Aug. 11, 1959 J. T. KELLY ET AL 2,898,991

WINDOW SCREENS

Filed April 7, 1955 2 Sheets-Sheet 1

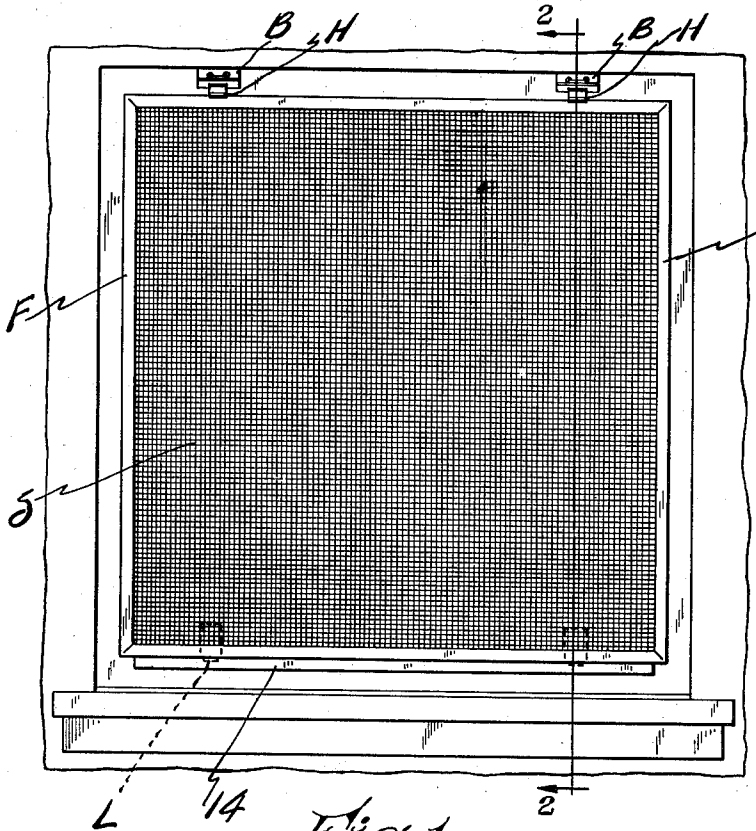


Fig. 1

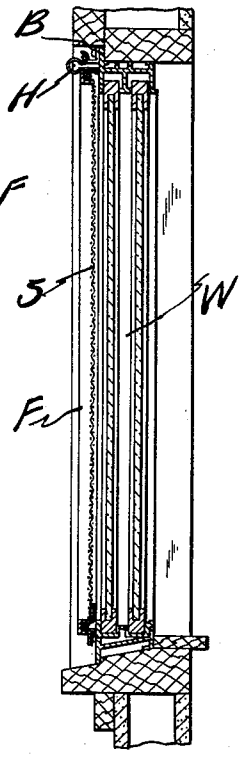


Fig. 2

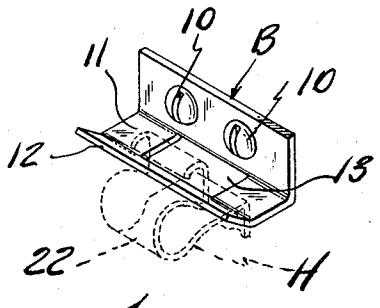


Fig. 4

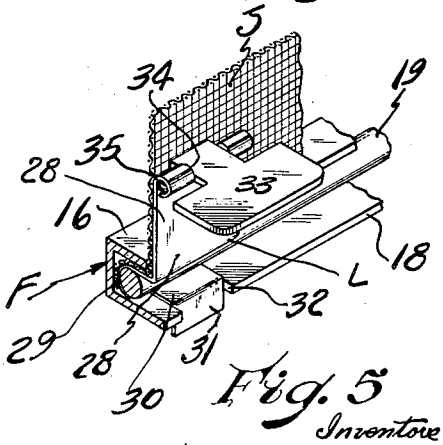


Fig. 5

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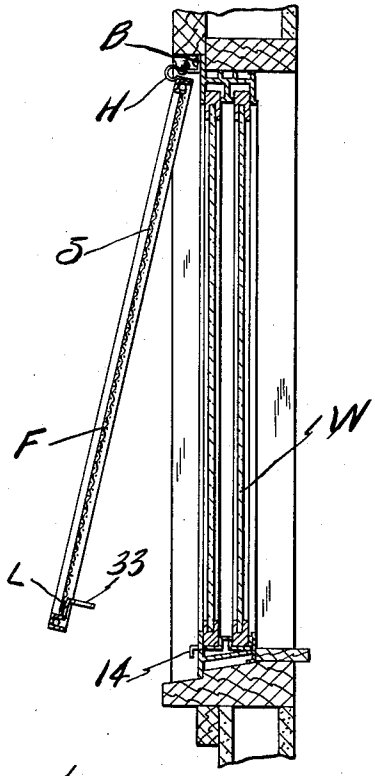


