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PRODUCTION OF FOLDED TEXTILE THREADS

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2 Claims. (Cl. 117—23)

Woven textile fabrics are known in which each weft thread consists of two or more threads of different shades or colours, the component threads of each such weft thread being folded together with a low degree of "twist", for example from one turn per inch of length to one turn per five or six inches of length. As distinguished from the operation of a twisting frame, which imparts a positive and even twist to two or more threads which are to form a single twisted thread, the low degree of "twist" or fold referred to is imparted as a matter of course as a result of the operation of winding the component threads with their ultimate transference together to the holder upon which they are to be employed.

With such forms of thread package however the degree of ultimate twist will vary with the varying diameter of a cheese or cone of the threads as wound, being for example one turn per inch at one thickness or diameter of the package and less than one turn per inch at another. This will be understood if a yarn cheese wound with the usual traverse wind is considered, two threads or ends having been wound thereon side by side, and both of them being drawn off together over the end of the cheese as usual in unwinding as one gyration of the double thread around the end of the cheese in unwinding will put in one twist in the doubled thread. As the diameter of the cheese lessens in the unwinding, the number of turns or twists per inch put in the folded thread naturally increases. The resultant irregularity of the twist and the variation of tension on the threads prevents the component threads lying evenly as one folded thread, thus causing loops, snarls and neps in the woven fabric.

This serious disadvantage of spoiling of fabric can be overcome by ensuring substantial regularity of twist, and it is the object of the present invention to produce a low-twist or folded or so-called "ply yarn" which shall have such regularity of twist and substantial equality of tension at all points.

According to the invention and for this purpose a plurality of textile threads which are to have imparted to them the desired low degree of twist to form a single folded textile thread or ply yarn are wound upon a single thread package with a taper wind, as against the usual traverse wind adopted when winding two or more threads together in the form of a yarn cheese or cone or double-ended bobbin. They are then drawn off together—over the nose or upper edge of the package holder as usual with a taper wound package—to the holder upon which the folded thread or ply yarn is to be employed. Bottle bobbins, which are well-known and extensively employed in the hosiery trade, are wound with a taper wind, as are also thread pirns in the usual pirn winding machines. Bottle bobbins, as presenting large wound thread packages wound with a taper wind, are very suitable for use in carrying out this invention.

As an example according to the invention two thread cops, one of grey and the other coloured, may be employed as the supply units, being suitably mounted to be wound separately upon separate bottle bobbins in a bottle bobbin winding machine. The two bottle bobbins so wound are then mounted by suitable means in a similar machine, and the two threads are run together upon a single bottle bobbin, the taper wind ensuring that the twist put in on ultimate unwinding of the two threads together shall be substantially regular and uniform, the tension being equal throughout. From this bottle bobbin the two threads are run off together over the nose or upper edge as usual to pirns in a pirn winding machine, being then ready for use as low-twist or ply yarn weft. Or, if it is required to use the twisted threads for warps in the weaving loom, they may be run from a number of prepared bottle bobbins on to yarn beams of usual character. Where the thread is pirned, the pirn itself should preferably have a shoulder as support at the bottom of the same. At all points necessary usual forms of tensioning devices are employed through which the threads run.

It is a feature of this invention that no special machinery is required, the bottle bobbin winding and the pirning or other operation being carried out on already existing machines known for their respective purposes. It is not therefore deemed necessary to illustrate herein any of such machines.

In the example given, two component threads are employed to give the ultimate twisted thread, but it will be understood that three or more component threads may be used to give such ultimate thread, with any variation of colours desired in the latter.

I claim:—

1. In the preparation of a folded textile thread or ply yarn, winding a plurality of threads each upon a separate holder with a taper wind, winding the same threads together side by side upon a further single holder with a taper wind, and drawing the said threads together overend from the single package, the latter being stationary

during this operation, to the holder upon which the folded thread or ply yarn is to be employed.

2. In the preparation of a folded thread or ply yarn, winding a plurality of threads each upon a separate holder of the bottle bobbing type, that is to say with a taper wind, winding the said threads from their respective holders side by side upon a further holder of the same type, that is to say with a taper wind, and drawing the said threads together overend from the single package so formed, such package being stationary during this operation, to the holder upon which the folded thread or ply yarn is to be employed.

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