Aug. 5, 1952 A. LANG 2,605,827

WINDOW SCREEN

Filed April 29, 1950

FIG. 1

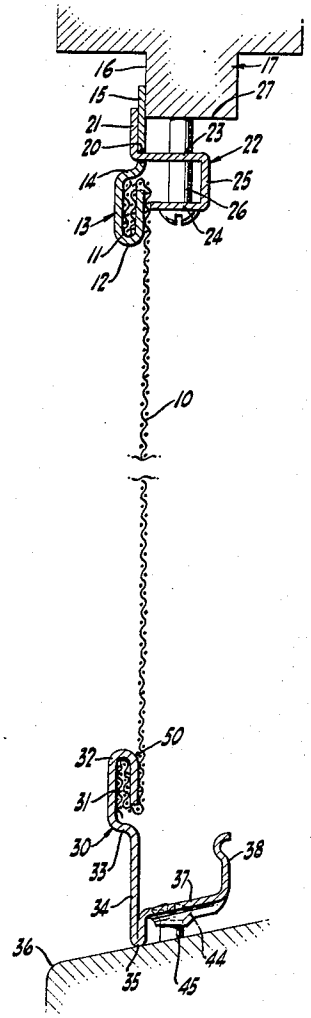
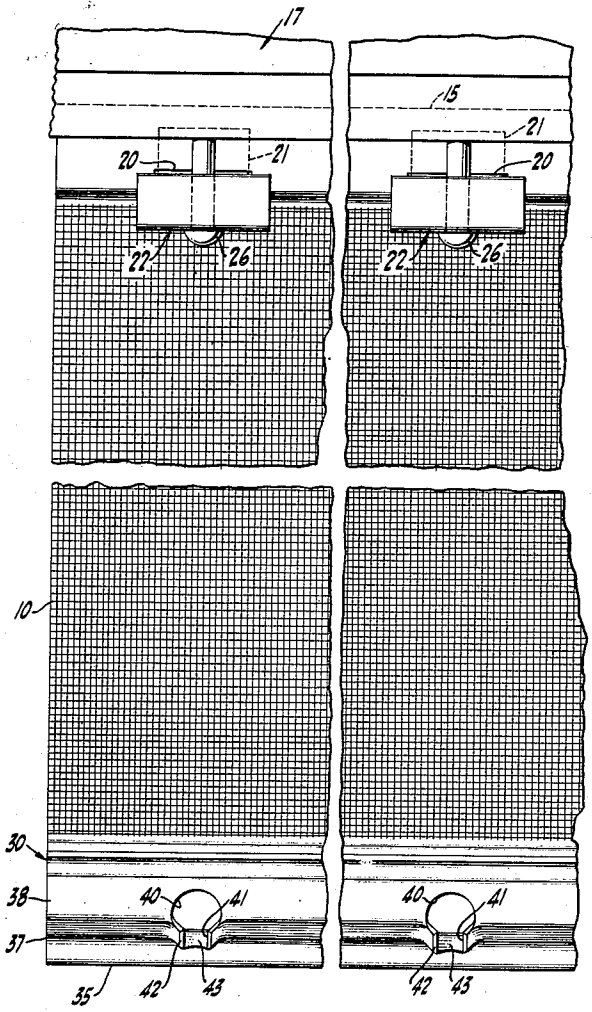


FIG. 2



INVENTOR.
ALBERT LANG

BY

Mellin and Hanscom

ATTORNEYS

Patented Aug. 5, 1952

2,605,827

UNITED STATES PATENT OFFICE

2,605,827

WINDOW SCREEN

Albert Lang, Oakland, Calif.

Application April 29, 1950, Serial No. 159,024

3 Claims. (Cl. 160—328)

1

This invention relates to window screens and is particularly concerned with frameless screens and means for securing such screens and tensioning the same with respect to a window frame.

Frameless window screens which are characterized by top and bottom screen-holding strips secured to an otherwise unsupported flexible screen have long been in use. A requisite to the success of such screens is adequate securement of the top and bottom strips to the blind stop and sill, respectively, to sealing engage the same, together with maintenance of adequate tension between such strips in order to hold the flexible screen taut. Numerous types of securing means and sealing devices have been designed for this purpose, but such devices are usually complicated, involve numerous parts and are difficult of assembly and adjustment. In addition, separate sealing devices and securing and/or tension means are usually required, thus further increasing the number of parts and the complexity of the assembly. Moreover, since adequate sealing is primarily dependent upon efficient securement, separate instrumentalities for these inter-dependent functions frequently militate against the effectiveness of one or the other or both.

The primary inventive concept of the present invention is concerned with simplicity of construction, installation and operation of an efficient and effective securing, tensioning and sealing means for a frameless window.

It is therefore among the objects of the present invention to provide novel, simple and improved securing, tensioning and sealing means.

Another object of the present invention is to provide a securing means which may act as a tensioning means for the screen.

A further object of the invention is to provide in a structure of the character set forth a combined tensioning and sealing means comprising but a single, integral strip of readily formed and fabricated material which may also act as an edge-holding strip for the screen.

