

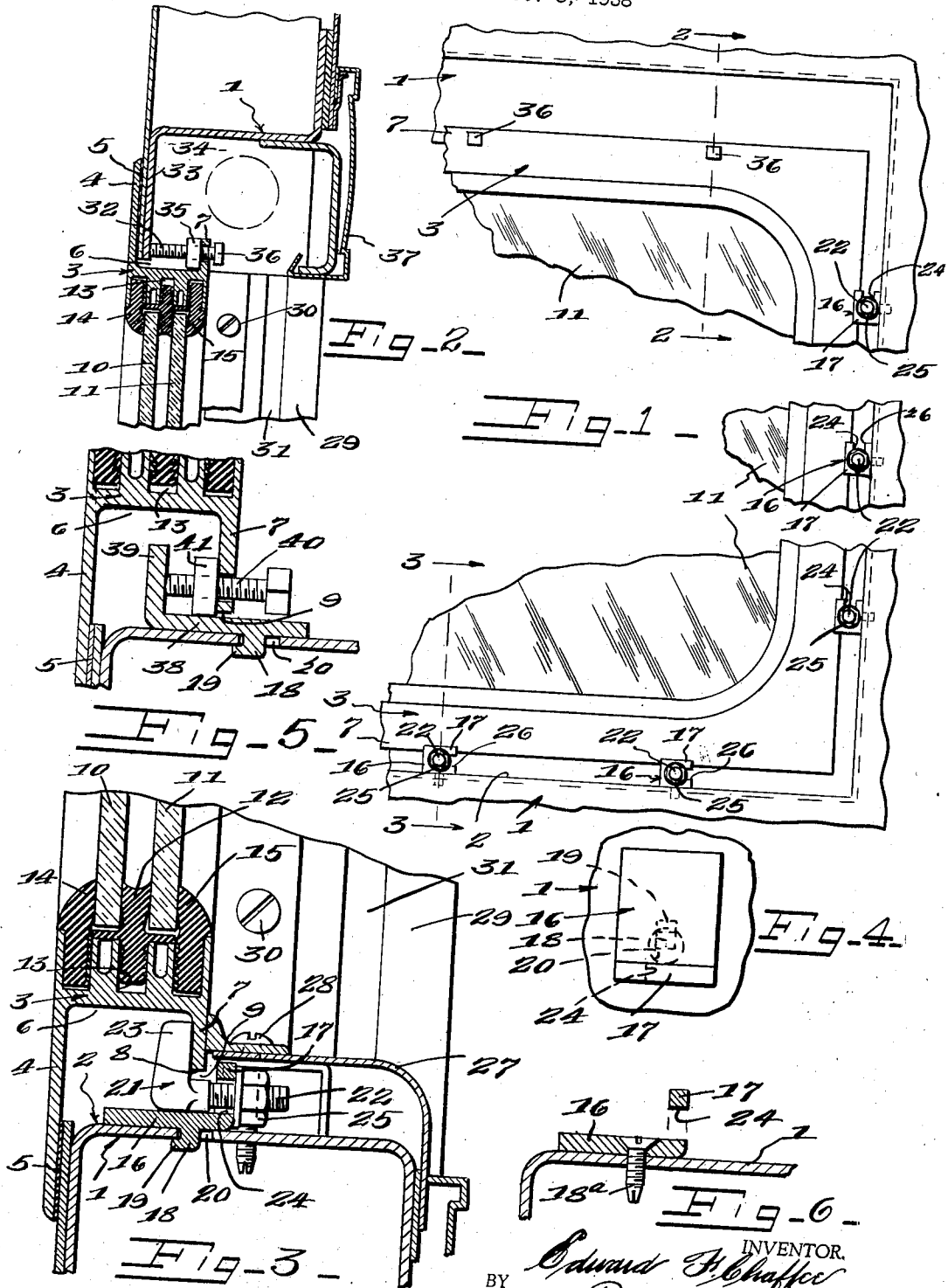
Sept. 23, 1941.

E. F. CHAFFEE

2,256,548

SASH AND SASH ATTACHING MEANS

Filed Dec. 8, 1938



INVENTOR.
Edward F. Chaffee
BY *Bodell & Thompson*
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,256,548

SASH AND SASH ATTACHING MEANS

Edward F. Chaffee, Syracuse, N. Y., assignor to
The O. M. Edwards Company, Inc., Syracuse,
N. Y., a corporation of New York

Application December 8, 1938, Serial No. 244,640

10 Claims. (Cl. 189—75)

This invention relates to window constructions, particularly adaptable for railway cars, buses, and other vehicles, and has for its object a window construction wherein the sash is attached in the window frame or window opening by a clamping action and by clamping means located in the window opening, so that there are no screw heads exposed on any exposed surface of the sash.

