Aug. 31, 1954 A. LANG 2,687,772

TOP HOLDING DEVICE FOR WIRE SCREENS

Original Filed April 26, 1948

2 Sheets-Sheet 1

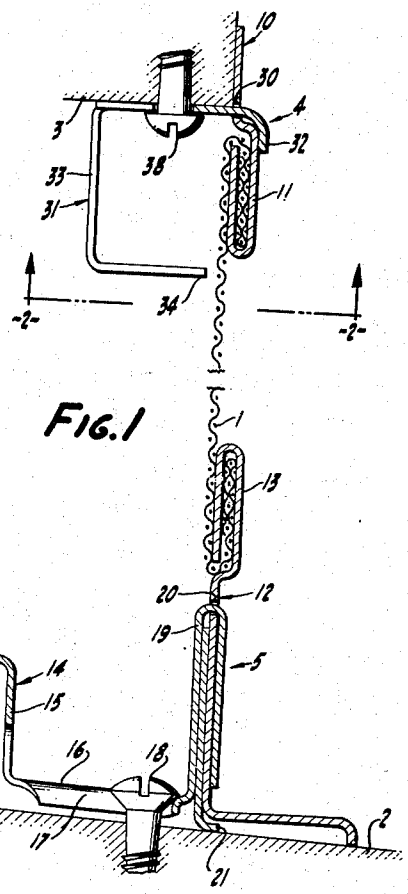
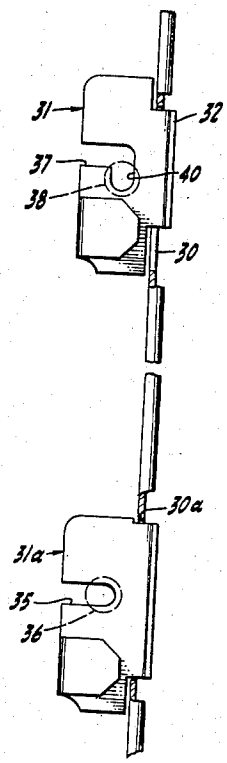


FIG. 1

FIG. 2



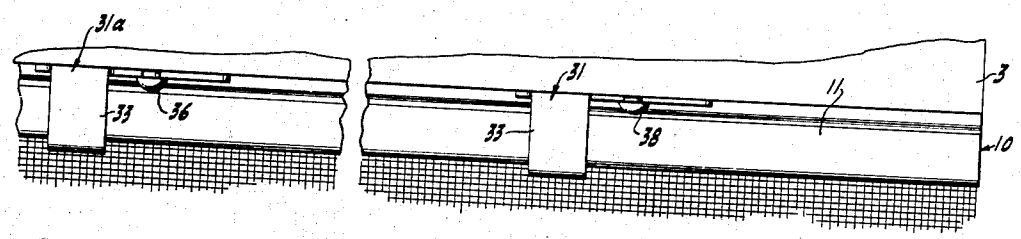


FIG. 3

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TOP HOLDING DEVICE FOR WIRE SCREENS

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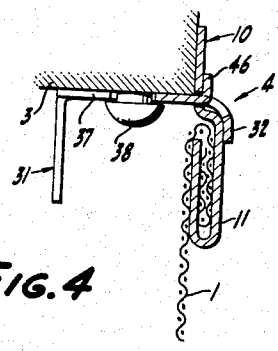


