March 5, 1929. O. M. WEBBER 1,704,157

AUTOMOBILE SCREEN

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Fig. 1.

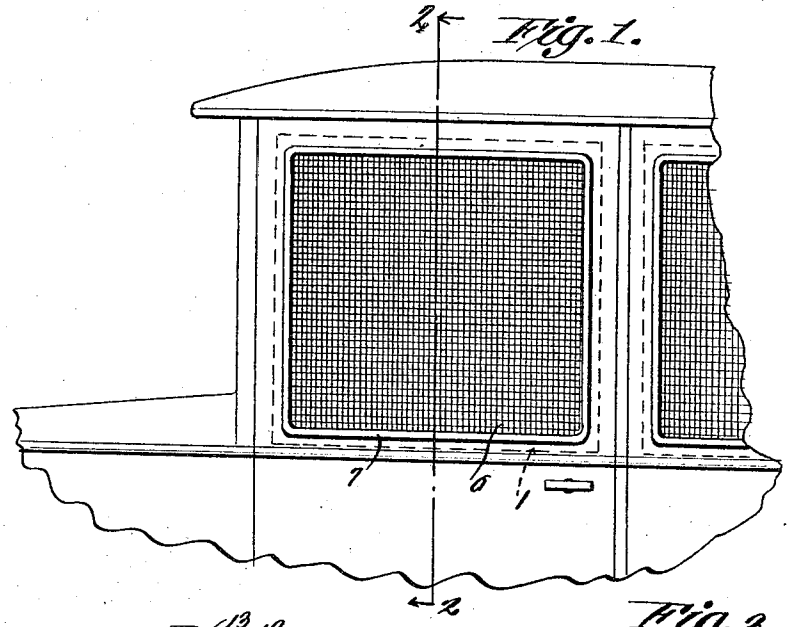


Fig. 2.

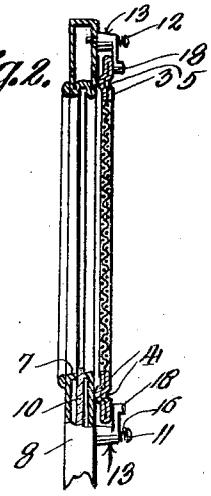


Fig. 3.

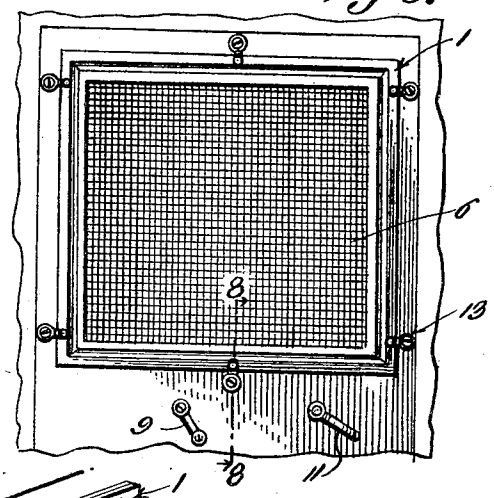
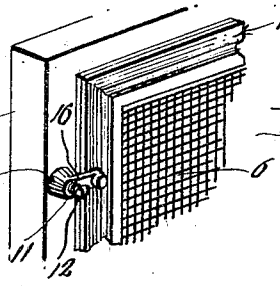


Fig. 4.



WITNESSES

Guy M. Shinn

D. C. Smith.

Inventor

OTIS M. WEBBER

By Richard B. Owen.

Attorney

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Fig. 5.

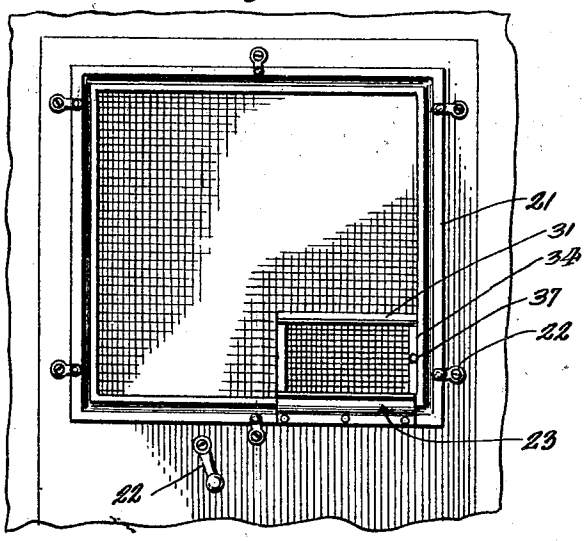


Fig. 6.

