May 2, 1933. E. T. POUSHA ET AL 1,906,237

WINDOW SCREEN FOR AUTOMOBILE DOORS

Filed July 16, 1931 2 Sheets-Sheet 1

Fig. 1.

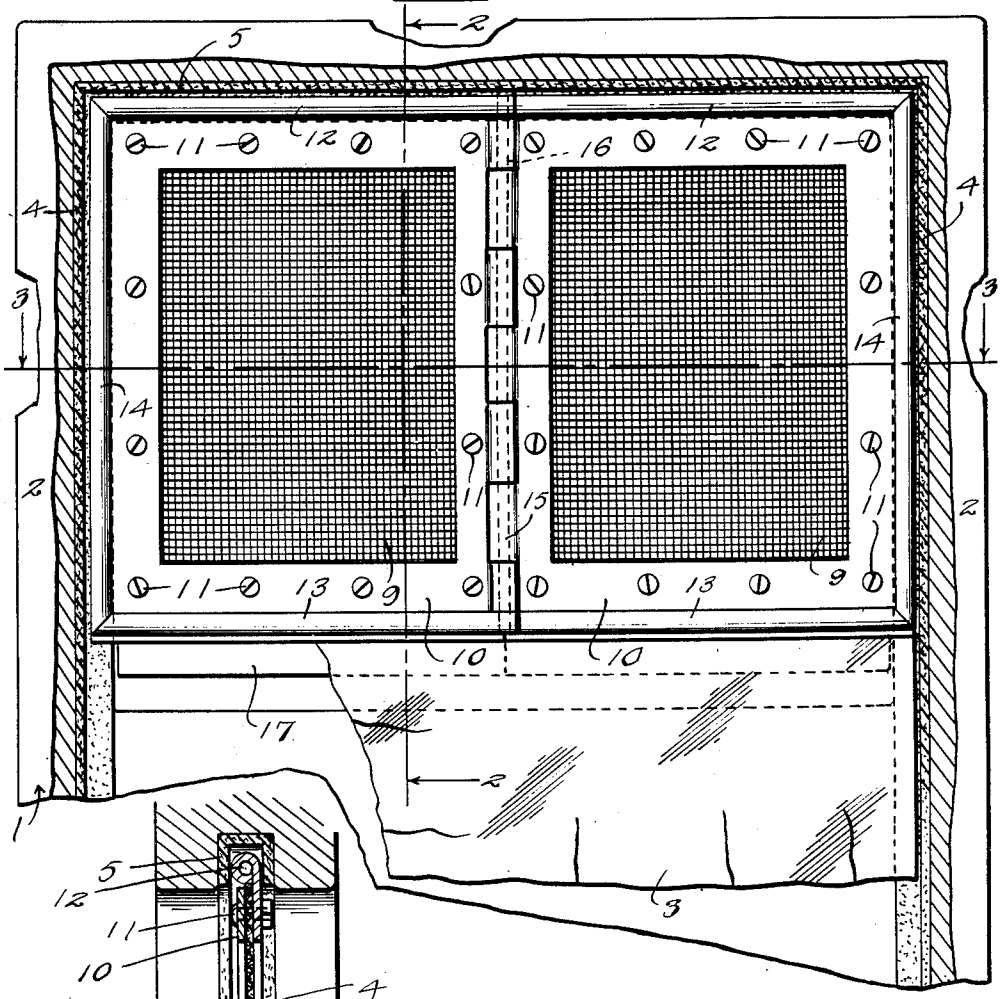
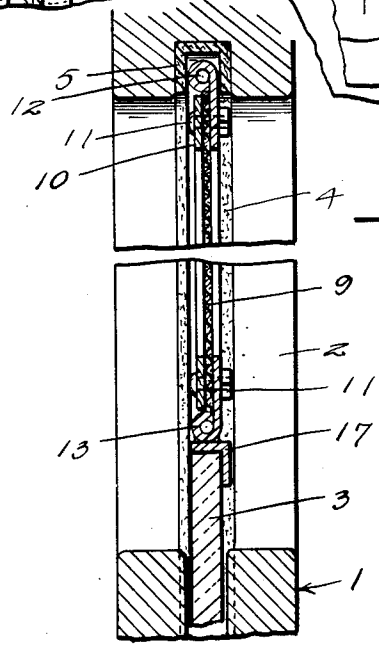


Fig. 2.



