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(11) **EP 1 498 056 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**19.01.2005 Bulletin 2005/03**

(51) Int Cl.7: **A47H 13/16**

(21) Application number: **04254036.9**

(22) Date of filing: **06.07.2004**

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR  
 HU IE IT LI LU MC NL PL PT RO SE SI SK TR**  
 Designated Extension States:  
**AL HR LT LV MK**

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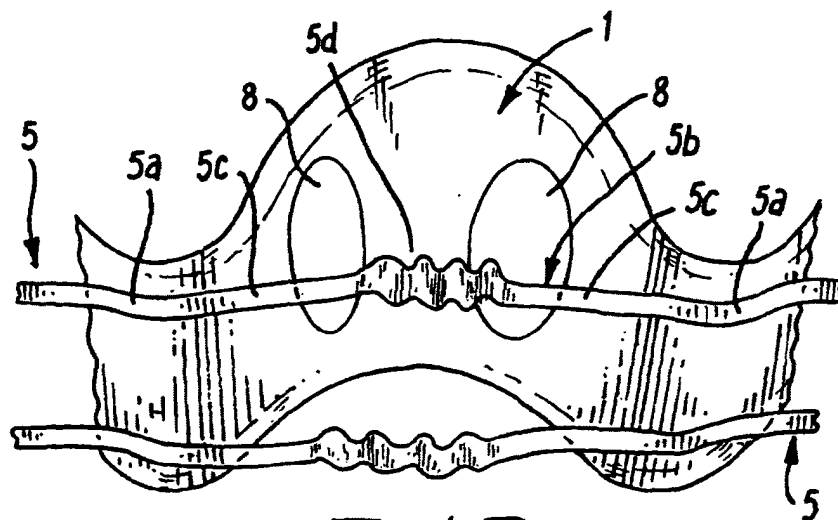
(30) Priority: **08.07.2003 GB 0316022**

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(54) **Curtain heading tape**

(57) A curtain heading tape has a base fabric (1) with spaced holes (8) along its length. Additional yarns are interwoven with the base fabric with free-floating sections so as to define rows of pockets (5b) each extending across two holes (8). Draw strings (7) in the pockets (5b) can be pulled to bunch the tape and bring

the holes (8) into alignment with each other. The tape is stitched to a curtain heading with holes cut in the curtain fabric in alignment with the tape holes (8). Eyelets (10) made from snap fitting rings (11, 12) with an intermediate ratchet mechanism (13) are fixed within the holes and, with the tape bunched, a curtain pole is passed through the aligned eyelets.



**Fig. 2**

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## Description

**[0001]** This invention relates to curtain heading tapes.

**[0002]** Conventional curtain heading tapes which in use are fixed along upper edge regions of curtains and are used with suspension hooks, are woven structures incorporating one or more longitudinal draw cords for pleating the tape and one or more longitudinal rows of pockets to receive the suspension hooks.

**[0003]** GB 2238800B describes the manufacture of a tape of this kind having side by side rows of pockets defined by elongate woven structures interwoven with a woven base structure of the tape. The elongate woven structures have regularly spaced sections formed from yarns which 'float' freely over the surface of the base structure to define the pockets.

**[0004]** Curtain heading tapes are also known which in use are fixed along upper edge regions of curtains and are used with curtain poles. One known tape of this kind has regularly spaced circular holes bounded by eyelets. Matching holes are cut in the curtain fabric and ring-shaped inserts are pushed through the curtain and fixed to the eyelets. The curtain heading is then bunched to align the eyelets by interconnecting plastics ties attached to the eyelets. The curtain pole can then be inserted through the eyelets.

**[0005]** However, the use of plastics ties attached to the eyelets can detract from the appearance of the finished curtain in so far as the ties make it difficult to achieve neat, smooth bunching and also can catch on adjoining materials and surfaces.

