Dec. 18, 1934. C. EPPS 1,984,571

CONED YARN SUPPORT

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Fig. 1,

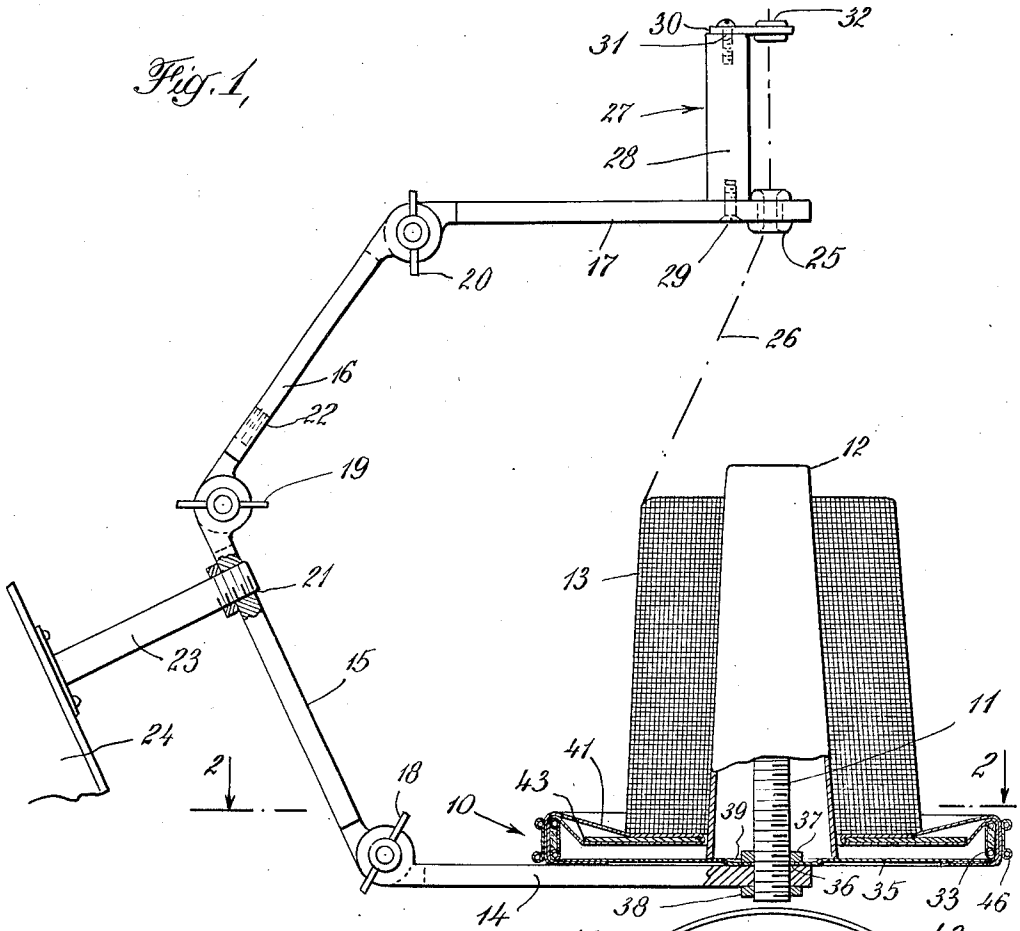
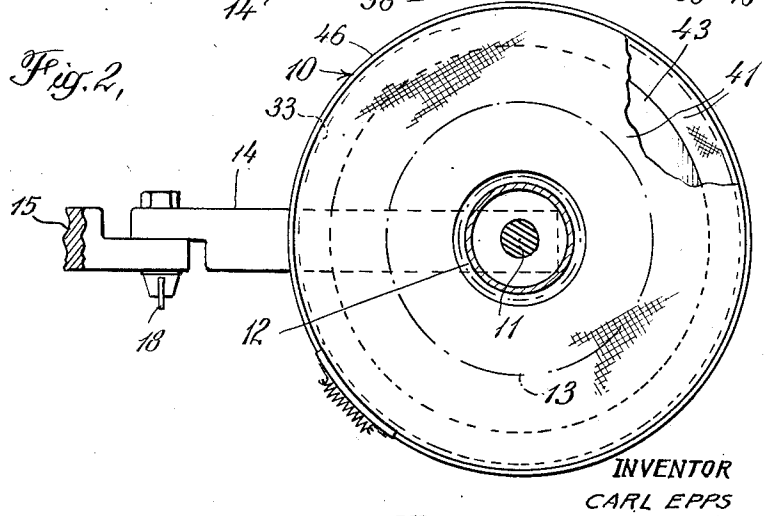