FIG. 4

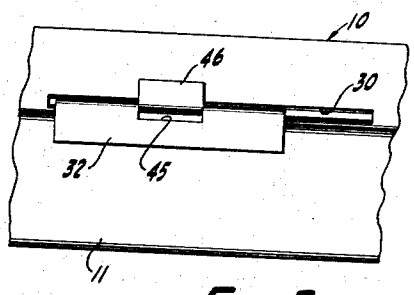


FIG. 5

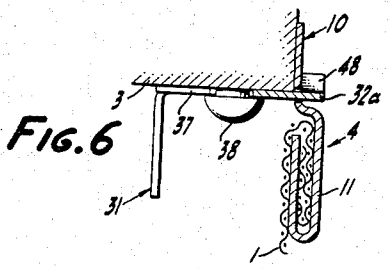


FIG. 6

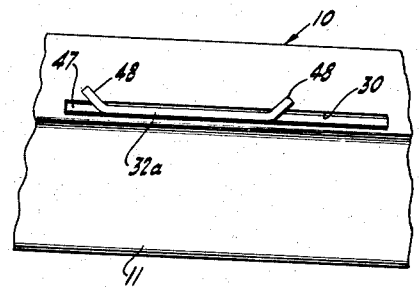


FIG. 7

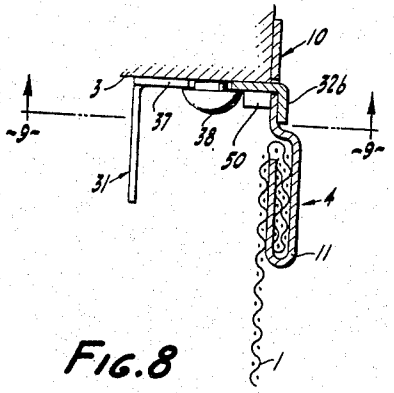


FIG. 8

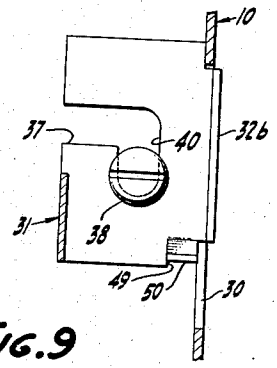


FIG. 9

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Patented Aug. 31, 1954

2,687,772

UNITED STATES PATENT OFFICE

2,687,772

TOP HOLDING DEVICE FOR WIRE SCREENS

Albert Lang, Oakland, Calif.

Continuation of application Serial No. 23,348, April 26, 1948. This application February 4, 1952, Serial No. 269,829

11 Claims. (Cl. 160—327)

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This invention relates to a holding structure for a wire screen. More particularly, it relates to a holding strip and bracket assembly for detachably securing the upper edge of a frameless window screen to a window frame.

The present application is a continuation of my co-pending application entitled "Top Holding Device for Wire Screen," Serial No. 23,348, filed April 26, 1948, now abandoned.

In providing top holding structures for frameless window screens, it is desirable that the parts be easily fabricated and easily assembled, and that the assembly be easily manipulated by the user so that the window screen may be removed and inserted as desired. It is also desirable that a minimum of screws or nuts and bolts be employed in assembly of the parts and in mounting the screen in a window frame.

Devices used for the purpose hereteofore have been disadvantageous in several respects. Thus, they involve difficulty in fabrication of parts or are difficult to assemble, mount and manipulate.

It is an object of the present invention to provide an improved form of holding structure for window screens and the like.

It is a further object of the invention to provide a top holding structure for window screens and the like which is easily fabricated, assembled, mounted and manipulated.

It is a still further object of the invention to provide a top holding structure for a frameless window screen or the like, which employs a minimum of screws, nuts and bolts or the like, both in assembly and in mounting in a window frame.

It is a particular object of the invention to provide a top holding structure for a frameless window screen or the like, including a bracket for detachably mounting the structure in a window frame, such bracket being fabricated from a single piece of sheet metal and being easily inserted and removed yet serving to support the structure firmly and securely.

These and other objects of the invention will be apparent from the ensuing description and the appended claims.

Several forms which the invention may assume are exemplified in the following description and illustrated by way of example in the accompanying drawings, in which:

Fig. 1 is a vertical cross-section through a window screen, showing the top holding structure of this invention and also showing a bottom holding structure.

Fig. 2 is a fragmentary bottom view of the top holding structure, being taken along the line 2—2 of Fig. 1.

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Fig. 3 is a fragmentary, elevational view of the top holding structure, showing it engaged with screws secured in a window frame.

Fig. 4 is a fragmentary view similar to that of Fig. 1, but showing only the top holding structure and illustrating a second embodiment of the invention.

Fig. 5 is a front elevational view.

Figs. 6 and 7 are views similar to Figs. 4 and 5, respectively, but showing yet another embodiment.

Fig. 8 is a view similar to that of Fig. 4, showing a fourth embodiment.

Fig. 9 is a bottom view of the same, taken along the line 9—9 of Fig. 8.