**[0006]** The use of a conventional draw string arrangement to achieve bunching with the above described eyelet tape would not be suitable since the strings have to be drawn across sufficient length of the tape to define a relatively large loop containing two eyelets, whereby a free floating string of such a length when drawn would not easily define a neat, open loop and in practice would tend to pull the tape wholly together to form a closed loop.

**[0007]** An object of the present invention is to provide a curtain heading tape of the kind for use with a curtain pole wherein the tape can be readily drawn to give large open loops of neat form with a tape structure which is convenient to manufacture.

**[0008]** According to the invention therefore there is provided a curtain heading tape having a base fabric with spaced holes therealong, characterised by the provision of additional yarns forming at least one row of elongate pockets, each pocket being fixed at opposite ends thereof to the base fabric and floating free of the base fabric between said ends, across at least two said holes, and at least one draw string extending through said yarns of said pockets.

**[0009]** With this arrangement the tape can be bunched, to form loops each containing at least two said holes, by pulling the (or each) draw string to cause the yarns of the pockets to gather. The use of the draw string

(or strings) in conjunction with the yarns of the pockets enables the tape to be constructed conveniently and such as to facilitate controlled bunching ensuring a neat end result without undesired closure of the loops.

**[0010]** Thus, the arrangement is preferably such that the draw string has one or more portions which float free of each pocket in at least one first region, preferably a central region thereof and one or more portions which are interconnected with the pocket in at least one further region, preferably end regions thereof, whereby pulling of the string gathers the pocket in the at least one first region but leaves the pocket extended in the at least one further region. This can ensure that the tape is neatly bunched whilst preventing complete closure of the formed loops.

**[0011]** Most preferably the pockets are woven with warp and weft yarns, as a narrow woven structure, which may be a double plain weave.

**[0012]** Preferably also, the (or each) draw string is interwoven with the woven pocket structure so as to run with free-floating sections, alternately on opposite sides, at least at the (or each) said first region, each such free-floating section extending across a plurality of wefts.

**[0013]** Moreover, the (or each) draw string may be interwoven tightly, e.g. as a 1:1 interweave, with the wefts of the woven pocket structure, at the said further regions to effect said interconnection therebetween.

**[0014]** Most preferably the (or each) row of pockets is defined by a continuous longitudinal structure, the yarns of which are interconnected with the base fabric of the tape between the pockets, and the (or each) draw string extends throughout this continuous longitudinal structure.

**[0015]** The base fabric is preferably a woven fabric e.g. a double plain weave fabric and interconnection of the pocket structure with the base fabric is preferably by interweaving of yarns of the pocket structure with yarns of the base fabric. In particular the interconnection is preferably by interweaving of edge warp yarns of the pocket structure with weft yarns of the base fabric so that the longitudinal central region of the pocket structure is substantially free of attachment to the base fabric e.g. generally in the manner of a 'tube', thereby to facilitate easy movement of the draw string.

**[0016]** To ensure good interconnection, warp yarns of the pocket structure may be interwoven with a small number of weft yarns of the base fabric, say one at each end of each pocket, and one centrally of each part of the structure between adjacent pockets.

**[0017]** In one embodiment of the invention there are two continuous longitudinal pocket structures, with the pockets of one structure respectively transversely aligned with the pockets of the other structure, e.g. one adjacent each edge of the base fabric, and each such structure may have a single respective draw string. Other arrangements are however also possible.

**[0018]** Each pocket preferably straddles two openings and centrally of each section of the tape longitudi-

nally between adjacent pockets a respective marker may be provided to guide cutting of the tape to length to ensure neat shaping at the end of the tape when attached to a curtain heading. This marker may be defined by one or more coloured yarns which are exposed on the surface of the tape only at the desired position. Conveniently there may be two such yarns respectively adjacent opposite edges of the base fabric.

**[0019]** The holes in the base fabric are preferably circular holes of common dimensions which are preferably accurately machine cut at desired positions, particularly having predetermined relationships with the locations of the pockets. Thus, there may be pairs of holes, each pair being symmetrical with regard to a respective pocket, and the pairs being equally spaced from each other.