Fig. 2,



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Fig. 3,

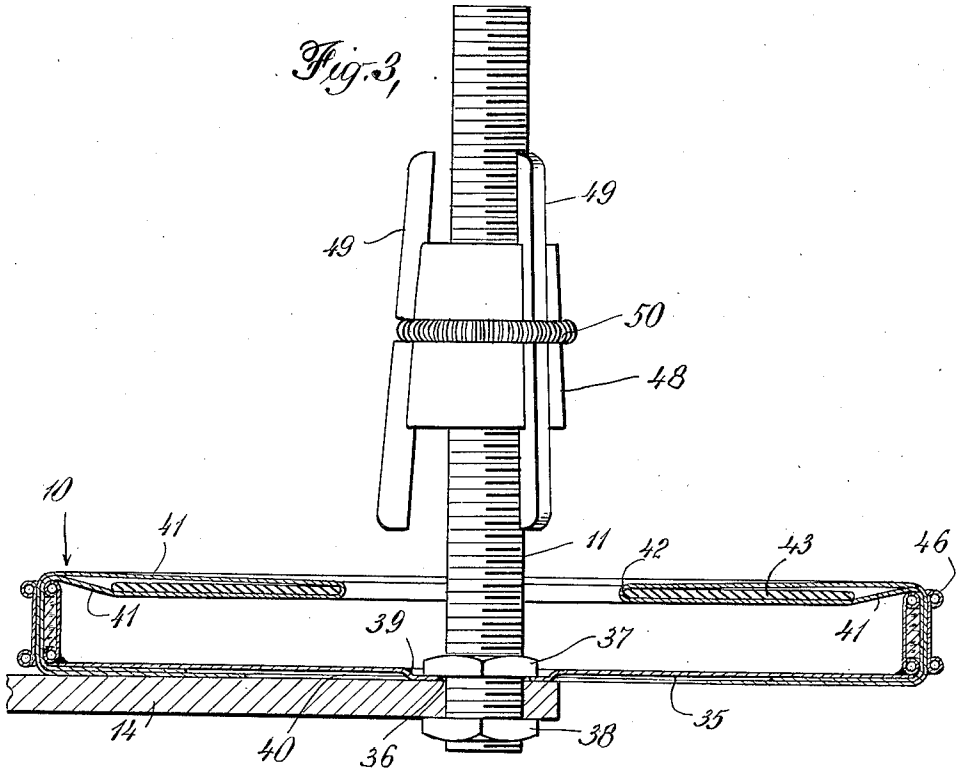
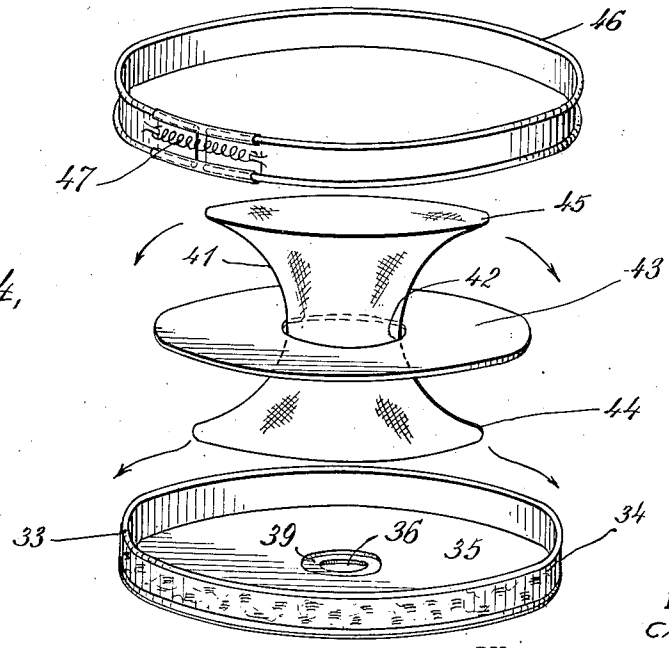


Fig. 4,



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CONED YARN SUPPORT

Carl Epps, Rome, Ga., assignor to Tubize Chatillon Corporation, a corporation of Delaware

Application February 24, 1934, Serial No. 712,746

6 Claims. (Cl. 242—130)

This invention relates to yarn support devices, particularly devices employed to support cones, bobbins or cops of yarn undergoing unwinding.

