

[54] **PROCESS AND DEVICE FOR DRAPING OR MAKING UP WALL OR OTHER SURFACES BY MEANS OF FLEXIBLE SHEETS, E.G., OF FABRICS**

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[51] Int. Cl. **A47h 23/00**

[58] Field of Search 160/179, 327, 328, 385, 160/392, 394, 395, 397

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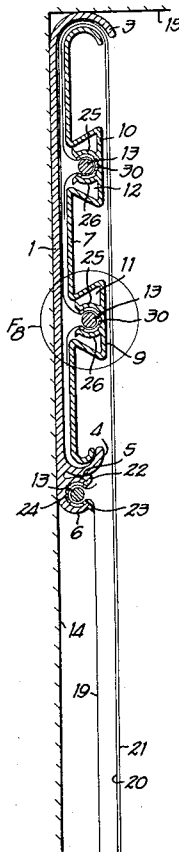
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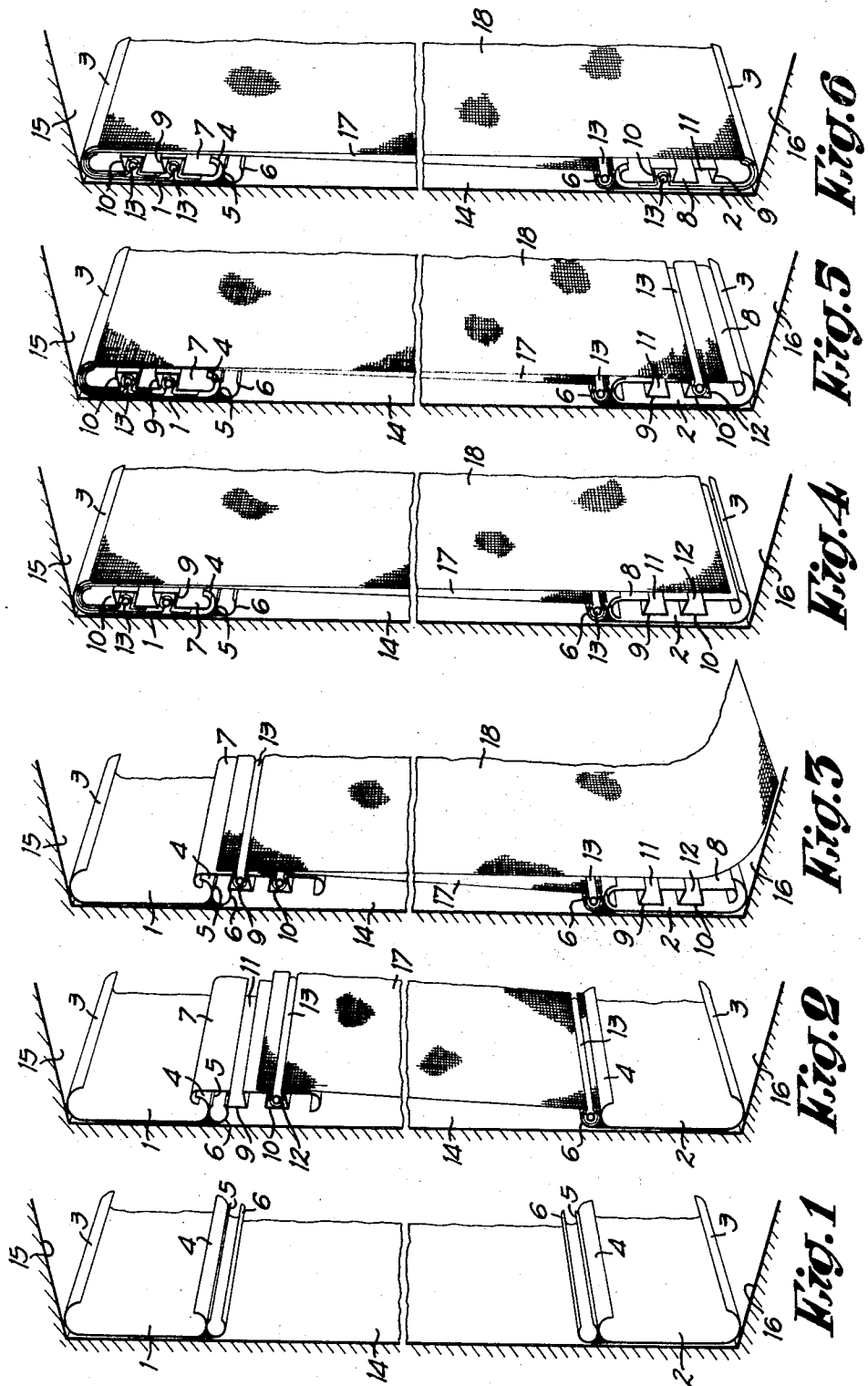
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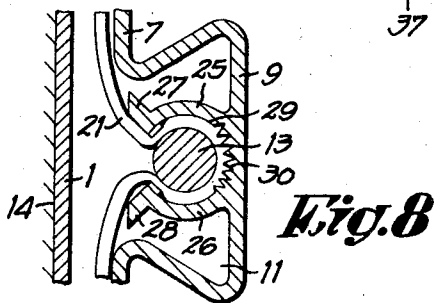
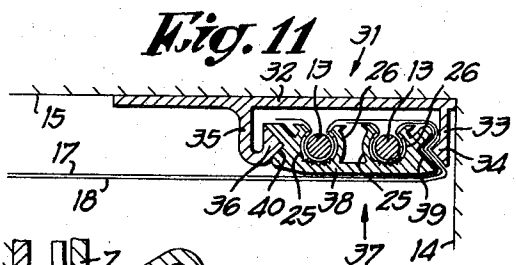
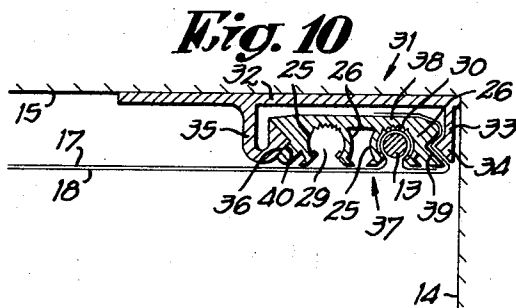
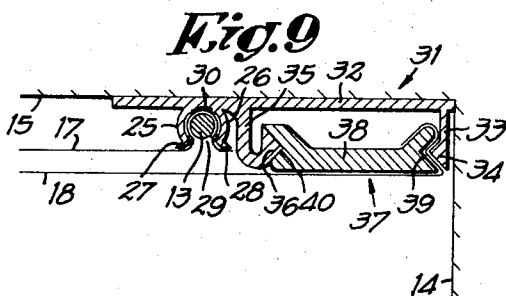
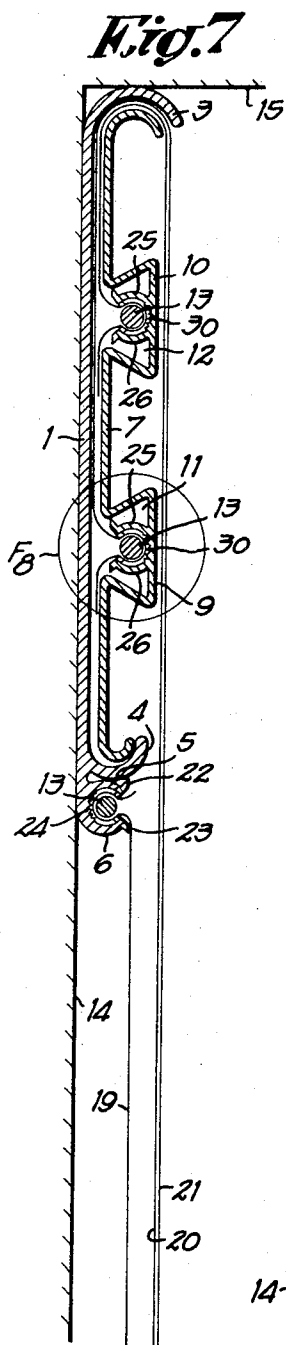
[57] **ABSTRACT**