Referring now to the drawings, a screen 1 is held and properly tensioned between a window sill 2 and the upper part 3 of a window frame, by means of a top holding structure 4 and a bottom holding structure 5. As is usual, the top holding structure 4 is provided with a holding strip 10 having a U-bend or bracket 11, and the bottom structure 5 is provided with a bottom holding strip 12 having an inverted U-bend 13. The screen 1, suitably crimped as shown, is received within and held by frictional engagement in the U-bends 11 and 13. It will be understood that the screen can be readily engaged and disengaged from either holding strip merely by sliding it relatively to the holding strip and lengthwise thereof.

Briefly, the bottom holding structure 5 comprises, besides the above-mentioned bottom holding strip 12, any desired number of spaced latching brackets 14, each having a handle 15, a base 16 provided with a countersunk slot 17 to receive a latching screw 18 and an inverted U-bend 19 engaging a slot 20 formed in the holding strip; and it also includes a sealing strip 21 slidably disposed between the brackets 14 and bottom holding strip 12. Further details as to construction, assembly and manipulation of the bottom holding structure will be found in my copending application, Ser. No. 23,347, entitled Bottom Holding Structure for Wire Screen, filed April 26, 1948, now abandoned.

The top holding strip 10 is provided with a plurality of spaced, horizontally aligned slots 30 and 30*a*. Conveniently, for a screen of ordinary width, the slots 30, 30*a* are three in number, slot 30*a* being the middle slot and slots 30 being the outer slots disposed near the side edges of the screen and being of greater length than the middle slot 30*a* for a reason explained hereinafter. A latching bracket 31 or 31*a* is received within each of the slots 30 or 30*a*, respectively. Each latching bracket 31 or 31*a* is provided with an

outer end portion or tongue **32** which is curved downwardly, as shown, and with an inner edge portion or ear **33** bent to an L-shape, as shown, and having a horizontal leg **34** terminating adjacent the screen **1**. The middle bracket **31***a* is provided with an open-ended straight slot **35** adapted to register with and engage a screw **36** mounted in the window frame, and each outer bracket **31** is provided with an open-ended bayonet slot **37** adapted to register with a screw **38** mounted in the window frame.

For convenience of illustration, only one outer bracket **31** is shown; but it will be understood that any desired number of such brackets may be used. For a window screen of ordinary width, two such outer brackets, each disposed near a side of the screen, are sufficient.

In assembling the top structure thus shown, outer tongues **32** of the latching brackets **31** and **31***a* are inserted in the appropriate slots **30**, **30***a* formed in the holding strip **10**, and the brackets are then pivoted so as to abut the tongues **32** against the top portion of the U-bend **11**. The wire screen **1** is then engaged with the U-bend in the usual manner by sliding its upper, crimped edge through the U-bend until the screen and holding strip are in proper alignment. With the screen thus properly engaged with the holding strip, it will be seen that the horizontal legs **34** of the inner ears **33** will lie in close proximity to the screen, and will serve as locking members to prevent the latching brackets **31**, **31***a* becoming disengaged from the holding strips **10**. The only way in which the brackets **31** can become disengaged (unless bent out of shape) is by removal of the screen **1** to allow pivotal movement of the brackets in a counter-clockwise direction as viewed in Fig. 1.

With the top structure thus assembled, the brackets **31**, **31***a* are next engaged with the screws **36** and **38** by first aligning their slots **35** and **37** with the mating screws **36** and **38**, then pushing the brackets inwardly to seat the screws in the slots, and, finally, pushing the outer brackets **31** laterally (which is made possible by the greater length of the outer slots **30**) to seat the outer screws **38** in the inner legs **40** of the bayonet slots **37**. The structure is thus firmly and securely supported upon the heads of the screws **36**, **38** against displacement in any direction.

To disassemble the structure, the brackets **31**, **31***a* are disengaged from the screws, the top structure is pulled out of the window frame, the screen **1** is slid out of the U-bend **12** and the brackets **31**, **31***a* are pivoted to disengage them from the holding strip **10**.