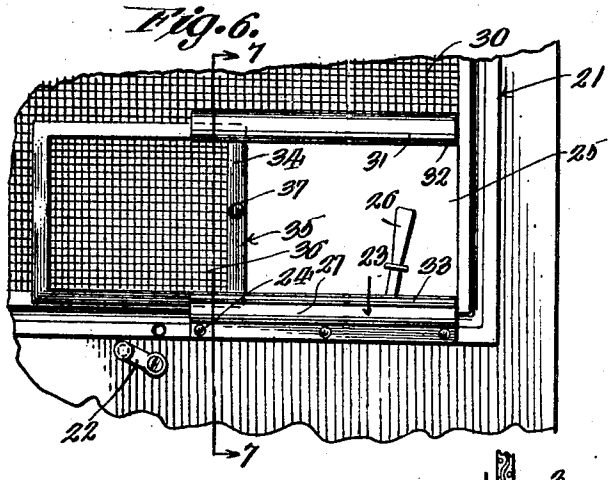


Fig. 7.

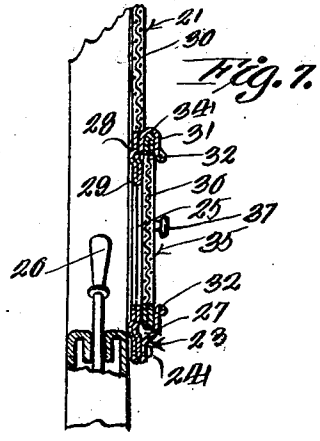
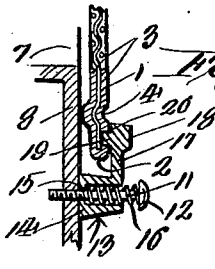


Fig. 8.



WITNESSES

Guy M. Spring

F. L. Smith.

Inventor

OTIS M. WEBBER

By Richard B. Owen. Attorney

Patented Mar. 5, 1929. 1,704,157

UNITED STATES PATENT OFFICE.

OTIS M. WEBBER, OF WINONA, MINNESOTA.

AUTOMOBILE SCREEN.

Application filed March 10, 1927. Serial No. 174,380.

This invention relates to improvements in screens for automobiles of the closed type and has as one of its objects to provide a screen which will effectually exclude insects, falling leaves and twigs, gravel, fragments of rock, and the like, thus affording protection to the occupants of the automobile while the windows thereof are open.

Another object of the invention is to provide a screen for the purpose stated which will not in any way interfere with the operation of the actuating means for the door latch or with the means provided for raising and lowering the window pane, whether it be mounted in the door or in the body structure.

Another object of the invention is to provide a novel means for mounting the screen so that the screen may be readily installed when desired and equally as readily removed, and this accomplished without the employment of tools of any character whatsoever.

In the accompanying drawings:

Fig. 1 is a side elevation of so much of an automobile of the closed type as is necessary to an understanding of the invention, screens embodying the invention being illustrated as mounted in the window opening in the door and in the body structure of the automobile;

Fig. 2 is a vertical sectional view taken substantially on the line 2—2 of Fig. 1 looking in the direction indicated by the arrows;

Fig. 3 is a view in elevation of one of the screens embodying the invention, the view illustrating the inner side of the door in the window opening of which the screen is mounted and illustrating clearly the means provided for supporting the screen in place, the door in this figure being of the type in which both the operating lever for the door latch and the lever for effecting raising and lowering of the window pane are located below and clear of the window opening;

Fig. 4 is a fragmentary perspective view of one corner of the door and the corresponding portion of the screen, the view likewise illustrating one of the devices provided for holding the screen in place;

