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2,321,664

SPINDLE SUPPORT

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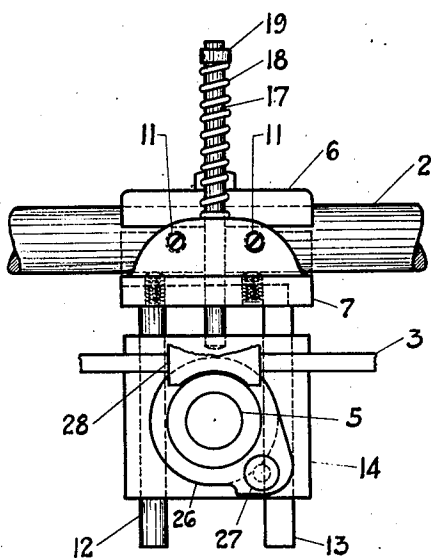


FIG. 1

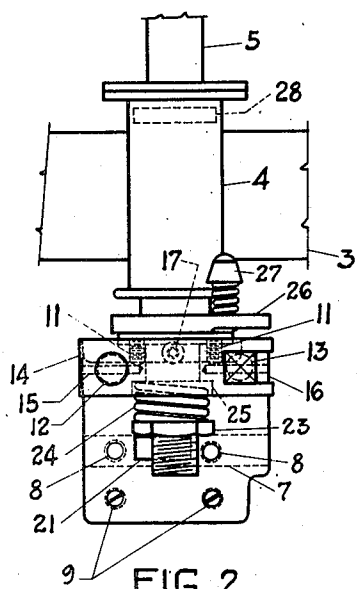


FIG. 2

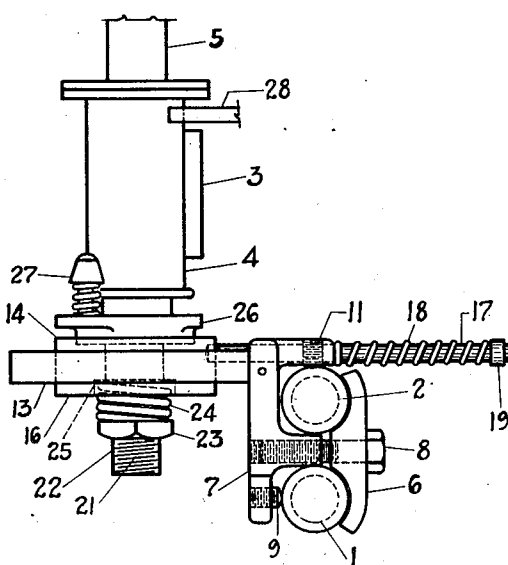


FIG. 3

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SPINDLE SUPPORT

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4 Claims. (Cl. 57—89)

This invention relates to winding and twisting machines, and relates more particularly to improved means for supporting spindle assemblies of winding and twisting machines employed for the production of yarn packages of large size, say, from two to four pounds.

In twisting and winding machines heretofore employed for the production of yarn packages, such as headless packages of large size, the spindles and swings were of substantially the same design as those employed for handling packages having a gross weight of 12 ounces, except that they were of heavier construction. The maintenance costs of such spindles and swings were excessively high. Moreover, due to the vibration caused by out-of-balance spools and out-of-balance yarn windings, oil throwing from spindle steps was encountered, resulting in yarn soilage. It is accordingly an important object of this invention to provide an improved support for spindles of twisting and winding machines producing large size packages, which support will be free from the foregoing and other disadvantages and which will be especially simple in construction and inexpensive in operation.

Another object of this invention is the provision of a spindle support in a winding and twisting machine that provides a very simple tension adjustment of the spindle whorl with the drive belt resulting in yarn having uniform twists.

Another object of this invention is to provide a spindle support that does not require constant lubrication with the result that there is less likelihood of soiled yarn.

Other objects of this invention, together with certain details of construction and combinations of parts, will appear from the following detailed description and drawing.

In the drawing where there is shown one embodiment of this invention:

Fig. 1 is a plan view of a spindle support constructed in accordance with this invention,

Fig. 2 is a front view thereof, and

Fig. 3 is a side view of the spindle support.

Like reference numerals refer to the same or similar elements in the several views of the drawing.

The spindle support constructed in accordance with this invention may be clamped to the frame of any yarn packaging device, but will be described in connection with a multiple spindle twisting and winding machine. Such a machine is provided with a frame having supporting rods 1 and 2 which run lengthwise of a multiple spin-

dle machine and any suitable number of spindle supports may be attached thereto. A traveling belt 3 is provided against which the whorl 4 of a spindle blade 5 is to contact.