**[0020]** The tape may be attached to heading of curtain fabric by stitching or otherwise. When so attached holes can be cut in the curtain fabric in alignment with the holes in the tape. The assembly can then be completed by fixing eyelet structures within each pair of aligned holes with the curtain fabric and tape material around such holes clamped between front and rear parts of the respective eyelet structure. In one embodiment such parts are separate ring-shaped parts which snap fit together via a ratchet or other adjustable interconnection to allow different separations of the parts to accommodate different fabric thicknesses.

**[0021]** The invention will now be described further by way of example only and with reference to the accompanying drawings in which:-

Figure 1 is a plan view in flat form of one form of a curtain heading tape according to the invention, prior to cutting of holes therein;

Figure 2 is a perspective view of the tape of Figure 1 shown bunched; and

Figure 3 is a sectional view of an eyelet used with the tape.

**[0022]** Referring to Figure 1 this shows a curtain heading tape which has a continuous woven narrow base fabric 1, say 88mm wide.

**[0023]** The fabric 1 is woven from warp and weft yarns which may be cotton, polypropylene or any other suitable natural or synthetic material or combination of such materials. The yarns may be white multifilaments or translucent or transparent monofilaments or any other suitable yarns.

**[0024]** The fabric 1 is woven with a needle loom giving a plain weave and has single warp yarns with weft yarns inserted (using latch needles) as a double pick per shed looped around edge warps at opposite longitudinal edges 2, 3 of the fabric.

**[0025]** Reference is made to GB 2238800B for further details of a suitable base fabric structure and for details of equipment for use in constructing such a base fabric structure.

**[0026]** Closely adjacent each edge 2, 3, say about

8mm from such edge, there is an inlaid bundle of additional, thicker warp yarns 4. These yarns 4 interlock individually with weft yarns of the base fabric 1 so as to provide tubular sections on both opposite faces of the fabric. These yarns 4 are all white multifilament yarns 4a except for one such yarn 4b which is green. This yarn 4b is laid in within the bundle of yarns 4 so that generally it is covered by the other, white yarns 4a and cannot therefore be seen. As an exception to this, say every 228mm, the green yarn 4b 'misses' and floats over several weft yarns so that it is clearly exposed at sections 4c, for about 5mm, on a front face 1a of the base fabric (as shown in Figure 1).

**[0027]** The green yarn 4b is exposed at accurately spaced regular intervals, determined by a pattern repeat operation in the manufacture of the tape, and the exposed sections 4c along one edge region of the tape are precisely aligned with the exposed sections 4c on the opposite edge region of the tape.

**[0028]** These exposed sections 4c of the yarn 4b act as markers for transverse cutting of the tape as described further hereinafter.

**[0029]** Immediately alongside each inlaid yarn bundle 4, on the opposite side of such bundle 4 to the respective edge 2, 3, there is a respective attached pocket structure 5.

**[0030]** The pocket structure 5 comprises a continuous woven strip, say 8mm width having single warp yarns woven with weft yarns inserted as a double pick per shed looped around edge warps at opposite edges of the strip.

**[0031]** The pocket structure 5 overlies the front face of the base fabric 1 but is wholly separate from the base fabric 1 except at short lengths 5a aligned with the green markers 4c.

**[0032]** These attached lengths 5a, which are say 48mm long are centred on the centres of the green markers 4c and are attached to the base fabric 1, so as to extend parallel to the edges 2, 3 of the base fabric 1, by means of opposite edge warps of the pocket structure strip 5 which are interwoven with the base fabric wefts, and also by three base fabric wefts 6, respectively at each end and centrally of the attached lengths 5a which are interwoven with the warps of the pocket structure strip 5.

**[0033]** Between adjacent such attached lengths 5a there are defined long 'pockets' 5b, say 180mm which float freely of the base fabric 1. The pockets 5b of each pocket structure strip 5 are regularly spaced and of common dimensions and are respectively aligned transversely of the tape with the pockets 5b of the other strip 5.