Fig. 5 is a view similar to Fig. 3 illustrating a modification of the invention particularly adapted to doors of automobiles which doors are of the type in which the actuating lever for the latch is mounted directly in the window opening of the door;

Fig. 6 is a similar view on an enlarged scale illustrating the manner in which a number of the screens may be adjusted so as to provide for access to the said actuating lever for the door latch;

Fig. 7 is a vertical sectional view taken substantially on the line 7—7 of Fig. 6 looking in the direction indicated by the arrows;

Fig. 8 is a vertical sectional view taken substantially on the line 8—8 of Fig. 5, the view being on an enlarged scale and illustrating the means provided for holding the screen in place.

In the embodiment of the invention illustrated in Figures 1 to 4 inclusive, the screen comprises a frame which is indicated in general by the numeral 1 and which is preferably of the rectangular form shown in the drawing and the top and bottom and side members of the frame are preferably formed from sheet metal, the metal being folded upon itself as indicated by the numeral 2 so as to provide initially spaced flanges 3 which are however brought together by pressure or in any other suitable manner and at this time their lower edges are brought substantially into registration with each other. The strips of which the frame member is formed is crimped longitudinally and on a line substantially midway between the folds 2 and the inner edges of the said folds, the crimps in all of the sections being in registration as indicated by the numeral 5. The screen sheet which is indicated by the numeral 6 and which is of wire mesh and preferably of a metal which will not be affected by moisture, is disposed and clamped at its margins between the folded portions of the strips comprising the members of the frame, the sheet being gripped at the line of extent of the crimps 5 and the said margins being in this manner securely anchored in place. By reference to Figure 2 of the drawings it will be observed that in forming the longitudinal crimp 5 in the members of the frame, longitudinal beads are provided upon the outer sides of the frame members which are designed to rest squarely against the inner surface of the door or of the body of the automobile about the window openings therein.

The window opening in the door is indicated by the numeral 7 and the door is indicated by the numeral 8, the numeral 9 indicating a crank arm which is adapted to be manually operated to effect raising and lowering of the window pane indicated by the numeral 10, and the numeral 11 indicating the actuating lever for the latch for the door. It will be observed that in this embodiment

of the invention of the screen sheet 6 may be intact and integral throughout its entire area as the screen as a whole is located above and entirely clear of the crank handle 9 and lever 11.

Figure 8 of the drawings best illustrates the means provided for holding the screen in place, and the said means embodies a screw or bolt 11 the shank of which is threaded into the door 8 or the body of the automobile, as the case may be, the shank of the bolt being extended somewhat beyond the inner surface of the said door and being provided at its inner end with a head indicated by the numeral 12. A retaining member 13 comprises a preferably frusto-conical head which is formed axially with an opening 15 fitting the stem 11, the said head engaging at its base against the inner surface of the door 8 and being retained in this position, normally, by a helical spring 16 which is arranged upon the stem and within an enlargement of the opening 15 as clearly shown in the said Figure 8, one end of the spring bearing against the shoulder formed at the juncture of the opening and its enlargement and the other end of the spring bearing against the head 12. A retaining finger 17 extends radially from one side of the head 14 and is provided at its outer end with a finger piece 18 through the medium of which the retaining member may be bodily shifted outwardly a short distance against the tension of the spring 16 and then rotatably adjusted about the pin or bolt 11. This end of the finger 17 is likewise formed with a locking stud 19 adapted to seat in an opening or a depression 20 formed in the outer fold of the respective frame member 1. It will be observed by reference to Fig. 3 of the drawings that one of the retaining devices is preferably arranged at the upper side and one at the lower side of the screen and that a pair of such devices is arranged at each side of the screen and it will be evident that when the devices are engaged with the frame members of the screen in the manner shown in Figures 3 and 8 of the drawings and also in Figure 2, the screen will be securely held in place. When it is desired to dismount the screen as for example in the winter time, this may be readily accomplished by merely pulling out upon the finger pieces 18 to correspondingly displace the retaining members and then swinging the retaining members clear of the frame members of the screen whereupon the screen will be released. Normally however the retaining members, being held in place by the respective springs 16, securely hold the frame members of the screen in snug engagement with the side of the door or the side of the body of the automobile as the case may be.

