

Sept. 15, 1959

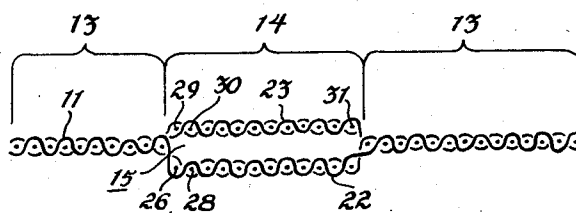
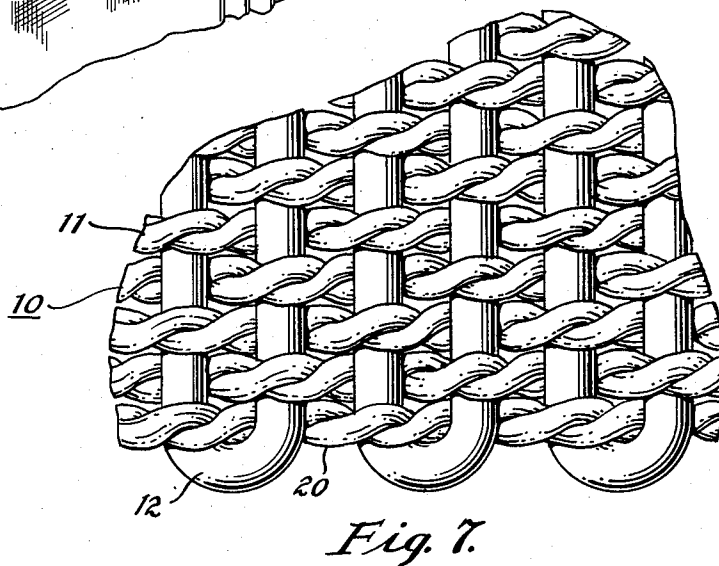
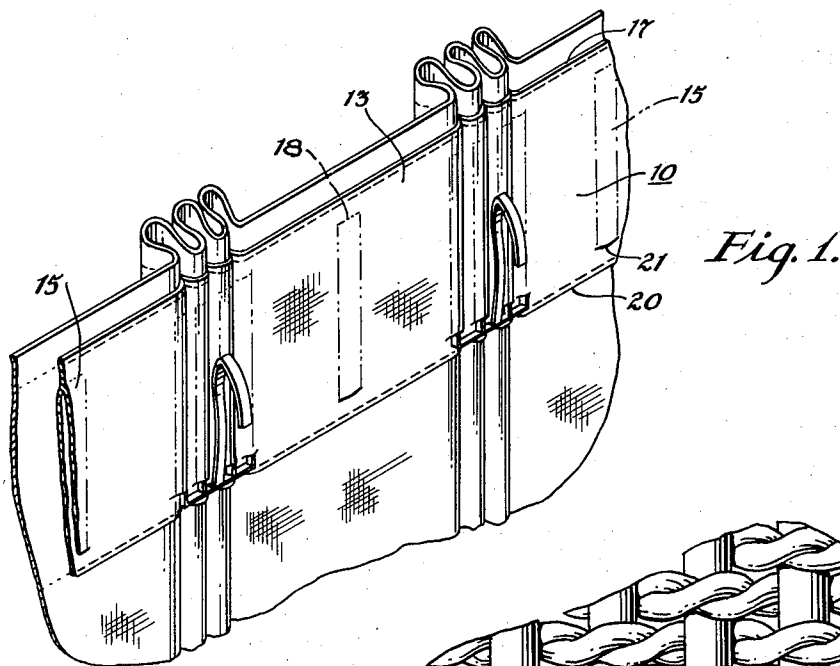
H. KLAHRE

