

July 3, 1934.

R. T. AXE

1,965,519

SHEET METAL SASH CONSTRUCTION

Filed July 1, 1932

2 Sheets-Sheet 1

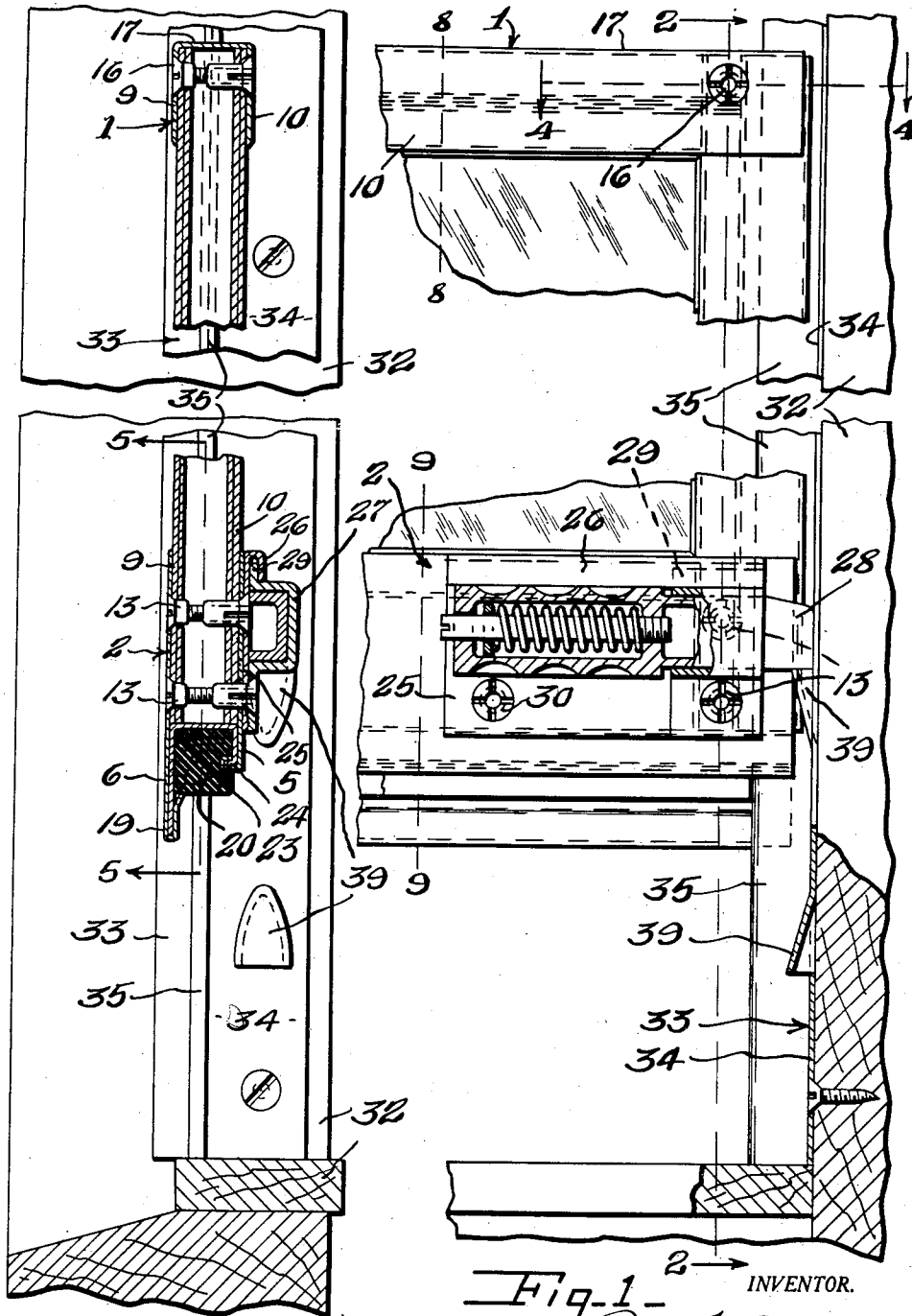


Fig-2-

Fig-1- INVENTOR.