Fig. 3

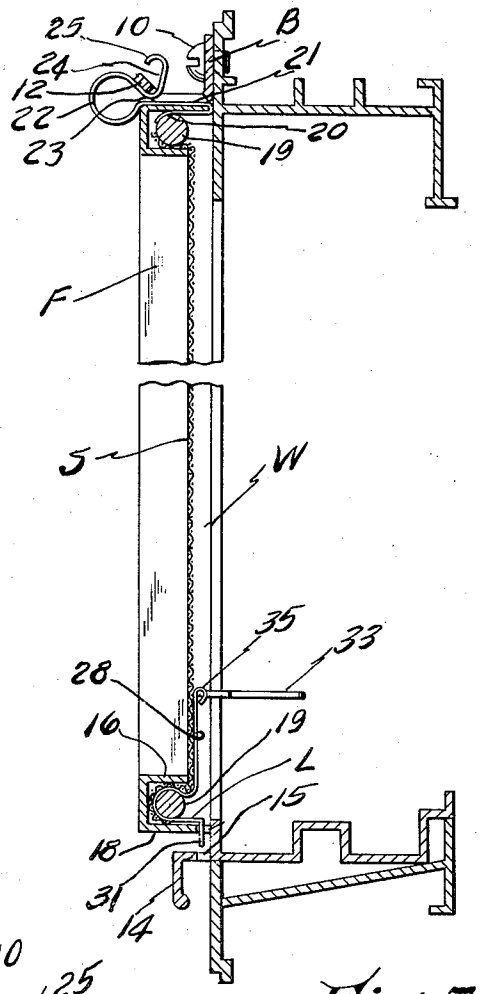


Fig. 7

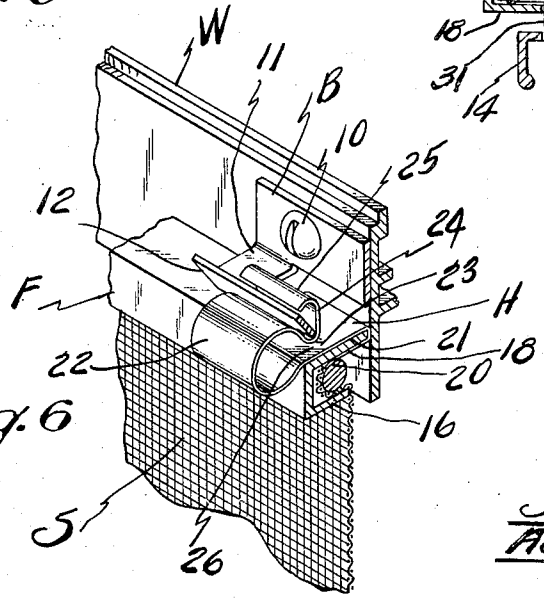


Fig. 6

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WINDOW SCREENS

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11 Claims. (Cl. 160—369)

This invention relates to window screens for releasable attachment to the outer face of windows of all types.

It is the prime object of the present invention to provide novel means for releasably supporting an exterior framed window screen in position on a window frame, said means exerting, at all times, both an inward and a downward pressure so that the screen frame maintains tight facial contact with the face of the window frame and is firmly locked in position thereon to eliminate rattles caused by high winds and to also exclude bugs and insects of all kinds.

Another object is to provide stationary supporting brackets on the window frame and provide interrelated means on the screen frame for yielding releasible engagement therewith, said screen frame being subject to yielding vertical movement while thus held.

A further object is to provide novel locking means on the lower rail of the screen frame, lockingly engageable with the window frame, said locking means being readily releasable from the window frame when upward pressure is applied to the screen frame.

Still a further object is to provide a screen frame which can be easily and quickly mounted and/or removed, said mounting permitting the lower edge of the screen to be twung outwardly for repair, cleaning, painting, replacement, shaking mops, or for any other purpose.

A still further object is to provide simple and substantial hardware which can be readily located and secured in position on the screen frame, all of which can be economically manufactured and assembled, and which lends itself to quantity production with the savings incident thereto.

