Oct. 28, 1952 J. E. JOHNSON 2,615,651

SPOOL HAVING THREAD FASTENING MEANS

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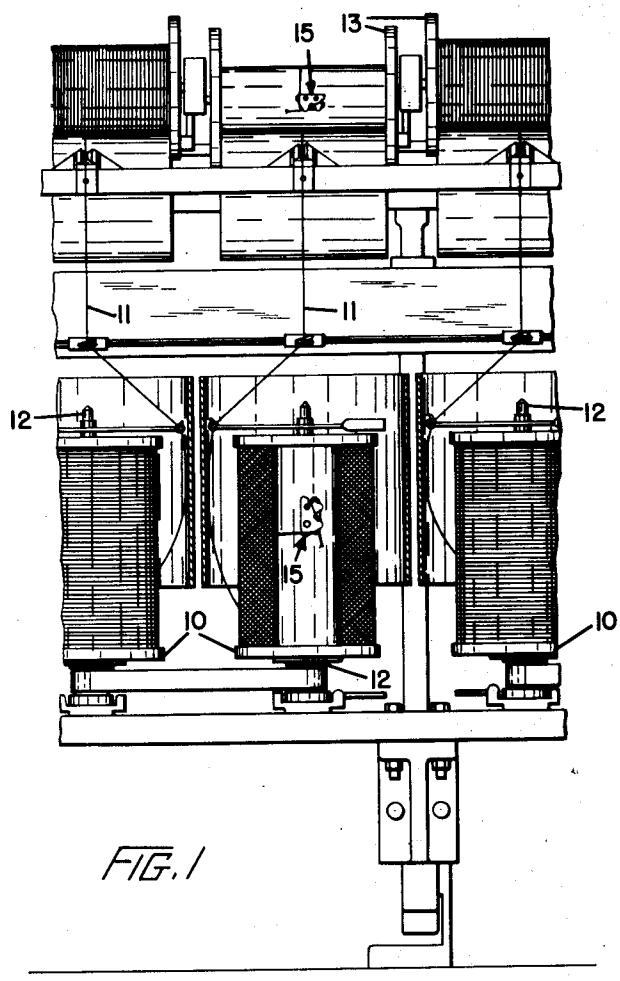


FIG. 1

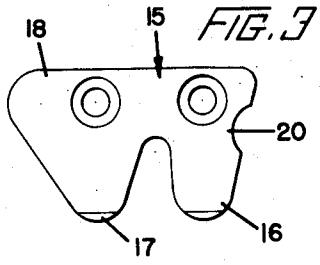


FIG. 3

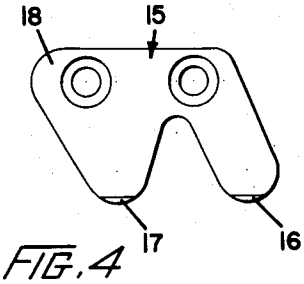


FIG. 4

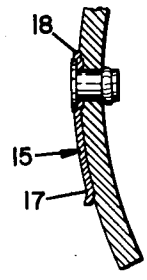
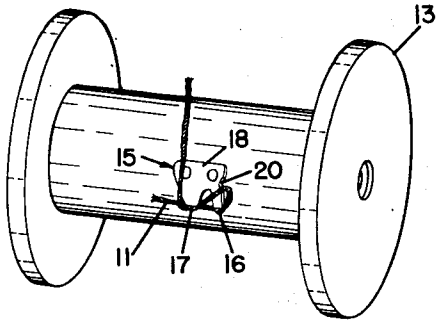


FIG. 5

FIG. 2



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SPOOL HAVING THREAD FASTENING MEANS

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2 Claims. (Cl. 242—125)

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This invention relates to spools, bobbins, etc. upon which filamentary strandular material such as thread or the like is wound to form a package. More particularly the invention relates to a means on a spool that is adapted to hold an end of the strandular material at the start of a winding or collecting operation, and to release such end upon a total unwinding.

Winding and unwinding of strandular material occurs in certain textile operations, e. g., in plying, twisting, creeling, etc. A preliminary step in winding strandular material is that of fastening an end to the core of a spool in a manner so as to keep the end from slipping, and also to make it readily releasable when unwound. Generally, when strandular material such as thread or the like is first wound on the core of a spool the initial end is fastened in one of several commonly practiced ways, e. g., by hand winding several turns to prevent slippage, using an adhesive tape to secure the thread end, or the thread may be held to the core by a rubber band. Still another method may be the winding of a preliminary tail. The tail is usually wound on the outside of one of the flanges of a spool on a section that is especially adapted to hold a small amount of yarn. Packages having tails take considerable time, and, sometimes, the tail portion is not readily releasable because it is, generally, not wound by means of a traverse.