A further object of the present invention is to provide in an assembly of the character described adjusting means independent of the sealing means whereby the permanent location of the screen may be suitably adjusted so as to permit subsequent securement and release of the securing, tensioning and sealing means.

Numerous other objects and features of the present invention will be apparent from a consideration of the following specification taken in conjunction with the accompanying drawings, in which:

2

Fig. 1 is a vertical section showing a frameless screen and the securing, tensioning and sealing means of the present invention.

Fig. 2 is an inside plan view of the screen and its securing, tensioning and sealing means shown in Fig. 1.

The present invention may be characterized as including the usual flexible woven wire or fabric screen, having an upper holding strip together with means for securing the upper strip in sealing relation with the front face of a blind stop, said means being readily adjustable in height, together with a bottom holding strip which is formed with a sealing edge together with securing means formed therein which include inclined surfaces arranged to engage a fixed headed mounting device in such manner as to cause said device in combination with such inclined surfaces to cam the strip downwardly, thus applying tension on the screen commensurate with the height to which the upper strip has been adjusted.

Referring more particularly to the drawings, the numeral 10 indicates the screen. The top edge of the screen 10 is secured throughout its length by being received within a channel 11 formed by the return bent portion 12 of a top screen-holding strip 13. Strip 13 is inwardly turned at 14 from the return bent portion 12 and is provided with a terminal flat sealing flange 15 adapted to bear against the front face 16 of a blind stop 17 of the window frame.

Adjacent the inward turned portion 14 the strip 13 is provided with spaced, slotted apertures 20 which are adapted to receive therethrough strip-engaging ends 21 of top securing members 22. The bodies of securing member 22 are formed in substantial U form having upper walls 23, opposite parallel lower walls 24 and an intermediate vertical base 25. The members 22 are provided with registering openings in the walls 23 and 24 which are adapted to receive therethrough a securing screw or bolt indicated at 26 by means of which the distance between the bottom edge 27 of the blind stop 17 with respect to the securing member and hence the vertical location of the holding strip 13 may be adjusted.

In that form of securing means here shown it will be noted that by the provision of the spaced walls 23 and 24 of the top securing members 22 together with the aligned apertures thereof, pivotal or canting movement of the securing members with respect to the screw and/or the blind stop is precluded and thus, as the screw is turned inwardly to move the securing member upwardly toward the blind stop, the movement will be con-

trolled and guided by the screw and tilting action will be precluded. In that form of the invention here shown it will also be noted that the strip-engaging ends 21 of the securing members 22 are disposed in a plane parallel to and contacting the sealing flange 15 of the top holding strip. By this arrangement the strip is held tightly against the surface 16 of the blind stop. However, it will be understood that the ends 21 may be disposed slightly angularly with respect to the flange 15 so that the screen securing strip 13 may be bodily removed from the member 22 by a tilting and lifting action if so desired. By the arrangement thus disclosed the top holding strip 13 and thus the body of the screen are adjustable up and down. Any variations in window height are thus taken care of by such adjustment and a separate sealing strip for the top holding strip is unnecessary.

Extending throughout the entire length of the lower edge of the screen 10 there is provided a bottom holding strip 30 of general L-shaped transverse section to which the screen is secured by the enfoldment of its lower edge 31 within the return bent portion 32 at the top of the vertical leg thereof. Below the outer lip of the return bent portion 32 the strip 30 is inwardly bent forming a shoulder 33 from which the strip extends downwardly to provide a sealing flange 34 constituting the vertical leg of the L-shaped strip which is return bent at 35 at the lower edge of the leg forming a sealing edge for sealingly engaging the sill 36 of the window frame. The upper inner edge of the return bent portion 35 is turned inwardly forming a flange 37 constituting the horizontal leg of the L, which is disposed at a slightly obtuse angle with respect to the plane of the flange 34 and with respect to the normal plane of the screen 10 when the screen is in taut position. The outer edge of the leg 37 is turned upwardly as indicated at 38 to form a manually operated handle which may be readily grasped for manipulating the lower holding strip.

Spaced along the leg 37 and its companion upright edge 38 there is provided a plurality of spaced securing structures which embody a key-hole slot having the enlarged head portion 40 thereof formed in the upright portion 38 and including a narrow neck or shank portion 41 extending across the leg 37. The edges of the shank portion 41 are provided with downwardly extending guiding flanges 42 and the inner terminal end of the shank portion 41 of the slot is depressed to form a seat 43 for the head 44 of a fixed securing member, such as the screw 45.