The spindle support of our invention comprises a jaw 6 mounted at the rear of rods 1 and 2, which jaw is adapted to cooperate with a second jaw 7 at the front of said rods, clamping bolts 8 being provided to hold said jaws in position on said rods. Set screws 9 which bear against rod 1 and set screws 11 which bear against rod 2 are provided for the purpose of giving an exact adjustment to the jaws 6 and 7.

Extending forwardly from the jaw 7 is a round rod 12 and a rectangular bar 13 which taken together form a track or slideway for a table 14. The table 14 is provided with a hole 15 and a groove 16 for sliding connection with the rod 12 and bar 13, respectively. Tapped to the back of the table 14 is a shaft 17 which passes through the jaw 7 and which holds thereon tension spring 18 by means of an adjustable collar 19 which is held in adjusted position by means of a set screw (not shown) in the collar, or the collar may be threaded on the shaft 17. By adjustment of the collar 19, there may be maintained on spring 18 the desired tension for holding the table in a position such that belt 3 makes a driving contact with the whorl 4 under normal operating conditions.

The table 14 supports the spindle and whorl assembly, the one shown on the drawing being of a conventional type comprising a well or bolster 21 provided with external threads 22 on which is turned a lock nut 23 holding a shock absorbing spring 24 in a recess 25 in the table 14 for securing the assembly on the table 14. On the upper side of the table 14 is a bearing plate and washer generally indicated by reference numeral 26 that carries a latch 27 for preventing the lifting of the whorl 4. A brake 28 is provided to automatically slide the table 14 forward and the whorl 4 carried thereby out of contact with the belt 3 upon breakage of the yarn. The whorl 4 is moved forward approximately one-half inch when contacted by the brake 28 at which time table 14 slides forward on slideways 12 and 13. In use, the spring 18 will allow the table 14 and the whorl 4 to reciprocate slightly to compensate for any irregularities of the belt 3 as at the splice. Here the spindle will pull against the action of the spring causing it to follow the belt and engage the same with sufficient tension to obtain the traction necessary for uniformly rotating the package.

The invention as shown on the drawing and described above is normally applied to a "headless package machine," i. e. a yarn packaging device in which the yarn is pulled from a source of supply, such as a bobbin, up through suitable guides and on to a core placed on the spindle blade 5. Twist is usually inserted in the yarn during this operation. Although shown and described as applied to a "headless package twister" the invention may be applied to any up-twister.

Although this invention is applicable to the twisting and/or packaging of all types of yarn, it is particularly applicable to the twisting and packaging of the continuous filament type of artificial silk yarns which due to their smooth character require more exact windings to build a package of any substantial size. Therefore, this invention is particularly applicable to the packaging of yarns made from derivatives of cellulose such as the organic esters of cellulose, cellulose ethers and regenerated or reconstituted cellulose.

It is to be understood that the foregoing detailed description with its references to the drawing is merely given by way of illustration and is intended to disclose an operative embodiment of the invention in the novel combination and relation of parts. Obviously, many variations may be made in the device without departing from the spirit of the invention.

Having described our invention, what we desire to secure by Letters Patent is:

1. In a yarn packaging device, the combination with a spindle and whorl assembly, a frame and a spindle driving belt, of a support for the spindle and whorl assembly to hold same in driving relationship to the driving belt including jaws for clamping the support on to the frame, a slideway extending from one of said jaws and a table supporting the spindle and whorl assembly adapted to slide on said slideway for positioning the spindle and whorl assembly relative to said driving belt.

2. In a yarn packaging device, the combination with a spindle and whorl assembly, a frame and a spindle driving belt, of a support for the spindle and whorl assembly to hold same in driving relationship to the driving belt including jaws for clamping the support on to the frame, means for adjusting said jaws for positioning the support relative to said frame, a slideway extending from one of said jaws and a table supporting the spindle and whorl assembly adapted to slide on said slideway for positioning the spindle and whorl assembly relative to said driving belt.

3. In a yarn packaging device, the combination with a spindle and whorl assembly, a frame and a driving belt, of a support for the spindle and whorl assembly including jaws for clamping the support on to the frame, means for adjusting said jaws for positioning the support relative to said frame, a slideway extending from one of said jaws, a table supporting the spindle and whorl assembly adapted to slide on said slideway, a shaft attached to said table passing through one of said jaws and a spring acting on said shaft to exert a pressure on said table toward said driving belt.

4. In a yarn packaging device, the combination of a spindle and whorl assembly, a frame and a spindle driving belt, of a support for the spindle and whorl assembly including a pair of jaws for clamping the support on to the frame, means on one of said jaws for positioning the support relative to said frame, a slideway extending from one of said jaws, a table supporting the spindle and whorl assembly adapted to slide on said slideway, a shaft attached to said table passing through one of said jaws and a spring acting on said shaft to exert a pressure on said table toward said driving belt.

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