Nov. 1, 1927. 1,647,303

J. E. MOORE

SPINNING, TWISTING, CABLING, AND PROOFING OF YARNS

Filed March 26, 1927 3 Sheets-Sheet 1

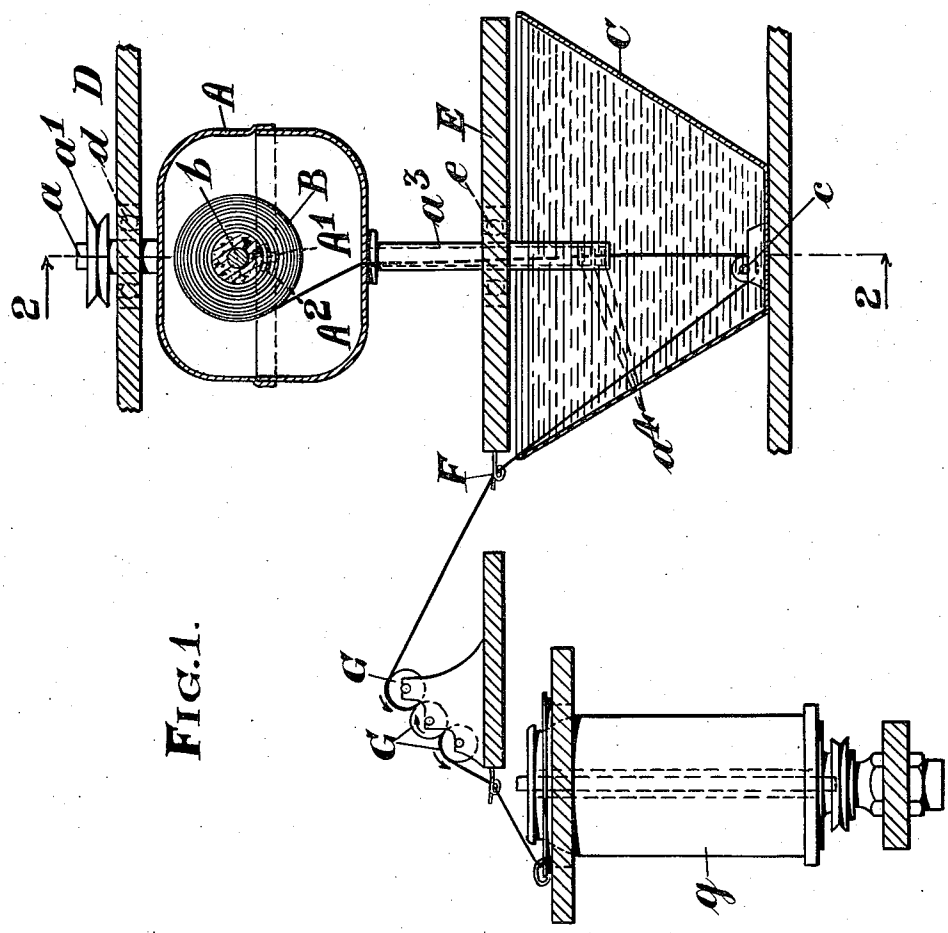


FIG. 1.

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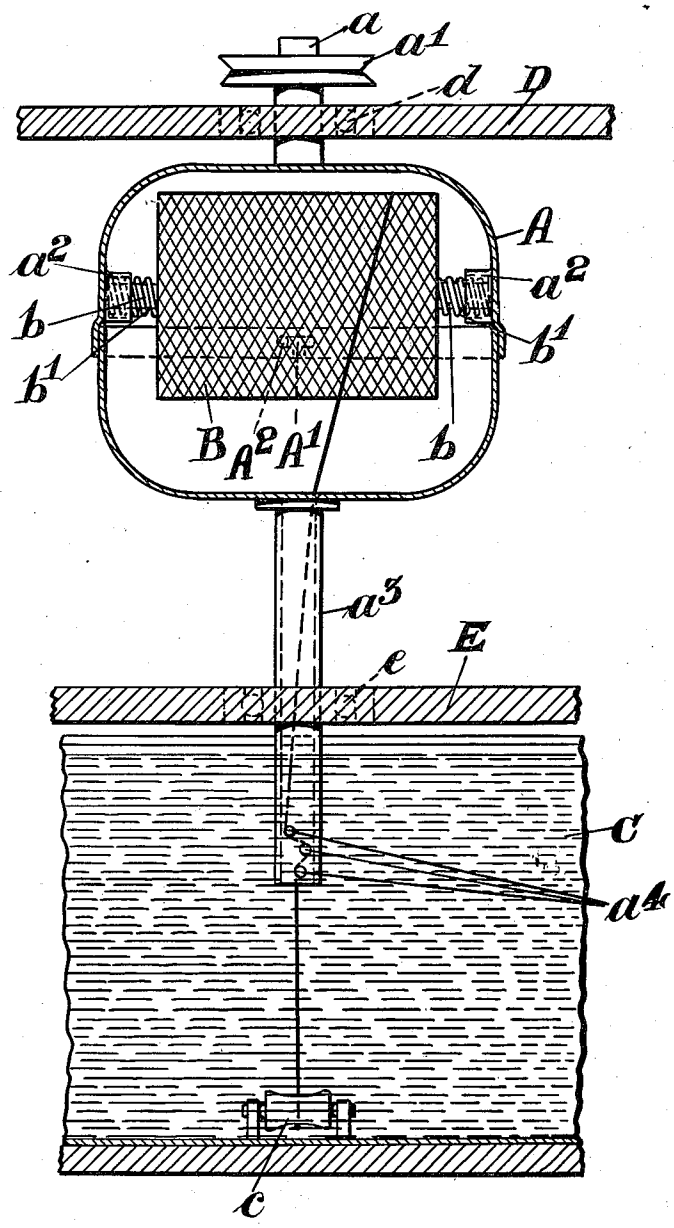
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FIG. 2.



