

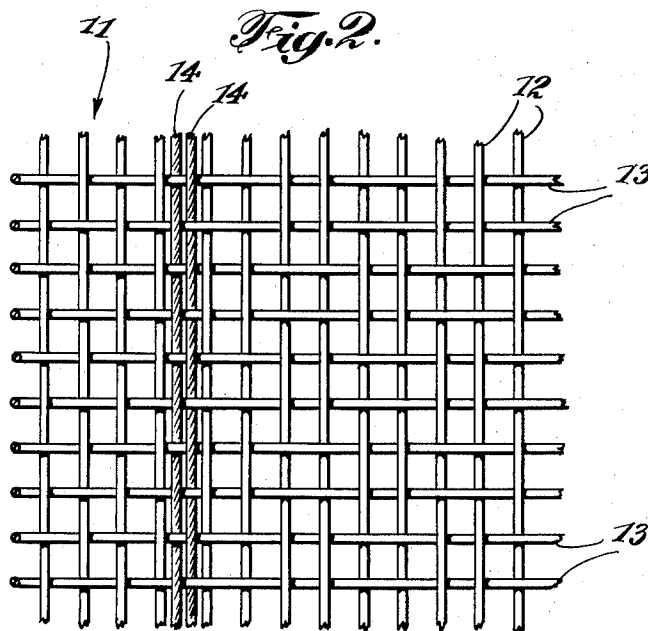
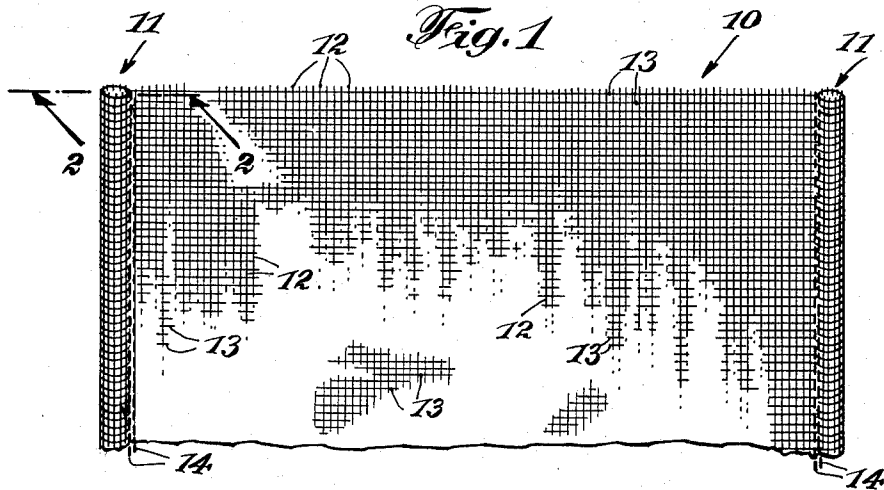
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WOVEN NARROW FABRICS WITH RESILIENT EDGES

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WOVEN NARROW FABRICS WITH RESILIENT EDGES

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1 Claim. (Cl. 139—383)

This invention relates to woven narrow fabrics, such as for example hat bands and the like, and more particularly to woven narrow fabrics having resilient edges or selvages.

While the technique of manufacturing narrow fabrics, either by weaving or knitting, with an elastic selvage, i. e. fabrics whose edges will expand and contract into original shape has been known, the elasticity of the selvage was conventionally achieved by using threads of rubber, Lastex or silk organzine, the first two materials possessing some inherent characteristics rendering the fabrics less suitable for certain purposes. Years ago, most hat bands and other narrow fabrics were made with a silk warp and cotton filling or woof. When a silk yarn was thrown or twisted into organzine, the warp yarn had a fair amount of elasticity, i. e. it was capable of quick recovery after stretching. When the silk became scarce during World War II and was frozen by the Government, it was necessary to substitute synthetic fibers for the warp. While rayon, both acetate and viscose, possesses a certain amount of stretch, there is very little recovery or snap-back. Most narrow fabrics today are made of rayon and therefore the disadvantage of limited or no stretch and recovery in the increasingly wider hat bands became a grave problem. The same problem was encountered in millinery where a grosgrain ribbon is used as a sweat band and it is necessary to swirl the ribbon prior to stitching into ladies' hats. Swirling is done by steaming and a hot iron lends a concave shape to the strip.

As is known, the men's hat bands have become very wide in recent years and it has been a constant problem to manufacture bands that would lay close to the upwardly tapering crown of a hat. While rubber threads in the selvage have proven satisfactory for a limited time, rubber as such is undesirable because it loses elasticity with time and especially because it rots and disintegrates upon repeated exposure to moisture and sun as is the case with a hat band. When no such conventional elastic threads are used, the hat band will deform quickly after repeated exposure to an expansive force and will not return to its desired shape, i. e. it will not lay close to the hat crown at all, or will shrink only slightly after a prolonged time period.

The invention resides in the recognition that the supertwisted yarns prepared, for example, in accordance with the so-called "Helanca" process may be combined with other yarns in the selvage of narrow fabrics. The supertwisted yarn is used as a binder or filler and permits a certain expansion of the selvage. As known, the "Helanca" process renders the yarns elastic and curly by imparting an extremely high number of twists to the yarn, setting the twist and then untwisting the same. In contrast to the fabrics containing in their selvages rubber or Lastex threads with or without cover, the narrow fabric with a binder of supertwisted yarn will permit control of resiliency of its selvage to a great extent and is therefore preferred in hat bands. It is my recognition that the binder that locks the tubular edge or selvage to the warp

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of a ribbon or narrow fabric can be given a great amount of resiliency by using an end of supertwisted yarn instead of the customary filament fibre yarns used.

