Sept. 15, 1959 H. S. LEVIN 2,903,967

WIRE MESH SCREEN

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FIG. 1.

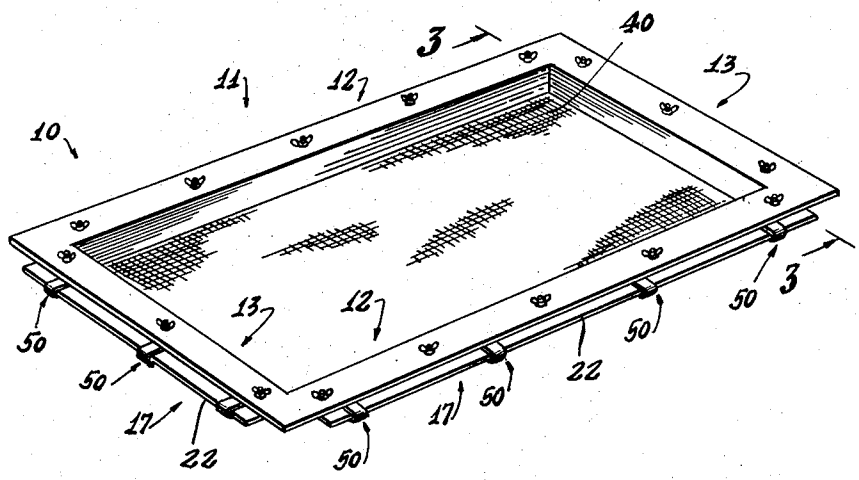
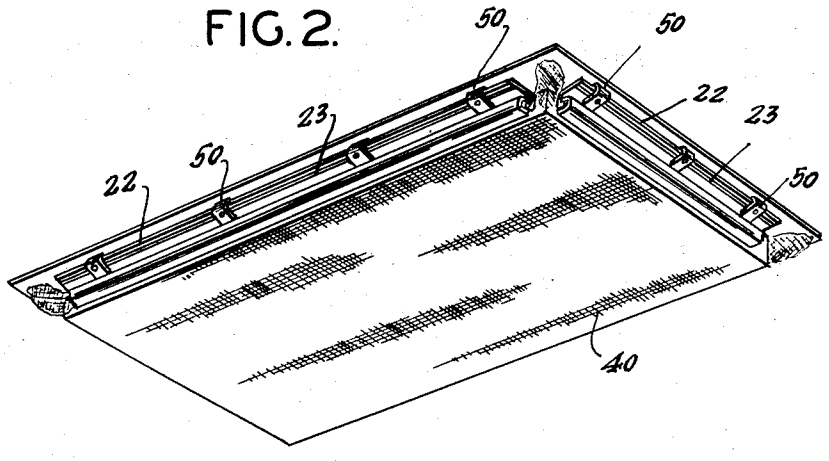


FIG. 2.



INVENTOR.
HERBERT S. LEVIN

BY

J. B. Felsher
ATTORNEY.

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FIG. 3.

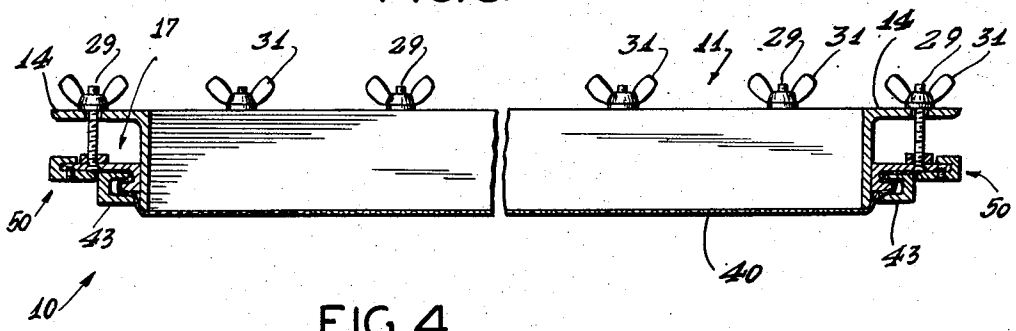


FIG. 4.

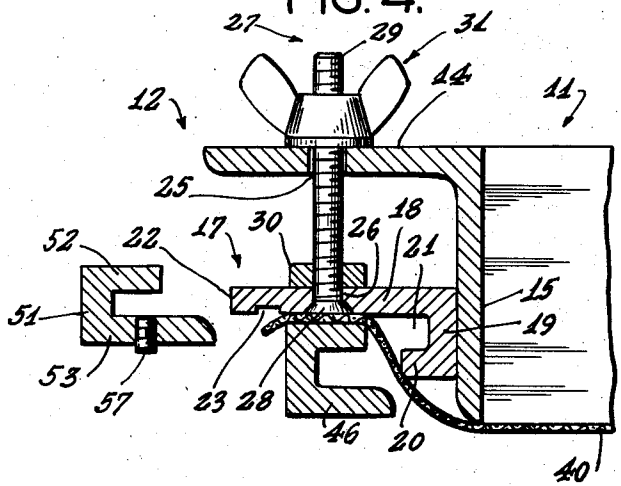


FIG. 5.

