Oct. 4, 1949. J. S. DIX 2,483,490

YARN PACKAGE SUPPORT

Filed May 28, 1948

Fig. 1.

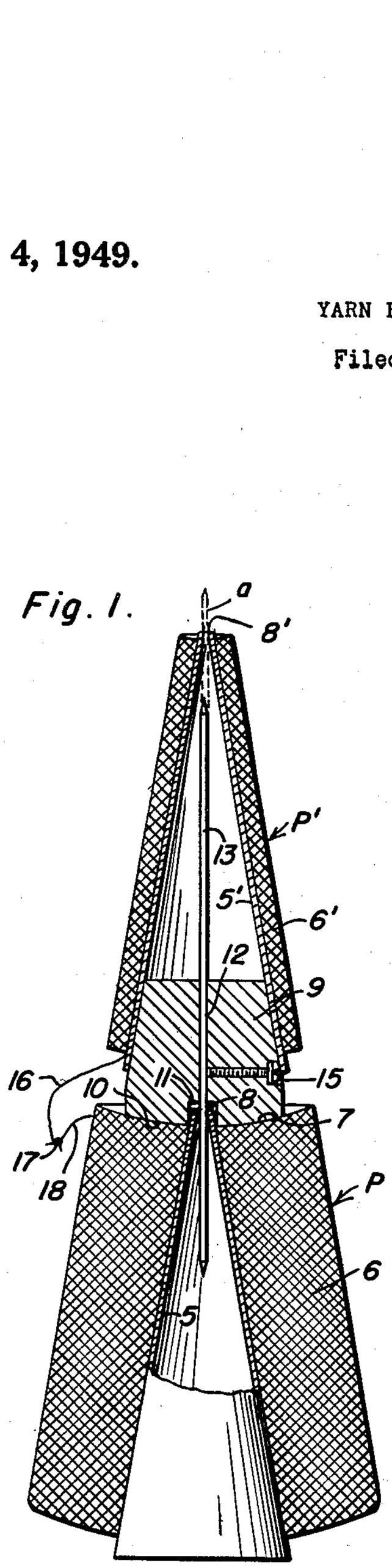


Fig. 2.

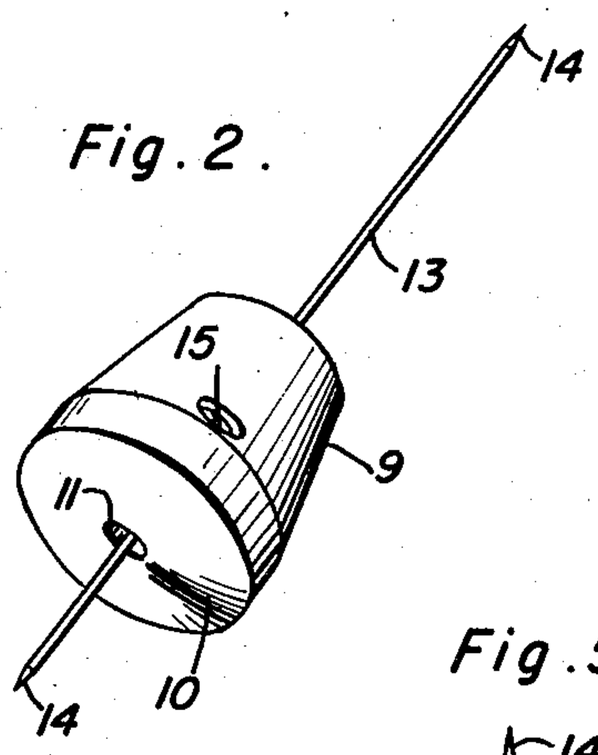


Fig. 3.

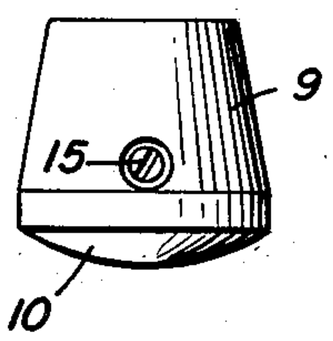


Fig. 4.