By the arrangement of the slot in the flanges 37 and 38, it will be seen that, by pivotal movement of the lower securing strip with respect to the screen at a point approximately indicated by the numeral 50, the head 44 of the fixed member 45 may be received within the enlarged portion 40 of the slot and inner movement of the securing strip will thus cause the head to slide over the narrow portion of the slot and by virtue of the inclination thereof such action will cam the retaining member downwardly as the securing means is thus moved and will thus apply a downward tension on the screen. At the end of such pivotal movement the head is received within the recess 43 and the retaining member is thus secured in tensioning position without danger of inadvertent movement therefrom. It will, of course, be understood that the downward extension of the return bent sealing portion 35 of the strip with respect to the location of the head-receiving slot and with respect to the height of the head from the sill 36 is such that such downward camming action will cause the extremity of the return bent portion 35 to sealingly engage the sill 36. While the screw 45 is referred to as fixed, it will, of course, be understood that adjustment may readily be made to effect the proper sealing of the edge 35 with the sill 36. However, after such location the screw remains fixed, proper tension and adjustment of the screen as to window height being accomplished by adjustment of the upper securing members.

In installing the screen of the present invention, the upper strip may be temporarily secured by the members 22 and their securing screws 26 and the lower strip may be engaged with the head 44 of the securing member 45, the securing member 45 then being adjusted so as to ensure sealing engagement of the return bent portion 35 with the sill 36. After such adjustment of the securing member 45, tension is then placed upon the screen by an upward adjustment of the members 22 which, once having been adjusted to apply the adequate tensioning of the screen 10, are retained in their adjusted position. Thereafter when the screen is to be opened, an outward thrust on the strip 30 together with the pivotal movement thereof about the axis indicated at 50 will permit the securing member to slide outwardly with respect to the heads 44 until such heads pass through the opening 40 and completely release the lower strip 30. After such release, the screen may again be retained in its tension position by reverse inward and pivotal movement thereof in such manner as to permit the heads to enter the opening 40 and slide along the neck of the slot and in such sliding movement the downward tensioning of the slide by the camming action of the slanting slot surfaces with respect to the heads 44.

From the foregoing it will be seen that the present invention provides a lower holding strip which has formed therewith as an integral portion thereof a sealing means together with means for releasably securing the lower strip to the sill and such means provides for a tensioning action as an incident to the engagement of the strip with the securing means. The invention also provides a novel and simple means by which the adjustment of the tensioning may be had by adjusting the relative location of the fixed position of the upper screen-holding strip with respect to the blind stop, such securing means being readily adjusted to determine the tension which is subsequently to be applied by the camming action of the lower strip. It will also be noted that the upper screen-engaging strip forms as an integral part thereof sealing means for engaging the face of the blind stop. It will further be noted that upper securing means is simple in construction and operation and vertical adjustment of the upper strip in order to determine the subsequent tensioning of the screen may be readily brought about.

In considering the structural details of the invention as herein set forth, it is understood that in the practice of the invention numerous changes, modifications and the full use of equivalents may be resorted to in the practice of the invention without departure from the spirit or scope thereof as outlined in the appended claims.

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

1. A screen-holding strip for frameless window

screens comprising a continuous integral sheet screen, said strip having the upper margin thereof metal strip coextensive with one edge of the reversely bent to form a screen edge holding channel and having the lower margin reversely bent to provide a sill-engaging edge for sealing against the sill of a window frame and then bent laterally generally parallel to the sill and then bent upwardly to form a handle, the laterally bent portion and the upwardly bent portion having a keyhole slot formed therein with the narrow portion of the slot being located in the laterally bent portion of the strip and the enlarged portion of the slot being located in the upwardly bent portion of the strip to permit the head of a securing screw to pass through the upwardly bent portion.

2. A screen holding strip for frameless window screens comprising a continuous integral sheet metal strip coextensive with one edge of the screen, said strip having the upper margin thereof reversely bent to form a screen edge holding channel and having the lower margin reversely bent to provide a sill engaging edge for sealing against the sill of a window frame and then bent laterally generally parallel to the sill and then bent upwardly to form a handle, the laterally bent portion and the upwardly bent portion having a keyhole slot formed therein with the narrow portion of the slot being located in the laterally bent portion of the strip and the enlarged portion of the slot being located in the upwardly bent portion of the strip to permit the head of a securing screw to pass through the upwardly bent portion, that part of said laterally bent portion defining the inner end of the slot being depressed so that the head of a securing screw will snap into the depression.

3. A screen holding strip for frameless window screens comprising a continuous integral sheet metal strip coextensive with one edge of the screen, said strip having the upper margin thereof reversely bent to form a screen edge holding channel and having the lower margin reversely bent to provide a sill engaging edge for sealing against the sill of a window frame and then bent laterally generally parallel to the sill and then bent upwardly to form a handle, the laterally bent portion and the upwardly bent portion having a keyhole slot formed therein with the narrow portion of the slot being located in the laterally bent portion of the strip and the enlarged portion of the slot being located in the upwardly bent portion of the strip to permit the head of a securing screw to pass through the upwardly bent portion, the part of said laterally bent portion defining the edges of the narrow portion of the slot being turned down and that portion of said laterally bent portion defining the inner end of the slot being depressed so that the head of a securing screw will snap into the depression.

ALBERT LANG.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
768,137	McCabe	Aug. 23, 1904
1,672,896	Marshall	June 12, 1928
1,798,833	Campbell	Mar. 31, 1931
2,117,606	French	May 17, 1938