2,904,080

HEADER-TAPE

Filed Dec. 19, 1952

3 Sheets-Sheet 1



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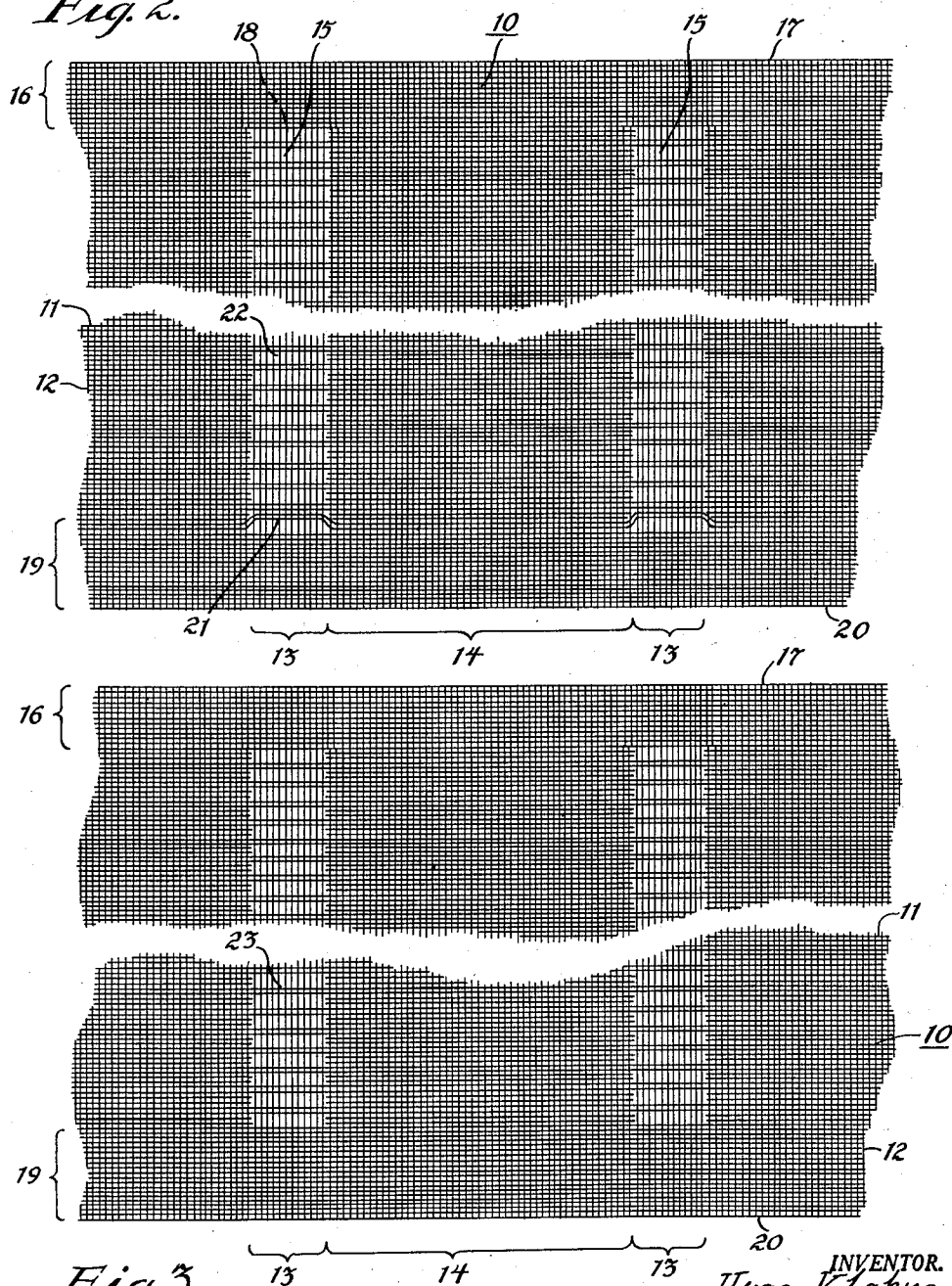
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Filed Dec. 19, 1952

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Fig. 2.



