

July 16, 1946.

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2,403,908

WINDING APPARATUS

Filed Jan. 17, 1945

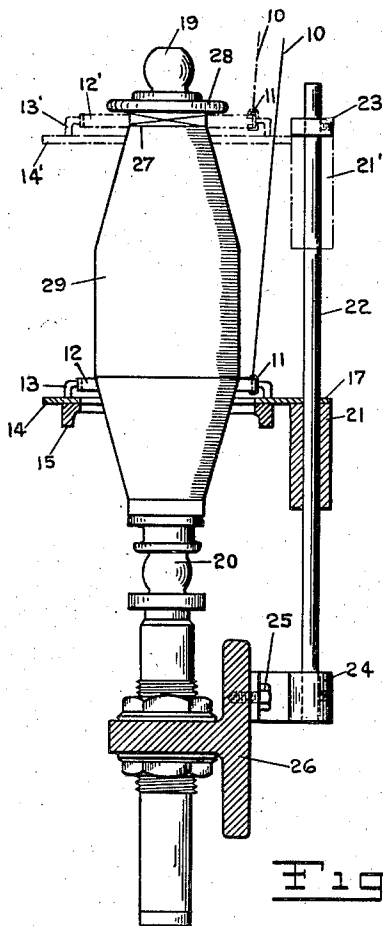


Fig. 1

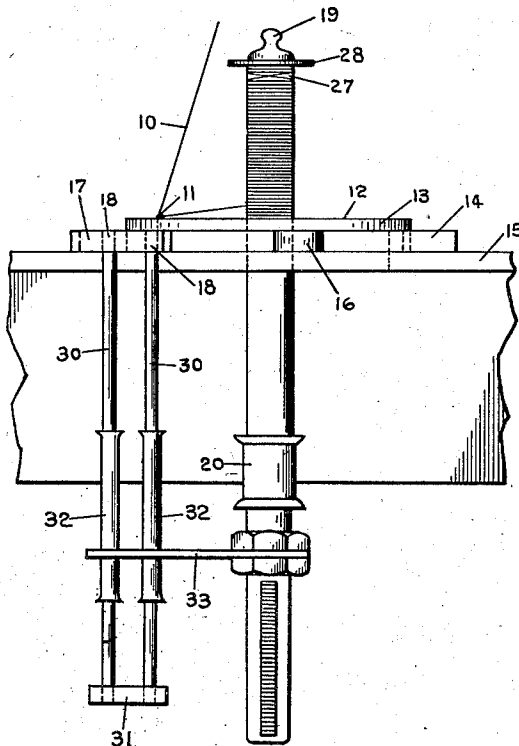


Fig. 2

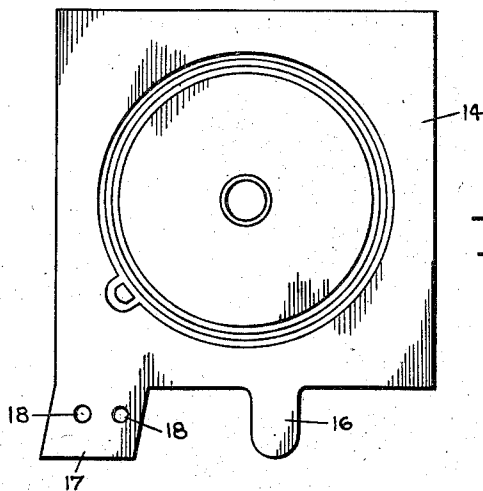


Fig. 3

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UNITED STATES PATENT OFFICE

2,403,908

WINDING APPARATUS

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Application January 17, 1945, Serial No. 573,158

3 Claims. (Cl. 57—75)

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This invention relates to the production of yarn packages, and relates more particularly to apparatus for the winding of yarn packages, such as bobbins and the like, with a magazine wrap or transfer tail.

