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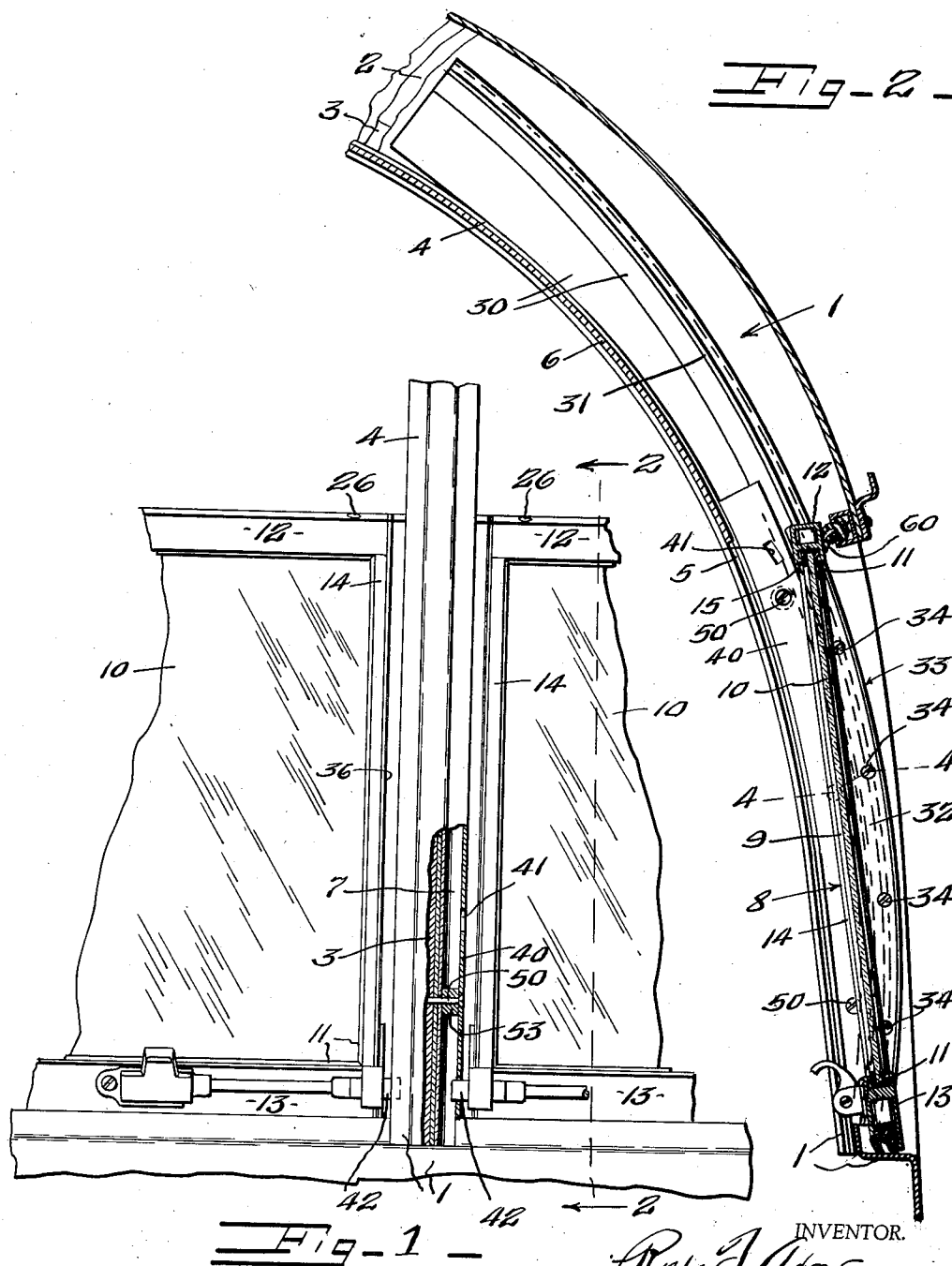
R. T. AXE

