

[54] FABRIC STRETCHER DEVICE

3,785,072 1/1974 Meyer et al. 38/102.5

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[57] ABSTRACT

A fabric stretcher device comprising an enlarged, generally rectangular base providing a top planar surface, a first pair of rails fixed relative to two adjoining side edges of said planar surface and a second pair of rails including adjustment means to adjustably position said second pair relative to the respective third and fourth edges of the planar surface. Upwardly struck barbs are provided in a closely spaced relation along the lengths of all four rails to engage through and position the perimeter portion of a piece of fabric to be stretched. The adjustment means are actuated to impart evenly distributed lateral and longitudinal tensioning forces to the fabric.

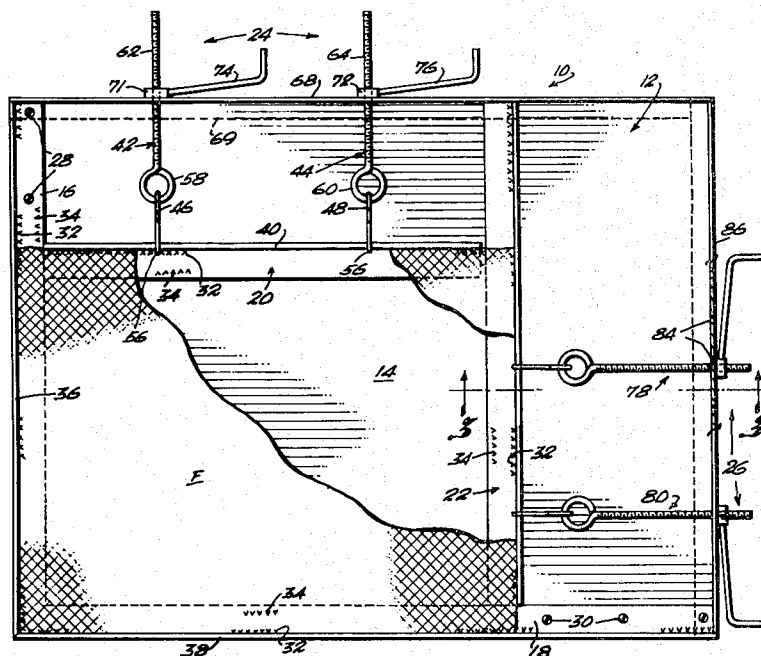
[52] U.S. Cl. 38/102.5
[51] Int. Cl.² D06C 3/08
[58] Field of Search 38/102, 102.1, 102.3, 102.4, 38/102.5-102.9, 102.91; 160/371-380, 374.1

