July 14, 1931. A. D. McCORMACK 1,814,322

AUTO WINDOW SCREEN

Filed Dec. 4, 1929

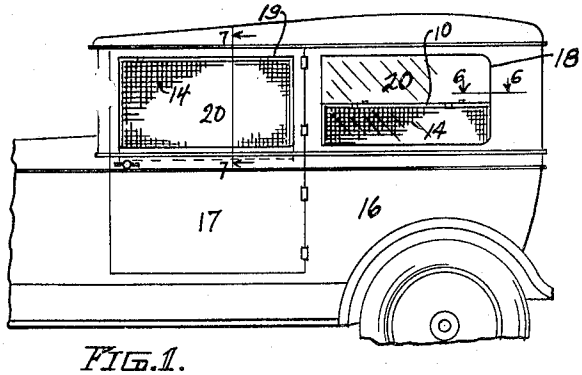


FIG. 1.

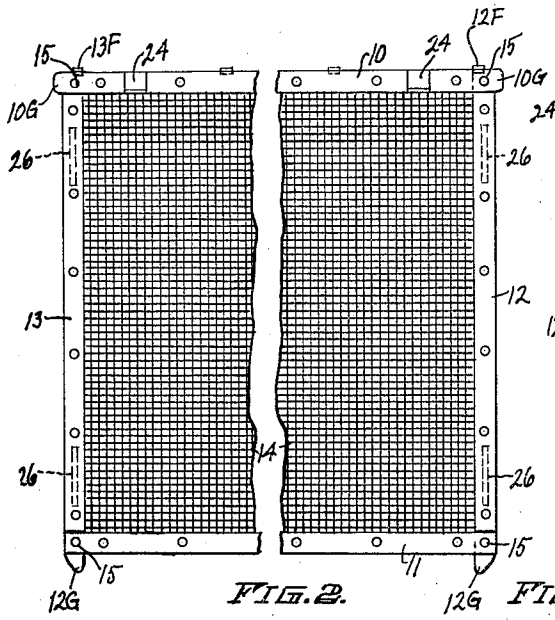


FIG. 2.

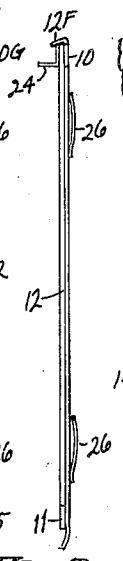


FIG. 3.

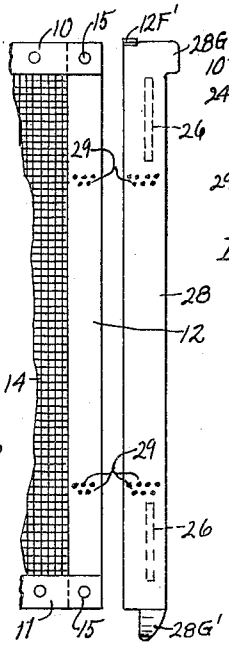


FIG. 4.

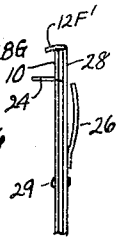


FIG. 5.

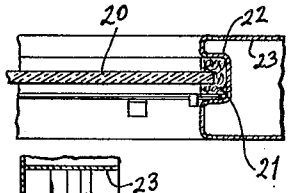


FIG. 6.

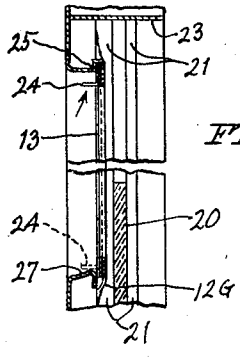


FIG. 7.

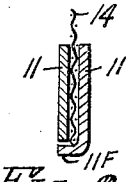


FIG. 8.

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Patented July 14, 1931

1,814,322

UNITED STATES PATENT OFFICE

ALFRED D. McCORMACK, OF MANKATO, MINNESOTA

AUTO WINDOW SCREEN

Application filed December 4, 1929. Serial No. 411,529.