2,081,896

WINDOW STRUCTURE FOR VEHICLES

Filed Sept. 5, 1934

2 Sheets-Sheet 1



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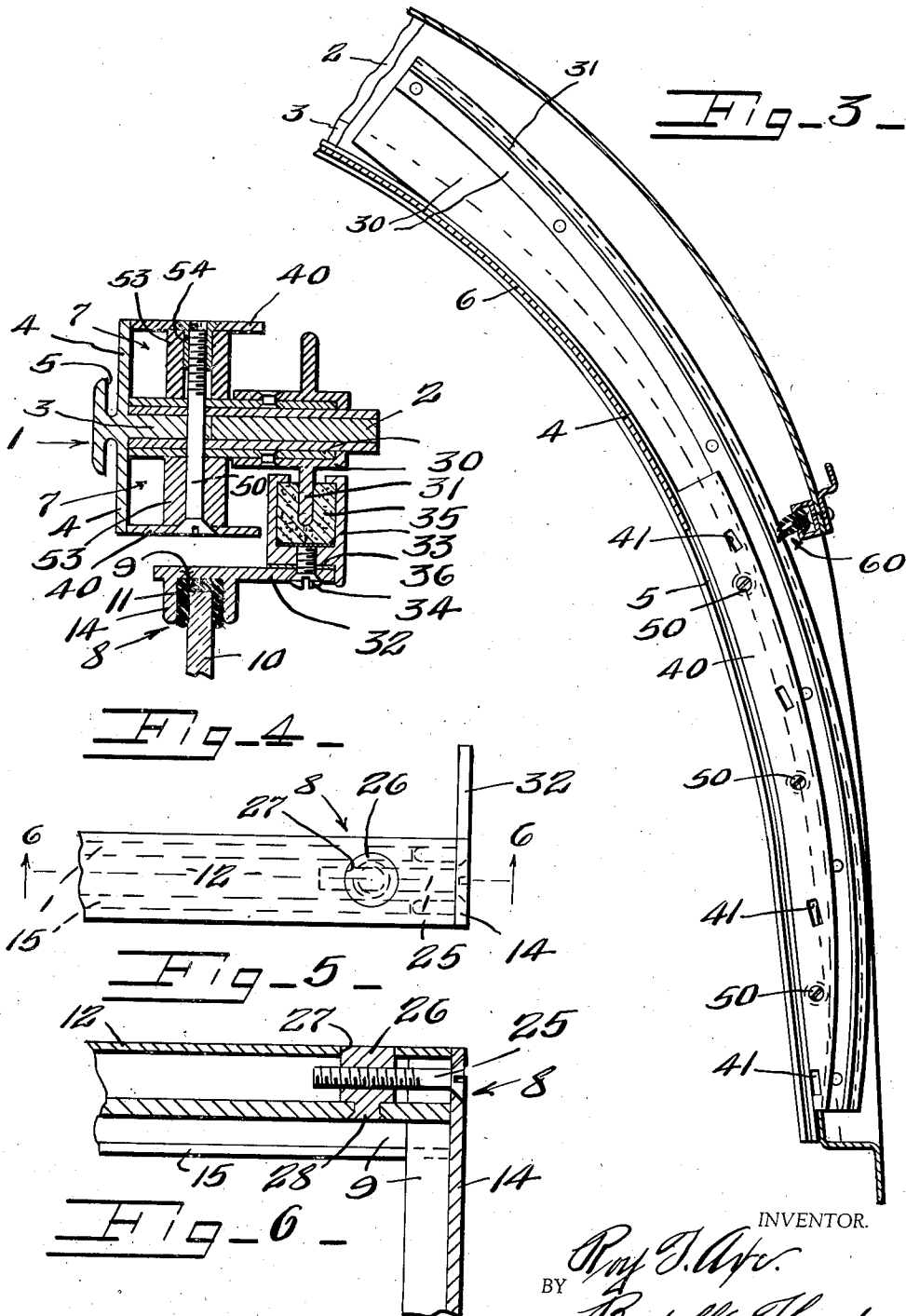
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WINDOW STRUCTURE FOR VEHICLES

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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WINDOW STRUCTURE FOR VEHICLES

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2 Claims. (Cl. 296—48)

This invention relates to window structures, particularly for motor vehicles, as buses, and has for its object a simple economical guide means for guiding the flat sash in an arcuate path during the raising and lowering thereof, particularly in vehicles, where because of the comparatively low height of the roof over the seating space, the sashes raise into the curved side portions of the roof.