With the above and other objects in view, the present invention consists in the combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims, it being understood that changes may be made in the form, size, proportions and arrangement of the various parts, without departing from the spirit, or sacrificing any of the advantages of the invention.

In the drawings:

Figure 1 is a front elevational view of a window frame with our window screen mounted thereon.

Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a view similar to Fig. 2 showing the screen frame swung outwardly from the window frame.

Fig. 4 is an enlarged fragmentary perspective view of the screen bracket, and hanger clip assembly, the hanger clip being shown in broken lines.

Fig. 5 is a fragmentary, perspective view showing the locking means with the finger tab swung horizontally.

Fig. 6 is also fragmentary, perspective view of the upper edge of the screen frame showing the resilient hanger clip connection.

Fig. 7 is an enlarged vertical sectional view through the window and screen frame showing the screen frame raised and released from the lower edge of the window frame.

Referring now more specifically to the drawings in which we have shown one embodiment of our invention, and in which the letter W indicates a sliding transverse window frame which can be formed of metal or any other desired material, and while we have, in the instant application, shown the screen applied to a sliding transverse window frame, it will be understood that this is an exterior screen which is applicable to any type window frame.

Spaced apart L-shaped supporting brackets B are secured to the upper face of the window frame W by means of screws 10 or the like, the extreme end of the projecting leg 11 of each bracket being angularly disposed as at 12 and said leg is formed with an elongated opening 13 therein and for a purpose to be presently described.

A longitudinally disposed, outwardly projecting bar 14 extends across the face of the lower section of the window frame W and spaced apart passages 15 are provided in said bar for engagement by suitable locking means L provided on the screen frame.

The screen frame proper comprises preferably pressed rectangularly shaped metallic frame F, said frame being substantially U-shaped in cross-section, with the inner leg 16 being folded over, or rolled, to form a smooth edge, while the opposite leg 18 remains straight. A strip of screen cloth S is stretched over the opening in the rectangular shaped screen frame F, the edges overlapping the frame leg members 16, and a wire rod 19, bent and shaped to snugly fit into said frame, is pressed thereinto, thus stretching the screen taut and firmly anchoring the edges of the cloth in position.

Resilient hanger clips H are mounted on the upper rail of the screen frame F and are formed as clearly shown in Figs. 4 and 6 of the drawing, each hanger clip comprising a preferably flat strip of resilient metal, the inner end of which is slightly rolled as at 20 for engagement by the wire rod 19, thence said strip extends horizontally and is reversely bent as at 21, to lie in intimate facial contact with the upper leg of the screen frame, thence projecting outwardly beyond the front edge of the screen frame F and being rolled to form a tubular section 22, thence the strip is upwardly curved as at 23, thence extending vertically as at 24, and thence the end section is rolled downwardly to form a hook 25 for engagement with the angularly disposed section 12 of the bracket B. A suitable space or passage 26 opens into the tubular section of the hanger so that it can be readily threaded through the elongated opening 13 and the hook 25 engages the section 12 of the bracket. These hanger clips serve to yieldingly secure the upper end of the screen frame on the window frame and when the hook portion 25 of the hanger is threaded through the slotted opening 13 and the section 25 hooked over the angular section 12 of the bracket B, these hanger clips support the frame and yieldingly draw it inwardly into tight engagement with the window frame.

Spaced apart locking members L are mounted on the lower rail of the screen frame, each member comprising preferably a flat strip of metal 28 which extends into the frame, being bowed as at 29 to partially embrace the wire rod 19, thence being reduced in width and extending outwardly as at 30, and thence being bent downwardly parallel to the main body, to form a locking tongue 31, the leg of the lower rail 27 being notched as at 32 to accommodate said tongues. These locking members and hanger clips are located when the frame is assembled and are secured in position when the wire rod is pressed into the frame.

A finger tab 33 is hingedly secured to the upper end of, and forms a part of the locking means, one end of the tab and strip being rolled as at 34 to accommodate a pin

35 to form a joint to permit the tab to be swung to horizontal position as indicated in Fig. 5 of the drawings so that they may be readily grasped to lock, unlock or otherwise manipulate the screen.

Mounting of the screen frame is a very simple operation. It is merely necessary to thread the hook end 25 of the hanger clips through the openings 13 in the supporting brackets B so that the lip ends hook over the legs 12 of supporting brackets. The screen frame is then forced upwardly, see Fig. 7 of the drawings, flexing the hanger clips H to permit the tongues 31 to enter the passage 15 in the bar 14, the weight of the screen frame together with downward pressure from the hanger clips serves to hold the tongues in position and the inward pressure above described provides a tight insect-proof arrangement.

