DEVICE FOR FORMING PLEATS ON CURTAINS

Inventor: Wilhelm Hachtel, 6994 Niederstetten, Germany

Filed: Sept. 15, 1970

Appl. No.: 72,518

Related U.S. Application Data


Foreign Application Priority Data

Dec. 30, 1967 Germany..........................H 64 926
May 18, 1968 Germany..........................P 17 78 643 5

U.S. Cl........................................160/348
Int. Cl...........................................A47h 13/16
Field of Search..............................160/348; 24/86; 16/87.2, 87.4, 16/87

References Cited

UNITED STATES PATENTS

2,754,903 7/1956 Czetli et al........................160/348
3,116,783 1/1964 Polkosnik..........................160/348

FOREIGN PATENTS OR APPLICATIONS

545,759 3/1956 Belgium..............................160/348

Primary Examiner—David J. Williamsowsky
Assistant Examiner—Philip C. Kannan
Attorney—M. Robert Kestenbaum

ABSTRACT

A one-piece pleat forming curtain hanger has a stiff crossbar on a hanging arm which extends in the direction in which the curtain is drawn. Upward pointing pleat-holding arms, forwardly extending horns, and optionally, hooking devices all extend from the crossbar.

11 Claims, 9 Drawing Figures
DEVICE FOR FORMING PLEATS ON CURTAINS

This is a continuation of application Ser. No. 770,612, filed Oct. 25, 1968, now abandoned.

DEVICE FOR FORMING PLEATS ON CURTAINS

This invention relates to a device for forming pleats on drapes, curtains or the like, which are suspended by means of sliding or rolling hanger bodies on a curtain rod and where the hanger bodies are provided with pins into which a fish-plate or rod-shaped hanging arm carrying the drape or curtain is inser-able.

In such an arrangement, four downwardly hanging arms, serving as pleat-holding arms are suspended from a hanger body. At their lower ends, the pleat-holding arms are detachably connected by a pleat holder. Thus, apart from the hanger body, one has a five-part arrangement, the single parts of which are injection-molded separately and then fitted together. Assembly of this device is time-consuming and must be done by hand. With it, one cannot produce a breathing pleat, and the device is not sturdy enough to give the pleat the desired form in a durable manner.

Accordingly, the object of the present invention is to provide a device which, although of plastic, is in one piece and very stable as to form and can be used for the production of breathing pleats.

According to the invention, this problem is solved in that the lower end of the hanging arm a stiff crossbar is provided which extends in the direction in which the curtain is drawn and which is integral with the hanging arm. From the crossbar upwardly pointing pleat-holding arms extend which are integral with the crossbar. From the crossbar, hooks extend forward which are integral with the crossbar, and hooking devices may be provided on the crossbar. Such a device can be injection molded with a very simple tool.

Advantageously, the crossbar is of bridge-type form, the left and right ends of which join with the base of each horn, and from the upper side of which the pleat-holding arms fan out. At their root the pleat-holding arms act as reinforcement for the crossbar and may extend from it at about right angles. The crossbar is so designed that the horns also contribute to the stabilization of the entire arrangement.

Advantageously, the hanging arm and the pleat-holding arms form an acute angle, seen from the direction in which the curtain is drawn. Thus one can firmly hold an outwardly inclined pinched pleat of approximately half-crown form, and the weight of the curtain is absorbed in the hanging arm as permanent stress.

It is of advantage if the horns are hollow and closed at their free end. This results in a saving of weight without actual loss of stability.

Appropriately, each of the outer pleat-holding arms has at least one rib extending in the curtain drawing direction. This rib not only stiffens the outer pleat-holding arms which are most subjected to bending stress, but also contributes to the stiffening of the crossbar because at its base it joins this crossbar at least partially.

Advantageously, the pleat-holding arms have barb-like projections. These projections reinforce the pleat-holding arms and prevent the pockets of curtain bands in which the pleat holding arms are inserted, from slipping out of place and thus load the device in an undesired manner.

It is of advantage if the projections are provided on the narrow end faces of the pleat-holding arms and in their lower area. Thereby the area around the crossbar is reinforced, and one prevents the curtain band from slipping upward in operation.

Advantageously, the projections are provided on the outer pleat-holding arms. These pleat-holding arms are under particular stress.

Appropriately, a clamping device for the upper edge of a pocket of a curtain band is provided at each of the free ends of the pleat-holding arms. At that point the edge of the curtain band can easily be hooked in, and the pockets are, so to speak, secured between the barbs and the clamping device; in many cases this may even constitute a reinforcement aid for the pleat-holding arms.

Advantageously, the clamping device is an elastic, downwardly pointing slot, preferably extending in wave form. In this case the clamping device can retain the upper edge of a pocket particularly well without making the edge difficult to hang.

Further advantages and features of the invention will be evident from the following description taken together with the drawings in which:

FIG. 1 shows a front view of a hanger with a slider rotated 90° from the normal hanging position;
FIG. 2 shows a side view of the hanger;
FIG. 3 shows a top view of the hanger;
FIG. 4 shows a section along line 4—4 in FIG. 1;
FIG. 5 shows a front view of another embodiment of the invention;
FIG. 6 shows a side view to FIG. 5;
FIG. 7 shows a perspective view with the curtain band partly opened up;
FIG. 8 shows a curtain in the closed state, in front view; and
FIG. 9 shows the curtain in the opened state, in front view.

