July 30, 1957 E. F. XANTEN 2,800,956

COMBINATION SCREEN AND STORM WINDOW FOR BASEMENT STEEL SASH

Filed Aug. 18, 1955

Fig. 1

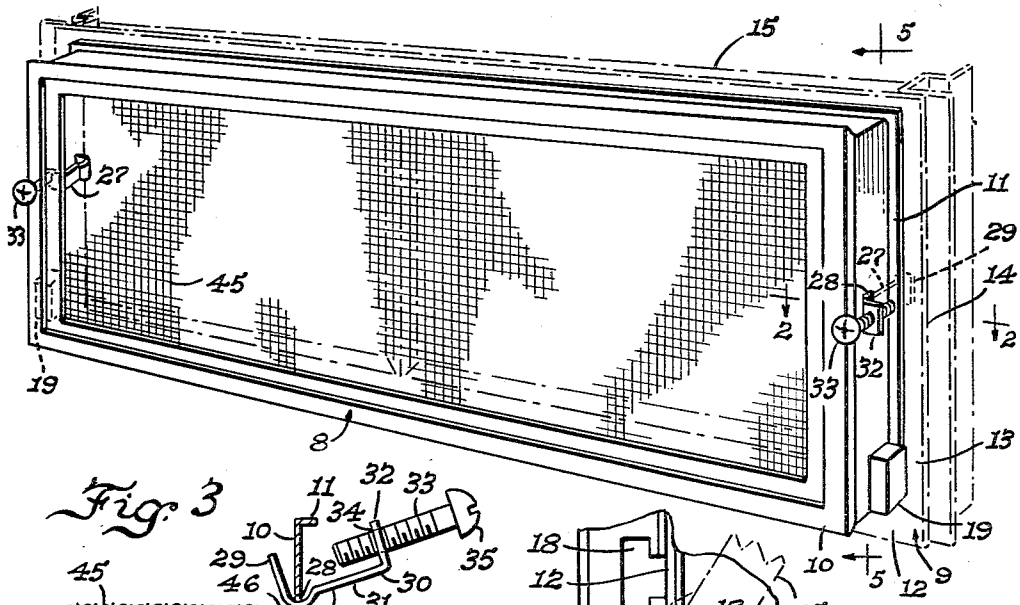


Fig. 3

Fig. 5

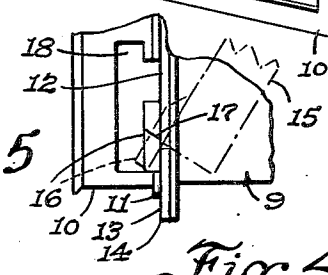


Fig. 2

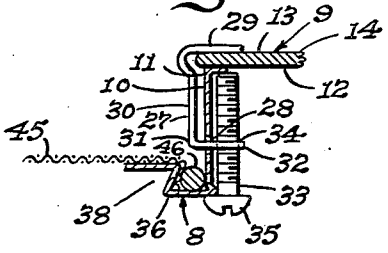


Fig. 4

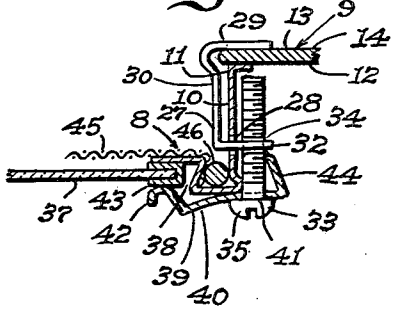


Fig. 6

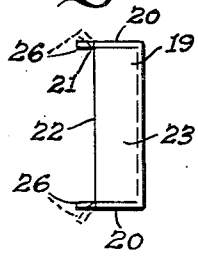
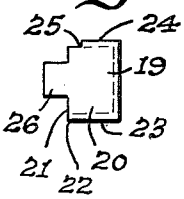


Fig. 7



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United States Patent Office

2,800,956

Patented July 30, 1957

2,800,956

COMBINATION SCREEN AND STORM WINDOW FOR BASEMENT STEEL SASH

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Application August 18, 1955, Serial No. 529,142

12 Claims. (Cl. 160—91)

This invention relates to a new and substantially universally adaptable combination screen and storm window for application to steel sash such as are used in basement windows.

It has been most difficult in the past for dealers to satisfy customers' demands for screens and storm windows to fit basement steel sash already installed, because most manufacturers, if they make any screens at all, supply them only to fit the steel sash of their own manufacture, and hence, unless a dealer knows the specific make of steel sash to be fitted and orders screens and storm windows to fit that particular make, the need usually cannot be supplied. It is, therefore, the principal object of my invention to provide a universally adaptable screen which, with little or no alteration at all, can be applied to any one of the ten or more makes of basement steel sash, partly by virtue of the provision of new and improved fastening clips supplied with the screens, one at each end to attach to the corresponding ends of the sash frame, and partly by virtue of the provision at the lower inner corners of the screen frame of knock-outs, the removal of which provide clearance openings for the exposed trunnions that are provided on the ends of certain makes of sash. In connection with each screen I also provide a pair of quickly attachable sheet metal box enclosures designed to fit in the knock-out holes and adapted to be clinched in place at opposite ends by the bending over of lugs provided on opposite ends of these sheet metal parts, so that no openings are left for insects and bugs to enter.

