R. E. TAYLOR.

UNITARY YARN DEVICE AND METHOD OF MAKING SAME.

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1,343,238. **Patented June 15, 1920.**

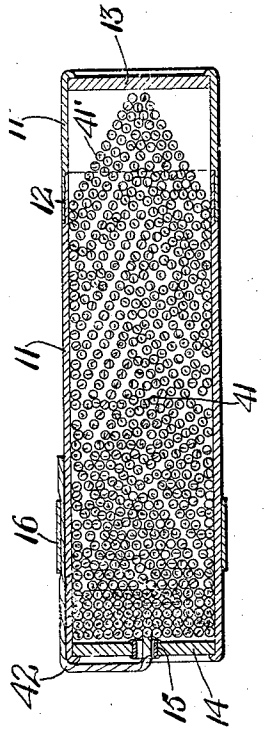


Fig. 1.

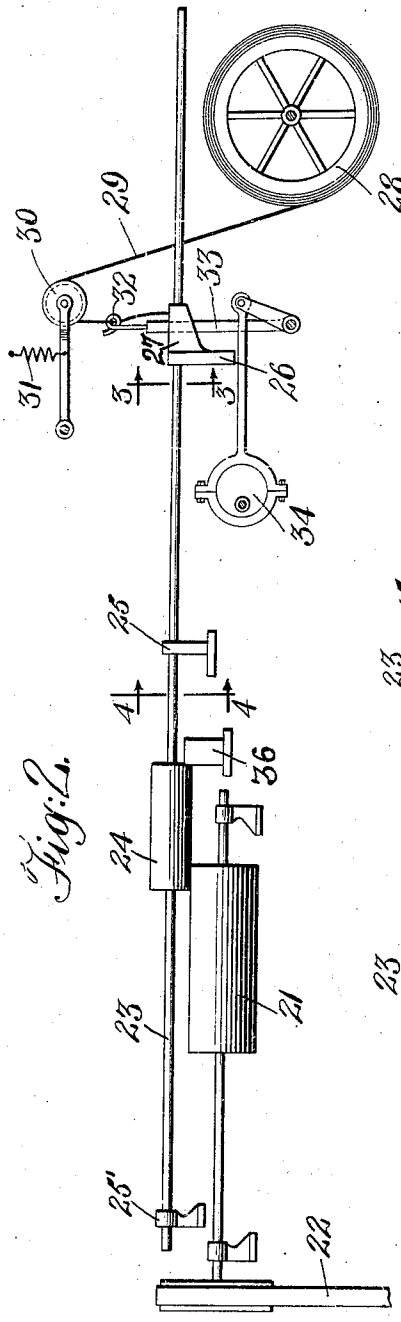


Fig. 2.

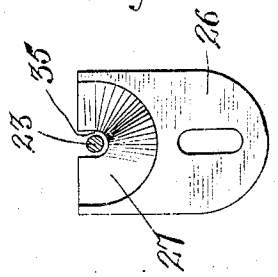


Fig. 3.

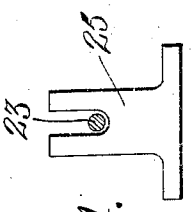


Fig. 4.

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UNITED STATES PATENT OFFICE.

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To all whom it may concern:

Be it known that I, RUSSELL E. TAYLOR, citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Unitary Yarn Devices and Methods of Making Same, of which the following is a specification.

It has been customary to prepare yarn in skeins and place the skeins on the market in that form, requiring the user to wind the skeins in balls before knitting. This is objectionable, not only from its inconvenience to the user and time lost, but also on account of deteriorating the loftiness or quality of the yarn by handling, particularly the outside layers of the ball if unwound from the inside in knitting and in any case when knitting from a ball, due to its constant handling and rolling about. In some cases yarn has been rolled into balls at the mills and sold on the market in the form of balls, instead of skeins. But the winding into balls at the mills is very expensive and done with difficulty, even with the best machines available, making it necessary to secure a high selling price for ball wound yarn.

But even machine wound balls have all the objections of hand wound balls of inconvenience in knitting when rolling about and of deteriorating the quality of the yarn in handling. If it be attempted to confine the ball in a limited space, that still further compresses and deteriorates its quality by constant rubbing and turning. Yarn, after coming from the mill, should be handled as little as possible, until after being knitted into the garment. It is well known in the art that the less yarn is handled, the better the quality of the yarn is preserved.

By my invention the yarn is wound easily and economically in such a way that it can be unwound or paid out when used, without twisting, straining, or in any way deteriorating the quality of the yarn. Also the yarn is protected in a container from dust, moisture or dirt, and from handling and also from rubbing or scraping against surfaces, while provision is also made for conveniently matching colors without handling the yarn. These and other objects of my invention in its preferred form will be understood from the following description.