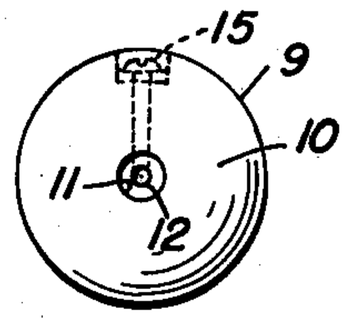
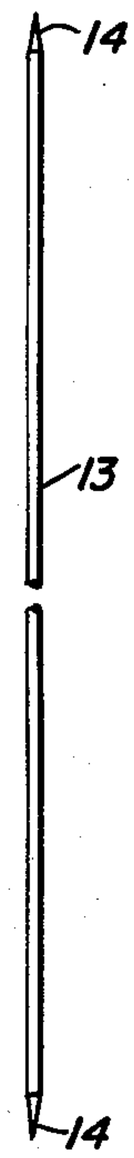


Fig. 5.



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Patented Oct. 4, 1949

2,483,490

UNITED STATES PATENT OFFICE

2,483,490

YARN PACKAGE SUPPORT

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Application May 28, 1948, Serial No. 29,689

4 Claims. (Cl. 242—161)

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This invention relates to a device adapted to support conical yarn packages, one on top of another, so that the yarn of the packages may be tied together for the purpose of paying out the yarn of the packages in succession, thereby eliminating delays in the operation of knitting machines and the like.

The primary object of the present invention is to provide a support of the above kind by means of which the upper yarn package may be firmly mounted on the lower yarn package by elements coacting solely with the conical cores of both packages and the wound yarn of the lower package.

Another object is to provide a support of the above kind which will effectively prevent lateral displacement of the upper yarn package relative to the lower yarn package, and which will not objectionably mutilate the core of the lower yarn package.

The exact nature of the present invention will become apparent from the following description when considered in connection with the accompanying drawing, in which:

Figure 1 is a vertical sectional view showing the present device in use;

Figure 2 is a perspective view of the device;

Figure 3 is an elevational view of the substantially frusto-conical member forming part of the device shown in Figure 2;

Figure 4 is a bottom plan view of the member shown in Figure 3;

Figure 5 is an enlarged elevational view, partly broken away, of the pointed rod forming part of the device shown in Figure 2.

Referring in detail to the drawing, P represents a full yarn package including a hollow conical core 5 having a body of yarn 6 wound thereon so that the upper end of said body 6 has the usual substantially segmental-spherical concavity 7 into which the upper end of the core 5 projects. The conical core 5 is made of pasteboard and has a small central circular opening 8 in its upper end. P' represents a similar yarn package from which some of the yarn has been drawn, and which is shown as mounted on the package P by means of a support embodying the present invention. The core of package P' is indicated at 5', and the yarn wound thereon is indicated at 6'.

The present support includes a substantially frusto-conical member 9 whose major upper portion is adapted to snugly frictionally fit in the lower end portion of the core 5' of the upper package P', and which has a convexed bottom

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surface 10 of such substantially segmental-spherical form as to conform to and seat in the concavity 7 provided in the body of yarn 6 of the lower package P. The member 9 also has a central bottom recess 11 of a form and size to snugly receive the projecting upper end of the core 5 of said lower package P, and it is formed with an axial or central vertical bore 12 to snugly slidably receive a cylindrical rod 13 having pointed or tapered ends 14. The rod 13 is of a length to extend through the member 9 and to project below the bottom of the latter even though adjusted to the dotted line position *a* of Figure 1, wherein its upper end projects upwardly through the opening 8' in the upper end of the core 5' of the upper package P' when the member 9 is seated in the concavity 7. This adjustment of rod 13 is desirable to provide additional security against lateral vibration and displacement of the upper package relative to the lower package when the latter is mounted on a rotatable support for causing or allowing the packages to turn when unwinding the yarn. However, when the lower package is mounted on a stationary support and the yarn is removed by simply pulling it upwardly from the packages without turning the latter, the rod 13 may be adjusted to the lower full line position of Figure 1 wherein the rod 13 does not project through the upper end of core 5'. In either case, the lower end of the rod 13 projects into the upper portion of the core 5 of the lower package, and said rod is of a diameter to snugly fit the openings 8 and 8' of the cores. The rod 13 is secured in adjusted position by a transverse set screw 15 carried by member 9, and the pointed ends of said rod facilitate passage of the same into and through the core openings 8 and 9'.