Manufacturers of yarn, strands, thread and the like ordinarily wind the same on cones, bobbins, cops of similar holders. In the case of so-called coned yarn, the yarn is generally wound on a paper or pasteboard cone; really a frustum of a cone. During the making of textile fabrics, for example, hosiery, the coned yarn is unwound, usually directly to the knitting machine itself. Various devices are employed to support the coned yarn. It is customarily supported on a spindle, the spindle sometimes being provided with a special core for gripping the interior of the paper cone. A base support against which to push the bottom of the paper cone may be provided at the foot of the spindle.

During the unwinding of the yarn from its paper cone, some troublesome difficulties are encountered, particularly toward the end of the unwinding operation. The coned yarn is ordinarily wound on its paper cone in such a manner that the ends of the cone protrude beyond the coned yarn itself. In mounting the cone of yarn on a spindle, the base of the paper cone may be forced against or close to the base member at the foot of the spindle, but the coned yarn itself does not rest against the base member, thus leaving an open space. After a substantial amount of the yarn has been unwound from the cone, the remaining yarn tends to sink toward the base of the cone and frequently becomes entangled. It may, for example, become tightened around the base of the cone, as well as catch underneath a portion of the yarn next to the base of the cone. In any case, the previous orderly winding of the yarn on the cone is disturbed, and this in turn materially affects the ease and rate at which the yarn is being unwound to, for example, the knitting machine.

In the course of my investigations to solve this problem, I have discovered a construction for a yarn base support that for the most part overcomes the difficulties just enumerated. The base of the paper cone as well as the base of the coned yarn, which are on different levels, may be appropriately supported so that in the unwinding of the yarn there is no tendency for the last lengths of yarn on the cone to sink to a lower level and thus become entangled at the base of the cone.

My invention accordingly contemplates a yarn support comprising a base member located at the foot of a spindle, the base member being provided with means for supporting the body of yarn independent of the protruding base of the paper cone which is on a different level. In a present preferred practice of the invention the body of yarn rests on a piece of fabric stretched across the frame, the fabric being provided with an opening through which the lower protruding end of the paper cone may freely extend while the bottom of the body of coned yarn rests against the fabric. The fabric support is sufficiently elastic and at a high enough level to accommodate cones of yarn having protruding base paper cone ends of varying lengths.

The various features of the invention will be more clearly understood if reference is made to the accompanying drawings, taken in conjunction with the following description, in which:

Fig. 1 is a side elevation of an entire yarn support construction, showing a specific base support member illustrative of the invention in cross-section;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is an enlarged detail of the base support member of Fig. 1; and

Fig. 4 is a perspective view of the various elements going into the base support, shown in their unassembled form.

The apparatus shown comprises a base support 10 mounted around a spindle 11 over which rests a paper cone 12 wound with coned yarn 13. These elements are in turn supported by a multiple adjustable bracket comprising a base link 14, two intermediate links 15 and 16, and a ballooning link 17 connected in series. The links are pivoted and movable at their adjacent ends, thumb screws 18, 19 and 20 being provided, respectively, to tighten the links in any desired position. This bracket is disclosed and claimed in my copending application Serial No. 712,748 filed February 24, 1934. It will, however, be understood that so far as the present invention is concerned, a different bracket may be employed. In fact in some cases no bracket whatever is required.

Both intermediate links 15 and 16 are provided with threaded holes 21 and 22, respectively, to afford a means of attachment. According to the construction shown, a pipe member 23 may be screwed into one of these holes at one end, and be attached at its other end to an ultimate support 24, such as a knitting machine.

The ballooning link 17 is provided with a yarn guide 25, such as a porcelain eyelet, through which unwinding yarn 26 may be pulled. A tension device 27 is mounted on the ballooning link.

It comprises an extension member 28 fastened to the ballooning link by means of a screw 29. A lateral movable arm 30 is attached to the other end of the extension member by means of a screw 31, the arm being provided with a yarn guide 32, such as a porcelain eyelet, preferably smaller than the eyelet in the ballooning link. The eyelets 25 and 32 may be placed in co-axial alignment or they may be moved out of alignment to place the unwinding yarn under appropriate tension.