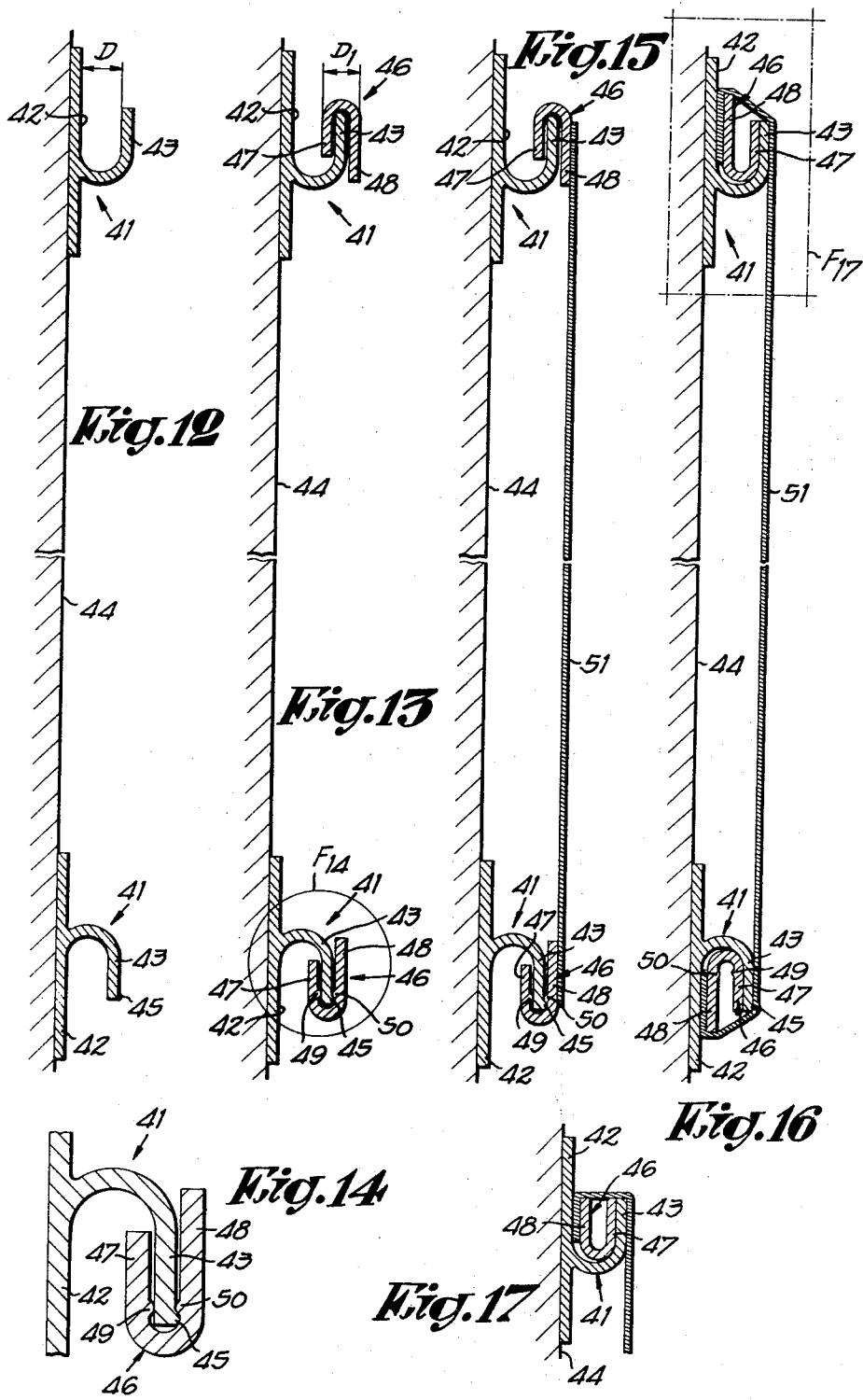
The invention pertains to a process for draping or making up wall or other surfaces by means of flexible sheets consisting in fitting, along two borders of the surface to be covered, a clamping profile part, or fixed profile part; in fitting one edge of a first fabric to a first mobile profile part clamped in waiting position to one of said fixed profile parts; in fitting the other edge of the first fabric to the other fixed profile part; in fitting one edge of a second fabric to a second mobile profile part; and in bringing successively both mobile profile parts in their final positions into said fixed profile parts, and also pertains to a device for working this process.