It further has for its object an arcuate guide means which is readily attachable or applicable to the post structure of a vehicle body and to the sashes.

It further has for its object arcuate guide means which include interfitting parts mounted respectively on the posts and on the sash and having arcuate ribs and channels, where the part, usually the channel, carried by the sash extends the full height of the sash.

It further has for its object a sash construction in which the part, in this embodiment of the invention the channel, is detachably secured to the sash, so that the sash can be readily removed and replaced and also readily adjusted in a direction widthwise of the sash to conform to variations, within limits, of the spacing of the posts and small misalignments out of the vertical of the posts.

It also has for its object a simple arrangement of a facing strip on the post structure and opposed to the edge of the sash and formed with means, as openings, for coacting with the latch or bolt of a sash holder, usually mounted on the lower rail of the sash.

It also has for its object a particularly simple and rigid corner construction of a sash consisting of hollow or channel-shaped metal rails and stiles.

The invention consists in the novel features and in the combinations and constructions hereinafter 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 of a pair of windows and frames embodying my invention.

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

Figure 3 is a view similar to Figure 2, the sash being removed.

Figure 4 is an enlarged sectional view on line 4—4, Figure 2.

Figure 5 is a fragmentary edge view of the top rail of the sash.

Figure 6 is a sectional view on line 6—6, Figure 5.

In bus constructions, where the seats are elevated relatively to the center aisle so as to be comparatively close to the roof, that is, where the roof is low relatively to the seats, it is necessary in elevating the window sashes to move them up under the curved roof into the space between the roof and the inner lining of the car body.

One of the principal objects of this invention is arcuate guide means for the sash which permits an easy raising and lowering of the sash without rattling or looseness in all positions along its arcuate or curvilinear path.

1 designates, generally, the window frame which includes a post structure separating the windows. As here shown, these posts include strips 2 and 3 arranged edgewise to each other, the strips 3 both being toward the inner side of the car body and formed with an integral face plate 4 formed with offset guides or grooves 5 for receiving the edges of the lining strips 6. The facing strips 4 extend laterally to opposite sides of the post strip 3 forming angular spaces 7 on the sash side of the posts.

8 designates, generally, a sash. This comprises a sash frame formed up of metal, usually sheet metal or extruded metal, to form a groove 9 for receiving the margins of a glass pane 10 and a sealing strip 11 of yielding material, as rubber.

Each sash consists of the usual top and bottom rails 12, 13 and stiles 14. The stiles and top rails are secured together in a particularly rigid and simple manner constituting one of the features of my invention.

The top rail 12, as here shown, is formed with a channel for receiving the glass pane and with a hollow boxlike body, the walls of the glass-receiving channel having inwardly extending flanges or lips 15 between which, the margins of the glass pane extend. The side walls of the channel of the stile 14 extend between the flanges or lips 15 on the inner side thereof, the lips being cut away for this purpose, and also the stile 14 extends and fits into the boxlike portion of the top rail at the corner thereof. The rail and stile are held together at the corners by such interfitting and by a screw 25 threading through the bottom of the channel of the stile 14 and into a plug 26 in the rail 12. The plug is passed into the rail 12 through an opening 27 in the top thereof and is formed with an axial stem extending through the bottom of the glass receiving channel of the top rail and upset or riveted to said body, as at 28, Figure 6.