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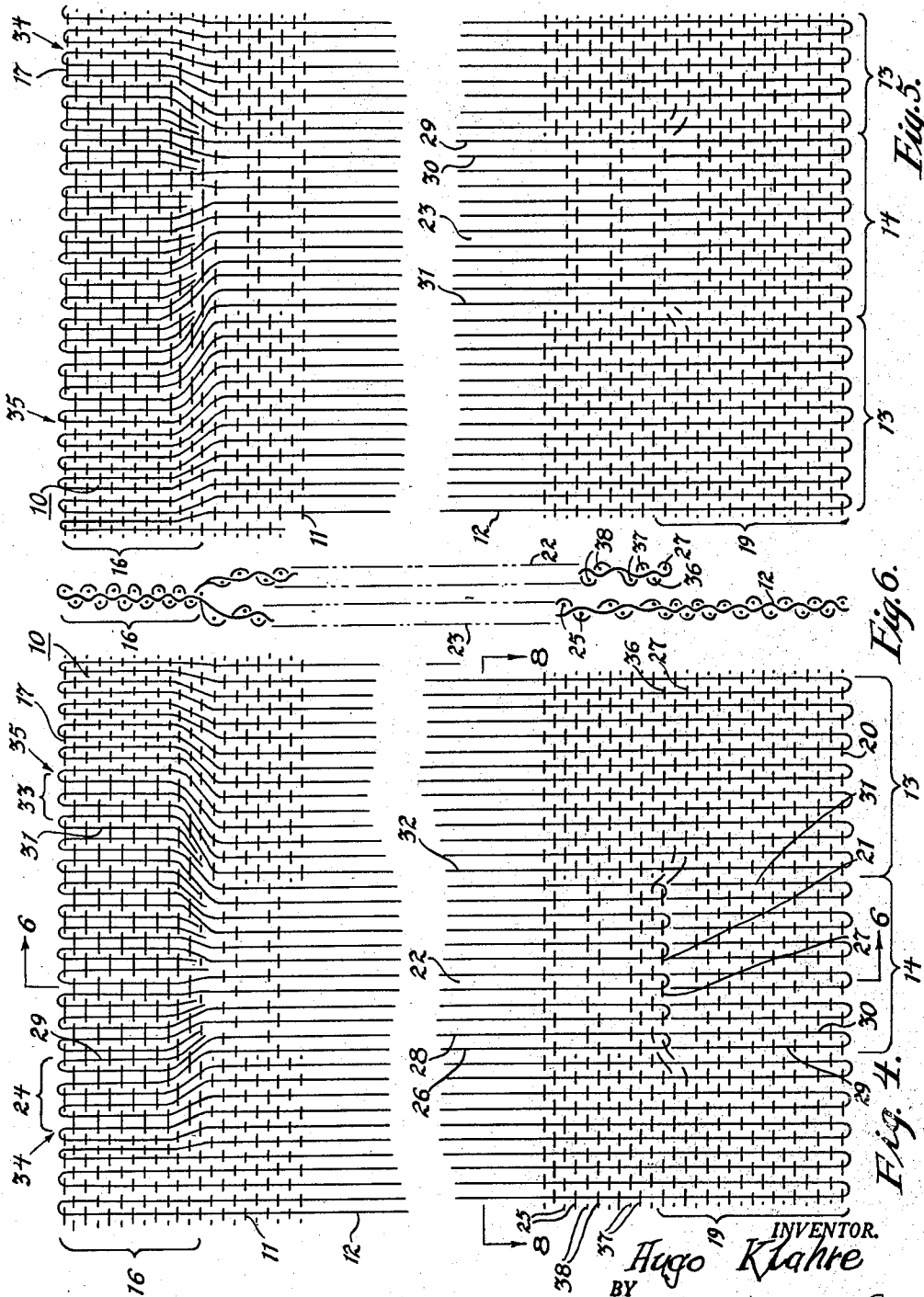
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3 Sheets-Sheet 3



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2,904,080

HEADER-TAPE

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Application December 19, 1952, Serial No. 326,870

9 Claims. (Cl. 139—390)

The present invention relates to woven fabric goods and particularly to long narrow strips of fabric having integral tube-like portions woven therein and relates still more particularly to drapery headers; which drapery headers are constructed and arranged to be sewed or otherwise secured to drapes or the like along the upper marginal edge thereof, with the finger-like portions of drapery hooks inserted into the tube-like portions for supporting said drapes in pleated condition on drapery rods or the like adjacent the upper edge of windows or the like.