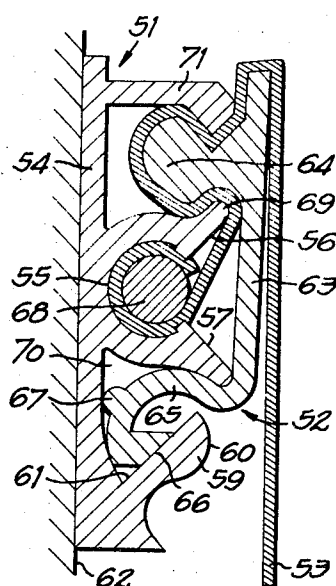
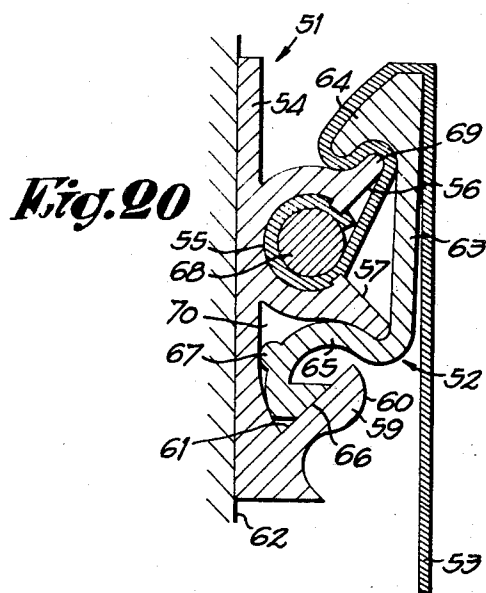
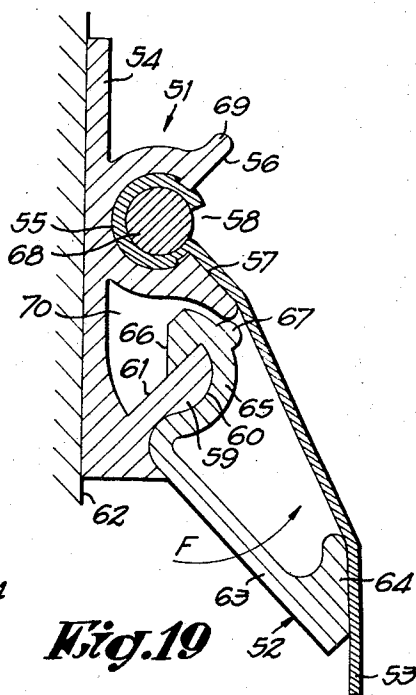
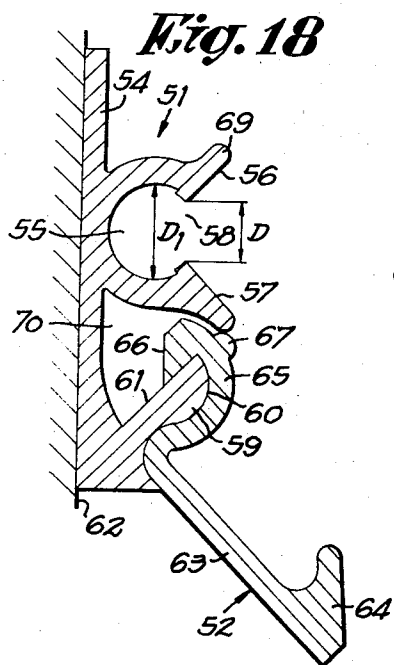
9 Claims, 21 Drawing Figures











PROCESS AND DEVICE FOR DRAPING OR MAKING UP WALL OR OTHER SURFACES BY MEANS OF FLEXIBLE SHEETS, E.G., OF FABRICS

In this U.S. Pat. application No. 14,256 of Feb. 24, 1970, now abandoned, applicant has revealed a process for fastening wall fabrics under stress. Practice has shown the necessity of solving additional problems arising from improvements made within the scope of the basic process described in said application.