It further has for its object a construction by which the sash equipment including the sash and the means for securing the sash in the window opening may be applied, as a unit, by the car builder, and the sash, and particularly the securing or clamping means applied by the car builder to the window openings or frames without special construction of window frames to accommodate the securing means.

It further has for its object a construction by which a double sash, that is, a sash with two spaced apart glass panes, may be permanently attached in a window frame opening by the equipment supplied to the car builder and the glass panes readily removed and replaced without demounting the sash, and hence without fastening means which are exposed.

It will be understood that fastening members, as screws, which are exposed, particularly on the outer surface of the car, regardless of how carefully the heads of the screws are concealed, collect soot and dirt forming rings around the heads of the screws, and lines in the slots of the screw heads, if slotted screws are used, so that the fastening members are more conspicuous, regardless of how much care is taken to provide smooth surfaces to conceal them, than if no attempt were made to conceal them.

It further has for its object fastening means including base plates which are readily attached to the window frame and clamping members, which are readily applied to the sash and to the base plates, after the base plates have been attached to the window frame and the sash has been placed in position for final tightening or clamping.

The invention consists in the novel features and in the constructions and combinations hereinafter set forth and claimed.

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

Figure 1 is a fragmentary elevation of a window structure embodying this invention, the inner trim of the car around the window opening being removed.

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

Figure 3 is an enlarged sectional view on lines 3—3, Figure 1.

Figure 4 is a fragmentary plan view of the base of the clamping means, the contiguous part of the window frame being also shown.

Figure 5 is a fragmentary view similar to Figure 3 showing a modified form of clamping means.

Figure 6 is a detail sectional view of a different means for securing the base to the window frame from that shown in Figure 4.

1 designates, generally, the window frame which confines the window opening 2, this being part of the sheet metal structure of the car body. 3 designates the sash, this being formed of metal, usually by an extruding process, and the sash is formed with a flange 4 on the outer side thereof which laps at 5 the outer face of the window frame or car body around the window opening. This flange is usually one side of a peripheral channel 6 formed in the edge of the sash. The opposite or inner side of the channel is a flange 7 of less width than the flange 4 and arranged with its edge 8 spaced apart from the window frame providing a space at 9 for the clamping means. The sash is intended to be permanently mounted in the car body and is constructed to support glazing means or strips, which permit the removal and replacement, when necessary, of the glass pane or double glass panes, as 10, 11 without demounting the sash.

As here shown, the glazing means includes an intermediate strip 12 of resilient compressible material, as rubber, extending between the margins of the glass panes 10, 11 and also extending into a channel 13 in the sash, and removable glazing strips 14, 15 of similar material having head portions pressing against the outer margins of the glass panes 10, 11 respectively, and base portions extending into grooves or channels in the sash. These glazing strips 14, 15 are generally removable and replaceable and so constructed as not to crawl or work out of the grooves in which they are located. The specific construction of the glazing means forms no part of this invention.

The means for securing the sash to the window frame comprises base plates, which lie flatwise on the window frame within the window opening and which are attachable to the window frame, and clamping members coacting with the

base plates and with the sash and placeable in coacting relation with the base plates and with the sash, after the base plates have been applied to the window frame and the sash has been placed in the window opening preliminarily to being tightened in position by clamping the flange 4 or portion 5 thereof against the window frame.

16 designates the base plates. Each base plate, as here shown, extends into the channel 6 of the sash through the space 9 between the edge of the narrow side or flange 7 of the channel 6, and the window frame, and is formed with an inwardly extending flange or lug 17 to which the clamping member is attached. In order that the base plates may be readily attached to the window frame, each is preferably formed with a stem 18 having an angular shoulder or lug 19, the base plate being attached to the window frame by moving it to insert the stem 18 through a drilled hole 20 in the window frame, and then shifting it laterally to interlock the shoulder or lug 19 under the margin of the wall around the hole, the angular shoulder or lug 19 being so located that the thrust of the clamping member on the base plate causes the lug to hook under the margin of the wall around the opening 20.

21 designates the clamping members. Each clamping member includes a threaded shank 22 and an angular head portion 23. The shank extends through a slot 24 in the flange 17, which flange is located outside of the sash of the channel 6 on the inner side of the sash and the head 23 coacts with the inner face of the shorter side of the flange 7 of the channel 6; the shank extending through the space 9. A nut 25 threads on the shank 22 against the flange 17. The slot 24 in the flange 17 opens at 26 through a lateral edge of the flange 17.