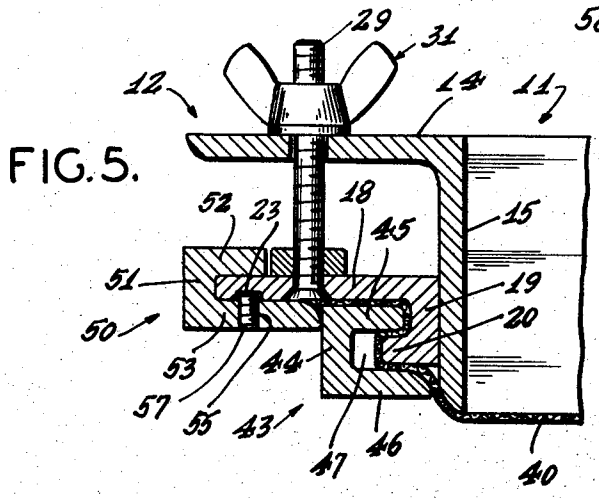
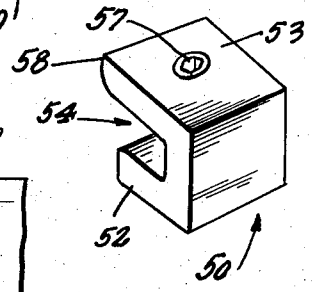


FIG. 6.



INVENTOR.
HERBERT S. LEVIN

BY

J. B. Fellman

ATTORNEY.

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WIRE MESH SCREEN

Herbert S. Levin, Huntington, N.Y., assignor to Colonial Process Supply Co., New York, N.Y., a partnership

Application August 6, 1957, Serial No. 676,598

6 Claims. (Cl. 101—415.1)

This invention relates to wire mesh screens. It is particularly directed to a metal frame provided with means for stretching a wire mesh such as is used in the so-called silk screen process of stenciling.

An object of this invention is to provide a device of the character described so constructed that the mesh can be changed rapidly and with no previous preparation of the mesh and without necessitating use of special tools.

An object of this invention is to provide a device of the character described provided with means for stretching the mesh without puncturing the same. This improved device also has means for holding the mesh uniform throughout the entire perimeter and not only at spaced points as in prior stretchers.

Yet a further object of this invention is to provide in a screen of the character described, means to permit continuance of adjustment and tightening of the mesh and putting a new stencil thereon. It is well known that after a particular job with the screen it is desirable to use the same mesh for the next job. To accomplish this the printing medium must first be removed and also a photographic emulsion or silk screen filler must also be removed. Thereafter in accordance with the present invention the mesh may again be tightened, if necessary. With the present construction the mesh can be stretched substantially to the limit of its tensile strength.

A still further object of this invention is to provide a highly improved attached floating bar system which may be adapated to structural frames heretofore in use.

Still another object of this invention is to provide a strong, rugged durable device of the character described relatively inexpensive to manufacture, easy to manipulate, and yet practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter described and of which the scope of the invention will be indicated in the following claims.

Fig. 1 is a top perspective view of a wire mesh screen embodying the invention.

Fig. 2 is a bottom perspective view thereof.

Fig. 3 is a cross-sectional view taken on line 3—3 of Fig. 1.

Fig. 4 is a cross-sectional view of one side of the frame illustrating the method of assembling the locking bar and the locking lugs.

Fig. 5 is a cross-sectional view similar to Fig. 4 but showing the locking bar and locking lugs in place for fixing the mesh to the frame.

Fig. 6 is a perspective view of one of the locking lugs.

Referring now in detail to the drawings 10 designates a wire mesh screen structure embodying the invention. The same comprises a metal frame 11. Said frame 11 is rectangular and may have a pair of similar symmetrically disposed side portions 12 interconnected by a pair of similar symmetrically disposed end portions 13.

The frame is of uniform cross section throughout and each of the portions 12 and 13 comprises a top outwardly extending flange 14 and a vertical flange 15 extending downwardly from the inner end of the flange 14. Each of the sides 12 and 13 has a floating bar 17 extending substantially the length of each side. There is thus a floating bar 17 at each of the sides 12 and a shorter floating bar 17 at the side 13. Each floating bar 17 comprises a horizontal wall 18 parallel to the wall 14, and disposed therebelow. Extending from the inner end of wall 18 is a web 19 contacting the outer surface of the flange 15. Extending outwardly from the inner end of web 19 is a narrow flange 20. Thus, between the wall 18 and the flange 20 there is formed a groove or channel 21. The flange 18 is formed adjacent the outer edge 22 with a shallow groove 23 parallel to said edge and running the length of said wall.

Each of the flanges 14 is formed at spaced intervals with through openings 25. Each of the walls 18 is formed at equally spaced intervals with countersunk openings 26 aligned with the openings 25. Extending through each pair of aligned openings 25, 26, is a post or screw 27 having a head 28 at its lower end received within the countersunk opening 26.