The post and each stile is formed with inter-fitting slidably engaging arcuate guide means, one of these parts including an arcuate channel and the other an arcuate rib extending into the channel. As here illustrated, the part provided on each post consists of a base plate 30 having an arcuate rib 31 extending in a direction edgewise relatively to the sash but offset from the plane of the sash, the plate 30 being secured to the post in any suitable manner. The plate 30 is shown as formed of two sections but may be one-piece. The part provided on the stile of the sash is a base plate or flange 32 extending at a right angle to the general plane of the flat sash and outwardly therefrom being usually formed integral therewith as the stile is formed by an extruding process. The channel 33 is detachably secured to the plate, as by a number of screws 34 and extends toward the plate 30 and receives the rib 31. The channel extends the full length of the sash, so as to coact with the rib the entire height of the sash during the raising and lowering operation.

The channel is provided with a non-metallic or fibrous yielding lining 35 U-shaped in general form and coacting with both the end edge of the rib and the sides thereof to hold the sash structure out of sliding metal to metal contact with the post structure at all times. The lining 35 is thus housed against weather. Thus, the channel 33 and rib 31 are offset to the outer side of the plane of the sash.

In order to adjust the channel to properly coact with the rib to hold the parts of the guide out of metal to metal engagement and to adjust them against undue looseness, one of the interfitting parts is adjustable in a direction edgewise of the sash, and preferably the channel 33 is secured to the base plate 32 by the screws 34 for the purpose of permitting edgewise adjustment of the channel by means of shims 36 interposed between the channel 33 and the flange 32. By these shims the widthwise adjustment can be made and also adjustments for misalignments out of the vertical of the post structure and parts carried thereby.

This detachably mounting of the channel 33 on the plate 32 also permits the ready removal of the sash and plate 32 therewith from the frame and the ready replacement thereof and also facilitates the initial assembly of the channel on the rib and the sash in the frame.

40 designate face plates carried by the posts and in the spaces 7, these face plates 40 being opposed to the edge of the sash, that is, to the plates 32, and these plates are formed with latch or bolt receiving means 41 at intervals for receiving the bolts 42 of the sash holders or latches to hold the sash closed and at different elevations. The face plates 40 extend a short distance above the top rail of the sash when the

sash is closed and but a short distance behind the lining 6.

The face plates are held in position by screws 50 extending therethrough and through spacers 53 in the spaces 7, these screws extending through the post and into sleeve screws or nuts 54 on the opposite side of the post and serve to also secure the face plates 30 to the post. For the end windows, ordinary nuts can be substituted for sleeve screws and spacers 53 on the side of the posts opposite to that on which the end sashes are located.

A suitable weather strip 60 coacts with the upper rail of the sash when in closed position, this being carried by the car body structure between the posts in position to wipe on the top rail when the sash is closed.

Owing to the plates 30 and 32 secured respectively to the post and the stiles of the sash, the arcuate guide means can be applied to flat sashes and to the posts in a particularly simple and economical manner, and owing to the plate 32 on each stile and the detachable channel 33, the sash and arcuate guide means can be readily assembled in the post structure and also the sash readily removed and replaced when necessary. Also, owing to the detachable feature of the channels and the manner in which they are secured to the plates 32, widthwise adjustment of the channel is readily made to conform to the widthwise spacing of the post and to variations in and misalignments of the post out of the vertical.

What I claim is:

1. In combination a window structure for vehicles comprising a window frame including posts and a substantially flat sash mounted in the frame, a base plate provided on each sash stile and arranged at an angle to the plane of the sash, an arcuate channel carried by the plate and facing toward the post and a second base plate provided on the post and opposed to the former plate and having an arcuate rib interfitting the channel, one of the arcuate interfitting parts being detachably secured to its base plate and adjustable in a direction widthwise of the sash, the interfitting ribs and channels being offset from the stiles on one side of the sash and located entirely outside of the stiles.

2. The combination in a window structure for vehicles comprising a window frame including posts and a stationary flat sash mounted in the frame, guide means including arcuate slidably interfitting parts carried respectively by the posts and the stiles of the sash, said arcuate interfitting parts being located entirely on one side of the stiles of the sash, one of said interfitting parts being adjustable in a direction widthwise of the sash.

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