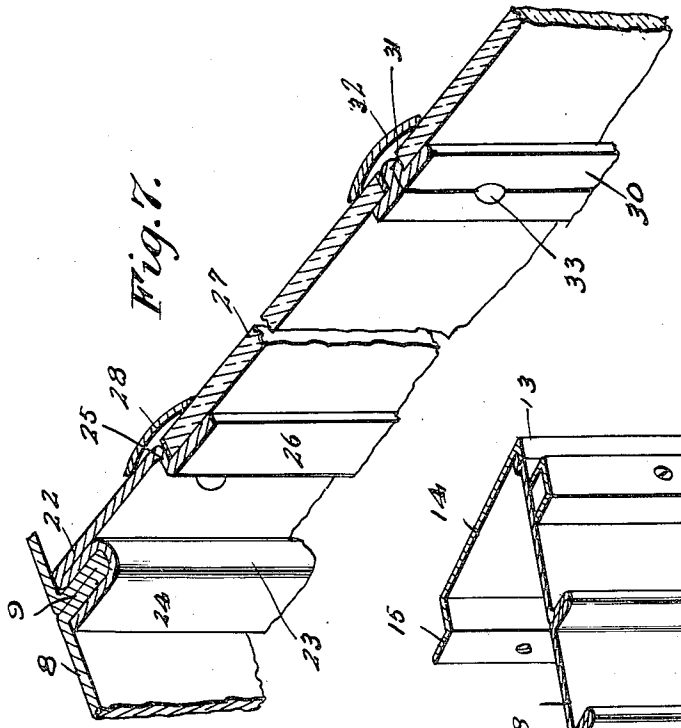


Fig. 7.

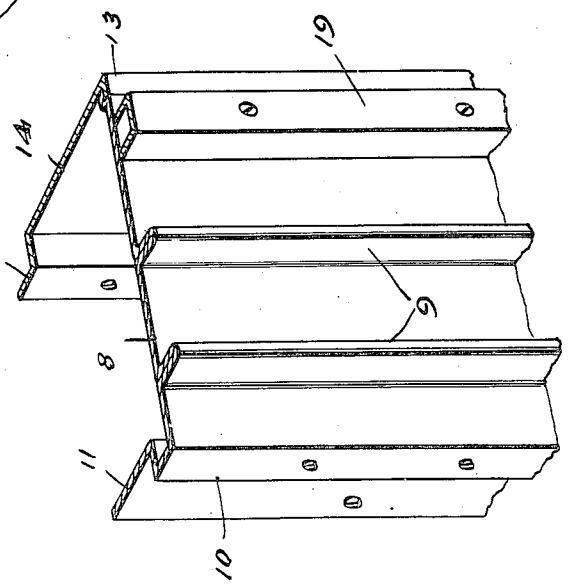


Fig. 5.

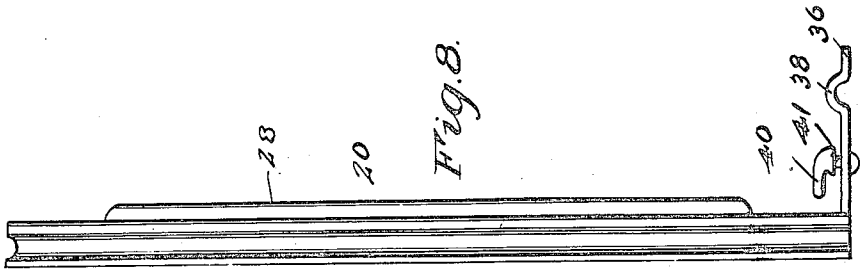


Fig. 8.

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UNITED STATES PATENT OFFICE.

HENRY FERR, OF MASON CITY, IOWA.

WINDOW.

1,381,070. Specification of Letters Patent. Patented June 7, 1921.

Application filed May 8, 1920. Serial No. 379,893.

To all whom it may concern:

Be it known that I, HENRY FERR, a citizen of the United States, residing at Mason City, in the county of Cerro Gordo and State of Iowa, have invented new and useful Improvements in Windows, of which the following is a specification.

My present invention has reference to metal window frames and sashes therefor.

My improvement is primarily devised for use on frame buildings to render the window casings and sash frames thereof fire proof, and has for its primary object to construct such casings or frames, and the sashes therefor in a comparatively simple, cheap and thoroughly efficient manner.

A further object is to produce a metallic frame or casing which will properly accommodate itself to the walls surrounding the openings in a building therefor, and which is integrally formed with the spacing beads between which the sashes slide, the said sashes being also constructed in a peculiar and novel manner whereby the same may be readily raised or lowered when in closed position and which will prevent the entrance of dust or moisture therebetween.