In accordance with the invention, each screen is made to provide a recess in the outer face to accommodate a glass storm panel and spring clips are supplied in connection with the fastening clips under the heads of the fastening screws therefor which can be quickly turned from a retracted out-of-the-way position to an operative position holding the storm panel in place under spring pressure.

The invention is illustrated in the accompanying drawing, in which—

Fig. 1 is a perspective view of a basement window showing applied to the steel frame thereof a screen fitted with fastening clips in accordance with my invention;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is a view similar to a portion of Fig. 2 showing the method of assembling the fastening clips onto the ends of the screen frame;

Fig. 4 is a view similar to Fig. 2 showing a glass storm panel in place in the screen frame and showing one of the two spring clips provided in connection with the screws on the two fastening clips for retaining the glass storm panel;

Fig. 5 is a view on the line 5—5 of Fig. 1 with the sheet metal box enclosure removed so as to disclose the hole formed where one of the two knock-outs that are provided in the opposite ends of the screen frame has been knocked out, and

Figs. 6 and 7 are two views of one of the sheet metal boxes intended for application in the knock-out holes.

The same reference numerals are applied to corresponding parts throughout these views.

Referring to the drawing, the reference numeral 8 designates generally a rectangular window screen provided in accordance with my invention for substantially universal application to basement steel sash, like that indicated generally by the reference numeral 9, the screen having a formed sheet metal frame 10 the top, bottom and end rails of which have right angle flanges 11 in coplanar relationship on the back for abutment with the outer face 12 of the front flange 13 of the T-iron top, bottom and end members of the frame 14 of the steel sash. The hinged steel sash proper is indicated at 15 in Figs. 1 and 4, the one disclosed being of the type having trunnions 16 at the bottom at the opposite ends which fulcrum at 17 on the front face 12 on the frame 14 in the hinging of the sash, and, inasmuch as these projecting trunnions require operating clearance in the frame 10 of the screen 8, knock-out portions are provided at the lower ends of the side rails of the screen frame 10 which can easily be knocked out, in the same well-known manner that an electrician removes knock-out slugs from an outlet box, to provide the generally rectangular openings like that shown at 18 in Fig. 5, in which the trunnions 17 find ample operating clearance, as indicated by the full and dotted line showings of the one trunnion 16 in that figure. When these openings 18 have to be provided, they can be easily closed by the application of small sheet metal box enclosures 19 as shown in Fig. 1. The boxes 19 are of rectangular form, as seen in Figs. 6 and 7, and each box has top and bottom end walls 20 which have the inner edges 21 in coplanar relationship with the inner edge 22 of the front wall 23 for tight abutment against the vertical end face of the side frame 10 at the top and bottom and along the left hand side of opening 18 in Fig. 5 alongside flange 11. The back wall 24 of each box is cut away, as at 25, to provide clearance for the flange 11 so that the back wall 24 may have tight abutment with the front face 12 against which the flange 11 has abutment. There are small rectangular lugs 26 projecting from the edge 21 on the top and bottom walls 20 of the box, which, when the box is properly placed covering the opening 18, project neatly through the opening at the top and bottom thereof, and these lugs are adapted to be bent into diverging relationship on the inner side of the screen frame 10, as indicated in dotted lines in Fig. 6, to clinch the box enclosure in place, thereby leaving no openings through which insects and bugs would otherwise be apt to enter. It will be seen, therefore, that whether the trunnions on the sash 15 are exposed on the outer side of the window frame 14 or not makes no difference in the universal adaptability of the screen for the present invention, because the frame of each screen will be equipped with the knock-out portions, which if they do not have to be knocked out because of the provision of concealed trunnions on a given sash, will keep the screen frame fully closed against insects and bugs, but which may be readily knocked out wherever the trunnions on the sash are exposed and have to be provided for as above described. The openings thus made can be quickly and easily closed by the application of the two sheet metal box enclosures 19 provided with each screen for that purpose.

