United States Patent [19]

Vipond

[11] **3,751,771**

[45] **Aug. 14, 1973**

[54] **DEVICE FOR SECURING TEXTILE OR OTHER MATERIAL UNDER TENSION**

[76] Inventor: **Richard Gabriel Vipond,** "Brackens," Bishops Walk, Addington, England

[22] Filed: **Jan. 23, 1970**

[21] Appl. No.: **5,222**

[30] **Foreign Application Priority Data**

Jan. 27, 1969 Great Britain 4,455/69

[52] **U.S. Cl.** ..... **24/248 SL,** 5/353.7, 16/16, 29/68 F

[51] **Int. Cl.** **A44b 21/00**

[58] **Field of Search** ..... 16/4, 8, 10, 13, 16/14, 15, 16, 17; 5/353.4, 353.7, 353.8; 160/371, 392, 327; 24/85 R, 85 D, 243 R, 243 FS, 243 M, 243 N, 243 GC, 252 GC, 255 SL, 248 SL, 68 E, 68 SC, 265 C

[56] **References Cited**

UNITED STATES PATENTS

584,148	6/1897	Robinson	24/248 SL
1,018,194	2/1912	Hoge et al.	16/17
1,822,460	9/1931	Sprague	24/248 SL
2,062,087	11/1936	Cottrell	16/17 UX
2,611,918	9/1952	Jaasund	16/16
2,702,919	3/1955	Judge	16/16 X
2,995,769	8/1961	Hill	16/16
3,008,173	11/1961	Goss et al.	16/16
3,379,237	4/1968	Worthington	160/371

FOREIGN PATENTS OR APPLICATIONS

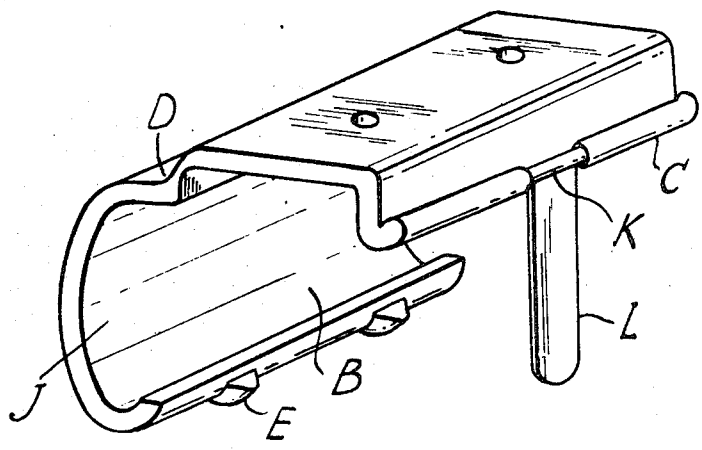
494,278	7/1953	Canada	16/16
8,574	1904	Great Britain	24/68 E

Primary Examiner—James T. McCall
Assistant Examiner—Peter A. Aschenbrenner
Attorney—Watson, Cole, Grindle and Watson

[57] **ABSTRACT**

A device for securing tensed fabric comprising a longitudinal clip of D-shape cross-section having the curved part hinged to the flat part along one side; the other side of the curved part bears teeth and clips onto the flat part. The clip is opened, the flat part attached to a base, the fabric is impaled onto the teeth and the clip is then snapped shut with the fabric gripped between the two parts, the action of closing the clip also serving to tension the fabric.