Referring to the drawings, Figure 1 is a longitudinal section of my improved device; Fig. 2 is a diagrammatic elevation of mechanism that may be employed in winding the yarn therefor, and Figs. 3 and 4 are detail sections taken respectively on the lines 3—3 and 4—4 of Fig. 2 looking in the direction of the arrows.

The device as illustrated in Fig. 1 comprises a cylindrical casing 11 having one end portion 11′ separable at the circumferential joint 12. The portion 11′ has a closed head 13 and the main portion 11 has an opposite closed head 14 provided with an opening 15 or eyelet, through which the strand 42 of yarn may be drawn from the wound body 41 of yarn within the casing. Until ready for use or consumption of the yarn the end portion 42 is doubled back against the side of the container 11 and bound thereto by a circumferential band or paster 16, or otherwise secured when desirable.

The machine for winding the yarn has a continuously rotating drum 21 driven by the belt 22. The shaft 23 has fixed thereon a heavy drum 24 which rests by gravity on the drum 21, making frictional engagement therewith. The axes of drums 21 and 24 are slightly inclined downwardly to the right, causing the drum 21 to have a tendency to move axially to the right against a stop 36. The shaft 23 passes through the U-shaped guides 25 and 25′ and also through the notch 35 in the conical former 27 carried on the bracket 26. The yarn to be wound is on the reel 28, the strand 29 passing thence over the pulley 30 of the tension device 31 and through the eye 32 on the end of the pivoted arm 33, which is oscillated by the eccentric 34.

The shaft 23 normally rotates continuously being driven by the frictional engagement between the drums 21 and 24. The attendant passes the strand 29 of the yarn from the reel 28 over the pulley 30 through the eye 32 and gives it a few turns around the shaft 23 which may be lifted vertically for this purpose to clear the notch 35 in the former 27. As the yarn winds around the shaft 23, it is also guided back and forth longitudinally by the oscillating arm 33, and the former 27 soon gives it a conical shape. Then as it continues to wind upon the convex face of the conical mass already formed, the rod 23 is pushed up to the left as viewed in Fig. 2 by

the pressure of the yarn against the former 27, the drum 24 moving correspondingly in relation to the drum 21 until at last when the wound mass of yarn on the shaft 23 has reached the proper axial length, the drum 24 drops over the left end of the drum 21 thus disconnecting the driving connection. It will thus be seen that the yarn core is wound in a general way in a series of adjacent conical disks or sections; in other words in a series of segments following one another starting at one end of the yarn cylinder and continuing progressively to the other end.

The attendant will then lift the shaft 23 out of the guide 25 and the notch 35 and remove the formed mass of yarn therefrom and start the same operation again as already described.

The yarn wound in a cylindrical mass 41 with a conical end 41′ will have its free end 42 threaded through the eyelet 15 and then pushed into the main part 11 of the container, fitting therein. The cap 11′ will be applied covering the conical projecting end 41′ and the free terminal 42 will be secured under the band 16. Thus the device will be ready for market and use.

For inspection, and particularly for matching color, it is desirable to look at the yarn in a body instead of viewing the single strand 42. Accordingly, the cap 11′ may be removed so that the whole projecting conical portion 41′ can be viewed and matched for color if so desired.

For use of the yarn, as in knitting, the end 42 will be removed from under the band 16 and paying out will begin at that end. The yarn will unwind in the same order in which it was wound, drawing always from the end toward the eyelet 15 and thus there will form a conical depression in that end of the body 41. If desired the yarn may be unwound from the other end of the yarn core, unwinding in the reverse order in which it was wound. All the residual yarn in the container 11 will remain relatively fixed therein, while the strand 42 is being drawn out.

It will be seen that in the manufacture, marketing, and use of the yarn, it is fully protected from injury by handling or otherwise. It remains entirely undisturbed in the container from the time it is placed there in manufacture until it is drawn out in a continuous strand for use. While being drawn out in actual use the residual yarn remains undisturbed and fully protected in the casing. Nevertheless it is easily accessible for inspection as for matching of colors as has been already pointed out. The convenience of the container for marketing and use and the facility with which knitting may be begun and continued from time to time will be apparent without further explanation.

I claim—

The combination with a continuous length of yarn built up progressively in additive sections in an axial direction forming a compact body portion and an extending end portion, of a generally cylindrical container fitting said body portion and leaving said end portion protruding, a closed end of said container, and an opposite separable part inclosing said extending end portion and removable therefrom to expose said end portion to view on the sides and end for matching colors without disturbing the yarn.

RUSSELL E. TAYLOR.