An object of the present invention is to provide a drapery header having hook-receiving tubes woven integrally therewith.

Another object of the present invention is to provide a drapery header having hook-tubes woven integrally therewith without decreasing the tensile strength of said drapery header (either weft-wise or warp-wise).

Another object of the present invention is to provide a drapery header having integrally woven tube-like portions open at only one end.

Another object of the present invention is to provide a drapery header having integral tube-like portions formed therein, using a single continuous weft-shoot or filler.

Another object of the present invention is to provide a drapery header having an integral tube-like portion woven therein; the warp-wise edges of said header and the edge of said tube-like portion being woven so as to be non-raveling.

Another object of the present invention is to provide a drapery header having integral tube-like portions woven therein and being woven so as to permit easy and non-snagging insertion of drapery hooks into said tube-like portions.

Further objects will be apparent by reference to the appended specification, claims and drawing.

For the purpose of illustrating the invention, there is shown in the accompanying drawings one form thereof which is at present preferred, although it is to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized and that the invention is not limited to the precise arrangements and organizations of the instrumentalities as herein shown and described.

In the drawings wherein like reference characters indicate like parts:

Figure 1 represents a perspective view of the upper marginal portion of a drape with a drapery header embodying the present invention secured along the upper marginal edge thereof and with a plurality of multi-pronged drapery-hooks inserted into the integral tube-like portions of said drapery header to pinch said header and said drape into pleat-like formation.

Figure 2 represents a front elevational view of a portion of a drapery header embodying the present invention, shown at approximately twice normal size.

Figure 3 represents a rear-elevational view of the por-

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tion of the drapery header shown in Figure 2, at the same scale.

Figure 4 represents a generally schematic view of a portion of the same side of the header shown in Figure 2, on a greatly enlarged scale, illustrating the manner in which the continuous weft-shoot is laid in the warp-sheds to form the integral tube-like portions (and adjacent body-portions) of said header.

Figure 5 represents a generally schematic view of the header, similar to Figure 4, but showing the reverse side (like Figure 3); illustrating the manner in which the weft-shoot is laid in the warp-sheds to form the integral tube-like portions of the header.

Figure 6 represents an enlarged cross-sectional view taken generally along line 6—6 of Figure 4.

Figure 7 represents a greatly enlarged front elevational view of a portion of one edge of the header illustrated in Figures 2 to 6 inclusive, showing the manner in which the continuous weft strand is reversed at the edge of the header to form a selvage and to form parallel weft-shoots from the single weft-strand.

Figure 8 represents a horizontal cross-sectional view taken generally along line 8—8 of Figure 4.

Drapery headers of the general type contemplated herein are generally woven or made of woven fabrics and are usually narrow elongated strips approximately 4 inches wide more or less, for example, in continuous strip or roll-form; such strips being cut to any desired lengths by the ultimate consumer.

Tube-like portions are formed transversely of said strip (i.e. in the direction of the weft-strands) and are generally evenly spaced along the length of said strip. The tube-like portions are constructed and arranged to receive the prongs of drapery hooks therein so that the drapes to which the header is secured may be supported on a drapery rod with the header and the drapery hooks completely concealed behind the upper marginal portion of the drape.