6 Claims, 6 Drawing Figures



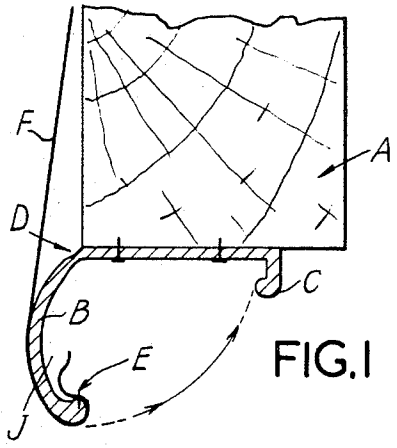


FIG.1

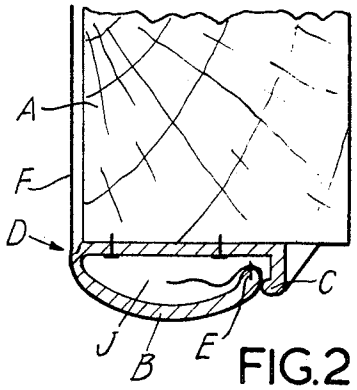


FIG.2

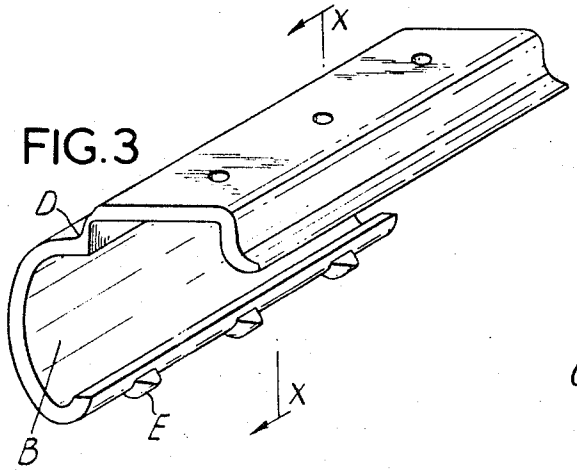


FIG.3

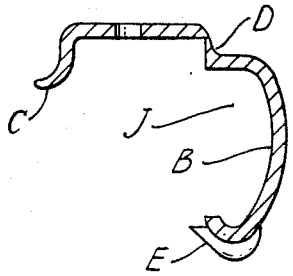


FIG.4

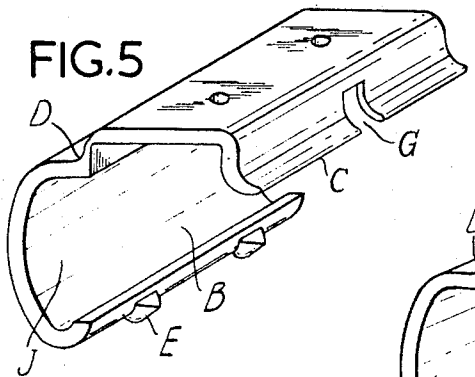


FIG.5

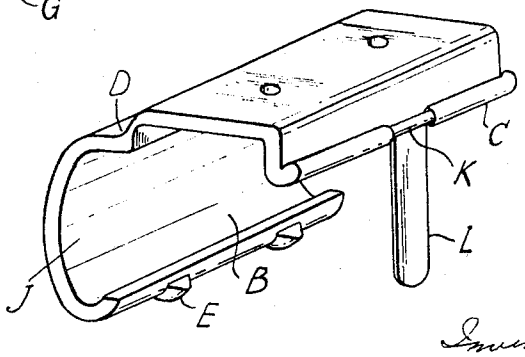


FIG.6

Inventor
Richard Gabriel Vipond
Watson, Cole, Grindle & Watson
Attorneys

DEVICE FOR SECURING TEXTILE OR OTHER MATERIAL UNDER TENSION

This invention relates to a device for securing textile and other material under tension; and to a method resulting from using the device. It also seeks to provide a device for embodiment in or attachment to upholstered furniture to facilitate fitting or attachment of covering thereof.

There are many occasions when it is desirable to stretch or fit textile and other materials in position, for instance, in the fitting of loose covers on upholstered furniture, the fitting of drapes, fixing covers and drops in window dressing, carpets or druggets, etc., and it is an aim of this invention to provide a simple device which can form part of, or be easily attached to enable such materials to be secured in position and, furthermore, can be easily removed.

It is an object of the present invention to provide for means for securing tensed fabric along a margin comprising:

base means;

a member adapted to engage the fabric;

hinge means rotatably anchoring said member to said base means along a first region;

and securing means fixed relative to said base means for securing said member against rotation about said hinge means;

said member being so formed as to engage the fabric retentively along a second region of said member which is spaced from and parallel to said first region;

said securing means being so formed as to retain said member with the fabric engaged thereon so as to hold the fabric against tension.

It is a further object to provide for means wherein said hinge means comprises a pliable web extending between said base means and said member.

It is a further object to provide for means for securing a fabric along a margin, comprising:

a base means adapted to be fixed at one margin of the fabric;

a member having a first and second spaced-apart region, each region extending substantially parallel to said margin;

pliable-web hinge means rotatably connecting said base element to said member along said first region;

clip means attached to said base means and positioned to co-operate with said member at said second region to retain said member against rotation about said hinge means;

said member being so formed as to engage the fabric retentively;

said clip means being so formed as to retain said member with the fabric engaged thereon so as to hold the fabric against tension.

It is a further object to provide for means wherein the clip means comprises a concave lip into which said second region of said member can clip to be retained within the concavity.

It is a further object to provide means wherein said lip extends generally towards said hinge means.

It is a further object to provide means wherein said member comprises tooth-like projections in the vicinity of said second region which are adapted to engage with the fabric.

It is a further object to provide means wherein said lip extends generally away from said hinge means.

It is a further object to provide means wherein said member comprises tooth-like projections in the vicinity of said second region which are adapted to engage with the fabric.