As commonly understood in the textile art, a magazine wrap or transfer tail is a portion of the inner end of the first yarn wound on the yarn support, which is so disposed as to be positively secured during the winding of the remainder of the yarn package, yet freely available for tying directly to the outer end of the yarn on another yarn package. The purpose of providing a magazine wrap or transfer tail is to enable an uninterrupted flow of yarn to be maintained from a depleted yarn package to a full yarn package adjacent thereto, as in a creel or other yarn package holder on which both packages are supported.

An object of this invention is the provision of simple, efficient, and inexpensive apparatus for winding yarn on to a bobbin in such a manner that a magazine wrap or transfer tail is provided.

Another object of this invention is to provide means for manually or automatically applying yarn to a bobbin to form a magazine wrap or transfer tail while the bobbin is revolving at high speed.

A further object of this invention is the provision of means for applying yarn to a bobbin to form a magazine wrap or transfer tail wherein the latter will be well separated from the main body of the yarn wound thereon.

A still further object of this invention is the provision of means for applying yarn to a bobbin to form a magazine wrap or transfer tail without subjecting the yarn to any sudden increase in tension during the application of said magazine wrap or transfer tail.

Other objects of this invention will appear from the following detailed description and drawing.

In the accompanying drawing, wherein the preferred embodiments of my invention are shown,

Fig. 1 is a side elevational view, partly in section, of one embodiment of my invention, showing an apparatus for applying yarn in the form of a transfer tail or magazine wrap to the top of a bobbin rotating at high speed;

Fig. 2 is a front elevational view of another embodiment of my invention, showing modified means for applying the desired transfer tail or magazine wrap to the bobbin; and

Fig. 3 is a plan view of the plate or spinning ring mounting which plate lays on the ring rail during the normal traverse.

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Like reference numerals indicate like parts throughout the several views of the drawing.

Referring now to the drawing and more particularly to Fig. 1, a yarn 10 coming from any suitable source of supply such as a metier or spinning cabinet (not shown) passes downward and is threaded through a traveler 11 mounted on a spinning ring 12 carried in a ring holder 13, the latter being attached to a plate 14 that lies on the ring rail 15. Plate 14 is provided with two lips 16 and 17, the former comprising a handle and the latter being suitably drilled and provided with holes 18. The bobbin 19, upon which the yarn is wound, is supported on a spindle 20 which is rotated at high speed by suitable driving means (not shown). The normal traverse of the yarn 10 being wound on rotating bobbin 19 is provided by a reciprocating vertical movement of ring rail 15 which is raised and lowered in timed relation by suitable means (not shown) to provide the desired type of wind on the bobbin. Plate 14 is fixed by lip 17 to a sleeve 21 which rides on guide rods 22, only one of which is shown in Fig. 1 of the drawing, provided with an adjustable stop 23 at the head thereof. Rods 22 are supported in a bracket 24 fastened to the spindle rail 26 as by screws 25.

To provide the desired magazine wrap or transfer tail, the operator doffs the full package, replaces it with one which is empty in the usual manner and then throws on the yarn to start the wind. As soon as the yarn 10 begin to wind on to bobbin 19, the ring 12 and ring holder 13 fastened to plate 14, which parts are in normal operating positions, are raised by means of lip 16 on plate 14 to the limit set by stop 23, which limit is just above the normal traverse of the yarn 10 as provided by the reciprocating vertical movement of ring rail 15. This movement of the plate 14 places the latter in the position 14'. With plate 14 in the position 14', ring 12 is brought into position 12' and the yarn 10 winds on and forms a magazine wrap or transfer tail 27 at the head of bobbin 19 just below flange 28. As soon as the desired magazine wrap or transfer tail 27 is formed, the operator releases lip 16, preferably at the top of the stroke of ring rail 15. Plate 14 drops the short distance to ring rail 15 and in this position permits the yarn 10 to wind on to bobbin 19 in the normal manner building up into windings 29.