The screw 27 has a shank 29 projecting above flange 14. Screwed on to the shank is a jam nut 30 contacting the wall 18 for fixing the screw to said wall. Screwed on the upper end of each shank 29 is a wing nut 31. The screws 27 may have any suitable desired spacing. It will be noted that when the wing nuts 31 are turned in one direction the floating bar 17 will be raised and when the wing nuts are turned in the opposite direction the floating bar will be lowered. Covering the bottom of the frame 11 is the wire mesh 40. Wire mesh 40 overlaps the lower ends of flanges 15 and the flanges 20 and contacts the undersides of the wall 18 of the floating bars. Highly improved means is provided for clamping the mesh 40 to the floating bar 17. To this end there is mounted on each floating bar 17 a locking bar 43. Each locking bar 43 comprises a vertical web portion 44 from which extends an upper flange 45 and a lower parallel flange 46 forming therebetween a groove 47. The locking bars 43 may be co-extensive with the floating bar 17. It will be noted that flange 20 of a floating bar is received in groove 47 of the locking bar whereas flange 45 of the locking bar is received in the groove 21 of the floating bar. The wire mesh 40 will thus pass between the flanges 46 and 20 and then around the end of flange 20, then between the flanges 20 and 45, then around the edge of flange 45 and then between flange 45 and wall 18. It will be noted that the flange 46 extends farther from web 44 than does flange 45. Thus, flange 46 is wider than flange 45.

Means is provided for locking the locking bar in mesh-clamping position. To this end there is provided at each side of the frame a plurality of locking lugs 50. The locking lugs may be distributed or spaced in any desired manner. The locking lugs 50 may have the same cross section as the locking bars 43. Thus, each locking lug 50 has a web 51, an upper flange 52 and a lower flange 53 thereby forming a groove 54 between the flanges 52 and 53. The outer end edge portion of wall 18 is received in the grooves 54. Each wall 53 is formed with a vertical screw threaded opening 55 to receive set screws 57. The set screw may be rotated to enter the groove 23. It will be noted that the outer edges 58 of the walls 53 contact webs 44 of the locking bars to press the locking bars in position for clamping the wire mesh tighter. The lugs 50 may be ¾ of an inch wide and may be spaced apart about 9 inches. It will now be observed that after the wire mesh 40 is firmly locked to the four floating bars 17 that the wing nuts 31 may be tightened for pull up on the bars for stretching the wire mesh as tightly as desired.

The wing nuts may be tightened after each screening operation. It will thus be noted that the wire mesh is not punctured at any position and that it is firmly held throughout its length at each of the four sides.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus fully described the invention, what is claimed as new and for which it is desired to obtain Letters Patent is:

1. A wire mesh screen construction comprising a rectangular frame, each side of the frame having a top outwardly extending horizontal flange and a vertical downwardly extending flange, a floating bar contacting the outer side of each vertical flange and having a top horizontal outwardly extending flange, a plurality of screws fixed to the top horizontal flange of each of the floating bars and passing through openings in the horizontal flange of the frame, nuts screwed to the screws and contacting the upper side of the horizontal flange of the frame, said floating bar being formed with a webbed portion at its inner end contacting the vertical flange of the frame and also being formed with a bottom horizontal flange narrower than the top flange of the floating bar extending away from said vertical flange of said frame and forming an outwardly opening groove, and a locking bar for each floating bar, each locking bar being formed with an inner groove to receive the bottom flange on the floating bar and also being provided with an inwardly extending flange received in the groove of said floating bar whereby a wire mesh covering the frame may pass around the bottom flange of the floating bar and around said flange of the locking bar and means for locking the locking bar to the floating bar.

2. The combination of claim 1, said means for locking the locking bar to the floating bar comprising locking lugs receiving the outer edges of the top horizontal flanges of the floating bar and set screws screwed to the locking lugs and received in said grooves formed at the undersides of the top horizontal flanges of said floating bars.

3. A wire mesh screen construction comprising a rectangular frame of angular cross section, each side of the frame comprising an outwardly extending top flange and a downwardly extending inner flange, a floating bar at each side of the frame contacting the outer surface of the downwardly extending flange at said side, screw threaded means for adjusting the height of each floating bar, each floating bar having a flange, a locking bar for each floating bar and having a groove to receive said flange and means independent of said screw threaded means, to lock the locking bars to the floating bars.

4. A wire mesh screen construction comprising a rectangular frame of annular cross section, having an inner downwardly extending vertical flange and a top outwardly extending horizontal flange, a floating bar at each side of the frame below the horizontal flange of the frame and contacting the outer side of the vertical flange, screw threaded means engaging the top horizontal flange and raising the floating bars, each floating bar being formed with an outwardly opening groove, a locking bar for each floating bar adapted to be slidably moved inwardly into the groove of the floating bar to press a part of a mesh screen into said groove, and one or more locking lugs detachably attached to each floating bar and engaging the locking bar to retain said bar within said groove, each locking bar being formed at its inner side with a groove, and each floating bar being formed with an outwardly extending flange received in said groove in said locking bar.

5. The combination of claim 4, said locking lugs each having an inwardly opening groove receiving an edge portion of a floating bar.

6. The combination of claim 5, the means for attaching the locking lugs to the floating bar comprising screw threaded means on said locking lugs received in grooves formed in said floating bars.

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