My invention relates to screen sash of the class particularly adaptable for use in motor vehicles but also applicable to railway coach windows or windows of any structure having vertically adjustable window glass. This device comprises further distinct improvements over my United States patent application Serial No. 282,010 filed May 31, 1928, as hereinafter fully set forth, reference being had to the accompanying drawings, in which,—

Fig. 1 is a side elevation of an automobile of the so-called coach type in the front window of which my improved screen is shown fully covering the opening and its rear window having one of my screens only raised part way in the opening.

Fig. 2 is a face view of my improved screen in enlarged scale and Fig. 3 is a right hand end elevation of Fig. 2.

Fig. 4 is a fragmentary view of an end portion of my improved screen and a certain extension bar therefor.

Fig. 5 is an end elevation of the upper part of Fig. 4 showing the extension bar fixed to the screen end bar.

Fig. 6 is an enlarged sectional detail of the right hand part of the rear screen in Fig. 1 and adjacent parts, about as on line 6—6 in said Fig. 1.

Fig. 7 is an enlarged vertical cross section of a screen and parts of a car body about as on line 7—7 in Fig. 1.

Figure 8 is an enlarged cross sectional detail view of the lower bar 11, modified.

Referring to the drawings by reference numerals, my improved screen in a preferred form is quadrangular and comprises parallel upper and lower sash bars 10 and 11 respectively, each bar comprising two connected elongated flat metal pieces, and like vertical side bars 12 and 13 right and left respectively, a screen 14 being retained between the two thicknesses of all said bars in suitable taut condition. Said horizontal and vertical bars may be suitably connected at the corners of the frame as by rivets 15 or other means.

16 is a motor car body, having a door 17 and rearwardly thereof a window opening 18, and 19 is the window opening of the door. In each said window openings is a vertically movable pane 20, the opposite vertical edges of which are guided within suitable padding strips 21 usually of U-shape in cross section and retained within the grooved upright channel parts 22 of the window casing 23.

In motor cars the windows 20 are raised or lowered by various means (not shown) to move the glass to any desired position.

My improved screen is adapted to be inserted in a window opening of the class described, outwardly of the pane 20 and in parallel plane therewith. In general its shape is quadrangular as stated but for windows having an arched top the upper bar 10 may be formed to correspond with said curvature.

In Fig. 2 the front member of bar 10 extends outwardly of the vertical bars 12—13 providing a guide or tongue piece 10G. The rear member of the vertical bars extends below the lower horizontal bar 11 and provide downwardly and outwardly curved, preferably tapered guide pieces 12G and 13G. 24 are a number of, preferably two, finger grips of L-shape and fixed on the outer face of the bar 10. In Figs 2 and 3 is shown also that the rear side-bar members 12—13 are each formed at is upper end with a forwardly directed short hook or finger 12F—13F, these for the purpose of engaging a ledge 25 usually extending across and formed integral of the lintel of the window frame, particularly in motor cars, thus suspending the screen while in raised position and covering the window opening. The screen is of such size that when suspended as just described its lower bar 11 is preferably slightly below the window sill as indicated by the dotted line 11X in Fig. 1.

The screen is inserted readily by holding it in vertical plane and bowing it horizontally to shorten the distance between the side bars until the guide pieces 10G can be engaged between the padding strip 21 in front of the glass and the adjacent face of groove 22, the lower part of the screen being inserted first at the lower part of the window

opening and pushed down until the bowed upper part of the screen can be released and the guides 10G slide into place. To prevent any tendency of the screen to rattle, its side bars are provided with a number of bowed flat springs 26, causing the screen to bear outwardly at all times when in place.

In Fig. 4, 12F′ are auxiliary fingers on bar 10 corresponding to the fingers 12F described. These may not be needed except for screens of considerable width.

The lower guides 12G of the side bars guide the said parts of the screen vertically when the screen is raised or lowered and being curved forwardly engage the outer face of the frame groove in which the sash 20 slides and pushes the screen back so it will not catch on the sash frame.

After getting the screen in place the operator simply exerts upward pressure on the finger holds 24 and until the hooks 12F engage ledge 25. Obviously the screen will remain in place. To release the screen the operator merely engages the finger-pieces 24, bears inwardly until the hooks 12F are released and the screen may be lowered until the said finger-pieces contact with the window sill 27 (see dotted position of 24 in Fig. 7) and at this time the screen is entirely out of the window opening.