The sash and the clamping members are supplied to the car builder, and in applying the sash equipment to the window opening, the car builder bores the holes 20 at suitable intervals in the window frame, and places the base plates in position. He then places the sash in the window opening with the flange 4 or portion 5 thereof opposed to the outer side of the window frame. The clamping members are then manipulated through the space 9 to bring the heads 23 thereof on the inner side of the flange 7. Then the clamping members are slid laterally to bring their shanks into the slots 26 of the flanges 17 of the base plates. The nuts 25 are then tightened, thus clamping the flange 4 against the window frame and firmly clamping the sash tightly in position. The flanges 17, shanks 22 and nuts 25 are concealed by the interior trim of the car. Along the lower side of the sash, this interior trim is a hollow sheet metal sill 27 secured to the window frame, as by screws 28. Along the vertical sides of the sash, interior trim strips 29, similar to the sill, are provided and held in position by screws 30, these strips 29 being formed with the usual curtain guide 31. The screws 28 and 30 are the type of screw which bore and tap the holes, and in Figure 6, the base plates are shown as secured to the window frame by similar screws 18 instead of by the stem 18 with the angular shoulders or lugs 19.

The frame along the upper rail of the sash is different from portions constituting the bottom and vertical sides of the window opening because usually the curtain rolls are housed in the window frame above the top rail of the sash. Because of the depth of this recess or chamber for accom-

modating the curtain roll and because of the curtain roll itself, it is impractical to provide the fastening members, including the base plates. Therefore, a different form of clamping means is provided along the top rail of the sash for clamping the flange 4 against the window frame. As here shown, the clamping means along the top rail include clamping screws 32 extending through the narrow flange 7 of the channel 6 and thrusting at their inner ends against the flange or wall 33 of the chamber 34 in which the curtain roller is located. Each screw 32 threads through a nut 35 thrusting against the inner face of the flange 7. This nut is square, so as to be held from turning with the screw, by reason of the fact that one side thereof lies flatwise on the bottom of the channel 6. The heads 36 of the screws are here shown as square. When the curtain is applied, the heads of the screws are concealed by the curtain, by the wall of the chamber and the interior trim 37. The clamping means consisting of the screws 32 and nuts 35 are thus self-contained with the sash.

In Figure 5 a modified form of clamping means is shown in which the base 38, corresponding to the base 16 of Figure 3 is arranged with its angular flange or lug 39 located in the channel 6 of the sash instead of out of the channel, as in Figure 5, and the clamping members are screws 40 extending through holes in the narrow flange 7 and threading through a nut 41 on the inner side of the narrow flange 7, the screw thrusting at its inner end against the lug or flange 39. The nut 41 is square, in order to be held by the base plate 38 from turning with the screw. The base plate is secured to the window frame in the same manner as the base plate 16 (Figure 3). In assembling the base plate 38 is first manipulated through the space 9 so that the lug 39 is opposed to the inner face of the narrow flange 7 and then the screw 40 tightened. In tightening the screw, the inner end thereof thrusts against the lug or flange 39 causing the nut 41 to react against the flange 7, and hence draw the sash 2 and clamp the flange 4 tightly against the outer face of the window frame.

By this construction, the car manufacturer can readily apply the sash equipment consisting of the sash and its securing means to a window frame by merely boring holes, as 20.

What I claim is:

1. The combination with a suitable window frame confining a window opening, of a sash formed with a peripheral channel at the edge thereof, one side of the channel being a flange lapping one side of the frame around the window opening, the other side of the channel being a flange of less width than the former flange, the latter flange being located in the window opening and having its edge spaced from the frame, means for securing the sash in the frame including a base extending into the channel between the edge of the flange of less width and the frame and attachable to the frame, and a clamping member carried by the base, the member extending through said space and coacting with the inner face of the flange of less width of the channel and operable to clamp the longer flange against the window frame.

2. The combination with a suitable window frame confining a window opening, of a sash formed with a peripheral channel at the edge thereof, one side of the channel being a flange lapping one side of the frame around the window opening, the other side of the channel being a

narrower flange located in the window opening and having its edge spaced from the frame, means for securing the sash in the frame including a base attachable to the frame, and a clamping member carried by the base, the base clamping member extending through said space and coacting with the inner face of the narrow flange of the channel and operable to clamp the wider flange against the window frame, said base being formed with an inwardly extending lug located out of the channel of the sash and opposed to said space and the clamping member having a shank extending through the lug, and the lug being formed with a slot for receiving the shank, said slot opening through an end edge of the lug.

3. The combination with a suitable window frame confining a window opening, of a sash formed with a peripheral channel in the edge thereof, one side of the channel being a flange for lapping the window frame around the window opening and the other side of the channel being a flange of less width than the former flange arranged with its edge spaced from the window frame, means for securing the sash to the window frame including a base attachable to the frame in the window opening and formed with an inwardly extending flange located in the window opening out of the channel of the sash and opposed to the space between the narrow side of the channel and the window frame, and a clamping member carried by the flange of the base, the clamping member extending into the channel through said space and having a head coacting with the inner face of the narrow side of the channel, the clamping member being placeable in position through the space between the edge of the narrow side of the channel and the window frame and attachable to the flange of the base when the base is applied to the window frame and the sash is mounted in the window opening.