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2 Sheets-Sheet 2

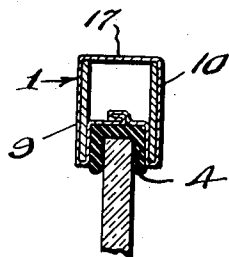


Fig-8-

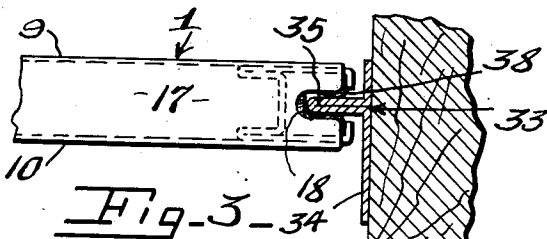


Fig-3-¹⁸₃₄

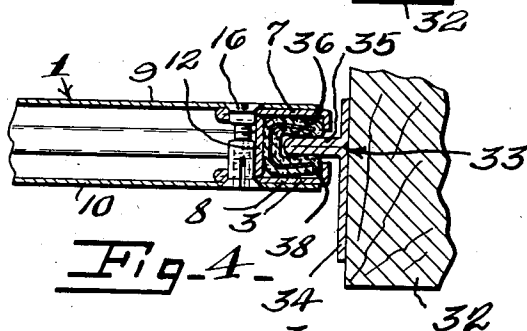


Fig-4:-

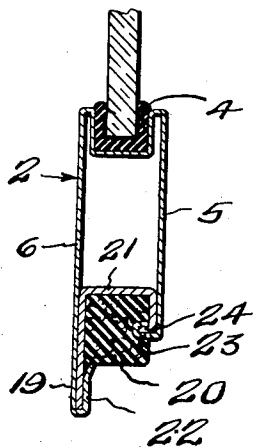


Fig-9-

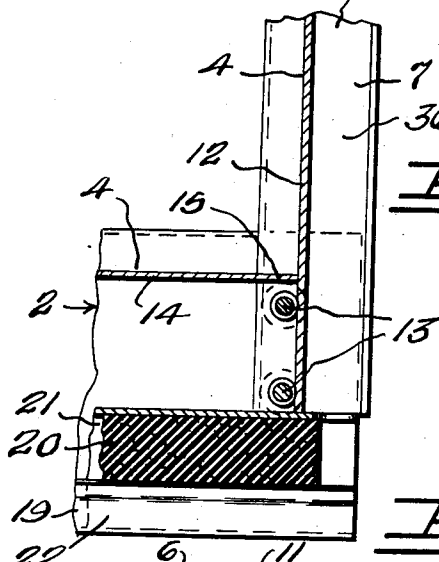


Fig-5-

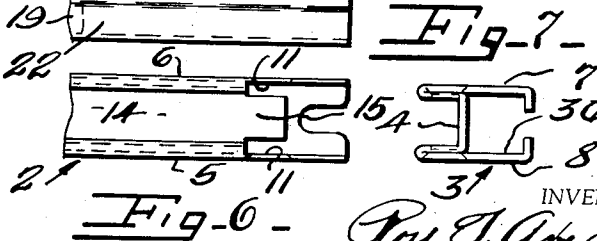


Fig-7-

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UNITED STATES PATENT OFFICE

1,965,519

SHEET METAL SASH CONSTRUCTION

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Application July 1, 1932, Serial No. 620,451

5 Claims. (Cl. 189—76)

This invention relates to window sashes, and particularly to sheet metal sashes, such as are used in motor buses and the like, and has for its object, a sash construction in which the sash members, as the rails and stiles, are formed up of thin sheet metal so that the sash is very light and the sash members, that is, the stiles and rails securely joined together at the corners without the use of inserts or corner irons. Other objects will appear throughout the specification.

The invention consists in the novel features and in the combinations and constructions herein-after set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is a fragmentary elevation, partly in section, of a sash embodying my invention, the contiguous portion of the window frame being also shown.

Figure 2 is a sectional view on line 2—2, Figure 1.

Figure 3 is a fragmentary edge view of the top rail looking downwardly, the contiguous part of the window frame being shown in section.

Figure 4 is a sectional view on line 4—4, Figure 1.

Figure 5 is a sectional view on line 5—5, Figure 2.

Figure 6 is a fragmentary plan view of the bottom rail.

Figure 7 is an end view of one of the stiles.

Figure 8 is a sectional view on line 8—8, Figure 1.

Figure 9 is a sectional view on line 9—9, Figure 1.

In order that the sheet metal sashes, such as are used in motor vehicles may be economically manufactured within a price that manufacturers of motor vehicle buses can afford to pay, it is requisite that the sashes be formed of, as thin as possible, sheet metal and at the same time be rigid. It is also requisite that the sashes be of as light weight as possible, and the principal object of this invention is a light sheet metal sash construction, which is firm and rigid without the use of reinforcing inserts, as corner irons.

The sash comprises generally, sash members, as top and bottom rails 1, 2, and stiles 3. Each of these is formed up of sheet metal in any suitable manner to have a glass receiving reentrant groove 4 and front and rear spaced apart walls which, as before stated, are of extremely light or thin sheet metal.

5 and 6 designate the walls of the bottom rail; 7 and 8 the walls of each stile; 9 and 10 the walls of the top rail. One of the sash members is formed at its ends with passages for receiving others, which meet it at an angle, and as here shown, the bottom rail is formed with a passage 11 at each end opening through its inner edge, or the edge at which the glass receiving groove 4 is located, and the stile 3 extends into said passage between the walls 5, 6, of the bottom rail, these walls being spaced apart a slightly greater distance than the walls 7, 8, of the stile. The bottom rail and stile are secured together, and the bottom walls of the reentrant groove 4 acts as tie pieces, or braces. Preferably, fastening parts are used extending transversely through the lapping portions of the rail and stiles, these being located adjacent the bottom 12 of the reentrant groove so that the bottom acts as a brace to receive the compression of the fastening parts.