A first object of this invention consists in providing means that will be able to take into account the varying elasticity shown by differing thicknesses of the fabric used for covering a specific wall surface.

Another requirement consists in the interest to be in a position, for certain applications, of combining fastening components in such a manner that they simultaneously form a stretching fixture.

Still another problem concerns the necessity, in certain categories of work, of using highly simplified fastening, respectively stretching fixtures for the purpose, in particular, of reducing job costs.

This invention concerns a solution with regard to these various additional problems. The solutions are detailed hereinafter by referring to the drawings here-attached, in which:

FIGS. 1 to 6 show a perspective view of the various stages of the process according to the invention;

FIG. 7 shows the cross section of an execution variant of two profile parts according to the invention, occupying a position similar to the one of the profile parts shown in the upper section of FIGS. 5 and 6;

FIG. 8 shows, in larger scale, the section of the profile part indicated by pointer F8 in FIG. 7;

FIGS. 9 and 10 respectively show two other pairs of fixed and mobile profile parts according to the invention;

FIG. 11 shows an utilization variant of the profile parts according to FIG. 10;

FIG. 12 shows the schematic vertical section view of a partition to which are fitted two fixed profile parts according to the invention.

FIG. 13 is similar to FIG. 12, the mobile profile parts being provisionally fastened to said fixed profile parts;

FIG. 14 shows the enlarged view of the section pointed out as F14 in FIG. 13;

FIG. 15 is similar to FIG. 13, the fabric being fastened to the mobile profile parts;

FIG. 16 is similar to FIG. 15, the device and the fabric being shown in their final position;

FIG. 17 is a variant of the part pointed out by pointer F17 in FIG. 15;

FIGS. 18, 19 and 20 show the improved process i.e. the components supporting this process, in three characteristic successive stages of said process, the clasp components being shown in sectional view;

FIG. 21 is a variant of the design of FIG. 20.

In the examples shown by FIGS. 1 to 7, the fixed profile parts 1 and 2 are identical. Each has been designed in U-shape with legs 3 and 4 bent towards one another, leg 4 being less developed as compared to leg 3. Along one of said legs, in this case along leg 4, the profile part laterally extends by two lips 5 and 6 bent one towards the other.

Mobile profile parts 7 and 8 are identical, too. They present a U-shaped section corresponding to that of

fixed profile parts 1 and 2 so that it may be clamped into these latter. Their core is fitted with two hollow ribs 9 and 10 of V-shaped section, which form two parallel grooves 11 and 12 on the core's dorsal face. Lips 5 and 6, on one hand, and grooves 11 and 12 on the other, are adjusted and designed to receive a reed 13 in the shape of, for instance, a cylindrical rod.

In conformity with the process according to the invention, two fixed profile parts 1 and 2 are first fitted along the length of two opposite borders of the surface to be covered, if, for instance, a wall 14 is involved, respectively the length of the ceiling 15 and of the floor 16 (FIG. 1). This fitting operation may be carried out in any appropriate manner: glueing, clipping, screwing, etc. A first fabric 17 will be fitted to the edge of mobile profile parts 7, by clamping this latter, by means of a reed 13, into one of the two grooves of profile part 7, for instance into groove 12. Profile 7 will then be clamped to curved wing 4 of the fixed profile part 1. The opposite edge of fabric 17 will then be fastened to the lower profile part 2, by means of wedging said fabric between the lips 5 and 6 of said profile part with the help of a reed 13 (FIG. 2). The second fabric 18 is then fitted along one of its edges into the free groove of mobile profile part 7, in this case groove 9, and also by means of a reed 13. The second mobile profile part 8 is introduced into fixed profile part 2 in such a manner that its grooves 9 and 10 are visible and accessible (FIG. 3).