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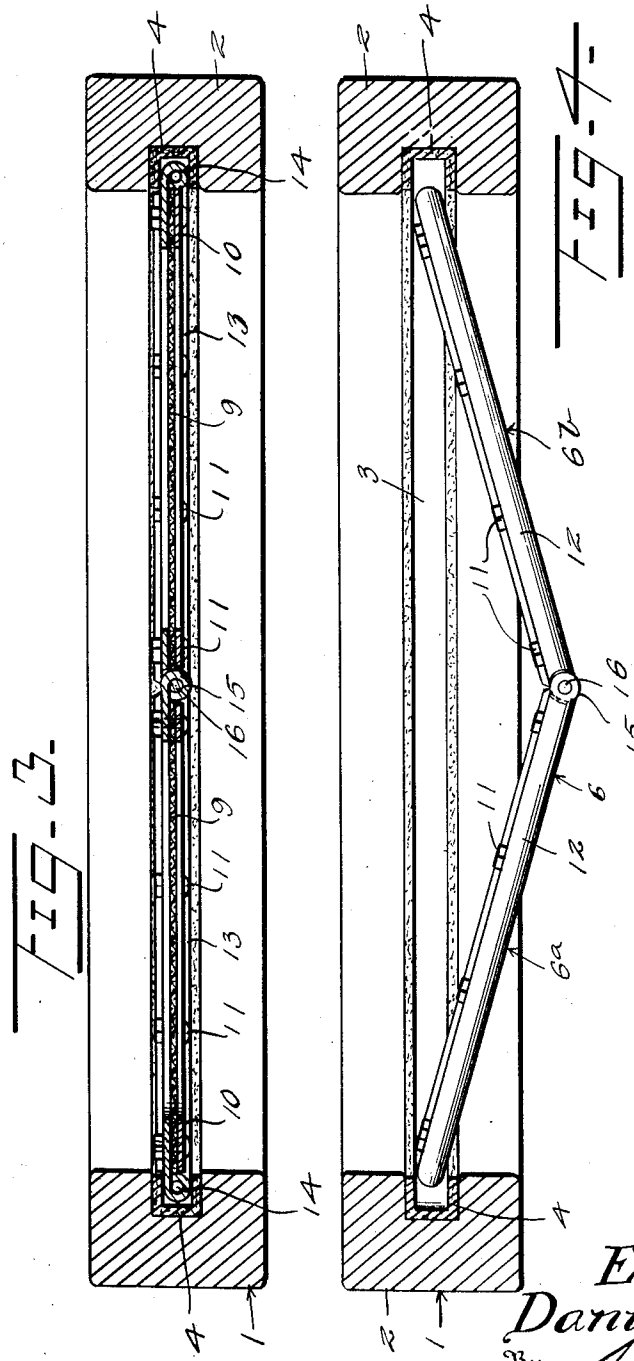


Fig. 3.

Fig. 4.

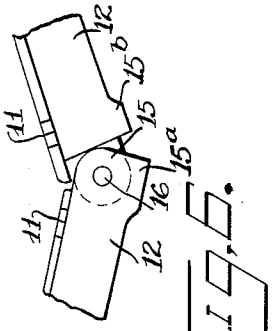


Fig. 5.

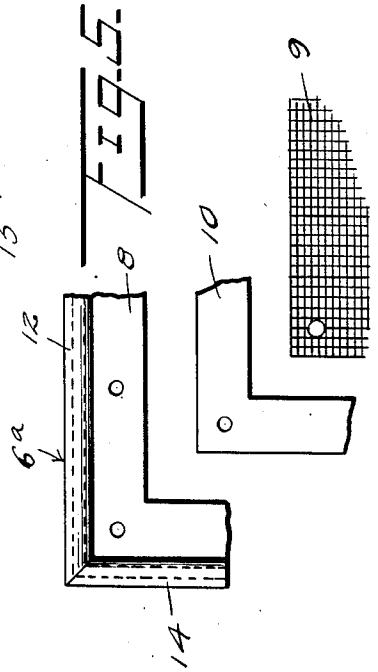


Fig. 6.

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UNITED STATES PATENT OFFICE

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WINDOW SCREEN FOR AUTOMOBILE DOORS

Application filed July 16, 1931. Serial No. 551,278.