An important feature of my invention is shown in Figs. 4 and 5 comprising an auxiliary side bar 28. At the upper end of this bar 28G is an outward extension corresponding to extension 10G of bar 10 in Fig. 2, the screen bar 10 in this instance having no extension 10G; and further the upper extremity is provided with a forwardly directed finger 12F′ serving the same purpose as finger 12F, and a lower projection 28G′ corresponding to 12G of bar 12 in Fig. 2.

Springs 26 are provided on this bar. The bar 28 is fixed to bar 12 by riveting them together at the groups of holes designated 29 on both bars, the bar 28 being of considerable width and the groups of holes 29 so arranged that bar 28 can be fixed to bar 12 so as to hold the former outwardly from the bar 12. This actually provides a combination side bar which is variable or in other words increases the width of the screen. For example, if the screen proper is 24 inches wide its width may be increased by selective fastening by rivets at the holes 29 to say 25 inches or thereabout. It has been found that many window openings in various makes and models of automobiles vary only from ¼ to ¾ of an inch in width and it is obvious that with the use of my extension member 28 one size of screen can be made and the variable widths compensated for by simply fixing bar 28 to bar 12 as needed to properly cover the window opening.

To insure that the lower bar 11 is rigid enough to remain in proper spaced relation to the pane said bar may be flanged or curved outwardly as its lower edge as 11F in Fig. 9 for stiffening it. Other modifications may also be embodied without departing from the scope and spirit of the invention.

I claim:

1. In a screen of the class described for structures having window openings and a pane movable between vertical frame guides thereof, a quadrangular screen holding metal frame, each side of said frame comprising a bar of two flat members with an edge of the screen retained between them, one member of each side bar extending below the bottom bar and curved forwardly, an anti-rattling means provided on the rear face of each said side bar, guide extensions of said frame projecting outwardly from the upper corners, a number of forwardly directed integral fingers extending from the upper edge part of the upper frame bar and finger holds fixed on said upper frame bar.

2. The structure specified in claim 1 in which said anti-rattling means comprises a number of vertically disposed arched flat springs each fixed with one end on the rear face of a side bar and its other end yieldingly contacting with the bar.

3. In a screen for windows of the class described, said screen comprising four bars connected rigidly together to conform to the shape of the window opening, each bar comprising two members secured together with the edge portions of a screen retained between them, an auxiliary side bar adapted to be adjustably fixed to either side bar of the screen frame for extra width, one of said guide means comprising an outward integral extension of the upper end of said auxiliary bar, anti-rattling means fixed on said auxiliary bar and comprising bowed flat springs intermediate its ends, the lower part of said auxiliary bar formed with a downward and forwardly directed, curved extremity below the lower horizontal bar.

4. In a screen for windows of the class described, said screen comprising four bars connected rigidly together to conform to the shape of the window opening, each bar comprising two members secured together with the edge portions of a screen retained between them, an auxiliary side bar adapted to be adjustably fixed to either side bar of the screen frame for extra width, one of said guide means comprising an outward integral extension of the upper end of said auxiliary bar, anti-rattling means fixed on said auxiliary bar and comprising bowed flat springs intermediate its ends, the lower part of said auxiliary bar formed with a downward and forwardly directed, curved extremity below the lower horizontal bar, and a forwardly directed, integral hook ex-

tending from the upper extremity of said auxiliary bar, like hooks extending forward from the top bar of the screen in alinement with said top hook member of the auxiliary bar.

5. A screen for windows of automobiles or other structures with windows having each a vertically adjustable pane guided at its vertical edges in a guide-channel and within a padding fixed in said channel; said screen comprising a quadrangular frame, extensions on the horizontal upper bar of said screen adapted to engage slidably between said padding and the face of the guide-channel outward of the glass, downward and forwardly directed fingers on the side bars of said frame and below its lower horizontal bar, said latter fingers arranged to engage in its guide channel, said lower horizontal bar of said screen reinforced to normally retain it in rigid alinement, parallel to and in spaced relation forward of the pane, said bar adapted to be bowed horizontally for insertion of the screen in the window opening.

In testimony whereof I affix my signature.

ALFRED D. McCORMACK.