It is a further object to provide a device wherein said clip means is apertured to provide an opening extending from inside said securing means to outside said securing means and so positioned that a lever inserted into said opening when said clip means is retaining said member can be used to lever apart said clip means and said member.

It is a further object to provide a device further comprising tab means having an inner end and an outer end, said tab means being attached to within said securing means and extending outside said securing means between said clip means and said member so that, when said clip means is retaining said member, said member can be pulled away from said clip means by pulling said outer end of said tab means.

It is a further object to provide a device which is so dimensioned when said clip means retains said member, the volume enclosed by said base means and said member is sufficiently large to contain a scroll of fabric.

It is a further object to provide means wherein said base means, said hinge means, said member and said clips are formed integrally of plastics material.

It is a further object to provide means wherein the aforesaid plastics material is polypropylene.

It is a further object to provide a method of stretching and securing a web of fabric to a base element along a margin, comprising the steps of:

engaging the fabric with a member along a region of the fabric substantially parallel to the margin,

using the member as a lever rotatable about a hinge having an axis of rotation substantially parallel to the margin thereby stretching the fabric,

and securing the member to the base against contrarotation and with the fabric under tension whilst simultaneously locking the fabric between the element and the member, by interengaging the element and member along the margin.

It is a further object to provide a device for carrying out the aforesaid method.

It is a further object to provide a device wherein the member is shaped to form a lever of variable-length load arm, which variability will depend upon the position of the member relative to the base so that the length of the load arm is at a minimum when the fabric is locked between the member and the base element.

It is a further object to provide a device wherein the member has a convex outer profile so that as the member is rotated towards the base element, a greater area of the member engages with the fabric thereby resulting in a shorter length of load arm.

It is thus an object of the present invention to provide for a means for securing tensed fabrics which is simple to use and of low profile so as to present a neat appearance in use.

The invention may consist of a device for securing textile or other material under tension to a fixed position and comprises means for gripping or otherwise holding an edge of the material said means being arranged on an integrally hinged strip and adapted to tension the material upon movement and to be held in a

secured position. The hinged strip may be moved from its secured position by hand and the material removed or moved into a different position, and then secured.

The device may consist of two lengths of plastics or metal integrally hingedly connected to each other, the one length adapted to be fastened to a fixed position and the other length adapted to engage with the material when in its open position and moved to lie approximately parallel to the fixed length, the movement resulting in the material being tensioned, the two lengths being interconnected in a locked position.

The invention further includes a method of stretching and securing a web of fabric to a base element along a margin, comprising the steps of:

engaging the fabric with a member along a region of the fabric substantially parallel to the margin,

using the member as a lever rotatable about a hinge having an axis of rotation substantially parallel to the margin thereby stretching the fabric,

and securing the member to the base against contrarotation and with the fabric under tension whilst simultaneously locking the fabric between the element and the member, by interengaging the element and member along the margin,

and means as defined by claims herein, for performing such method.

Simple forms of the invention and the way in which it is applied may be more clearly understood with reference to the accompanying drawings in which:

FIG. 1 is a side elevation of the device in its open position and attached to a fixed position,

FIG. 2 is a similar side elevation with the device in its closed and locked position,

FIG. 3 is a perspective sketch of a modified device with a slightly different locking device,

FIG. 4 is a section through the device of FIG. 3 along the plane X—X,

FIG. 5 is a perspective sketch of another modified device, and

FIG. 6 is a perspective sketch of yet another modified device.

Referring to FIGS. 1 and 2, the reference A illustrates the base of a chair frame to which is attached the device by means of nails, screws or by adhesive. (Nails are shown in the sketches). The device itself may be made from an extruded plastic material in the form of a base H and a part B connected by a thinner or weaker part D to form a hinge. The part B is curved to enclose a cavity J and is provided with a thickened lip at the end adapted to clip into and lock when closed into lip C on the end of the part attached to the base of a chair. Furthermore, projections or pins E are provided for the purpose of holding the fabric.

In use, a loose cover is placed in position on the chair and one end is stretched into position and "hooked" on the pins E when the device is in its open position as shown in FIG. 1. If the material is liable to shrink, extra material can be rolled up and put into the cavity J. The part B is then moved over to the position as shown in FIG. 2 bringing with it the end of the loose cover.

In FIGS. 1 and 2, the fabric material is indicated by F. It will be seen that by movement of the part B, as shown by the arms, the fabric F is being pulled and when the device is in the position shown in FIG. 2, the device is clipped or locked in position. It can be seen that tension on the fabric F will cause a sprag action between the two lips. To remove or let out the loose cover, it is only necessary to open the device. Any suitable number of devices may be arranged in suitable positions for holding the loose covers in place.

If the device is made from metal, it will be necessary to provide a hinge at D. Although pins E are shown, the fabric F may be gripped by any suitable means.