The member 9 is preferably made of solid metal so as to constitute a weight and provide the support with a self-righting action in use. There is little danger of the support and upper package tilting to such an extent as to objectionably mutilate the upper end of the core 5 of the lower package when the support is firmly seated on the latter as described above. If the support and upper package are tilted to some extent in use from any cause, they will automatically gravitate or return to upright position upon removal of the tilting influence thereon. It will be apparent that mutilation of the upper end of core 5 might cause projecting portions of the same to interfere with free pulling of the yarn therefrom as the latter nears exhaustion.

In use, the package P is mounted on the usual

support of the knitting or like machine, and then the package P' is mounted on said package P by means of the present support as described, whereupon the tail 16 of package P' is tied as at 17 to the lead 18 of the package P. When the yarn on core 5' is exhausted, the yarn on core 5 is drawn on to continue or prolong the operation of the machine, without delay.

From the foregoing description, it is believed that the construction, manner of use and advantages of the present invention will be readily understood and appreciated by those skilled in the art. Changes in details of construction are contemplated, such as fall within the spirit and scope of the invention as claimed.

Having described the invention, what is claimed as new is:

1. A device to support one conical yarn package on top of another, wherein each yarn package consists of a hollow conical core having a body of yarn wound thereon so that the upper end of each body of yarn has a substantially segmental spherical concavity into which the upper end of the associated core projects, comprising a substantially frusto-conical member whose major upper portion is adapted to snugly fit in the lower end portion of the core of the upper package, and which has a convexed bottom surface of substantially segmental spherical form to conform to and seat in the concavity provided in the body of yarn of the lower package, said member further having a central bottom recess of a form and size to snugly receive the projecting upper end of the core of said lower package and being formed with an axial bore, a slender rod snugly slidably extending through said bore and adapted to fit an opening provided in the smaller end of the core of a yarn package, said rod projecting above and below said frusto-conical member, and means to secure the rod in longitudinally adjusted position relative to the frusto-conical member.

2. A device to support one conical yarn package on top of another, wherein each yarn package consists of a hollow conical core having a body of yarn wound thereon so that the upper end of said body of yarn has a substantially segmental spherical concavity into which the upper end of the associated core projects, comprising a substantially frusto-conical member whose major upper portion is adapted to snugly frictionally fit in the lower end portion of the core of the upper

package and which has a convexed bottom surface of substantially segmental spherical form to conform to and seat in the concavity provided in the body of yarn of the lower package, said member also having a central bottom recess of a form and size to snugly receive the projecting upper end of the core of said lower package, and a rod extending centrally through and projecting above and below said frusto-conical member, said rod being adapted to snugly fit in an opening provided in the smaller end of the core of a yarn package.

3. The construction defined in claim 2 wherein said frusto-conical member is formed of solid metal to provide a weight coacting with the concavity of the lower yarn package to automatically return the upper yarn package to an upright position if tilted laterally relative to the lower yarn package.

4. A device to support one conical yarn package on top of another, wherein each yarn package consists of a hollow conical core having a body of yarn wound thereon so that the upper end of said body of yarn has a substantially segmental spherical cavity into which the upper end of the associated core projects, comprising a substantially frusto-conical member whose upper portion is adapted to snugly frictionally fit in the lower end portion of the core of the upper package and which has a convex bottom surface of substantially segmental spherical form to conform to and seat in the concavity provided in the body of yarn of the lower package, said frusto-conical member also having a central bottom recess of a form and size to snugly receive the projecting upper end of the core of the lower package, and a rod attached to said frusto-conical member centrally of the latter and projecting upwardly therefrom.

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