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9 Claims, 4 Drawing Figures



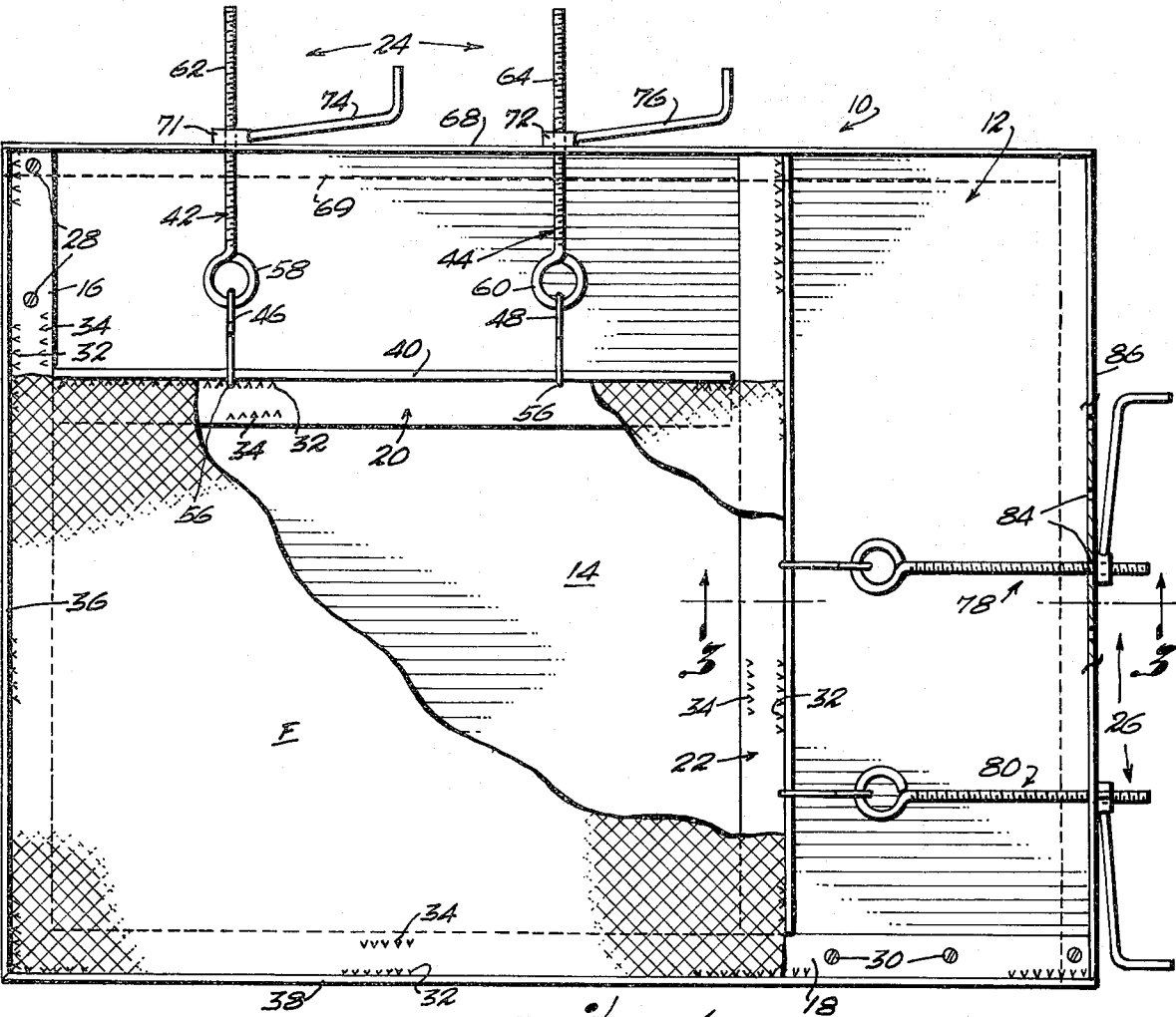


Fig. 1

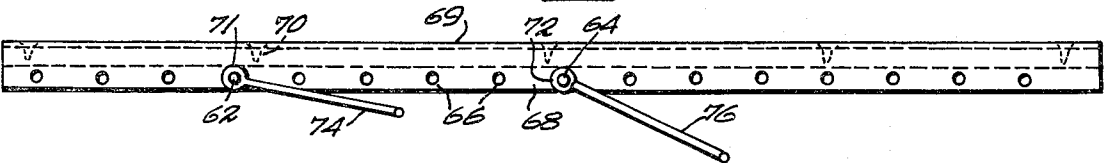


Fig. 2

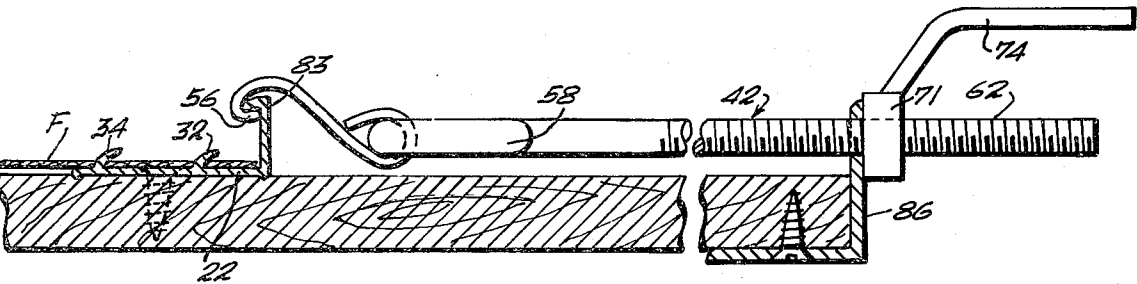


Fig. 3

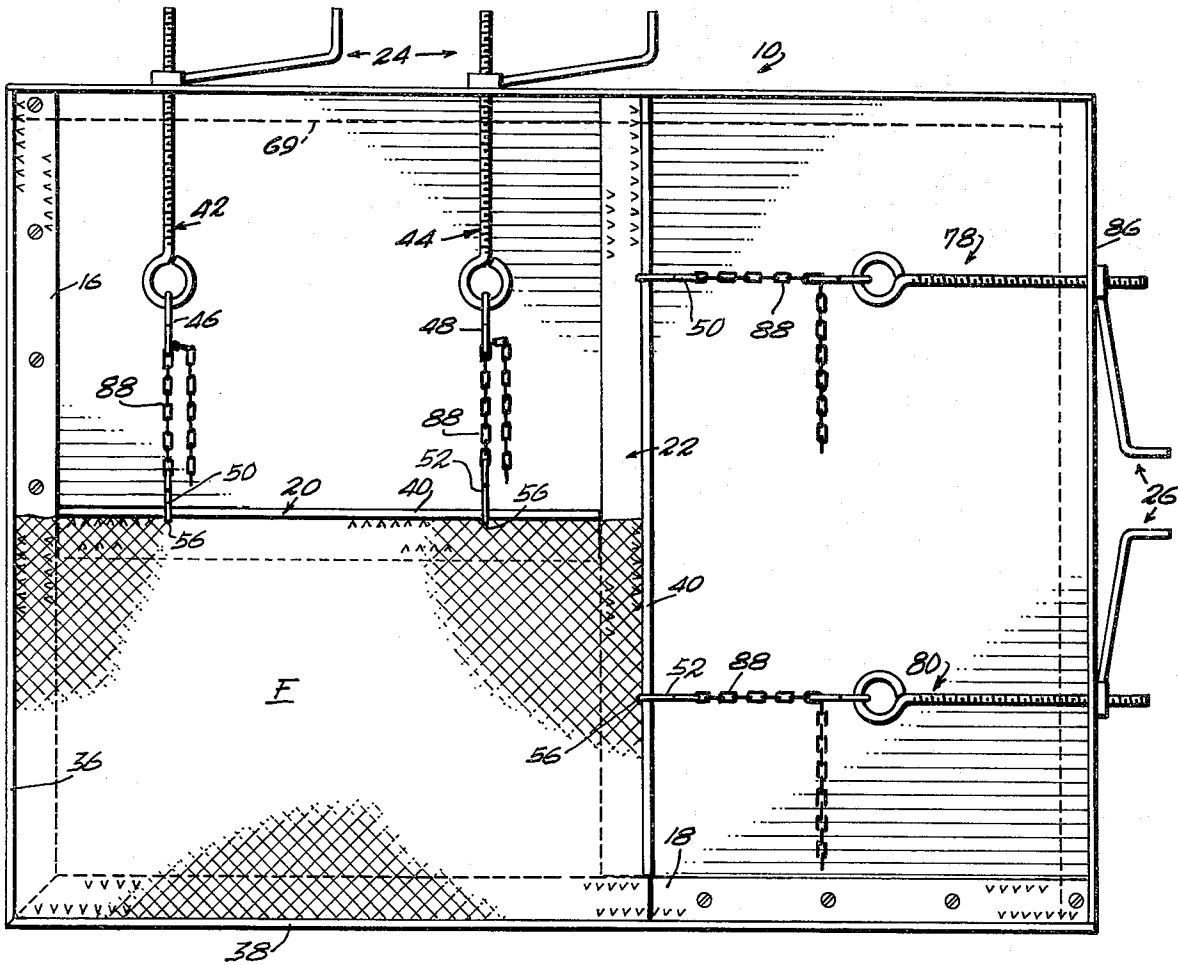


Fig. 4

FABRIC STRETCHER DEVICE

FIELD OF THE INVENTION

The present invention pertains to a fabric stretcher device and more particularly to an adjustable stretcher device which imparts both lateral and longitudinal tension forces to pieces of generally rectangularly shaped fabrics within a predetermined range of sizes. The fabric may be applied to the device in either a dampened or dry condition. While the stretcher device may be used for other stretching operations, one particular use is for stretching completed needlepoint works.