In the past it has been suggested that drapery headers be constructed by sewing a strip of fabric to the drapes with portions of the strip being unsecured, to form a tunnel-like portion or tube-like portion through which the prongs of the drapery hook may be inserted (e.g. Carr Patent 834,188). Other examples of drapery headers embodying multi-panel strips composed of more than one woven fabric portion are shown in Martens 1,860,110 and in French 2,518,301.

It has also been suggested that drapery headers be woven of substantially single-ply fabric with tube-like or tunnel-like portions woven integrally therewith as, for instance, in French 1,606,357.

The drapery header of the present invention is generally a single-ply fabric formed of a plurality of warp-threads (twisted cotton strands or the like) and having approximately 54 warp-threads per inch. A desirable form of header approximately 4 inches wide would therefore include approximately 216 warp-threads. The header is woven with continuous weft-strand or shoot, which, after passing through one shed, has its direction reversed around the edgemost warp-thread, to form a selvage, and then passes through the next warp-shed; doubling back and forth to form successive parallel weft-strands.

In the area of the generally tubular pockets or tube-like portions the drapery header of the present invention is made of two plies. This is done by separating the warp-threads in pairs; alternate pairs becoming the warp-threads of one ply, and the threads of each so-separated pair being further separated to form the sheds (of each ply) in which the single continuous weft-strand travels. The weft-strand travels alternately in the sheds formed

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by the warp-threads in both plies, and by controlling the length of travel of the weft-strand in the shed of one of the plies, a tube-like or tunnel-like structure is formed which is open at only one end and is integral with the body-portion of the header along its sides and at one end. The tube is formed so as to be somewhat shorter, in length, than the overall width (weftwise) of the header, with the opening for the tunnel or tube clearly defined, and constructed and arranged for easy insertion of the drapery hook into the tubes.

In the formation of the drapery header of the present invention, the weft-strand is laid so that there are approximately 40 weft-strands or shoots per inch in the single-ply body-portion, and so that there are approximately 48 weft-strands per inch in each of the plies of the two-sided tunnel-portion (a total of approximately 96 weft-strands per inch in the tubular portion of the header). Inasmuch as it is desirable to make the tunnel-portion or tube-portion only approximately one quarter of an inch wide, there will be approximately 12 weft-strands in each of the plies in the two-ply tube-portion, or a total of 24 weft-strands in that portion of the header which defines the tube-like portion or tunnel-like portion.

In the drapery-header of the present invention the drapery hook may easily be inserted into the tube-like portion or tunnel-like portion without snagging upon the warp-threads or weft-threads as the prongs of the drapery-hooks are inserted into the tubes. This is because the header of the present invention (which includes multi-strand warp-threads of cotton or the like) has wefts formed of mono-filament synthetic resins, producing an exceedingly strong, non-snagging tube-like formation in the header into which tubes the prongs of the drapery hook are easily inserted and on which the prongs readily slide because the smooth surface of the mono-filament decreases any tendency on the part of the hook to snag and permits the hook easily to slide within the tubes or tunnels.

As shown in the drawings, the header 10, is formed of a plurality of warp-threads 11 which may be laid approximately 54 threads per inch and which may be formed of multi-strand cotton fibers, as is illustrated particularly in Figure 7.

The weft-thread 12 is a single continuous mono-filament strand of synthetic resin or the like which doubles back and forth as it is laid in succeeding sheds along the length of the header. This mono-filament strand 12, as is shown in Figure 7, may be approximately the same diameter as the diameter of the warp-threads 11 and, when laid in successive sheds and doubled back upon itself around the edge-most warp-strand, as shown in Figure 7, forms fabric having non-raveling selvages 17 and 20.

The header 10 is composed of alternate single-ply portions 13 and alternate multi-ply portions 14. In the single-ply body-portion 13 the mono-filament weft-strand 12 extends from selvage to selvage (i.e. across the entire width of the header 10) and, with the exception of a few sheds on each side of the multi-ply portion 14, only a single strand of the mono-filament 12 is laid in each shed.

In the single-ply body-portion 13 all of the warp-threads are used, adjacent warp-threads passing on alternate sides of the transversely extending weft-shoot in each shed.