If in case of steel sashes the rails and stiles are spot welded at the corners, the bottom walls of the reentrant groove act as tie pieces and braces.

13 designates the fastening parts, each of which is here illustrated as a sleeve screw and a shank screw, the latter threading into the former, and as shown in Figure 5, these screws are located as near as possible to the bottom 12 of the reentrant groove in the stile, and also, one of these screws is located near the bottom 14 of the reentrant groove of the bottom rail. The bottom 14 of the rail is formed with a tongue 15 which extends into the reentrant groove of the stile. Likewise, the upper end of each stile interfits into the end of the top rail 1 and is secured therein by a fastening screw 16. The outer edge of the top rail is closed by a wall 17, which is provided with a notch 18 at its end for a purpose presently to be described. The wall 6 of the bottom rail is, as seen in Figure 9, of greater width than the wall 5 providing a flange 19 for lapping the sill, when the sash is closed.

A suitable buffer strip 20, as of rubber, is located in the open edge of the bottom rail, said buffer extending beyond the lower edge of the wall 5, but terminating short of the edge of the wall 6. This rubber buffer is here shown as located in a channel formed by inserting an angular strip 21 in the edge of the bottom rail and suitably interlocked therewith.

As here shown, the lower margin of the wall 6 in the flange 19 is bent back upon itself at 22 over the margin of one side flange of the channel iron 21 and the lower edge of the wall 5 is formed with an inturned and reversely bent

flange at 23 extending over a lip 24 on the other flange of the channel iron 21.

The sash is usually provided with sash holders at its lower corners and as here shown, the sash is provided at the lower corners thereof with a face plate 25 having an overhanging lip 26 along one edge thereof and the sash holder includes a body 27 and a spring pressed bolt 28 slidable in the body, the body having a flange 29 at one margin hooking under the flange 26 and being secured at its opposite margin to the face plate, so that the body is attached to the face plate by hooking under the flange 26 and thereafter screwing the securing means to be described in position. The face plate thus reinforces the lower corners of the thin sheet metal sash.

The fastening means for securing the face plate in position includes the screws 13 which extend transversely through the joint between the bottom rail and the stile and also, an additional similar fastening device 30. Some of these screws, as the screw 30, also serve to secure the body 27 of the sash holder to the face plate.

32 designates a window frame structure, and 33 sash guides thereon, each of these guides consisting of a base flange 34 and an inwardly extending strip 35 which extends into the channels 36 formed in the edge of the stiles and into the notch 18 of the top rail and coacts with weather strip means 38 housed in said channel. The weather strip means form no part of this invention.

The base flange extends beyond the plane of the inner face of the sash and is provided with projections 39 struck therefrom coacting with the nose of the bolt 28 to hold the sash closed, or in different elevations.

Owing to the corner formation, the sash is light but rigid without the use of corner inserts, or irons, and the rails particularly the top rail, which is secured at each end by a single clamping screw, is readily removable to replace a broken glass.

What I claim is:

1. In a window sash construction, hollow rail and stile members formed up of thin sheet metal to have a reentrant glass receiving groove and front and rear walls, one of the sash members being formed with an opening at its end through the edge thereof provided with the reentrant groove, and a second member arranged at an angle thereto extending into the opening with its front and rear walls lapping the front and rear walls of the former member, the lapping portions

of each member being substantially the full width of that member, and fastening means extending transversely through said member substantially parallel to and near the bottom of the reentrant groove of the lapping portion of one of said members, whereby the bottom of the groove acts as a brace and receives the compression of the fastening members.

2. In a sash construction comprising a hollow sheet metal member, a face plate mounted on one side of said member at the corner thereof, fastening members extending through the face plate and into the sash, and a sash holder including a body, the face plate and the body having interlocking means at one edge of the plate and the body, some of said fastening members securing the other edge of the sash holder to the face plate when the interlocking means are engaged.

3. In a sash construction comprising a hollow sheet metal member, a face plate mounted on one side of said member at the corner thereof, fastening members extending through the face plate and into the sash, the face plate being formed with an overhanging lip along one edge thereof, and the sash holder including a body having a flange extending under said lip, and means for securing the sash holder to the face plate, when the flange is under said lip.

4. In a window frame and sash construction, the combination of a sash having an inwardly extending groove in the edge of each stile and extending lengthwise of the stile and a guide on the frame including a base plate mounted on the frame, and a flange extending from the base plate and into the groove, the base flange extending beyond the plane of the inner face of the sash and formed with projections at intervals struck therefrom, and a sash holder mounted on the sash including a movable bolt coacting with the base flange and said projections.

5. In a window frame and sash construction, the combination of a sash having an inwardly extending groove in the outer edge of one of its stiles and extending lengthwise of the stile and a guide on the frame including a base plate mounted on the frame and a rib extending from the base plate and into the groove, a sash holder mounted on the sash including a bolt having a portion lapping said rib, the base flange having keeper means for coacting with the nose of the bolt.

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