A further object is to produce in combination with a metallic frame, sashes therefor which are also constructed of metal and which are provided with novel means whereby the glass panes may be attached thereto, as well as with means for locking the said sashes against movement when in closed position.

The drawings illustrate a satisfactory embodiment of the improvement.

In the drawings:—

Figure 1 is a front elevation of a metallic window frame or casing having metallic frames therein, each constructed in accordance with this invention.

Fig. 2 is a sectional view approximately on the line 2—2 of Fig. 1.

Fig. 3 is a sectional view approximately on the line 3—3 of Fig. 1.

Fig. 4 is a sectional view approximately on the line 4—4 of Fig. 3.

Fig. 5 is a fragmentary perspective view of one side of the casing.

Fig. 6 is a fragmentary perspective view of one of the sashes, looking toward the outer face thereof.

Fig. 7 is a fragmentary sectional perspective view illustrating more clearly the manner in which the stile of the sash is constructed, and also the manner of connecting the glass panes thereto.

Fig. 8 is an edge view of the upper sash.

While my improvement is especially adapted for use on frame buildings, it is to be understood that it is not to be thus restricted in its useful application, as the same may be found equally useful on brick or other buildings.

The frame casing is preferably constructed of pressed steel, but other metals may be employed if desired. The sill portion of the frame includes a base plate 1 that is arranged at a desired inclination and which is integrally formed with one or more longitudinal grooved portions that provide outstanding substantially U-shaped beads 2. The base plate 1, on its outer and lower edge is shaped to provide a downstanding substantially cross sectionally rectangular portion or lip 3 that corresponds to the projecting portion of the sill of an ordinary window frame, and from the lip there is a depending plate in the nature of an apron 4. On its opposite and inner end, the base plate 1 has bolted or otherwise secured thereto the flanged portion 5 of an apron or trim plate 6.

The base plate has its end formed with upstanding flanges 7 to which are bolted or otherwise secured the side or jamb members 8 of the frame or casing. The jamb members 8 are grooved longitudinally from their inner faces to provide outstanding cross sectionally U-shaped beads 9 that are arranged in a line with the bead or beads 2 on the base plate 1. Each of the jambs, on its edge is formed with a lip 10 from the inner end of which extends a plate 11 that provides the inner casing plate. The outer edge of each of the jamb plates 8 has a depressed portion 12 extending the entire length of the said plate and receiving therein the inner flange 13 of the outer casing plate 14. The casing plate 14, at its outer end is bent inwardly and outwardly to provide what may be termed a foot portion 15. The foot portion 15 has openings therethrough as have the inner casing plate 11 and if desired the lip 10, and through these openings pass the securing elements that sustain the casing on the building.

The top plate of the frame is indicated by the numeral 16 and has its ends provided with downturned flanges 17 that are

bolted or otherwise secured to the inner faces at the upper ends of the jambs 8. The top plate 16 is provided, from its inner face with one or more longitudinal grooves forming the outer face thereof with one or more beads 18, the said beads corresponding in size and shape with the beads 9 on the jambs 8, and alining with the said bead or beads.

On the jambs 8, adjacent to the outer edges thereof, there may be secured channeled metallic members 19 that form stop beads for screen frames, when the latter are employed, and similar channeled members may be arranged in contacting engagement with the members 19, on the base plate 1 and on the top plate 16. The retaining elements for these channeled members are preferably in the nature of screws so that the said channeled members or beads are removable.

For distinction the upper sash is indicated by the numeral 20, and the lower sash by the numeral 21.

The side and top rails of the upper sash 20, and the side and bottom rails of the lower sash 21 are formed with channeled portions to receive the beads 9 of the jambs 8, the bead 18 of the top plate 16 and the bead 2 of the base plate 1 of the frame. These channels are formed by bending the said rails first inwardly over themselves, as at 22, next around the same outwardy as at 23, and extending the said rounded portions in a straight line which is parallel to the rails proper, the said extensions being indicated by the numeral 24.

The inner edges of all of the stiles or rails of the respective upper and lower sashes 20 and 21 are extended angularly to provide shoulders 25. The shoulders are directed toward the channeled or grooved edges of the sashes, and from the said shoulders 25 the rails or stiles are formed with projecting portions or flanges 26. Against the flanges 26 and the shoulders 25 the panes of glass 27 rest. The edges of the glass panes 27 are contacted by yieldable cross sectionally arched metallic strips 28. The strips have spaced openings therethrough which register with openings in the rails of the sashes that are arranged directly inward of the shoulders 25, and through these registering openings pass the securing means which are preferably in the nature of adjustable elements, such as short bolts 29. Preferably the openings in the rails or stiles of the sashes are threaded and those in the strips 28 non-threaded so that the heads of the bolts rest on the outer convexed faces of the strips and by tightening the said bolts the strips may be compressed against the sashes and the glass panes. Preferably compressible strips are arranged in the depressions of the sashes provided by the flanges 26 and the shoulders 25, and also if desired the edge of the strip that contacts with the sash may have a compressible facing thereon.