On a slider 10 for a front attachment rod, the hanger body is formed from injection-molded hanging pins 11, into which are hooked the two tines 12 of a hanging arm 13. For this, the two tines 12 each have a keyhole cutout 14. The foot of the hanging arm 13 terminates in one piece in a bridge-type crossbar 16, which extends approximately in the direction in which the curtain is drawn. From the two left and right hand ends of the crossbar 16 are two horns 17, which (according to FIG. 1) extend forward, and are, (according to FIG. 4) hollow and closed at their free ends 18. Such a horn 17 is very sturdy and is readily able to give the pleats a certain position, without chafing through them.

From the crossbar 16, pleat-holding arms 19 and 21 extend, which are narrow as viewed in FIG. 1, but are relatively wide as viewed in FIG. 2 and at their transition to the crossbar 16 reinforce the latter and afford an excellent hold.

The outer pleat-holding arms 21 have rings 22, which reinforce the stay in its end regions and give additional stiffness to the outer pleat-holding arms. This stiffness is desired inasmuch as, when drawing the curtain, only the outer pleat-holding arms 21 are subjected to bending stress in the drawing direction.

As seen in FIG. 2, the hanging arm 13 occupies an acute angle in relation to the pleat-holding arms 19 and 21. The two elements thus have a relative position in which they are subjected only to loads which require relatively little material to support. For example, the hanging arm 13 is only under tensile stress and need not absorb a force which the forwardly hanging pleat produces, whereas the pleat-holding arms 19 and 21 are not under tensile stress and must absorb only the load of the pleat.

As the construction as a whole is very sturdy, a hanging pin 23 may be provided on either side of the crossbar 16, which is, for example, connected with a hanging pin of an adjacent pleat-forming device, so that the traction occurring when moving extends through the connecting band and the crossbar 16.

In the embodiment shown in FIGS. 5, 6 and 7, the outer pleat-holding arms 21 carry in their lower region barb-like projections 24 which, extend not only forward and rearward, but toward the inner pleat-holding arms 19 as well.

At their free ends the outer pleat-holding arms 21 carry a clamping device 26 in the form of a wavy slot 27. The hook end 28 of the clamping device 26 is offset in such a way that the slot 27 forms in front view according to FIG. 5 a second slot 29. Thus the upper edge of a pocket of a curtain band can easily be hooked in.

A curtain band 31 has perpendicularly extending pockets 32, which in cross-section form approximately a U. In the
front wall 33 of pocket 32, transverse slots 34 are provided. Similar slots may be provided opposite in the rear wall 36.

In use, one inserts for example the pleat-holding arm 21 into a pocket 32. Upon insertion, the transverse slots 34 pass over the projections 24 and lock with them. Because of the saw-tooth form of the projections 24, the pockets 32 are easy to push on but less easy to push off again. But this is no disadvantage, as the entire device can be laundered with the curtain.

One then pushes the upper edge 37 of pocket 32 a little farther down, namely to below the slot 27, 29, then pulls the upper edge 37 up again in the slot 27, 29. At this, the slot spreads somewhat and retains the upper edge 37, so that the pocket 32 cannot collapse.

By pushing additional pockets 32 onto the other pleat-holding arms 19 and 21 and using several devices according to the invention, one obtains very elegant pinched pleats 38, as shown in FIG. 8. In the case of front attachment rods these pleats can extend to just below the ceiling. FIG. 8 also illustrates the function of the horns 17, which are located at about 39 and hold outward the outer pleats in the region of the pinch. The two roots of the central pleat then lie between the horns 17.

FIG. 9 shows the curtain 43 in the opened state. All the pleats now extend practically parallel and the curtain has changed its appearance without losing any of its elegance.

What I claim is:

1. An arrangement for forming pleats in drapes, curtains or the like, which is suspended from a curtain rod comprising a hanging arm for carrying the drape or curtain, a slide portion connected to said hanging arm and arranged and intended for sliding movement along said rod, a stiff crossbar extending from the lower end of the hanging arm in the drawing direction of the curtain and in one piece with said hanging arm, stiff upwardly and outwardly pointing pleat-holding arms fanning out from said crossbar and in one piece with said crossbar, horn means extending forwardly from said crossbar and in one piece with said crossbar, a curtain band having pocket means for receiving said pleat-holding arms and arranged thereon to hold said pleats in outwardly inclined approximately half crown like form, and a curtain stitched to said band.

2. An arrangement according to claim 1, in which the left and right ends of said crossbar joint with the base of said horn means and from the upper side of which said pleat-holding arms fan out.

3. An arrangement according to claim 1, in which the hanging arm and the pleat-holding arms form an acute angle as seen from the drawing direction of the curtain.

4. An arrangement according to claim 1, in which said horn means is hollow for structural lightness and closed at the free end thereof.

5. An arrangement according to claim 1, in which outer pleat-holding arms have at least one rib extending in the drawing direction of said curtain.

6. An arrangement according to claim 1, in which said pleat-holding arms have barb-like projections spaced from the ends thereof.

7. An arrangement according to claim 6, in which said projections are provided on the narrow end faces of the pleat-holding arms and in their lower region.

8. An arrangement according to claim 6, in which said projections are provided on outer pleat-holding arms.

9. An arrangement according to claim 1, in which at the free ends of each of said pleat-holding arms a clamping device is provided for the upper edge of a pocket of a curtain band.

10. An arrangement according to claim 9, in which said clamping device is means for forming an elastic, downwardly point, preferably wavy slot.

11. An arrangement according to claim 1, in which hooking devices are provided on said crossbar, adapted to be connected to similar hooking devices on adjacent pleat forming devices.

* * * * *