**[0034]** Along the centre of each pocket structure strip 5 there is a respective interwoven draw cord or string 7. This cord 7 has a section 7a which floats over several weft yarns, say about 10mm long, centrally of each fixed length 5a of the pocket structure strip 5 on the exposed front face of the strip 5, and two similar length sections

(not shown) beneath the fixed length 5a.

[0035] Within the pocket lengths 5b, the draw cord 7 is interwoven 1:1 with the wefts for a length of say 35mm at each end region 5c of the pocket length 5b and then has four floating sections 7b, say 10mm long, which overlie several wefts in the central region 5d of the exposed front face of the pocket length 5b, with four similar sections (not shown) beneath the central region 5d.

[0036] As described hereinafter the draw cord 7 can be pulled at its ends to bunch the tape, and the mode of attaching the fixed lengths 5a to the base fabric 1 facilitates easy running of the cord 7.

[0037] Circular holes 8 say 40mm diameter are accurately cut in the base fabric 1 using a suitable cutting machine. Such holes being in pairs each disposed symmetrically with regard to the mid point of each pocket 5b, the pairs of holes 8 being say 106mm apart, and the holes of each pair being say 122mm apart.

[0038] In use, the tape so far described is stitched along the inner surface of a curtain heading (not shown) with the front face 1 a of the base fabric 1 exposed.

[0039] Holes 8a are cut in the curtain fabric 9 in any suitable manner in alignment with the holes 8 in the base fabric 1.

[0040] Eyelets 10 are applied to the curtain 9 and base fabric 1 at the holes.

[0041] As shown in Figure 3, and as described in our copending application of even date, the eyelet 10 comprises two ring structures 11, 12 which snap fit via a width-adjustable ratchet mechanism 13, such ring structures being pushed through the holes 8 into interconnection with each other respectively from the exposed front face of the curtain material 9 and from the exposed front face of the base fabric 1 so that the curtain material 9 and tape fabric 1 are clamped tightly between the structures 11, 12 and flanges 15, 16 of the structures overlie the exposed faces of the curtain material 9 and the base fabric 1 around the holes 8.

[0042] The tape is cut to length appropriate to the length of the curtain heading at the green markers 4c nearest to the ends of the curtain heading. This ensures that the curtain will lie neatly when bunched i.e. without unsightly outwardly projecting end parts, as discussed further hereinafter.

[0043] The curtain heading is bunched by tying off the draw cords 7 at one end of the tape and pulling the cords at the other end.

[0044] The cords 7 draw along the length of the pocket strips 5 and cause the pocket lengths 5b to gather, as shown in Figure 2.

[0045] The cords 7 run easily through the fixed lengths 5a because these lengths 5a effectively form 'tubes' with the base fabric 1 and little or no gathering occurs in these lengths 5a.

[0046] The cords 7 gather the pocket lengths 5b in the central regions 5d where the four floating cord sections 7b readily draw together the pocket strip 5. Little or no gathering occurs in the regions 5c between the central

region 5d and the fixed length 5a due to the interweaving here of the draw cords 7 with the pocket strip 5.

[0047] The gathering in the central region 5d can be such as to compress, or concertina, the pocket length 5b to only a short length, say 10-15mm.

[0048] The result is that the holes 8 are brought substantially into alignment with each other along the length of the curtain heading to receive a curtain pole; and the curtain material and tape is bunched into smooth open loops. The loops are held in position by the partially gathered pockets 5b and this ensures that the curtain heading lies neatly. As mentioned above, by cutting the tape at the green markers 4c it can be ensured that, at each end, the curtain heading terminates with a loop rather than a free end section of the tape whereby the ends of the curtain are held neatly inwardly.

[0049] The tape described relies on woven pocket structures to achieve neat bunching whereby the tape can be manufactured conveniently using conventional techniques.

[0050] It is of course to be understood that the invention is not intended to be restricted to the details of the above embodiment which are described by way of example only.