By means of a pivoting motion, mobile profile 7 is brought from its waiting position into its final position in the fixed profile part 1, which is made possible by the profile parts wings' elastic distorsion and, to a certain extent, by profile part 7 itself (FIG. 4). Fabric 17 will thus be draped, under a stress in accordance with its nature, while fabric 18 will be hanging simply from its upper edge. It may then be, eventually, cut to accurate measurements.

The lower edge of fabric 18 will then be fitted by means of a reed 13, into a groove of mobile profile part 8 set in the fixed profile part 2 for reasons of ease (FIG. 6). Profile part 8 is then withdrawn from profile part 2, then reinserted into this latter after having been turned into final position (FIG. 6). By turning over profile part 8, fabric 18 will be stretched. To note that the stress obtained from turning over profile part 8 in FIG. 6 is different from that achieved by pivoting profile part 7 in FIG. 4.

The covering operation is then finished and both fabrics 17 and 18 are perfectly stretched, each according to the stress best adjusted to the effects pursued. In this example, fabric 17 could be a climatic sheet and fabric 18 could be a decorating fabric.

The profile parts detailed hereabove will even allow for achieving a triple layer covering. Thus, for instance, one climatic sheet 19 could be fitted between lips 5 and 6 of fixed profile parts 1 and 2, one heating sheet 20 could be fitted into grooves 12 of mobile profile parts 7 and 8 while, finally, one decorating fabric 21 could be fitted into grooves 11 of said profile parts (FIG. 7).

In the special execution design shown by FIGS. 7 and 8, we will first note that the lips 5 and 6 of a fixed profile part are provided with divergent borders 22 and 23, while the bottom of the groove that they enclose is fitted with scores 24 forming as many clamping teeth preventing the fabric from slipping.

Grooves 11 and 12 are larger here as compared to those of the profile parts shown by FIGS. 1 to 6; their bottom is fitted with lips 25 and 26 with divergent borders 27 and 28, with said lips enclosing a groove 29 with scored bottom 30 for taking the fabric and the reed 13. The reason for this alteration requests some explanations. In order to ensure a sound clamped seat of a mobile profile part in a fixed profile part, the core of the mobile profile part should be slightly curved, the axis of curvature being located on the side of the profile part's wings. When the mobile profile part is inserted in waiting position into a fixed mobile part (position shown at the bottom of FIGS. 3-4-5), then said core will be distorted until it becomes plane, which results in closing grooves 11 and 12. This could give rise to difficulties when the fabric and the reed are being inserted. This difficulty no longer exists in the design according to FIGS. 7 and 8.

For the purpose of fitting the vertical edges of fabrics 17 and 18, it will be advantageous to use fixed and mobile profile parts such as shown by FIG. 9 or by FIGS. 10 and 11.

In the example shown by FIG. 9, the fixed profile part 31 consists of a flat component 32 showing, close to one of its longitudinal borders, a rib 33, the free end of which forms a lateral clamping head 34 of overall triangular shape. Flat component 32 also shows a curved rib 35 extending in parallel to rib 33, and the free end of which forms a clamping head 36 directed towards head 34.

Flat component 32 has further been fitted with two lips similar to those provided for in grooves 11 and 12 of FIGS. 7 and 8 and, for this reason, referred to by the same numbers (25-26).

Mobile profile part 37 consists of a flat component 38, one face of which is hollowed out and the lateral faces of which show grooves 39 and 40 of a shape corresponding to that of, respectively, clamping heads 34 and 36.

As shown in FIG. 9, one vertical edge of the first fabric 17 is fitted by means of a reed 13 between the lips 25 and 26 of the fixed profile part 31, while the vertical edge of the second fabric 18 will be fitted, by clipping of the mobile profile part 37, between said clamping heads 34 and 36.

In the variant according to FIGS. 10 and 11, the fixed profile part is essentially identical to the profile part in FIG. 9. In fact, the only difference is the absence of lips 25 and 26.

The mobile profile part, too, is similar to profile part 37 of FIG. 9, except for the fact that its recessed face is fitted with two pairs of lips 25-26.