This invention relate to window screens, and has for one of its objects to provide a novel device of this character which shall be especially adapted for automobile doors, and which shall be adapted to be easily and quickly inserted in the window opening of an automobile door and secured therein in such manner as to prevent it from rattling and becoming accidentally displaced.

To attain the foregoing and other objects, the nature of which will appear as the description proceeds, the invention comprehends the provision of a window screen which when in applied position shall have its end edges located in the channeled side felt strips of the window, its upper edge located in the channeled top felt strip of the window and its lower edge located upon the upper edge of the glass panel of the window.

The invention further comprehends the provision of a window screen which shall be substantially equal in length to the distance between the bottom walls of the side strips, which shall have a height less than the distance between the top wall of the top strip and the upper edge of the panel when the latter is in fully lowered position, and which shall embody sections connected together for relative movement about a vertical axis, the sections being adapted to be moved into angular relation to permit the end edges of the screen to be positioned in the window opening opposite the side strips, the sections being adapted to be then moved into alinement with each other to move the end edges of the screen into the side strips, and the screen being adapted to be thence moved upwardly through the medium of a window panel to carry its upper edge into the top felt strip.

The invention is hereinafter more fully described and claimed, and illustrated in the accompanying drawings, wherein:—

Figure 1 is a sectional view of an automobile door equipped with a window screen constructed in accordance with our invention.

Figure 2 is a sectional view taken on the vertical plane indicated by the line 2—2 of Figure 1.

Figure 3 is a sectional view taken on the horizontal plane indicated by the line 3—3 of Figure 1.

Figure 4 is a view partly in plan and partly in horizontal section illustrating the manner in which the screen is applied to the window opening of the door to position its end edges in the side felt strips of the window, and

Figure 5 is an elevational view of fragmentary portions of the main frame, wire cloth and clamping frame of one section of the window screen.

Figure 6 is an enlarged fragmentary top plan view showing the hinge structure used with this device.

Referring in detail to the drawings, 1 designates the upper portion of an automobile door of conventional construction. 2 designates the window opening of the door 1, 3 the glass panel of the window, and 4 and 5 the channeled felt strips of the window. The strips 4 are recessed into the side walls of the window opening 2 and slidably receive the side edge portions of the panel 3, and the strip 5 is recessed into the top wall of the window opening and receives the upper edge portion of the panel when the latter is in closed position. The door 1 is equipped with means through the medium of which the panel 3 may be raised and lowered. This means is not shown for the reason that the construction and operation thereof are well understood by those skilled in the art.

The window screen which is generally designated 6, is substantially equal in length to the distance between the bottom walls of the side felt strips 4, and has a height less than the distance between the top wall of the top felt strip 5 and the upper edge of the panel 3 when the latter is in fully lowered position. The screen 6 is of sectional formation, and the sections 6*a* and 6*b* thereof are similar. Each of the screen sections 6*a* and 6*b* comprises a main frame 8, a wire cloth panel 9 and a clamping frame 10. The frames 8 and 10, which may be made from any light sheet metal suitable for the purpose and the members or bars of which are flat and vertically disposed, are of open formation, and are of elongated rectangular formation in plan.

The wire cloth panels 9 are secured to the frames 8 by the frames 10 which are in turn secured to the frames 8 by bolts 11. The upper edges, lower edges, and outer lateral edges of the frames 8 extend beyond the corresponding edges of the frames 10 and are bent to provide rounded beads 12, 13 and 14, respectively. The beads 12, 13 and 14 project from the front or those sides of the frames 8 to which the wire cloth panels 9 are secured, extend outwardly beyond the frames 10, and are substantially equal in thickness to the distance between the side walls of the felt strips 4 and 5. The frames 8 are provided at their inner lateral edges with knuckles 15 for the reception of a pintle 16 to connect the frame sections 6*a* and 6*b* for relative movement about a vertical axis. The knuckles 15 are provided with lugs 15*a* and 15*b* which act as stop means to limit the inward swinging movement of the frame members when in open position. Angle bars 17 presenting horizontal and vertical flanges, are secured by their horizontal flanges to the lower sides of the lower beads 13 with their vertical flanges disposed at the inner side of and extending downwardly from the screen sections. The angle bars 17 may be welded or secured in any other suitable manner to the beads 13, the horizontal flanges of the angle bars being equal in length to the width of the screen sections, and the vertical flanges of the angle bars extending from the inner vertical edges of the screen sections to points coincident with the inner sides of the vertical beads 14.