OBJECTS OF THE PRESENT INVENTION

One of the principal objects of the present invention is to provide a fabric stretcher device which is adapted to impart varying degrees of both lateral and longitudinal tension forces to generally rectangularly shaped pieces of fabric within a predetermined size range.

Another principal object of this invention is to provide a pair of rails, fixed relative to two adjoining side edges of an enlarged generally rectangular planar base member and a second pair of rails, adjustably positioned relative to the other pair of adjoining side edges thereof.

Yet another object of the instant invention is to provide a plurality of upwardly, outwardly struck barbs in a relatively closely spaced relation along the lengths of the four rails.

A still further object of this invention is to provide individual, manually actuated adjustment and tensioning means for each of said second pair of rails.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of the fabric stretcher device of the present invention;

FIG. 2 is a top edge view of FIG. 1;

FIG. 3 is an enlarged sectional view taken along the line 3—3 of FIG. 1; and

FIG. 4 is a top view similar to FIG. 1, illustrating an extension means for the adjustment means, illustrated in FIG. 1, to accommodate relatively small pieces of fabrics.

DETAILED DESCRIPTION OF THE DRAWINGS

Referring to the drawings, and particularly to FIG. 1, the fabric stretcher device of the present invention is designated generally at 10 and comprises a base member 12 providing a planar top surface 14, a first pair of side rails 16 and 18 fixed relative to a pair of adjoining side edge portions of the planar surface 14 such as the left and bottom sides, illustrated in FIG. 1, and a second pair of rails 20 and 22, adjustable relative to the second pair of adjoining side edge portions, such as the top and right sides of FIG. 1, by respective adjustment means 24 and 26.

The side rails 16 and 18 are fixed in place as by screws 28 and 30 and, as best illustrated in FIG. 3, are provided along their entire lengths with one or two rows of upwardly, outwardly struck, relatively closely spaced barbs, two rows being illustrated at 32 and 34. Generally vertically, upwardly extending flanges 36 and 38 are provided along the outer edges of the rails 16 and 18.

Top rail 20 is constructed similar to rails 16 and 18, including the rows of barbs 32 and 34, and an upstand-

ing flange 40, however, it is slidably, adjustably positioned along the planar surface 14 by the first adjustment means 24. Said first adjustment means comprises a pair of elongated eye-bolts 42 and 44 removably linked at 46 and 48 to the flange 40 as at 56. The outer ends of links 46 and 48 are engaged through the eyes 58 and 60 of enlarged eye-bolts 42 and 44.

The threaded shanks 62 and 64 of the eye-bolts extend upwardly through holes 66, FIG. 2, in an outwardly extending flange 68 of an angle iron 69 fixed by screws 70 relative to the top edge of the planar surface 14. A plurality of variable lengths of top rails 20 would be supplied with the stretcher device which are selectively used as determined by the positioning of the adjustable right side rail 22 as will be subsequently described. The angle iron flange 68 provides a plurality of spaced apart holes 66 along its length for selective positioning of the eye-bolts 42 and 44 relative to the length of the top rail 20 which is being used. Nuts 71 and 72 are threaded onto the outwardly extending ends of the shanks 62 and 64 and are preferably provided with actuating handle means 74 and 76 for manipulating the nuts 71 and 72 relative to the outer surface of the angle-iron flange 68 to adjust the top rail 20 upwardly or downwardly across the planar surface 14.

The right side rail 22 is similar in all respects to the other three rails and laterally spans the width of the planar surface 14 and is adjustable therealong by the adjustment means 26 which comprises a pair of assemblies 78 and 80, similar in all respects to the above described eye-bolt adjustment assemblies for the top rail 22. As illustrated in FIG. 1, the adjustment assemblies 78 and 80 may be removably spaced relative to the width of the adjusted spacing between the lower and upper rails 18 and 20 by means of a plurality of aligned holes 84 in an angle iron 86, fixed relative to the right end of the planar surface 14. Alternatively, as illustrated in FIG. 4, the adjustment assemblies 78 and 80 may be provided in fixed, spaced positions relative to the bottom and top edges of the planar surface 14.

