Sept. 25, 1934. J. H. ROETHEL 1,974,894

WINDOW FRAME FOR CONVERTIBLE BODIES

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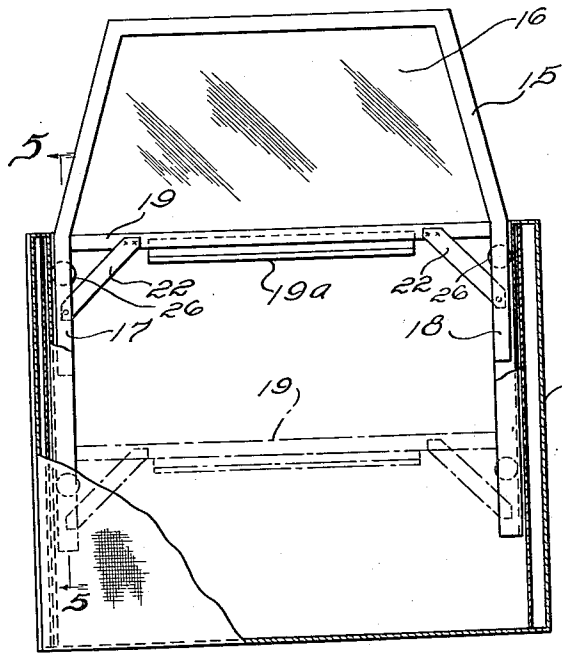


Fig. 1.

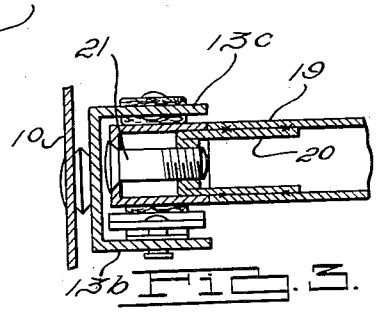


Fig. 3.

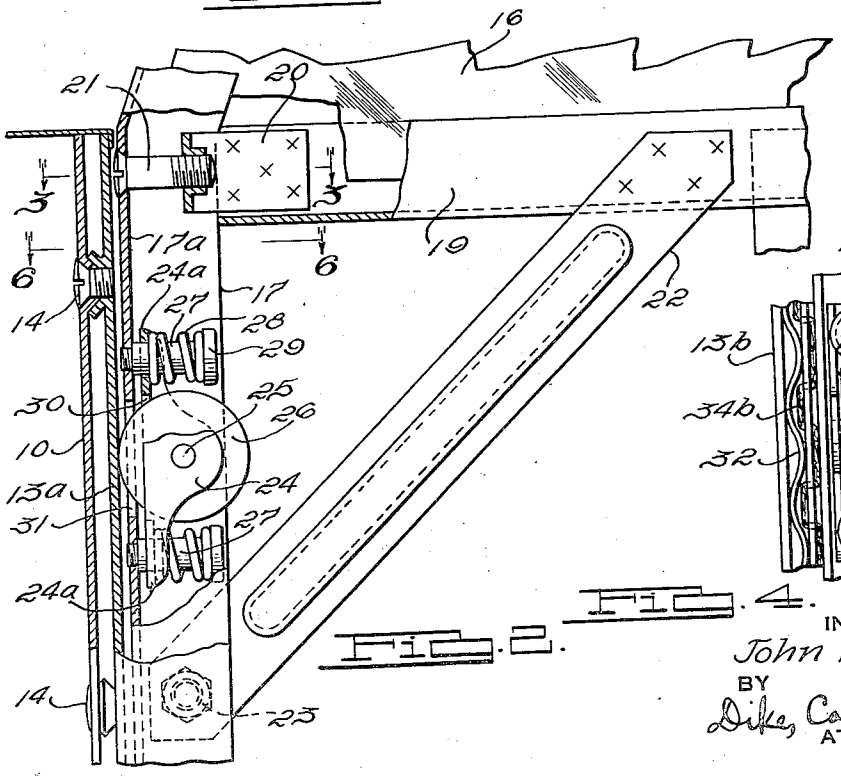


Fig. 2.

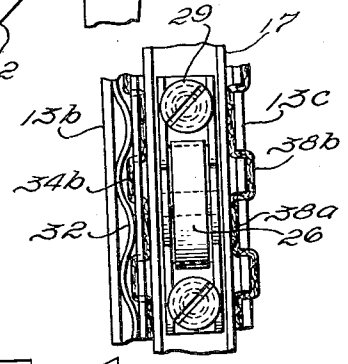


Fig. 4.

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Fig. 5.

