Dec. 31, 1935. J. A. WEBBER 2,025,920

METHOD OF PREPARING YARN PACKAGES TO FACILITATE UNWINDING

Filed Aug. 3, 1934

Fig. 1.

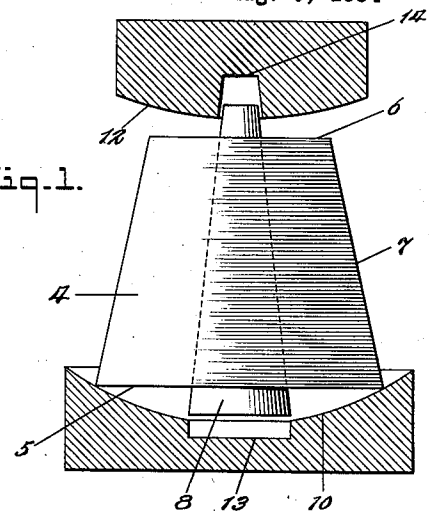


Fig. 2.

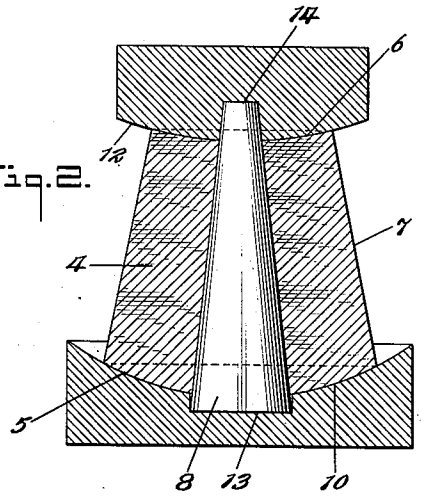
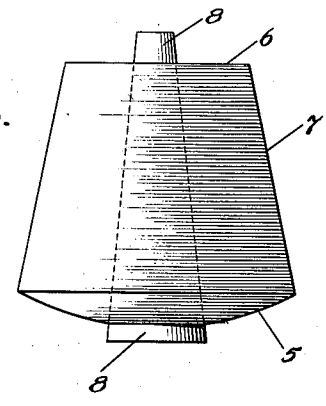


Fig. 3.



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METHOD OF PREPARING YARN PACKAGES TO FACILITATE UNWINDING

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3 Claims. (Cl. 242—1)

This invention relates to a method of preparing yarn packages to facilitate unwinding thereof.

The winding machines which are in general use for winding yarn packages in the form of cones produce a package which has a flat top and bottom. This flat bottom is undesirable inasmuch as the angle which the bottom forms with the side of the yarn package is too small to allow any loops which have fallen below the bottom of the yarn wind to deliver freely from the package. Such loops catching on the bottom of the yarn wind causes the thread to jerk severely and very often to break.

It has long been felt that, if the bottom of the yarn package could be so shaped that it would form a greater angle with the side, then any loops of thread falling below the yarn wind would not catch but would deliver freely. Many attempts have been made to change the shape of the yarn package at the bottom during the winding operation by means of attachments or changes to the winding machine. Such attempts, however, have not proven successful, particularly in the winding of rayon.

It is therefore the principal object of the present invention to modify a yarn package which has been wound with a flat base, to round off the base or give it a greater angle to the side.

According to the present invention, a new method has been devised for shaping cone yarn packages so that the angle between the bottom and side is increased to such an extent that any loops of thread falling below the bottom of the yarn wind will not catch on the bottom edge of the yarn package as the thread is being delivered. This is done by pressing the yarn package in a suitable form so that the bottom is cupped or the angle between the bottom and the side of the yarn package is so increased as to allow a free delivery of the yarn. In forming or pressing the bottom of the cone package to form the cupped bottom, it is optional whether the yarn package top be cupped or left flat.

Other objects and features of novelty will become apparent as the following description proceeds, reference being had to the accompanying drawing, in which

Figure 1 is a vertical section through the jaws of a press, showing the flat based yarn cone therein in elevation, before pressing;

Figure 2 is a similar view, showing the jaws pressing the cone, the cone being in vertical section to show the pressed contour of the base; and

Figure 3 is an elevation of the pressed cone showing the rounded base.

As shown in Figure 1 the yarn package 4 is a conventional package produced by winding machines now in use, and this package has a flat base 5, a flat top 6, and a conical side 7. It is the sharp angle between the conical side 7 and the flat base 5 which causes the difficulty hereinbefore described. As is customary in the art, the package 4 is wound upon and carried by a cone 8 of paper or other inexpensive material.

The yarn package 4 is inserted between the jaws of a press or mold, the jaw or matrix 10 adjacent the flat base or larger end 5 of the cone being concave. Preferably the upper jaw 12 is convex and of reverse contour to the jaw 10.

The lower jaw 10 as shown has a recess 13 to receive the adjacent end of the cone 8 and avoid crushing the same. A similar recess 14 is provided in the upper jaw 12, to receive the upper end of the cone 8, for the same purpose.

The jaws 10 and 12 are urged toward each other in any desired manner, to compress the yarn package 4 therebetween. As shown in Figure 1, the yarn at the bottom of the cone contacts only with the outer margin of the lower jaw 10. As the compression proceeds, inner portions of the flat base 5 successively nearer the cone 8, successively come into engagement with the concave lower jaw 10.

Finally, as shown in Figure 2, all portions of the flat base 5 have been engaged by the concave lower jaw 10 and moved toward the smaller end or top 6, but the extent of total movement decreases toward the center. It will be understood that the convolutions of the yarn in the package slide upon each other axially, to permit this shaping of the package, without damage to the fibers.

The finished shaped cone is shown in Figure 3, in which the lower or larger base 5 of the yarn package has the desired rounded contour, or shape giving the base a greater angle to the side 7 than that shown in Figure 1.

What I claim is:

1. Method of reforming a yarn package to convex the flat base thereof and avoid loops catching thereon during unwinding, which comprises moving all portions of the periphery and each annular layer of yarn in said package, relative to the adjacent annular layer of yarn therewithin, and toward the top thereof, while decreasing such movements progressively toward the center, by continuously applying pressure in the direction of

the top to the outer margin of said base while leaving the center thereof free and continuously applying equal pressure in the opposite direction to the center of the top while leaving the circumference thereof free the pressure being applied by contacting the outer layers and after movement thereof the next adjacent layers toward the center, and the opposite pressure being applied to next adjacent layers toward the edge, after movement of the center layer.

2. Method of reforming a yarn package to convex the flat base thereof and avoid loops catching thereon during unwinding, which comprises applying upward pressure to said base by contacting the annular layers thereof cumulatively toward the center, and resisting said pressure by contacting the layers of the top of the yarn package cumulatively toward the circumference, whereby each contacted layer is displaced upwardly relative to the adjacent layer therewithin.

3. Method of reforming a yarn package to convex the flat base thereof and avoid loops catching thereon during unwinding, which comprises applying upward pressure to said base by contacting the periphery thereof and the annular layers therewithin cumulatively toward the center, resisting said pressure by contacting the layers of the top in the opposite direction, and preventing said resistance contact with the outer layers of the top in advance of contact with the center thereof, whereby movement toward the top is imparted to the periphery of said yarn package and the annular layers of yarn therewithin but decreasing toward the center, said movement displacing upwardly portions of said periphery and layers near the top as well as near the base.

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