In the design according to FIG. 10, the fabric 17 is fastened by means of a reed 13 between the lips of one pair (25-26) while the fabric 18 is clamped between the clamping heads 34 and 36 when the profile part 37 is being clipped between said heads.

In the design according to FIG. 11, the mobile profile part 37 is initially set in a waiting position into fixed profile part 32 (position shown by FIG. 10). Fabrics 17 and 18 are successively fitted each between the lips of one pair (25-26). Then profile part 37 is withdrawn, turned over and reinserted between heads 34 and 36. Fabrics 17 and 18 will thus be stressed in a horizontal direction.

In the design of FIGS. 12 to 16, the fixed profile parts 41 are designed in the shape of a continuous flat strip

42, one face of which shows a leg 43 enclosing a hollow whose straight section is U-shaped for which the distance separating the inner longitudinal faces is shown in D.

As shown by FIG. 12, a fixed profile part of this kind is fitted to the upper and lower sections of the partition shown in 44.

In the example shown, the free end of said leg 43 presents a slight bulb 45 forming a continuous adjacent string.

Mobile profile parts 46 are made of a strip, the straight section of which is also U-shaped, the two legs 47-48 of which are, in this case, of unequal length. Inside, this strip shows two longitudinal bulbs or ribs 49-50. These are separated by a distance slightly less than the thickness of the terminal flange 45 of the fixed profile parts. The shape and the measurements of these local distortions are such that said mobile profile parts 46 may be provisionally fitted by means of clipping to said fixed profile parts (FIG. 14).

The process of fastening wall fabric under stress in conformity with these improvements is, essentially, as follows: the fixed profile parts 41 are fitted to the appropriate places by any known means (FIG. 12). Each fixed profile controls a mobile profile part provisionally held in place by means of clipping (FIG. 13). Fabric 51 will be fastened by any appropriate means to said mobile profile parts 46, e.g., by means of glueing (FIG. 15). Finally, mobile profile parts 46 are withdrawn from their respective fixed profile parts, then turned over by 180° and inserted, respectively lodged, into their respective fixed profile parts (FIG. 16). In the example shown by these Figures we note that, in addition to fabric 51 being under stress, the fixed and mobile profile parts will be hidden from view, except for marginal sections of said fixed profile parts; however, the width of the continuous strip 42 forming said fixed profile parts may be reduced so that these parts are completely hidden from sight.

In the design described, the mobile profile parts 46 show legs of differing lengths. For certain applications, we may advantageously use such mobile profile parts of U-shaped section with perfectly equal legs, such as shown by the sectional view of FIG. 17.

In the example of FIGS. 18, 19 and 20, we use a fixed profile part 51, a mobile profile part 52 and the fabric 53. The fixed profile part is in the shape of a continuous flat strip 54, one face of which is shaped to form an open tubular rib 55, the two adjacent borders of which are shaped to show two divergent faces 56-57 enclosing an inlet 58, the width of which, D, is less than the diameter D1 of the hollow of the tubular rib 55. The same face of strip 54 shows a clamping rib 59 enclosed outside by a partition 60 in S-shape and, inside, by an inclined plane 61. The dorsal face 62 of said strip 54 is plane, thus facilitating the operation of fitting the profile part to the partition by any conventional means such as glueing, clipping, nailing, etc...

The mobile profile part consists, in this case, of a flat strip 63, one longitudinal edge of which is shaped in the form of a clamping rib 64 while the second longitudinal edge of said strip 63 shows, also directed towards one side, a rib 65 in swan neck shape, the free edge of which is extended towards the inside of said swan neck's curvature to form a clamping head 66. Towards the outside and close to said clamping head, the mobile profile part shows a rib 67 of semi-cylindrical shape.

Both profile parts, fixed and mobile, may be produced despite their relatively complicated straight section, by an extrusion process out of appropriate plastic material so that both of said profile parts will show some elasticity. In the first stage of the process improved according to this request, the fixed profile parts **51** are fitted to the partition to be covered, generally along adjacent borders, at or approximately at the ceiling's and the floor's level or at the level of any bordering line of the wall lining.