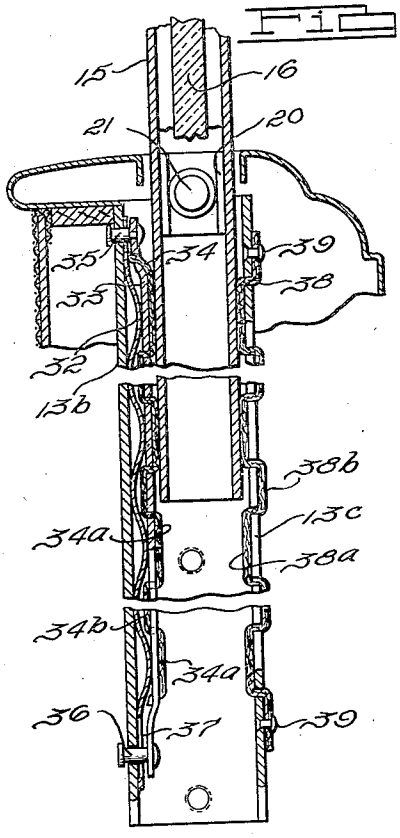
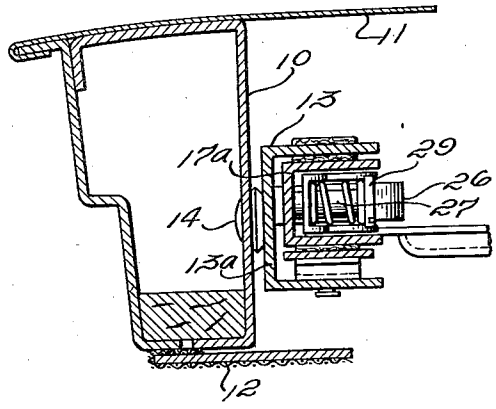


Fig. 6.



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WINDOW FRAME FOR CONVERTIBLE BODIES

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5 Claims. (Cl. 296—48)

This invention relates particularly to window frames adapted for use in connection with automobile bodies, especially convertible bodies, an object of the invention being to improve the window frame construction and provide more efficient and practicable means for mounting and supporting the glass carrying frame for sliding movement.

A further object of the invention is to provide improved means for maintaining the sliding glass carrying frame in position relative to its guides against rattling, vibration and chattering during operation of the vehicle, and also for enabling the sliding frame to accommodate inaccuracies in construction of any of the parts often resulting in the window frame binding within the guides and preventing free movement thereof.

A further object is to provide improved means for holding the window frame under tension within its guides, and another object is to provide improved means effective to prevent marring or scratching of the highly finished metal portions which enclose the edges of the glass.

Other objects of this invention will appear in the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

Fig. 1 is a longitudinal sectional elevation illustrating a window frame structure embodying the invention.

Fig. 2 is an enlarged section illustrating particularly the cushion roller mechanism.

Fig. 3 is a section through lines 3—3 of Fig. 2.

Fig. 4 is a detail front elevation of the cushioning means.

Fig. 5 is a section taken through lines 5—5 of Fig. 1.

Fig. 6 is a section taken through lines 6—6 of Fig. 2.

Before explaining in detail the present invention it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation, and it is not intended to limit the invention claimed herein beyond the requirements of the prior art.

As illustrated in the drawings the invention is applied to the door of a convertible type automobile body, the conventional door pillar being shown at 10, the outer metal panel at 11, and the inner trim panel at 12. The glass carrying frame of the door is preferably supported and mounted for vertical sliding movement by means of spaced vertical guides arranged at opposite side edges of the door, and in the present instance these guides are in the form of channel members 13 attached to the door pillars by means of screws 14. A window frame is mounted to slide in the channel guides 13 and in the present instance comprises a channel frame 15 of any suitable shape at its upper part and constructed to receive a glass 16. The window frame proper 15 is provided with spaced vertical leg members 17 and 18, preferably of channel form and adapted to extend within the channel guides 13. The lower edge of the glass is retained by means of a cross channel 19 to which is secured a suitable guide channel 19*a* adapted to be connected to the usual control mechanism (not shown) for raising and lowering the window. The cross brace 19 is detachably mounted in position at each end by means of a channel block 20 spot welded thereto and secured in each instance to the legs 17 and 18 by screws 21. The frame is further braced by means of diagonal brace members 22 spot welded to the transverse member 19 at their upper ends and at their lower ends bolted at 23 to the legs 17 and 18.

The frame members 17 and 18 are yieldingly maintained in position for travel in the guide channels 13 by means of cushioned rollers, one thereof preferably carried by each of the members 17 and 18 at opposite ends of the frame. Supported on each of the members 17 and 18 is a carrier 24 preferably formed with a pair of spaced projecting ears between which is located a roller 26 mounted to rotate on a pin 25. In the present instance each end 24*a* of the carrier is provided with an aperture through which freely extends a stud 27 threaded at its inner end into a tapped hole in the central web 17*a* of the frame member 17 or 18. A compression spring 28 is interposed between the head 29 of the stud and the extension 24*a* of the carrier. As a result of this construction the carrier is floatingly mounted and is also capable of oscillation about its pivot 25 against the action of the springs 28. If desired the carrier may be pivoted at one end and mounted at its opposite end on a single stud 27 carrying a spring 28 with a roller interposed between the pivot of the carrier and the spring, thereby also permitting yielding oscillation of the carrier.