[0051] In particular the dimensions given are examples only. Different dimensions, and also different relative dimensions can be used, particularly in dependence on the bunching effect or 'fullness' required.

[0052] A major proportion (say  $\frac{1}{2}$  to  $\frac{3}{4}$  particularly approximately  $\frac{2}{3}$ ) of each pocket length 5b is gathered so as to form a minor proportion of the gathered length, but other arrangements may also be possible.

## 35 Claims

1. A curtain heading tape having a base fabric (1) with spaced holes (8) therealong, **characterised by** the provision of additional yarns (5) forming at least one row of elongate pockets (5b), each pocket being fixed at opposite ends thereof to the base fabric and floating free of the base fabric between said ends, across at least two said holes, and at least one draw string (7) extending through said yarns of said pockets.
2. A tape according to claim 1 **characterised in that** the draw string (7) has one or more portions (7b) which float free of each pocket (5b) in at least one region, and one or more portions which are interconnected with the pocket (5b) in at least one further region.
3. A tape according to claim 2 **characterised in that** the pockets (5b) are woven with warp and weft yarns as a narrow woven structure.
4. A tape according to claim 3 **characterised in that**

the narrow weave structure is a double plain weave.

5. A tape according to claim 3 or 4 **characterised in that** the (or each) draw string (7) is interwoven with the woven pocket structure (5) so as to run with free-floating sections (7a, 7b) alternately on opposite sides, at least at the (or each) said first region, each such free-floating section extending across a plurality of wefts.
6. A tape according to any one of claims 3 to 5 **characterised in that** the (or each) row of pockets (5b) is defined by a continuous longitudinal structure (5), the yarns of which are interconnected with the base fabric (1) between the pockets (5b) and the (or each) draw string (7) extends throughout this continuous longitudinal structure (5).
7. A tape according to any one of claims 3 to 6 **characterised in that** the base fabric (1) is a woven fabric and interconnection of the pocket structure (5) with the base fabric (1) is by interweaving of yarns of the pocket structure (5) with yarns of the base fabric (1).
8. A tape according to claim 7 **characterised in that** the interconnection is by interweaving of edge warp yarns of the pocket structure (5) with weft yarns of the base fabric (1) so that the longitudinal central region of the pocket structure is substantially free of attachment to the base fabric.
9. A tape according to any one of claims 1 to 8 **characterised in that** there are two continuous longitudinal pocket structures (5), with the pockets (5b) of one structure (5) respectively transversely aligned with the pockets (5b) of the other structure (5).
10. A tape according to claim 9 **characterised in that** the pocket structures (5) are respectively adjacent the edges of the base fabric (1) and each such structure (5) has a single respective draw string (7).
11. A tape according to any one of claims 1 to 10 **characterised in that** each pocket (5b) straddles two openings (8).
12. A tape according to claim 11 **characterised in that** centrally of each section of the tape longitudinally between adjacent pockets (5b) there is a respective marker (4c).
13. A tape according to claim 12 **characterised in that** the markers are defined by one or more coloured yarns (4b) exposed on the surface of the tape.
14. A tape according to any one of claims 1 to 13 **characterised in that** the holes (8) are arranged in

pairs, each pair being symmetrical with regard to a respective pocket (5b), and the pairs being equally spaced from each other.

- 5 15. An assembly of a tape according to any one of claims 1 to 14 and a curtain fabric wherein the tape is attached to a heading of the curtain fabric **characterised in that** the heading has holes in alignment with the said holes (8) of the tape.
- 10 16. An assembly according to claim 15 **characterised in that** an eyelet structure (10) is fixed within each pair of aligned holes with the curtain fabric and tape material around such holes clamped between front and rear parts (11, 12) of the respective eyelet structure (10).
- 15 17. An assembly according to claim 16 **characterised in that** the parts (11, 12) are separate ring-shaped parts which snap-fit together via a ratchet mechanism (13) to allow different separations of the parts.
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