As stated, my invention resides in the recognition that a supertwisted yarn, whose characteristics in connection with superpolyamide filaments have been defined, for example, in U. S. Patent No. 2,564,245 to Billion, granted on August 14, 1951, is suitable as a binder or filler in the selvage of narrow fabrics, and that narrow fabrics having a binder or filler of such supertwisted yarn made in accordance with the "Helanca" process are of greater resiliency than the narrow bands having an organzine warp and are also superior to narrow fabrics having a number of rubber or Lastex threads in their selvage, since, as stated before, rubber loses its elasticity with age and disintegrates upon exposure to moisture and sun.

By the "binder" is meant the longitudinal thread or threads that lock the tubular edge or selvage to the warp of a ribbon or other narrow fabric.

My invention will be more fully understood from the following detailed description of the preferred embodiment which is illustrated in the accompanying drawing wherein

Fig. 1 shows a portion of a hat band having selvage binders of supertwisted yarn; and

Fig. 2 is an enlarged view of the selvage in partial section on line 2—2 in Fig. 1, as viewed in the direction of arrows.

Referring to the drawing, tubular selvages 11 extend along the longitudinal edges of the woven narrow band 10 which is shown in Fig. 1. The band consists of non-elastic warp yarns 12 and non-elastic weft yarns 13. The selvages 11 are formed by doubling the material of the band 10 along its longitudinal edges and fastening it to the body of the band by a pair of supertwisted yarns 14. Longitudinal resiliency is imparted to the selvage 11 by the two binder threads 14 which weave "plain weave" (see Fig. 2) and lie between the threads weaving the tubular selvage and the threads weaving the grosgrain ground.

When weaving narrow fabrics having resilient edges in accordance with this invention, it is possible to crowd more ends in the dent in the reed used at the edge of each side of the ground or warp next to the selvage, and the adjacent dent with the tubular edge also with more ends than the rest of the narrow fabric to hide or cover the binder of supertwisted thread or yarn, so that it is not readily visible after the weaving has been completed. This is important especially when the article is yarn dyed, i. e. when the desired color has been given to the warp and woof yarns prior to the weaving.

Further, I do not desire to limit this invention to the supertwisted nylon yarns only, but also desire to include any yarn processed in accordance with the "Helanca" process, or supertwisted yarns made of synthetic fibres compatible in dyeing to the rest of the ends of the yarn used in the narrow fabrics. By this is meant acetate, nylon or Dacron. It is known that these substances take a different dye than viscose rayon and it would be necessary to cross dye a piece-dyed narrow fabric made of viscose rayon ground edge with "Helanca" processed nylon binder ends. Therefore, I prefer to use binder ends compatible in dyeing to the rest of the narrow fabric ends and in this manner the raw or greige narrow fabrics could be dyed in one vat or jig.

Also, my invention does not exclude narrow fabrics using partly or exclusively supertwisted yarns in the filling, namely, narrow fabrics that are elastic in both longitudinal and transverse directions. A good example of such narrow fabric is the material used between the sweat band and the felt in a hat.

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As an example of a yarn dyed narrow fabric, I propose to use a skein dyed acetate warp, skein dyed acetate edges and package dyed "Helanca" nylon binder ends. When piece dyed, the narrow fabric has a greige or raw viscose warp, same viscose edges and "Helanca" processed high tenacity viscose binder ends.

To increase the resiliency of the novel narrow fabrics, and more strictly speaking the elasticity of the selvage in such narrow fabrics, I prefer to subject the selvage to the action of steam prior to the application of the fabric, and then to dry the same on hot pipes. Care should be taken not to expose the narrow fabric between the selvages to the action of steam as this would cause it to lose its body and make it appear a cheap article of inferior quality.

While I have described some preferred embodiments of my invention, several modifications and alternative combinations of a supertwisted yarn with the selvage of a narrow fabric may occur to a person skilled in the art, and I therefore do not desire to be limited to the exact details described but only by the scope of the appended claim.

I claim:

In a woven narrow fabric having a ground comprising warp and filling of rayon yarns of greatly limited re-

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siliency and a tubular selvage of the same material, the combination of said tubular selvage with one or more binders or supertwisted yarn extending the full length of said selvage for locking said selvage to the warp of said fabric and for increasing the longitudinal resiliency thereof, said supertwisted yarn being selected from the group consisting of nylon, Dacron and high-tenacity viscose rayon filaments.

References Cited in the file of this patent

UNITED STATES PATENTS

356,836	Heinemann	Feb. 1, 1887
1,823,034	Dworsky et al.	Sept. 15, 1931
2,119,893	Stark	June 7, 1938
2,401,830	Kahil	June 11, 1946
2,492,051	Libby	Dec. 20, 1949
2,564,245	Billion	Aug. 14, 1951
2,582,169	Schiappa	Jan. 8, 1952

OTHER REFERENCES

American Handbook of Synthetic Textiles (Mauersberger et al.), published by Textile Book Publishers, Inc.; 1st ed., 1952.