As is shown particularly in Figures 2 and 4, the tube 15 formed by the multi-ply section 14 of the header 10 does not extend the full width of the header but terminates somewhat short of each selvage; the tube 15, by way of illustration, being approximately $3\frac{3}{4}$ inches long (on a 4-inch wide header) with a $\frac{1}{4}$ inch marginal portion 16 extending between the selvage 17 and the closed end 18 of the tube 15, and with a $\frac{1}{2}$ inch marginal portion 19 extending between the selvage 20 and the open end 21 of the tube 15.

As is illustrated particularly in Figures 4 and 5, the single continuous mono-filament strand 12 is used to form both the outer ply 22 of the tube 15 as well as the inner

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ply 23; the mono-filament strand 12 extending from selvage to selvage across the ply 23, and extending only from the selvage 17 to the edge 21 in the ply 22.

To form the tube 15, the mono-filament weft-strand 12, as it approaches the tube 15, in the area 16 (between the edge 18 and the selvage 17), and particularly in that area designated by the numeral 24 in Figure 4, is laid so that there are two weft-strands in each shed (in the area 16), thus causing a bunching up of the weft-strands and increasing the density of the fabric in the area 24 between the tube-edge 18 and the selvage 17.

After the oscillating weft-strand is laid in the shed directly adjacent the multi-ply portion 14, the warp-threads are separated into alternate pairs; one group (including the pair 38) being used to form the outer ply 22 (in the multi-ply portion 14) whereas the other group including the other pairs (as for instance including the warp-threads 25) are used to form the under-ply 23 of the multi-ply portion 14.

In this multi-ply portion 14 the single mono-filament weft-strand first travels only part way across the header, to the edge 21 as is illustrated by the strand 26, and then reverses direction at the edge 21 (around the warp-strand 27) to form a selvage-edge 21 defining the mouth of the tube 15. Thereupon the mono-filament strand, as illustrated by the weft-strand 28, extends back to the selvage 17 where it reverses direction again around the selvage 17 and comes back across the entire header in the shed forming the under-ply 23 to the selvage 20, as is illustrated by the strand 29. This shoot 29 travels completely across the header to the selvage 20 whereupon it reverses itself and returns as the strand 30 in the next adjacent shed of the under-ply 23.

Thereafter the mono-filament strand 12 alternately forms the weft-shoots of the ply 22 and of the ply 23, being laid in as many sheds in each ply as will provide a tube of adequate width (in the drawings there is illustrated a tube 15 formed of 12 sheds per ply), whereupon, at the termination of the multi-ply portion 14 the last weft-strand 31 forming the under-ply 23 reverses around the selvage 17 and returns as the strand 32 in the first shed of the adjacent single-ply body-portion 13.

In the area 33 (adjacent the multi-ply portion 14 and between the tube-edge 18 and the selvage 17) more than one weft-shoot is laid in each shed, as is clearly illustrated in Figure 4.

The laying of more than one weft-strand in each shed in the area between the selvage 17 and the edge 18 of the tube 15 and between the zones 34 and 35 permits the formation of multiply portions 14 wherein there are approximately twice as many weft-strands per lineal inch as in the body-portion 13.

In addition, it is to be noted that the weft-strands, where they double back around the warp-thread 27, draw the warp-thread 27 and its adjacent warp-thread 36 out-of-line and close to the pair of warp-threads 37 to form a closely-knit selvage which defines the edge 21 of the tube 15 and which provides an opening which is non-raveling and non-snagging and in which a prong of a header-hook can easily be inserted.

It also is to be noted that in each ply 22 and 23 of the multi-ply portion 14 the number of weft-strands per inch is approximately the same as in the single-ply body-portion 13 and that (though in each ply of the tube 15 the number of warp-threads has been cut in half) the total number of warp-threads in the zone 14 of the header has not been decreased so that the over-all tensile strength of the header remains the same in the multi-ply portion 14 as in the single-ply portion 13.