This invention advantageously provides for a thread end fastening or holding means that is positioned in or on the surface of the core of a collecting spool such as a spool or bobbin. The holding means comprises a device that is adapted to securely hold an initial end of a thread during a collecting or winding operation; also, upon a subsequent unwinding the holding device is adapted to readily release the thread end. The device, desirably, is made of a resilient material conforming, generally, to the shape of the periphery of the core of the spool to which it is fastened. It is positioned on the spool in the general direction of winding of the thread.

The holding device has a main body portion that is affixed to the core, and extending therefrom there are two separated, tapered sections that follow the core periphery. The thread is initially secured by being looped about one of the extending sections, then it is interweaved between them, and then the two strands of thread back of the loop are inserted under the second section to be frictionally held to the core. The loop is adapted to prevent the end from being pulled loose, and the resiliency of the clamp material is adapted to frictionally hold the thread loop ends against the periphery of the core. When the spool is unwound the thread is first pulled from under the frictionally holding section thus unmaking the loop, and then the thread is pulled off the loop holding section.

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The thread or the like holding device will be described in greater detail in the following specification in connection with the attached drawing where:

Figure 1 represents the use of a slight package employing the thread end holding device of this invention in a twisting operation;

Figure 2 represents the position of the thread holding device on a spool or the like;

Figures 3 and 4 represent, in plan, two modifications of the thread end holding device; and

Figure 5 represents the holding device in partial section, positioned on the core of a spool or the like.

Referring to the drawing Figure 1 thereof represents a section of a twisting apparatus. Strandular or filamentary material 11 such as thread or the like is adapted to be withdrawn from a supply spool 10 that is positioned about a rotating spindle 12. The thread, after being twisted, is collected on a take-up spool 13. Both the supply and the take-up spools are rotated at related, predetermined speeds imparting to the thread a predetermined twist. Prior to the twisting operation, however, the thread is fastened to the core of the take-up spool 13 by a holding means such as the bifurcated device 15.

The bifurcated device 15 advantageously is made of a resilient material, such as from thin spring steel, or the like. It comprises a main body 18 and two extending bifurcated members 16, 17 that are adapted to follow the curvature of the periphery of a spool core with the axial sides of the members 16, 17 being transverse to the axis of the core. The axial outer side of member 16 has a portion which forms an acute angle between a plane through the axis of the core and the main body portion 18 of the bifurcated device 15. The extensions 16, 17 are separated to permit an easy interlacing therebetween of the thread 11. Further, the extending members 16, 17 are tapered and upturned at their ends so as to permit a ready insertion thereunder of the thread, as well as an easy withdrawal.

The holding device 15 is easily laced. The initial end of the thread 11 is first made into a loop which is placed about the extending member 16, then the two portions of the thread behind the loop are placed under the second member 17.

The thread is thus firmly held in the form of a loop that is frictionally secured to the core of the spool 13. Thus secured to the core of the spool 13 the winding operation can be then proceeded with. When the supply of thread 11 is entirely withdrawn from the supply spool 10 the portion of the thread starting the loop that is frictionally held by the member 17 against the spool 10 core is readily pulled out, the loop is unmade, and the thread end is pulled from about the member 16.

In the modification represented by Figure 3 there is shown an indentation 20 in the side of the member 16, and that the second member 17 is larger than the first. The indentation 20 is adapted to prevent the slipping off of the thread loop, and the enlarged extending section 17 provides for greater friction with which to hold the loop ends.

The indentation 20 can be replaced by a differently designed extending member 16, i. e., the member 16 can be angularly positioned, as shown in Figure 4, to oppose the slippage of the thread loop. Also, where the holding operation does not require so much friction as represented by the second extending member 17 that portion could be desirably reduced in size. Also, the device 15 may be further modified by providing extending members on the other side of the main body 18. Thus constructed the device 15 would be adaptable on spools that are rotated clockwise or counterclockwise.

Further, the thread holding device may be secured to the core of any collecting spool by any suitable securing means such as, for instance, exploding rivets. In certain instances, where undue eccentricity of the spool may be caused, during rotation, by the added weight of the holding device 15, it may be desirable to compensate for such additional weight by embedding the holding device in the core. In most instances, however, the holding device weight will not affect the rotation of the spools.

The holding device 15 may be adapted to various types of yarn or thread collecting devices; flangeless or otherwise. Also, the holding device can be used on spools adapted to the winding of metallic, and other strandular materials as well as tapes, ribbons, etc.

I claim:

1. In combination, a core upon which thread or the like is adapted to be wound, a bifurcated means positioned on said core in frictional engagement therewith and extending over a portion of its surface, said means having a main body portion and at least two members extending in frictional contact about the periphery of the core the axial sides of said members being transverse to the axis of said core, the axial outer side of one of said bifurcated members having a portion forming an acute angle between a plane through the axis of said core and the main body portion of said bifurcated means, said angle being taken between the extension of said plane on the same side as said bifurcated member.

2. The combination of claim 1 in which the said outer side of said bifurcated member has and indentation which indentation is included in said acute angular portion.

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