In use, the upper and right end adjustment means 24 and 26 are actuated to position the respective rails 20 and 22 to accommodate the size of a piece of fabric F to be stretched. The perimeter portions of the fabric piece F are then engaged on the rows of barbs 32 and 34 on the four rails 16, 18, 20 and 22, as seen in FIG. 3, after which the top and right side adjustment means 24 and 26 are actuated to apply a proper degree of lateral and longitudinal tension forces to the fabric piece F. After remaining in said tensioned condition for a predetermined period of time, the fabric piece F is removed from the barbs 32 and 34 after the tensioning forces are released by proper actuation of the adjustment means 24 and 26.

It should be noted that, alternatively, the top rail 20 may extend longitudinally along the full length of the planar surface 14 and a plurality of various lengths of right end rails 22 may be provided to span various adjusted spacings between the bottom and top rails 18 and 20.

With reference to FIG. 4, a length of chain, generally indicated at 88 may be adjustably linked between each single link such as 46 and 48 and respective second links 50 and 52 which are, in turn, adjustably engaged with the top rail flange 40 to increase the degree of adjustability of both the top rail 20 and the right end rail 22 without the necessity of providing overly long eye-

bolts 42 and 44. In this manner, lengths of chain 88 are provided for both adjustment means 24 and 26 to provide sufficient degrees of longitudinal and lateral adjustment whereby generally rectangular pieces of fabrics F within the size range of the base member 12 may be stretched on the device. Commercially available eye-bolts 42 and 44 may therefore be utilized and the four rails 16, 18, 20 and 22 may be lengths of a commercially available type which is commonly used to anchor the perimeter of floor carpets in a room. The base member 12 may be of a variety of materials such as plywood, fiberboard or metal, for example. Alternatively, the base member 12 and the two fixed side rails 16 and 18 may be molded as a single unit.

What is claimed is:

1. An adjustable stretcher device for stretching a generally rectangular piece of fabric comprising;

A. a generally rectangular base member providing,

1. a planar top surface;

B. a pair of side rails fixed in an angular relation relative to a first pair of adjoining side edges of said planar top surface and including,

1. at least one row of relatively closely spaced barbs along the lengths of both of said pair to engage through and hold corresponding, adjoining edge portions of the piece of fabric to be stretched;

C. a third rail similar to said pair, to similarly engage and hold a third edge portion of the piece of fabric;

D. a first adjustment and tensioning means connecting between a third edge of said base member and said third rail to adjust said third rail relative to the first of said pair to conform with a first dimension of the fabric piece and to apply tension forces along the length of said first dimension;

E. a fourth rail, similar to said pair and third rail, to similarly engage and hold the fourth edge portion of the piece of fabric;

F. a second adjustment and tensioning means connecting between the fourth edge of said base member and said fourth rail to adjust said fourth rail relative to the second of said pair to conform with a

second dimension of the fabric piece and to apply tension forces along the length of said second dimension;

G. adjustable extension means connecting between said first and second adjustment and tensioning means and the respective third and fourth rails.

2. The adjustable stretcher device as defined in claim 1 wherein said first adjustment and tensioning means comprises two spaced apart, elongated eye-bolts, each having an inner end removably linked to said third rail and a screw threaded outer end extending through a hole in an upwardly extending flange of an angle-iron, fixed relative to said third edge, nut means being carried on said screw threaded outer end to engage against the outer surface of said flange to adjust said third rail inwardly or outwardly, relative to the first of said pair, upon proper manipulation of said nut.

3. The adjustable stretcher device as defined in claim 2 including elongated handle means fixed to each of said nut means.

4. The adjustable stretcher device as defined in claim 2 including a plurality of spaced apart holes in said flange along the length thereof.

5. The adjustable stretcher device as defined in claim 2 including a plurality of spaced apart holes in said angleiron flange.

6. The adjustable stretcher device as defined in claim 2 including chain means removably and adjustably connecting between each of said linked ends and said third rail.

7. The adjustable stretcher device as defined in claim 2 including chain means removably and adjustably connecting between each of said linked ends and said fourth rail.

8. The adjustable stretcher device as defined in claim 1 including adjustable extension means connecting between said first and second adjustment and tensioning means and the respective third and fourth rails.

9. The adjustable stretcher device as defined in claim 1 wherein said barbs are upwardly struck from said rails.

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