4. The combination with a suitable window frame confining a window opening, of a sash having a flange lapping one side of the frame around the opening, and means for securing the sash in the frame including a base formed with a stem having an angular lug at its end, the stem and lug being insertable through an opening in the frame and attachable to the frame by a movement of the base to insert the stem through the opening and by an angular movement to carry the lug into interlocking engagement with the frame around the opening, and clamping members associated with the base and interlocking with the sash at the edge thereof and operable to draw the sash and clamp the said flange against the frame.

5. The combination with a suitable window frame confining a window opening, of a sash having a flange lapping one side of the frame around the opening, and means for securing the sash in the frame including a base formed with a stem having an angular lug at its end, the stem and lug being insertable through an opening in the frame and attachable to the frame by a rectilinear movement of the base to insert the stem through the opening, and by an angular movement to carry the lug into interlocking engagement with the frame around the opening, and clamping members associated with the base and interlocking with the sash at the edge thereof and operable to draw the sash and clamp the said flange against the frame, the clamping members and the base having means by which the clamping members are applied to the base and interlocked therewith after the base has been applied

to the window frame, and the sash is in position in the window frame.

6. The combination with a suitable window frame confining a window opening, of a sash having a flange lapping one side of the frame around the opening, and means for securing the sash in the frame including a base formed with a stem having an angular lug at its end, the stem and lug being insertable through an opening in the frame and attachable to the frame by movement of the base to insert the stem through the opening, and by an angular movement to carry the lug into interlocking engagement with the frame around the opening, and clamping members associated with the base and interlocking with the sash at the edge thereof and operable to draw the sash and clamp the said flange against the frame, the clamping member being formed with a shank for coacting with the base, and the base having a slot for receiving the shank, the slot opening through one lateral edge of the base, whereby the clamping members are applied to the base after the base is attached to the window frame and the sash is in position in the window frame.

7. The combination with a suitable window frame confining a window opening, of a sash formed with a peripheral channel in the edge thereof, one side of the channel being a flange for lapping the window frame around the window opening and the other side of the channel being a flange of less width than the former flange and arranged with its edge spaced from the window frame, means for securing the sash to the window frame including a base having a stem formed with an angular lug, the stem being movable through an opening in the window frame by a movement of the base to insert the stem through said opening and by an angular movement of the base to interlock the lug with the frame, the base being also formed with an inwardly extending flange opposed to the space between the narrow side of the channel and the window frame and a clamping member carried by the base and extending into the channel crosswise of the edge of the narrow side of the channel and having a head coacting with the inner face of the narrow side of the channel, the clamping member being placeable in position through the space between the edge of the narrow side of the channel and the frame and attachable to the flange of the base after the base is applied to the window frame and the sash is mounted in the window opening.

8. The combination with a suitable window frame confining a window opening; of a sash formed with a peripheral channel in the edge thereof, one side of the channel being a flange for lapping one side of the frame around the window opening, the other side of the channel being a flange of less width than the former flange, the latter flange being located in the window opening and having an edge opposed to the window frame, clamping means including a bracket attachable to the window frame in the window opening and having an angular lug extending into a position opposed to one side of the narrow flange of the sash, a clamping instrumentality thrusting in opposite directions against the lug and the narrow flange of the sash.

9. The combination with a suitable window frame confining a window opening; of a sash formed with a peripheral channel in the edge thereof, one side of the channel being a flange for lapping one side of the frame around the window opening, the other side of the channel

being a flange of less width than the former flange, the latter flange being located in the window opening and having an edge opposed to the window frame, clamping means including a bracket attachable to the window frame in the window opening and having an angular lug extending into a position opposed to one side of the narrow flange of the sash, screw-threaded clamping elements coacting respectively with the lug and the narrow flange of the sash and thrusting in opposite directions against the same.

10. The combination with a suitable window frame confining a window opening; of a sash formed with a peripheral channel in the edge thereof, one side of the channel being a flange for lapping one side of the frame around the

5 window opening; the other side of the channel being a flange of less width than the former flange, the latter flange being located in the window opening and having an edge opposed to the window frame, clamping means including a bracket attachable to the window frame in the window opening and having an angular lug extending into a position opposed to one side of the narrow flange of the sash, screw-threaded clamping elements coacting respectively with the lug and the narrow flange of the sash and comprising a screw extending through the narrow flange and thrusting against the lug; and a nut on the screw and held from turning therewith, the nut thrusting against the narrow flange.

EDWARD F. CHAFFEE.

50

55

60

65

70

75

80