A pair of spring metal fastening clips 27 is provided for each screen 8, one at each end of the frame 10 approximately at the middle thereof, as shown in Fig. 1, a short vertical slot 28 being provided in the mid portion of each end of the frame 10 through which first the J-shaped inner end portion 29 (as in Fig. 3) and then the L-shaped main body portion 30 may be slipped (as shown in Figs. 1, 2 and 4), to dispose the clip 27 with

the one leg 31 of the L lying parallel to the inner side of the frame and the other leg 32 of the L parallel to the J-shaped end portion 29 extending at right angles to the frame through the slot 28. A fastening screw 33 threads in a hole 34 in the leg 32 and has one side portion of the head 35 abutting the outer or front face 36 of the frame, as shown in Fig. 2. The screw 33, as clearly appears in Fig. 2, has the shank portion thereof of a length equal to the distance from the outer or front face 36 of the frame to the outer face of the flange 11, so that the screw head can be in contact with the outer or front face 36 of the frame at the same time that the end of the shank is in contact with the outer face of the flange 11, as appears in Fig. 2. Hence, when the screw 33 is tightened, the head 35 of the screw and the leg of the J-shaped end portion 29 of the clip 27 are drawn together, enough leeway being provided in the slot 28 in a fore and aft direction to allow a given amount of fore and aft movement of the end portion 32 of the clip 27 therein so that the head 35 of the screw 33 can be jammed securely against the front face 36 and the end of the shank of the screw 33 can be jammed securely against the outer face of the flange 11, and, at the same time the J-shaped end portion 29 of the clip 27 can be drawn up firmly against the inner side of the flange 14 on the window frame, thereby fastening the screen 8 quite firmly and without danger of any space being left between the flange 11 and the outer face of the sash frame 10, through which flies and other insects and bugs would be apt to pass. The J-shaped end portions 29 of the two clips 27 are thin enough in relation to the tightness of fit of the sash 15 so that there is no problem presented in the fastening of the sash to the frame at the top in the usual way in closed position. Here again, it should be manifest that so long as the length dimension of the screen in relation to the length dimension of the steel sash to be fitted is correct the screen may be applied even if it is not an exact fit so far as height dimension of the sash is concerned, although it is believed that most sash manufacturers adhere to standard sizes and no appreciable run-out need be anticipated.

Where only the screen 8 is applied, it may removed for storage with other screens when the others on the house are removed in the fall. Otherwise, glass storm panels, like that indicated at 37 in Fig. 4, may be inserted in the recessed front portions 38 of the screen frames 10 and secured in place in any suitable or preferred manner. I prefer to provide for the fastening of each such glass storm panel a spring steel retaining clip 39 under the head 35 of each of the screws 33. The clip 39 comprises an elongated spring steel body portion 40, near one end of which a hole 41 is provided to receive the shank of the screw 33 with a fairly close working fit, and on the other end of which is an inwardly bent J-shaped portion 42, which, when the screw 33 is tightened and the clip is in place abutting the marginal frame 33 of the panel 37, is pressed tightly but resiliently against the frame to hold the panel 37 securely in place. An inwardly bent end portion 44 on the other end of the clip 39 has abutment at its extremity with the shank of the screw at some distance from the head 35 to provide a good bracing effect for the clip With this construction the clip may be easily turned to an out-of-the-way position especially when the screw 33 is loosened a trifle. Hence, application and removal of a glass storm panel 37 takes very little time and effort.

In passing, it will be noticed that the edge portions of the screen material 45 are clamped by a rod 46 pressed into a channel that is formed in screen frame 10 on the inner side thereof around the storm window recess 38. In that way the screen is kept neatly stretched and, in forming the channel to accommodate the rod 46, one side of the recess 38 is formed at the same time.

It is believed the foregoing description conveys a good understanding of the objects and advantages of my invention. The appended claims have been drawn to cover all legitimate modifications and adaptations.

I claim:

1. In combination with a fixed window frame having inner and outer faces, and a window sash hinged to close against one face of said frame, a screen having a frame engaging the other face of said window frame, a generally U-shaped attaching clip having one leg disposed parallel to and engaging the sash-engaged face of said window frame and the other leg extending outwardly freely through a slot provided in the screen frame, and a screw threaded in an opening provided in the last mentioned leg of the clip and having a head which when the screw is tightened forces the screen frame against the other face of said window frame as the clip is drawn against the sash-engaged face of said window frame.

2. The combination set forth in claim 1 wherein the screen frame has a recess adapted to accommodate a storm window next to the screen in the frame, the combination including a storm glass panel fitting in the recess in the screen frame, and a fastener clip in engagement with said panel and held in place under the head of the same screw that cooperates with the other clip to hold the panel in assembled relationship to said screen frame.

3. The combination set forth in claim 1 wherein the screen frame has a recess adapted to accommodate a storm window next to the screen in the frame, the combination including a storm glass panel fitting in the recess in the screen frame, and a generally U-shaped spring metal clip disposed with its cross-portion under the head of the same screw that cooperates with the other clip and having one leg bearing against the shank of the screw on the outer side and the other leg bearing on the panel to hold the same under spring pressure in assembled relationship to said screen frame.