From the foregoing description it will be obvious that we have prefected a very simple, practical, and relatively inexpensive insect-proof screen frame and mounting.

What we claim is:

1. A window screen adapted to be mounted on a window structure having at least one supporting bracket on the upper face thereof and at least one pocket in its lower face, a window closure frame including top, side and bottom rails at least one, resilient hanger clip compressible a predetermined distance in a vertical plane secured to said top rail and suspended it from said supporting bracket, and downwardly projecting locking means fixed on said lower rail extending into said pocket a predetermined distance less than the distance said clip can be compressed so said locking means is removed from said pocket on lifting of said closure pockets.

2. A window closure adapted to be mounted on a window structure having spaced apart L-shaped supporting brackets on the upper exterior face thereof and spaced pockets in its lower face, said closure being releasably mounted on said structure and including, top, bottom and side rails, resilient hanger clips compressible a predetermined distance in a generally vertical plane secured on the upper closure rail and releasably suspending said closure from said supporting brackets, projecting locking tongues on the lower screen frame extending into said pockets a predetermined distance less than the distance said clips can be compressed, said hanger clips allowing sufficient yielding, vertical movement to permit release of said tongues from said pockets.

3. In combination, a window structure having spaced apart L-shaped brackets on the upper exterior face thereof, and spaced apart pockets on its lower face, a window closure frame swingably mounted thereon comprising, top, side and bottom rails, spaced apart resilient hanger clips secured to the upper rail for supporting the closure frame from the brackets, each being formed with an outwardly projecting portion and a thence reversely turned portion spaced a predetermined distance from said first portion to provide a vertically compressible section and terminating in a hooked bracket engaging section, horizontally spaced, downwardly projecting tongues on the lower rail extending into said pockets a distance less than the said distance between the portions of the clip, so that said closure can be lifted and said tongues removed from the pockets to permit the closure to be swung outwardly.

4. The combination defined in claim 3 in which notches are provided in the lower rail to accommodate said tongues, and finger tabs hingedly connected to the upper ends of said tongues to facilitate manipulation thereof.

5. The combination defined in claim 3 in which the projecting leg of each L-shaped bracket is provided with an angularly disposed outer section, and an opening in said leg to accommodate the free end of said hanger clip.

6. The combination set forth in claim 3 in which the upper end of the resilient hanger clip is substantially vertically disposed with relation to the angularly disposed leg of said L-shaped bracket and has a hook portion engaging over the outer edge of said angular leg.

7. A window closure construction for mounting on a window frame having a pocket in the lower end of said frame comprising a window closure, resilient means deformable in the general plane of said closure a predetermined distance swingably suspending said window closure from the upper end of said frame in engagement with said frame, and means on the lower end of said closure receivable in the said pocket to prevent the lower end of said frame from being swung outwardly from said frame normally extending a predetermined distance into said pocket less than the distance said means can be deformed so that said closure can be lifted and said extending means removed from said pocket to permit the closure to be swung outwardly.

8. A window closure construction comprising a window frame, a window closure for said frame, resilient means deformable in the general plane of said closure a predetermined distance releasably suspending said window closure from the upper end of said frame with the weight of the frame closure holding the said means in an extended position, a pocket extending in the general plane of said closure provided in one of said closure and frame and a detent on the other of said closure and frame receivable in said pocket to normally prevent said closure from being swung outwardly from said frame, said detent extending a predetermined distance into said pocket less than the distance said means can be deformed so that said closure can be lifted and said detent removed from the pocket to permit the closure to be swung outwardly.

9. A window closure comprising a vertical window frame, a window closure for said frame, means swingably suspending said window closure from the upper end of said frame permitting the lower end of the closure to be swung outwardly laterally from said frame and permitting a limited upward movement of said closure relative to said frame, a pocket extending in a generally vertical plane provided in one of said closure and frame and a detent fixed on the other of said closure and frame in vertical alignment with said pocket and receivable in said pocket to normally prevent said closure from being swung outwardly from said frame, said detent extending a predetermined distance into said pocket less than the distance said means permits upward movement of said closure relative to said frame so that said closure can be lifted and said detent removed from the pocket to permit the closure to be swung outwardly.

10. The combination defined in claim 8 in which said hanger clips include tubular sections projecting beyond the top rail of the window screen, and a throat opening into said tubular section to permit vertical movement of said screen frame.

11. The combination defined in claim 8 in which foldable finger tabs are provided on said locking means to facilitate mounting and removing said screen frame.

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