The screen 6 is adapted to be inserted in the window opening 2 with its end beads 14 positioned in the side felt strips 4, with its upper beads 12 positioned in the top felt strip 5, and with its angle bars 17 positioned upon the upper edge of the window panel 3. The screen 6 is made in sections, and the sections thereof are connected for swinging movement about a vertical axis, in order to permit it to be readily inserted in the window opening 2. To insert the screen 6 in the window opening 2, the sections 6*a* and 6*b* are first moved into angular relation, and the ends of the screen are positioned in the window opening with the end beads 14 opposite the side felt strips 4. The sections 6*a* and 6*b* are then moved into alinement to carry the end beads 14 into the side felt strips 4. After this has been done the window panel 3 is raised to carry its upper edge portion into the angle bar 17, and to thereafter move the screen 6 upwardly so as to carry the upper beads 12 into the top felt strip 5. The screen 6 is supported against accidental downward movement by the window panel 3, and the beads 12 and 14 of the screen snugly fit in the felt strips 4 and 5, with the result that the screen is prevented from rattling and held against accidental displacement. To remove the screen 6 it is only necessary to move the window panel 3 downwardly, then move the screen downwardly to carry its beads 12 out of the top felt strip 5, and then swing the screen sections 6*a* and 6*b* on their hinge 16 so as to carry the beads 14 out of the side strips 4. As the beads 12 and 14 are rounded and surround the upper and outer end edges of the panels 9 and the frames 10, the screen 6 may be easily engaged in the felt strips 4 and 5 without liability of said edges of the panels 9 and frame 10 coming in contact with and tearing or otherwise damaging the felt strips. As the angle bars 17 extend from the inner vertical edges of the screen sections to points coincident with the inner sides of the vertical beads 14, a substantial connection is established between the screen 6 and the window panel 3, this connection also preventing insects from entering the automobile between the screen and window panel.

The size of the screen will depend upon the size of the window opening to which it is to be applied. The length of the screen will be substantially equal to the distance between the bottom walls of the side felt strips of the window and the height of the screen may be such that it will extend from the top wall of the top felt strip of the window to a point close to or remote from the bottom wall of the window opening. The space between the lower edge of the screen and the bottom wall of the window opening will be closed by the window panel.

From the foregoing description, taken in connection with the accompanying drawings, it should be apparent that the screen is strong and durable, that it may be easily and quickly applied to or removed from a window opening, that it will not rattle and cannot be accidentally displaced from the window opening, and that it will positively prevent flies, mosquitoes and other insects from entering the automobile.

While we have described the principle of the invention, together with the structure which we now consider the preferred embodiment thereof, it is to be understood that the structure shown is merely illustrative and that such changes may be made, when desired, as fall within the scope of the invention as claimed.

What is claimed is:—

1. A screen for an automobile comprising a pair of substantially rectangular frames, screen panels in the frames, means for hinging the frames together, the opposite ends and upper edges of the frames being engageable in window panel slots provided in the window panel frame, and means carried by each rectangular frame and engaging one edge and side of the window panel to hold the pair of frames against swinging in one direction, said hinge holding the frames against swinging in the opposite direction.

2. A screen for the window opening of an automobile door, comprising similar main frames having flat and vertically disposed members or bars, wire cloth panels having their edge portions bearing against the front sides of the main frames, clamping frames having flat and vertically disposed members or bars and bearing against the front sides of the edge portions of the panels and secured to the main frames, means connecting the main frames at their inner vertical edges so that the frame sections may be moved into angular or alined relation, the main frames extending beyond the upper, vertical and lower edges of the panels and clamping frames and formed to provide rounded beads extending from the front sides of the main frames in surrounding relation to the upper, vertical and lower edges of the panels and clamping frames, and L-shaped angular bars presenting horizontal and vertical flanges, the horizontal flanges being equal in length to the width of the screen sections and secured to the lower sides of the lower beads, and the vertical flanges extending from the inner edges of the screen sections to points coincident with the inner sides of the vertical beads and extending downwardly from the horizontal flanges for engagement with one face of the movable panel of the window frame, said angular bars coacting with the connecting means to hold the main frames in alinement when the movable panel engages the bars.

In testimony whereof we hereunto affix our signatures.

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DANIEL MASSEI.