To each fixed profile part **51** will be clamped a mobile profile part **52**. This clamping operation is achieved by means of the swan neck rib **65-66** and the clamping rib **59** (FIG. 18). Then the corresponding edge of the fabric **53** is fastened to the fixed profile part **51** by means of a reed **68** inserted into the tubular rib **55** together with the corresponding section of the fabric that surrounds, at least in part, said reed **68**. For this purpose, said reed's diameter is larger than the width **D** of the inlet to said tubular rib **55**. This fastening operation is made easier because of the existence of the convergent faces **56-57** of the adjacent edges of said tubular rib **55**.

In this position, fabric **53** will be fastened to fixed profile part **51** and, in addition, it will be in contact with mobile profile part **52** through the intermediate of clamping rib **64** (FIG. 19).

The final stage of the process consists in rotating the mobile profile part **52** in the direction shown by pointer **F** (FIG. 19) in such a manner that, while stretching fabric **53** in the stress phase, rib **64** of the mobile profile part will clamp into the upper terminal rib **69** of the fixed profile part **51**. At the same time, the swan neck-shaped edge **65-66** will engage into recess **70** of the fixed profile part (FIG. 20).

In this relative position of profile parts **51, 52**, respectively fixed and mobile, and the corresponding section of fabric **53**, we achieve that said fabric is firmly fitted to the partition while being exposed to a suitable previously determined stress.

In the example of FIG. 21, we find all the components of the preceding example completed by an additional clamping means formed, in this case, by a profiled rib **71** cooperating with rib **64** of the mobile profile part which, in this case, shows a design adjusted to said additional rib **71** in such a manner as to form an additional clamping area, thus increasing the efficiency of the fabric's stretching and fastening device.

It is easy to understand that the essential components represented by the fixed and mobile profile parts may show infinitely varying shapes without exceeding the limits of the invention, to the extent in which the same goals and results are being pursued, i.e., in this case,

hanging fabric or wall lining under stress.

The invention concerns the general design itself, i.e., the process thereof as well as all fixed and mobile profile parts conditioned to apply this process, as a new industrial product.

What I claim is:

1. A device for draping walls and other surfaces by flexible sheets, such as fabrics, comprising at least one U-shaped fixed profile part having two legs bent one toward the other, and two lips extending laterally along one of said legs, and a U-shaped mobile profile part with a core having two V-shaped recessed ribs forming two parallel grooves on the core's dorsal face, and a reed clamping between said lips of the first-mentioned profile part and into said grooves of the second-mentioned profile part.

2. Device according to claim 1, characterized in that the curved leg of said profile part, adjacent to said lips, is shorter than the other leg.

3. Device according to claim 1, characterized in that said mobile profile part shows, in unstressed state, a convex core, the curvature axis of which is located on the side of said legs.

4. Device according to claim 1, characterized in that the bottom of each said groove of the mobile profile part is fitted with a pair of longitudinal lips intended to receive both the fabric and said reed.

5. Device according to claim 1, characterized in that this set of components includes, in addition, a second fixed profile part and a second mobile profile part for the purpose of fastening the fabric edges opposite to those held by the two other profile parts.

6. Device according to claim 5, characterized in that the second fixed profile part consists of a flat component, one face of which shows two longitudinal ribs, one straight and the other curved, the free edges of said ribs being shaped in the form of clamping heads directed one against the other.

7. Device according to claim 6, characterized in that this flat component shows next to said ribs, a pair of longitudinal lips intended to receive said reed and fabric.

8. Device according to claim 6, characterized in that the second mobile profile part essentially consists of a flat component whose lateral faces are each fitted with a groove of a shape corresponding to that of said clamping heads.

9. Device according to claim 8, characterized in that this flat component shows, in addition on one of its large faces, two pairs of lips, each intended to receive a reed and a fabric.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,833,046 Dated September 3, 1974

Inventor(s) Gerard Tombu

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On the cover sheet insert -- [30] Foreign Application

Priority Data Belgium 771838 Aug. 27, 1971 --.

Signed and sealed this 1st day of July 1975.

(SEAL)
Attest:

RUTH C. MASON
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents
and Trademarks