The roller 26 projects through a slot 30 in the carrier 24 and also through a slot 31 in the channel 17 or 18 and contacts with the central web 13*a* of the guide channel 13. From this construction it will be seen that the depending window frame members 17 and 18 are yieldingly maintained in slightly spaced relation from the guide channels and at the same time the vertical movement of the window is facilitated by virtue of the rollers 26. Moreover, it will be

seen that the roller units are mounted to permit movement thereof relative to the channels 17 and 18 in the direction of the plane of the window, and the spring supporting pins 27 are mounted so as to permit ready attachment, detachment or adjustment of the roller units from the inside of the frame.

In accordance with the preferred form of the invention the side faces of the frame members 17 and 18 are yieldingly maintained in transverse position by means of cushioning means preferably constructed in an improved manner to prevent metal to metal contact and any tendency of the parts to chatter or vibrate. Interposed between the channel 17 or 18 and the side flange 13*b* of the guide 13 is a vertically extending spring 32 which is preferably of corrugated type. Against the face of this spring is positioned a flat metal strip 33 and between the metal strip and channel 17 is arranged a strip 34 of flexible non-metallic material. This preferably comprises a strip of felt. The upper ends of the metal retaining strip 33 and spring 32 are secured to the channel flange 13*b* by a rivet 35 extending loosely through the flange portion 13*b*. The lower end of the spring has a slot 37 through which extends a rivet 36 attached to the lower end of the metal strip 33, the rivet pin extending loosely through the channel flange 13*b*. In this manner longitudinal movement of the spring when compressed is permitted. The strip of felt 34 or other suitable material is laced through spaced slits in the metal strip 33 and this is accomplished in such a way that the alternate portions 34*a* of the felt material at the outer face of the metal strip lie opposite the projecting ridges of the spring and the alternate portions 34*b* at the inner face of the metal strip lie within the depressions of the spring. Thus, the clearance space between the strip 33 and flange 13*b* may be no greater than the combined thickness of the spring and felt if the spring is fully collapsed. Moreover the strip 34 contacts with the window channel and prevents marring thereof while at the same time sound proofing the structure. Furthermore, by lacing the material in this manner it is firmly held in place against displacement as a result of the sliding action of the window. It will also be seen that the amount of frictional resistance is reduced by providing only spaced portions of the material 34 in contact with the window frame.

At the opposite side face of the channel 17 or 18 there is arranged a similar strip 38 of non-metallic material, such as felt. In this instance the strip 38 may be laced through vertically spaced slits in the flange 13*c* of the guide channel, being riveted in position at its upper and lower ends 39. In the same manner therefore the window frame contacts with spaced portions 38*a* of the silencing material, the alternate portions 38*b* lying at the outer face of the channel guide.

An effective cushioning and silencing means is thus provided so that the window frame is yieldingly maintained at opposite side faces against vibration or chattering during operation, while at the same time frictional resistance due to the non-metallic material may be considerably minimized and at the same time a more efficient means is provided for supporting the felt strips against dislodgment.

I claim:

1. A sliding window frame for automobile bodies having a pair of spaced depending channel members, a roller unit for a channel member comprising a carrier, a roller supported by said carrier, a headed stud secured to said channel for slidingly supporting said carrier to permit movement thereof relative to said channel in the direction of the plane of the frame, and a spring surrounding said stud engaging the head thereof and said carrier for yieldingly supporting said roller unit, said stud being accessible for removal at the inner side of the frame.

2. A sliding window frame for automobile bodies including a pair of spaced depending channel members, a roller unit housed within a channel and accessible from the inside of the frame, said unit comprising a carrier, a roller supported thereby, a headed stud for slidingly connecting said carrier to said channel member and accessible for detachment at the inner side of the frame, and a spring surrounding said stud in engagement with the head thereof and said carrier for yieldingly supporting said roller unit for movement relative to said channel member.

3. A sliding window frame for automobile bodies comprising a pair of spaced depending channel leg members, each of said channels having a slot in the central web portion thereof, a cushioned roller unit carried by each of said channels, said unit including a carrier frame having a pair of spaced ears and an opening formed therein in register with the slot in said channel, a roller rotatably supported between said ears and projecting through said opening and slot, and spring carrying means, accessible for detachment from the inside of the frame for yieldingly and slidingly supporting said roller unit upon said leg member.

4. A sliding window frame for an automobile body, comprising a pair of spaced depending channel members having the channels thereof opening inwardly, a roller unit including a carrier mounted within and supported by a channel member, a spring engaging said carrier, and a spring retainer for slidingly supporting said carrier and spring to permit yielding movement of said unit relatively to said channel, said retainer being detachably secured to the edge of the channel member at the inner face thereof and being accessible for detachment from the interior of the window frame.

5. In a window construction for a door having upright spaced guide channels, a window frame having depending legs fitting within said channels and slidable vertically therein, said legs comprising channels facing inwardly, at least one of the legs having a vertical slot in its outer edge, a carrier having a roller, a spring carrying pin detachably secured to the inner central face of the channel leg and accessible for attachment or detachment from the inside of the window frame, said carrier being slidable on said pin in the plane of the window against the action of the spring, and said roller projecting through the slot for engagement with the guide channel and effective to exert therein a thrust in the direction of the plane of the window frame.

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