By proper manipulation of the heddles, the warp-threads are maneuvered to provide sheds in proper juxtaposition to the line-of-travel of the single shuttle carrying the single weft-strand, so that the entire fabric as hereinbefore described is woven from a single continuous weft-strand.

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It is to be understood that each of the warp-threads 11 may be of a mono-filament synthetic fiber like the weft-strands and that therefore the entire-header may be made of synthetic fibers, and it is not intended to limit the invention to structures wherein the warp-threads are multi-strands cotton fibers and the weft-strands are mono-filament synthetic fibers, as illustrated in the drawings.

Furthermore, it is to be understood that the present invention may be manufactured entirely of non-synthetic fibers; i.e. both the weft-threads and the warp-threads may be of multi-strand cotton or the like.

Because of the increased density of the fabric in the area 16 above the edge 18 of the tube 15, as well as because of the increased density of the fabric along the edge 21 of the ply 22 of the tube 15, the header is made stronger at the points of greatest friction or wear. Thus, if a short-pronged hook is inserted into the tunnel so that the header (and consequently the entire drape) hangs from the hook by bearing along the edge 21 of the tunnel 15, the greater density of warp-threads at this point increases the strength of the header. On the other hand, if curtain-hooks having long prongs are inserted into the tubes 15 so that the weight of the header and drape is carried by the tip of the hook where it bears against the closed end of the tunnel tube along the edge 18, the increased density of the fabric in the zone 16 makes the header much stronger and therefore capable of carrying a heavier drape than in headers shown in the prior art.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and it is therefore desired that the present embodiments be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

Having described the invention, what is claimed as new and desired to be protected by Letters Patent is the following:

1. A header tape for drapery or curtains or the like, comprising a woven fabric strip having a plurality of warp-threads and having weft-shoots formed by a single continuous weft passing back and forth across the strip, said strip having a plurality of spaced-apart multi-ply portions formed integrally therewith, said multi-ply portions forming tubes extending weft-wise across the strip with each of the ends of said tubes terminating short of the adjacent selvage of said strip, one end of said tubes being closed, said strip between each of the ends of said tubes and the adjacent selvage being single-ply, at least some of the sheds having two weft-shoots therein.

2. A header tape for drapery or curtains or the like, comprising a woven fabric strip having a plurality of warp-threads and having weft-shoots formed by a single continuous weft passing back and forth across the strip, said strip having a plurality of spaced-apart multi-ply portions formed integrally therewith, said multi-ply portions forming tubes extending weft-wise across the strip with each of the ends of said tubes terminating short of the adjacent selvage of said strip, one end of said tubes being closed, said strip between each of the ends of said tubes and the adjacent selvage being single-ply, alternate pairs of warp-threads forming one of said plys while the other pairs of said warp-threads form the other ply in the multi-ply zone forming the tubes in said strip.

3. A header tape for drapery or curtains or the like, comprising a woven fabric strip having a plurality of warp-threads and having weft-shoots formed by a single continuous weft passing back and forth across the strip, said strip having a plurality of spaced-apart multi-ply portions formed integrally therewith, said multi-ply portions forming tubes extending weft-wise across the strip with each of the ends of said tubes terminating short of the adjacent selvage of said strip, one end of said tubes being closed, said strip between each of the ends

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of said tubes and the adjacent selvage being single-ply, the weft-shoots in one of the plys in the multi-ply zone being shorter than the weft-shoots in the other of the plys in the multi-ply zone.

4. A header tape for drapery or curtains or the like, comprising a woven fabric strip having a plurality of warp-threads and having weft-shoots formed by a single continuous weft passing back and forth across the strip, said strip having a plurality of spaced-apart multi-ply portions formed integrally therewith, said multi-ply portions forming tubes extending weft-wise across the strip with each of the ends of said tubes terminating short of the adjacent selvage of said strip, one end of said tubes being closed, said strip between each of the ends of said tubes and the adjacent selvage being single-ply, both plys in the multi-ply zone having the same number of weft-shoots.