4. In combination with a fixed window frame having inner and outer faces, and a window sash hinged to close against the inner face of said frame, said sash having hinge trunnions bearing against the outer face of said frame, a screen having a rectangular sheet metal frame the side portions of which are spaced for engagement with the outer face of said window frame at the same location as said trunnions, said sheet metal frame having knockout portions provided in the said side portions thereof which when knocked out provide clearance openings to accommodate said trunnions while the screen frame is otherwise in engagement all around with the outer face of said window frame, means for securing said sheet metal frame to said window frame, and a pair of box-like housings secured to the side portions of said frame in the trunnion openings closing the same against entry of insects while affording operating clearance for said trunnions.

5. As an article of manufacture, a sheet metal frame for a screen for application on the outer face of a basement window frame, said frame having knockout portions on the lower side portions adapted to be knocked out easily when clearance openings are required for window sash trunnions on certain styles of basement windows to which the screen is applicable.

6. As an article of manufacture, a sheet metal box for application as a closure, and a trunnion housing in openings in the side portions of the sheet metal frame of a screen applied to a basement window, where the hinged window sash has exposed trunnions on the outer face of the frame which require clearance and housing, the box being as long as the openings and as wide and having lugs projecting from opposite ends normally in parallel relationship to one another and coplanar relationship with the ends of the box but adapted after entry through the opening to be bent in diverging relationship to fasten the box in place on the outer side of the frame closing the opening and furnishing a housing for a window sash trunnion.

7. The combination set forth in claim 1, including an

outwardly extending flange on that edge of said frame engaging the face of said window frame, the screw for tightening the clip having the shank portion thereof of a length equal to the distance from the outer face of said screen frame to the outer face of said flange, whereby when the screw is tightened to tighten the clip the screw head engages the outer face of said screen frame while the end of the shank of the screw engages the outer face of the flange to press the screen frame tightly against the window frame.

8. In combination with a fixed window frame having inner and outer faces, and a window sash hinged to close against one face of said frame, a screen having a frame engaging the other face of said window frame, a generally U-shaped attaching clip having one leg disposed parallel to and engaging the sash-engaged face of said window frame and the other leg extending outwardly freely through a slot provided in the screen frame, said screen frame having an outwardly projecting flange on that edge arranged to engage the window frame, and a screw threaded in an opening provided in the last-mentioned leg of the clip and arranged to engage the outer face of said flange so that when the screw is tightened to draw the clip against the sash-engaged face of said window frame the screen frame is pressed tightly by means of said screw against the other face of said window frame.

9. The combination set forth in claim 8, wherein the screen frame has a recess adapted to accommodate a storm window next to the screen in the frame, the combination including a storm glass panel fitting in the recess in the screen frame, and means for securing said panel in place in said recess.

10. In combination with a fixed window frame having inner and outer faces, and a window sash hinged to close against one face of said frame, an attachable frame engaging the other face of said window frame, a generally U-shaped attaching clip having one leg disposed parallel to and engaging the sash-engaged face of said window frame and the other leg extending outwardly freely through a slot provided in the attachable frame, and a screw threaded in an opening provided in the last mentioned leg of the clip and having a head which when the screw is tightened forces the attachable frame against the other face of said window frame as the clip is drawn against the sash-engaged face of said window frame.

11. In combination with a fixed window frame having

inner and outer faces, and a window sash hinged to close against one face of said frame, an attachable frame engaging the other face of said window frame, a generally U-shaped attaching clip having one leg disposed parallel to and engaging the sash-engaged face of said window frame and the other leg extending outwardly freely through a slot provided in the attachable frame, said attachable frame having an outwardly projecting flange on that edge arranged to engage the window frame, and a screw threaded in an opening provided in the last-mentioned leg of the clip and arranged to engage the outer face of said flange so that when the screw is tightened to draw the clip against the sash-engaged face of said window frame the attachable frame is pressed tightly by means of said screw against the other face of said window frame.

12. In combination with a fixed window frame having inner and outer faces, and a window sash hinged to close against one face of said frame, an attachable frame engaging the other face of said window frame, a generally U-shaped attaching clip having one leg disposed parallel to and engaging the sash-engaged face of said window frame and the other leg extending outwardly freely through a slot provided in the attachable frame, said attachable frame having an outwardly projecting flange on that edge arranged to engage the window frame, and a screw having a head and a threaded shank of a length equal to the distance from the outer face of said attachable frame to the outer face of said flange, the shank of said screw being threaded in an opening provided in the last-mentioned leg of the clip, and the screw being arranged with the head thereof abutting the outer face of the attachable frame while the end of the shank is arranged to engage the outer face of said flange, whereby when the screw is tightened to draw the clip against the sash-engaged face of said window frame the attachable frame is pressed tightly against the window frame.

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