Referring to Figs. 4 and 5, there is shown another embodiment of the invention whereby engagement of the bracket **31** (or **31***a*) with the holding strip **10** is obtained in a different manner. As will be seen, the tongue **32** is slotted at **45** to provide a second tongue **46** which is bent upwardly, as shown, after the tongue **32** has been inserted in the slot **30** (or **30***a*). Thus, the bracket is securely locked in place without the use of a nut and bolt.

Somewhat similarly, in the modification shown in Figs. 6 and 7, the tongue **32***a* is unbent, it is slit at **47** and the slit portions are bent upwardly to provide tongues **48** which securely lock the bracket in place.

Again, as shown in Figs. 8 and 9, the body portion of the bracket **31** (or **31***a*) is slit at **49** and the slit portion is bent downwardly to provide a locking tongue **50**. As shown, the tongue **32***b* is bent to vertical position (the slot **30** or **30***a* being sufficiently above the U-bend **11** to allow the same). Thus, the tongue **50** and tongue **32***b* effectively lock the bracket to the holding strip.

The modifications illustrated in Figs. 4 to 9 are not quite as flexible as that shown in Figs. 1 to 3, but it is evident that simplicity of design and other advantageous features are retained. It will also be apparent that the modified brackets **31** and **31***a* of Figs. 4 to 9 may be packaged, displayed and sold separately, with the tongues **46**, **48** or **50**, as the case may be, flush with the adjacent bracket structure. It is a simple task for the user to insert the tongue **32**, **32***a* or **32***b* in its slot and then bend the tongue **46**, **48** or **50**, as shown.

It will thus be seen a top holding structure for a wire screen is provided which fulfills several desiderata. Thus, the parts are few in number; the three screws employed are the only elements requiring installation on the job; and all of the parts are either standard items or are easily fabricated; and the structure is easily assembled, mounted, demounted and disassembled. The specially fabricated parts can be made of aluminum, alloys of aluminum or any other structural metal, or even from plastic if desired, and the fabricating operations are largely or wholly limited to standard, simple operations such as cutting, stamping, punching and bending. Welding and bolting of parts is unnecessary.

While I have shown certain preferred embodiments of my invention, it is to be understood that various changes may be made in its construction by those skilled in the art without departing from the spirit of the invention as defined in the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A structure of the character described comprising an elongated horizontally arranged strip having an elongated vertical cross-section shape, said strip having a longitudinal slot formed therein, a mounting bracket having a flat horizontally disposed portion adapted to lie flat against a window frame and provided with a tongue receivable through the slot and bendable to engage the outer side of the strip, the part of the horizontal portion within the slot being of lesser width than the slot to enable longitudinal movement of the bracket relative to the strip, said bracket having another portion extending from the inner edge of the horizontal portion to a point below the bottom of the strip passing beneath the strip when the bracket is pivoted on the strip to facilitate attachment and detachment of the bracket relative to the strip, said bracket being provided with a bayonet slot adapted to receive an attaching means mounted on a window frame, the bayonet slot being disposed directly rearwardly of the bent edge of the horizontal portion of the bracket and the tongue having line contact as contrasted with point contact with said strip to prevent twisting of the bracket during engagement with the screw.

2. A structure of the character described, comprising an elongated horizontally arranged strip having a vertically elongated cross-section shape, said strip having a longitudinal slot formed therein, a mounting bracket having a flat horizontally disposed portion adapted to lie flat against a window frame and receivable through the slot and having the outer edge bent to engage the outer side of the strip, that part of the horizontal portion within the slot being of lesser

width than the slot to enable longitudinal movement of the bracket relative to the strip, said bracket having a handle portion depending from the inner edge of the horizontal portion and by which the bracket may be manipulated, said bracket being provided with a bayonet slot adapted to receive an attaching means mounted on a window frame, said bayonet slot being disposed directly rearwardly of the bent edge of the horizontal portion of the bracket and the bent edge having line contact as contrasted with point contact with said strip to prevent twisting of the bracket during engagement with screw.

3. A holding device for a wire screen or the like, comprising a holding strip adapted to engage and hold a wire screen, and having a slot extending therethrough, and a mounting bracket having a tongue seated in said slot, said bracket and said tongue being an integral unit and said tongue having oppositely directed abutment members abutting adjacent portions of the strip and thereby locking the bracket to the holding strip.