Since the magazine wrap or transfer tail 27 is well separated from the main body of the yarn, namely, windings 29, it is easily available as a transfer tail yet it is secure and protected at all

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times. Furthermore, since the vertical movement of plate 14 may be effected at any portion of the traverse stroke and is in a direction tending to slacken the yarn, no sudden tension is placed on the yarn during the application of the transfer tail and injury to the yarn is avoided.

Referring now to Fig. 2, in which another embodiment of my invention is shown, the yarn 10 is threaded downward through traveler 11 and thrown on to bobbin 19 in the usual manner. As in Fig. 1, traveler 11 is mounted on a spinning ring 12, set in ring holder 13 which is attached to plate 14, the assembly laying on the ring rail 15 in normal operating position. Set in holes 18 of plate 14 are a pair of guide rods 30, carrying stop 31 attached to the ends thereof. Rods 30 pass through stationary bushings 32 carried in the lower spindle plate 33.

When it is desired to apply the transfer tail or magazine wrap 27 at the head of the bobbin 19 just below flange 28, the operator grasps lip 16 and raises plate 14 carrying ring 12 and ring holder 13 as high as stop 31 will permit. The position to which ring 12 is raised is just above the normal traverse of ring rail 15 causing yarn 10 to wind on bobbin 19 just below flange 28 and to form the desired magazine wrap or transfer tail 27. When the desired amount of yarn is wound on in the form of the transfer tail 27, plate 14 is released, preferably at the top of the stroke of ring rail 15, so that a sudden tension is not applied to the yarn 10, the ring 12 and ring holder 13 fall, and the yarn 10 is permitted to wind on to bobbin 19 in the normal manner.

The magazine wrap or transfer tail applied in the manner described is held firmly and securely on the yarn package and is amply protected by the flange at the head of the bobbin. It may be easily detached and employed for tying on to a reserve package, as is necessary when drawing the yarn from the bobbin during warping operations.

It is to be understood that the foregoing detailed description is given merely by way of illustration and that many variations may be made therein without departing from the spirit of my invention.

Having described my invention, what I desire to secure by Letters Patent is:

1. In a device for producing yarn packages having a transfer tail, the combination with yarn

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traversing means, including a ring rail, a plate normally seated on said ring rail, a ring holder on said plate, a spinning ring in said holder and a traveler for winding yarn on a rotating yarn holder, of manually operated means for raising said plate, the ring holder, ring and traveler from said ring rail to a position beyond the normal traverse of said ring holder, ring and traveler with respect to said yarn holder, so as to cause the winding of a relatively small amount of yarn on the yarn holder at a point spaced from the main body of yarn, said small amount of yarn being available for use as a transfer tail.

2. In a device for producing yarn packages having a transfer tail, the combination with yarn traversing means, including a ring rail, a plate normally seated on said ring rail, a ring holder on said plate, a spinning ring in said holder and a traveler for winding yarn on a rotating yarn holder, of manually operated means for raising said plate, the ring holder, ring and traveler from said ring rail to a position beyond the normal traverse of said ring holder, ring and traveler with respect to said yarn holder, and means for guiding said plate in a predetermined path during the raising of said plate, ring holder, ring and traveler from said ring rail, so as to cause the winding of a relatively small amount of yarn on the yarn holder at a point spaced from the main body of yarn, said small amount of yarn being available for use as a transfer tail.

3. In a device for producing yarn packages having a transfer tail, the combination with yarn traversing means, including a ring rail, a plate normally seated on said ring rail, a ring holder on said plate, a spinning ring in said holder and a traveler for winding yarn on a rotating yarn holder, of manually operated means for raising said plate, the ring holder, ring and traveler from said ring rail to a position beyond the normal traverse of said ring holder, ring and traveler with respect to said yarn holder, means for guiding said plate in a predetermined path during the raising of said plate, ring holder, ring and traveler from said ring rail, and means for limiting the upward movement of said plate, so as to cause the winding of a relatively small amount of yarn on the yarn holder at a point spaced from the main body of yarn, said small amount of yarn being available for use as a transfer tail.

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