FIGS. 3 and 4 show the same basic device unattached but a modification is made in the locking arrangement. The same reference letters apply but the end of the curved part B is differently shaped so as to clip over at C. In this form the fabric will be clipped inside B. The projections E project outwardly from B.

FIG. 5 shows the same basic device as that shown in FIGS. 3 and 4 but which incorporates a slot G in the lip C so that when the device is closed a tool can be inserted between the two lips to prise them apart.

FIG. 6 shows the same basic device as that shown in FIGS. 3 and 4 but which incorporates a tab or tongue L which seats in a reduced area K of the lip C. The tongue L wraps around the lip C when the device is locked so that if the tongue is pulled, the lips disengage.

The devices shown may be applied to any part of a chair frame to attach inside or outside arms, inside or outside backs, and they may be used for primary covers as well as loose covers. The use of the device will enable loose covers or primary covers to be fitted without the usual skill required by an operator, and for shrinkage in the fabric to be compensated for by letting out extra fabric without having the excess fabric exposed to view. The invention is also adapted to be used for securing fabrics to moulded furniture.

The same device may be used for other purposes where fabric requires to be held in position. For instance in window dressing a number of the devices may be arranged to hold covering fabrics. The devices may be used for platforms in shop windows.

The clipping or locking arrangements may be varied without departing from the spirit of the invention. For instance a projection or projections may be provided on the inner part of the curve B adjacent the hinge to engage in a locking means when in its closed position.

The base H and part B can be made as separate units with interlockable male and female hinge regions instead of the integral hinge D.

Part B can, of course, be made flat, but it can be seen from FIGS. 1 and 2 that part B effectively forms a lever with the hinge D acting as a fulcrum and with the fabric F under tension acting as load on part B. The length of the load arm is equal to the distance from the hinge D to the point on part B at which the fabric F makes contact (assuming the fabric does not slip along the part B). Thus as part B is rotated about hinge D towards the lip C, the fabric is wrapped around the part B and the length of the load arm becomes progressively shorter so that, if the part B is being pressed at a fixed point, the mechanical advantage of the lever progressively increases enabling a progressively greater tension of the fabric F to be overcome by a constant effort.

The tab can be made to be an integral part of the clip by forming the whole as an integral moulding, or the tab can be stuck on later by suitable adhesives or welding, or the tab can be knotted through holes formed in the clip in the manner of shoelaces.

I claim:

1. Means for tensioning and securing stretchable fabric along a margin, comprising:

a base means adapted to be fixed at one edge of the fabric;

a member having a first region, and a second region spaced apart from the first region, each region extending substantially parallel to said edge;

pliable-web hinge means hingedly connecting said base means to said member by connecting a first edge of the base means with said first region;

clip means attached to said base means and apertured with a slot to provide an opening extending from inside the securing means to outside the securing means, the clip means being positioned to cooperate with said member at said second region to retain said member against rotation about said hinge means and so that a lever-like tool inserted into said opening when said clip means is retaining said member can be used to facilitate separation of said clip means and securing means by levering apart said clip means and said member;

said member having means adjacent a second edge thereof to engage the fabric retentively against tension;

said clip means being so formed as to retain said member with one end of fabric engaged between said second region and a second edge of the base means so as to secure the fabric when said member is rotated about said hinge means.

2. Means for tensioning and securing stretchable fabric along a margin, comprising:

a base means adapted to be fixed at one edge of the fabric;

a member having a first region, and a second region spaced apart from the first, each region extending substantially parallel to said edge;

pliable-web hinge means hingedly connecting said base means to said member by connecting a first edge of the base means with said first region;

clip means attached to said base means and positioned to cooperate with said member at said second region to retain said member against rotation about said hinge means, the clip means comprising a concave lip into which said second region of said member can clip by snapping over resiliently to be retained within the concavity;

tab means having an inner end and an outer end, said tab means being attached to within the securing means and extending outside said securing means between said clip means and said member so that, when said clip means is retaining said member, said member can be pulled away from said clip means by pulling said outer end of said tab means; said base means, said hinge means, said clip means, and said tab means being formed integrally of plastics material;

said member having means adjacent a second edge thereof to engage the fabric retentively against tension;

said clip means being so formed as to retain said member with one end of the fabric engaged between said second region and a second edge of the base means so as to secure the fabric when said member is rotated about said hinge means.

3. Means as claimed in claim **1** wherein said clip means comprises a concave lip into which said second region of said member can clip by snapping over resiliently to be retained within the concavity.

4. Means as claimed in claim **3** wherein said base means, said hinge means, said member and said clip means are formed integrally of plastics material.

5. Means as claimed in claim **4** wherein said plastics material is polypropylene.

6. Means as claimed in claim **2** wherein said plastics material is polypropylene.

* * * * *