4. A mounting bracket adapted to engage a slotted screen-holding strip and to be secured to a window frame, said bracket being an integral unit, being provided with a tongue adapted to extend through a slot in the screen holding strip and being also provided with abutment members integral therewith and adapted to abut the front and back of said holding strip to lock the bracket and holding strip together.

5. A bracket as in claim 4, wherein said tongue is bent in one direction to serve as an outer abutment member and the bracket is provided with an offset portion spaced from the bent portion of said tongue, said offset serving as a complemental inside abutment member.

6. A holding device for mounting a screen over a framed opening comprising a strip connected to an edge of the screen along substantially its entire length and provided with slots positioned in longitudinally spaced relation between its ends, said slots being longitudinally alined and spaced outwardly from the edge of the screen, headed retainers fixedly secured to the frame of the opening to conform to the spacing of the slots, supporting brackets seating upon the frame adjacent the retainers, and tongues upon the brackets projecting outwardly through the slots and bent to effect retaining engagement with the outer face of the strip, said tongues being slidably movable longitudinally along the slots to facilitate movement of the brackets into and out of engagement with the retainers.

7. A device for mounting a screen over a framed opening comprising a strip connected to an edge of the screen and provided with a longitudinally disposed slot spaced outwardly from the edge of the screen, a headed retainer fixedly mounted upon the opening frame and projecting inwardly therefrom adjacent the slot, and a bracket seating against the frame adjacent the retainer, said bracket being slotted to releasably engage the retainer and provided with a tongue extending through the slot and bent to engage the outer face of the strip, said tongue being slidably movable lengthwise along the slot to facilitate movement of the bracket into and out of engagement with the retainer.

8. A device for mounting a screen over a framed opening comprising a strip connected to an edge of the screen and provided with a longitudinally disposed slot spaced outwardly from

the edge of the screen, a headed retainer fixedly mounted upon the opening frame and projecting inwardly therefrom adjacent the slot, and a bracket seating against the frame adjacent the retainer, said bracket being slotted to releasably engage the retainer and provide wtih a tongue extending through the slot and bent in a direction toward the screen edge into engagement with the outer face of the strip, said tongue being slidably movable lengthwise along the slot to facilitate movement of the bracket into and out of engagement with the retainer.

9. A device for mounting a screen over a framed opening comprising a strip connected to an edge of the screen and provided with a longitudinally disposed slot spaced outwardly from the edge of the screen, a headed retainer fixedly mounted upon the opening frame and projecting inwardly therefrom adjacent the slot, and a bracket seating against the frame adjacent the retainer, said bracket being slotted to releasably engage the retainer and provided with a tongue extending through the slot and having portions thereof bent in opposite directions into locking engagement with the outer face of the strip upon opposite sides of the slot, said tongue being slidably movable lengthwise along the slot to facilitate movement of the bracket into and out of engagement with the retainer.

10. A device for mounting a screen over a framed opening comprising a strip connected to an edge of the screen and provided with a longitudinally disposed slot spaced outwardly from the edge of the screen, a headed retainer fixedly mounted upon the opening frame and projecting inwardly therefrom adjacent the slot, and a bracket seating against the frame adjacent the retainer, said bracket being slotted to releasably engage the retainer and provided with a tongue extending through the slot and having end portions bent in a direction away from the edge of the screen into locking engagement with the outer face of the strip, said tongue being slidably movable lengthwise along the slot to facilitate movement of the backet into and out of engagement with the retainer.

11. A device for mounting a screen over a framed opening comprising a strip connected to an edge of the screen and provided with a longitudinally disposed slot spaced outwardly from the edge of the screen, a headed retainer fixedly mounted upon the opening frame and projecting inwardly therefrom adjacent the slot, and a bracket seating against the frame adjacent the retainer, said bracket being slotted to releasably engage the retainer and provided with a tongue extending through the slot, and an abutment bent to form an inside abutment engaging the back of the strip, the outwardly extending tongue being bent to hold the strip against the abutment, and said tongue being slidably movable lengthwise along the slot to facilitate movement of the bracket into and out of engagement with the retainer.

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