5. A header tape for drapery or curtains or the like, comprising a woven fabric strip having a plurality of warp-threads and having weft-shoots formed by a single continuous weft passing back and forth across the strip, said strip having a plurality of spaced-apart multi-ply portions formed integrally therewith, said multi-ply portions forming tubes extending weft-wise across the strip with each of the ends of said tubes terminating short of the adjacent selvage of said strip, one end of said tubes being closed, said strip between each of the ends of said tubes and the adjacent selvage being single-ply, the pair of warp-threads which together define the edge of the opening of said tube being drawn out-of-line and woven closely adjacent the next alternate pair of warp-threads to form a selvage for said tube, in one ply, said selvage including four side-by-side warp-threads.

6. A unitary header-tape for drapery, curtains or the like, having integral tubes formed at spaced intervals along its length and extending transversely thereof, said header formed from a plurality of warp-threads, and a single continuous weft, said tubes being shorter than the width of said header, said tubes being formed of two plys created by separating pairs of warp-threads to form multi-ply fabric in the tube-zone, said tubes being closed at one end and open at the other, said closed end being spaced from the adjacent edge of said header, the warp-sheds in said header having a single weft-shoot in each shed except in the area between the closed end of the tube and the adjacent edge of the header and extending along the length of the header in alignment with said multi-ply portion and for a few sheds to each side thereof, in which area each shed has two weft-strands.

7. A unitary header-tape for drapery, curtains or the like, having integral tubes formed at spaced intervals along its length and extending transversely thereof, said header formed from a plurality of warp-threads, and a single continuous weft, said tubes being shorter than the width of said header, said tubes being formed of two plys created by separating pairs of warp-threads to form multi-ply fabric in the tube-zone, said tube being closed at one end and open at the other, said closed end being spaced from the adjacent edge of said header, the warp-sheds in said header having a single weft-shoot in each shed except in the area between the closed end of the tube and the adjacent edge of the header and extending along the length of the header in alignment with said multi-ply portion and for a few sheds to each side thereof, in which area each shed has two weft-strands, each ply of said tube having half the number of warp-threads as the single-ply body-portion adjacent each side of the tube.

8. A unitary header-tape for drapery, curtains or the like, having integral tubes formed at spaced intervals along its length and extending transversely thereof, said header formed from a plurality of warp-threads, and a single continuous weft, said tubes being shorter than the width of said header, said tubes being formed of two plys created by separating pairs of warp-threads to form multi-ply fabric in the tube-zone, said tube being closed at one

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end and open at the other, said closed end being spaced from the adjacent edge of said header, the warp-sheds in said header having a single weft-shoot in each shed except in the area between the closed end of the tube and the adjacent edge of the header and extending along the length of the header in alignment with said multi-ply portion and for a few sheds to each side thereof, in which area each shed has two weft-strands, alternate pairs of warp-threads being divided along the edge of said multi-ply portion to form the warp-threads of each ply of said multi-ply portion, all of said warp-threads combining at the opposite side of said multi-ply portion to form another single-ply portion.

9. A header-tape for drapery, curtains or the like, comprising a woven fabric strip formed of a plurality of warps and a single continuous weft and having a plurality of spaced-apart multi-ply portions forming tubes extending weftwise transversely of the tape, the ends of said tubes being spaced substantially inwardly of the edges of said tape, and the fabric in the edge of said tube at the en-

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trance-opening thereof, and which edge of the tube is spaced inwardly from the adjacent edge of the tape, as aforementioned, having a fabric-density substantially greater than that of the main portion of the tube-wall of which said edge is a part, thereby to give increased strength to said edge better to enable it to support the curtain or drapery to which the tape is sewn, as such edge rests in and bears against the crotch of the pleat-forming and supporting hook between the pleat-forming prongs thereof.

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