When a number of lights are to be used in either of the sashes I make use of a bar 30 which is disposed between the confronting edges of the glass panes. The bar comprises a metal plate which is centrally bent upon itself to provide an outstanding lip 31, the outer sides of this lip providing shoulders against which the edges of the glass pane contact. The lips have threaded openings therethrough, and a cross sectionally arched strip 32, similar to the strips 28 carries bolts that have grooved heads 33, and the shanks of the said bolts enter the threaded openings in the bars 30.

Preferably the rails or stiles, at the mitered corners of the sashes are connected, upon their outer faces by strips or cleats 34 which are riveted, as at 35 to the said rails or stiles.

The lower edge of the upper sash 20, and the upper edge of the bottom sash 21, are formed with flanges 36 and 37 respectively. These flanges are directed toward each other, and the flange 36 of the sash 20 underlies the flange 37 of the sash 21. Each of these flanges 36 and 27 from the under face thereof is grooved longitudinally providing cross sectionally rounded beads 38 and 39 respectively. The beads 38 of the upper sash 20 is of a size to be snugly received in the bead 39 of the lower sash 21, and in this manner the air and dust tight joint is maintained between the meeting rails provided by the flanges 36 and 37 of the sashes.

On the flange 36 of the upper sash 20 there is arranged, at suitably spaced intervals turnable members in the nature of locking buttons 40. These members have their outer ends offset to provide handles, and inward of the said handles are formed with cam surfaces 41. The flange 37 of the lower sash 21 has elongated slots 42 through which the elements 41 pass. By turning the members 41 to bring their cam surfaces in contacting engagement with the opposite sides of the slots or openings 42, the sashes will be effectively locked together.

It is believed that the foregoing description, when taken in connection with the drawings will fully set forth the construction, simplicity and advantages of the improvement to those skilled in the art to which such inventions relate. While I have not illustrated counter-balancing means for the sashes, it is to be understood that the space between the jambs and the inner and outer casing plates 11 and 14 respectively of the frames or casings provide ample space for weights, and also that sash cord pulleys can be readily let into the jambs 8 if desired.

Having thus described the invention, what I claim is:—

1. The combination; a metal casing and metal sashes slidable therein, integral beads on the casing, said sashes having certain of their outer edges bent upon themselves to provide grooves to receive certain of the beads, angle plates on the meeting rails of the sashes, and interengaging means between said plates designed for coengagement when the plates are brought together.

2. The combination; a metal casing and metal sashes slidable therein, spaced beads on the casing, said sashes having certain of their edges bent inwardly upon themselves, rounded and extended outwardly to provide grooved portions which engage with certain of the beads, the meeting rails of the sashes having inwardly directed plates, and said plates being grooved longitudinally to provide outstanding beads which are designed to interengage when the plates of the said meeting rails are brought together.

3. The combination; a metal casing and metal sashes slidable therein, spaced beads on the casing, said sashes having certain of their edges bent inwardly upon themselves, rounded and extended outwardly to provide grooved portions which engage with certain of the beads, the meeting rails of the sashes having inwardly directed plates, and said plates being grooved longitudinally to provide outstanding beads which are designed to interengage when the plates of the said meeting rails are brought together, and means between the plates for locking the same when in such last mentioned position.

4. A metal sash having its side rails and one of its outer rails bent inwardly, rounded and extended outwardy to provide grooves, inturned shoulders at the inner edges of the rails and flanges extending outwardly from said shoulders, said shoulders and flanges providing pockets for a glass pane, concaved strips contacting with the pane and with one of the faces of the sash, and adjustable securing means between the sash and said strips.

5. A metal sash having certain of its edges bent upon themselves to provide grooves, angle shoulders on the inner edges of the rails of the sash and inwardy extending flanges projecting from said shoulders, said flanges and shoulders designed to receive glass panes, concaved strips between the edges of the pane and the rails of the sash, removable and adjustable means sustaining the strips on the sash, bars having central ribs between the confronting edges of the panes, cross sectionally arched spring strips on the faces of the pane opposite that engaged by the bars, and adjustable and removable securing elements between the strips and bars.

6. A metal sash having portions thereof at its outer edges bent inwardly, rounded and extended outwardly to provide grooves, the inner edges of the sash rails being shouldered and being formed with flanges projecting from said shoulders to provide seats for a glass pane, the ungrooved rail of the sash having an angle extension, and said extension being grooved longitudinally from one of the faces thereof to provide the outer face with a bead.

In testimony whereof I affix my signature.

HENRY FERR.