In the embodiment illustrated in Figures 5, 6 and 7 of the drawings, the screen frame, which is indicated by the numeral 21, is of identically the same construction as in the previously described form and it is retained in place by retaining devices 22 identical with the devices 13. This particular embodiment however is designed for use upon automobiles in which the door latches are located within the window openings of the doors so that it is necessary to provide the screen with a displaceable section to provide for access to the operating lever for the latch. With this end in view a guide strip 23 of sheet metal is riveted or otherwise secured as in 24 at its lower marginal portion to the lower frame member of the screen at the lower side of an opening 25 which is provided in the screen sheet at one lower corner of the screen opposite the operating lever for the latch which lever is indicated by the numeral 26. Above its attached marginal portion the guide strip 23 is deflected outwardly and then extended upwardly so that a channel 27 is provided between the strip and the said lower side member of the frame. At the upper side of the opening 25 and extending inwardly from the vertical side member of the frame which bounds one side of the opening 25, is a guide comprising a metal strip 28 folded upon itself as at 29 to provide fold portions which confine the marginal portion of the screen sheet 30 which portion is located at the upper side of the opening 25. The inner ply of the strip 28 is provided with an overturned extension 31 which extends outwardly and then downwardly from the upper edge of the said ply and which has its marginal portion preferably overturned outwardly upon itself as indicated by the numeral 32, the upper edge of the strip 23 being likewise formed as indicated by the numeral 33. Thus two channels are provided one at the upper and the other at the lower side of the opening 25 and the purpose of these channels is to accommodate and guide the upper and lower members of the frame 34 of a movable or displaceable screen section indicated by the numeral 35. This section comprises, in addition to the frame 34, a screen sheet 36 which is stretched within the frame and the frame is preferably of the simple and customary construction shown in Fig. 7 of the drawings. It will now be evident and particularly by reference to Figures 5 and 6 that in the closed position of the displaceable screen section 35 one end of the frame structure thereof will abut against the vertical side member of the frame of the main screen and when the section is open as shown in Fig. 6, the opening 25 will be uncovered. A finger knob 37 is preferably provided upon one end member of the frame 34 of the displaceable screen section so that the section may be conveniently slid into and out of closed position, in the latter position uncovering the said opening 25 and permitting of access to the latch operating lever 26. Inasmuch as the section 35 will be displaced

only momentarily at the time the latch lever is operated to open the door, this momentary uncovering of the opening 25 is of no consequence.

It is to be understood, of course, that various changes may be made, within the scope of what is claimed, without departing from the spirit of the invention.

Having thus described the invention what I claim is:

1. In a screen for automobiles, a screen frame the members of which are of sheet metal and of two-ply formation, a screen sheet confined at its margins between the plies of the said members, the said screen sheet at one corner thereof being cut away, a frame member of two-ply construction extending along the lower edge of the cutaway portion of the screen sheet and parallel to the lower member of the frame and having an overturned flange extending from the upper edge of one of its plies and constituting a guide extending longitudinally of the upper side of the opening defined by the cut-away portion of the screen sheet, a guide strip secured to the lower member of the frame and extending longitudinally of the said opening in the screen sheet and having an offset portion spaced from the lower member of the frame to constitute a guide, and a door for closing said opening comprising a frame slidably engaged at its upper and lower members in the said guides, and a screen sheet within said frame.

2. Means for retaining a screen frame in position in the opening in which it is mounted comprising a threaded stem having a head at one end, a member rotatably mounted upon the stem and having a recess therein concentric to the stem, a spring upon the stem bearing at one end at the inner end of said recess and at its other end against the head upon the stem and yieldably resisting the outward sliding movement of the said retaining member upon the stem, a finger extending radially from the said retaining member at the outer end thereof for engagement with a screen frame member, and a finger piece upon the free end of said finger and constituting means whereby the finger may be rotated about the stem and likewise retracted from engagement with the frame member which it is to retain.

In testimony whereof I affix my signature.

OTIS M. WEBBER.