Referring now more particularly to Figs. 3 and 4, it will be seen that the base support 10 consists of a pan-like frame 33 with a vertical side of adequate depth. An external lining of cork 34 is advantageously placed completely around the side wall. The frame is provided with a bottom 35 through the center of which extends a hole 36 sufficiently large readily to accommodate the lower end of the spindle 11. From a consideration of Fig. 3, as well as Fig. 1, it will be seen that the frame may be fastened against the base link 14 by means of upper nut 37 and lower nut 38 on the lower end of the spindle. It is desirable to depress a portion of the bottom of the frame surrounding the hole 36 to provide a protruding shoulder 39, so that a free space 40 is in turn provided between the bottom 35 and the top of the base link 14.

An appropriate length of circular knit fabric 41 extends through the center hole 42 of a washer-like pasteboard disk 43. The center hole is sufficiently large to accommodate not only the spindle 11 but also the base end of the paper cone 12. The exterior diameter of the disk is sufficiently small easily to fit into the interior of the frame 33. Referring to Fig. 4, the tubular knit fabric 41 is sufficiently long so that its lower end 44 may be stretched completely over the frame 33 and downwardly over the cork lining 34. With the paper disk 43 in position as shown, the upper end 45 of the tubular knit fabric is likewise stretched over the frame and downwardly across the cork lining 34. An extensible band member 46 equipped with a coiled tension spring 47 fits over the frame member 33, and securely presses the double thickness of tubular knit fabric against the cork lining 34. The free ends of fabric are advantageously tucked into the free space 40 below the frame.

While any suitable spindle may be employed on which to mount the coned yarn, Fig. 3 likewise illustrates a core member 48 adapted to be screwed up and down the spindle. Adjustable cone gripping fingers 49 fit in longitudinal slots in the core, and are pivotally secured to the core by means of a circular coil spring 50 extending completely around the core. This practice is more particularly disclosed and claimed in my copending application Serial No. 712,747, filed February 24, 1934.

From the foregoing discussion it will be seen that the tubular knitted fabric is stretched across the top of the frame 33, the washer-like paper disk 43 being suspended between the two layers of fabric. The layers of fabric may be drawn tightly across the frame, and thus provide a free space above the bottom of the frame which is adapted to receive the protruding base end of a paper cone mounted on the spindle. The taut fabric is at a sufficiently high level to meet the base of the body of coned yarn, as seen in Fig. 1. The pad support thus provided is sufficiently adjustable to accommodate itself to varying levels of coned yarn with respect to the foot of its paper cone.

Since the yarn itself rests on the taut fabric support, there is little opportunity for the unwinding yarn to become entangled. As indicated, the lower protruding end of the paper cone is protected so that the unwinding yarn cannot catch and tighten. In this way the last lengths of yarn may be safely and readily unwound.

I claim:

1. The improvement in a coned yarn support comprising a pan-like frame with a peripheral rim of adequate depth to accommodate the protruding lower end of a cone of yarn undergoing unwinding, the bottom of said frame being adapted to be fastened to the base of a spindle, and removable means for fastening tubular elastic pad material at least in part across said frame and against the outside of said peripheral rim.

2. The improvement in a coned yarn support comprising a pan-like frame with a peripheral rim of adequate depth to accommodate the protruding lower end of a paper cone of yarn undergoing unwinding, the bottom of said frame being fastenable to the base of a spindle, a disk with an opening through which the spindle may extend, and means for clamping elastic pad material around said disk and against the rim of said frame.

3. The improvement in a coned yarn support comprising a frame at the base of a spindle, a washer-like disk suspended within a folded-over portion of tubular knit fabric, the ends of the fabric being clamped against the sides of the frame.

4. The improvement in a coned yarn support comprising a circular frame with a rim attachable to the base of a spindle, a washer-like disk within the frame through which the spindle may extend, and a circular knit fabric extending from the rim of the frame under the disk, through the centerhole in the disk, and back to the rim.

5. The improvement in a coned yarn support comprising a circular pan-like frame with a peripheral rim of adequate depth to accommodate the protruding lower end of a cone of yarn undergoing unwinding, the bottom of said frame being fastenable to the base of a spindle, a washer-like disk within the frame provided with an opening through which the spindle may extend, and a circular knit fabric extending from the rim of the frame under the disk, through the opening in the disk, and back to the rim.

6. A coned yarn support according to claim 5, in combination with an extensible band member fitting around the rim of the frame to secure the knit fabric thereto.

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