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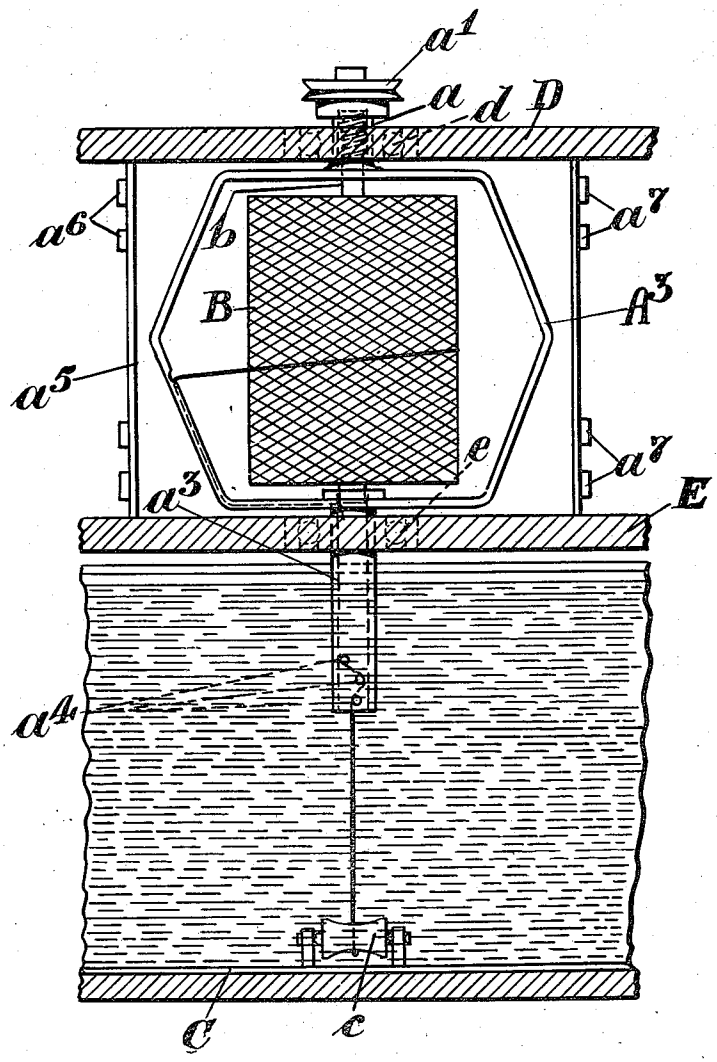
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SPINNING, TWISTING, CABLING, AND PROOFING OF YARNS

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FIG. 3.



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UNITED STATES PATENT OFFICE.

JOHN ERNEST MOORE, OF MANCHESTER, ENGLAND.

SPINNING, TWISTING, CABLING, AND PROOFING OF YARNS.

Application filed March 26, 1927, Serial No. 178,654, and in Great Britain January 5, 1926.

This invention relates to spinning, twisting, cabling and proofing of yarns in which the twisting or cabling operation is or may be effected as the yarn is drawn off the bobbin, cheese or other form hereinafter called the wound unit and has for its chief object to effect the thorough impregnation of each separate thread in cabled yarns, as for example, in the impregnation of cabled yarns with rubber solution in the manufacture of fabrics for tires, or with dyes or other liquids for other purposes.

In the accompanying drawings:—

Fig. 1 is a section showing a form of apparatus constructed in accordance with this invention.

Fig. 2 is a transverse section taken on line 2—2 of Fig. 1, and

Fig. 3 is a view similar to Fig. 2 showing a slightly modified construction.

A indicates the rotatable holder, B the wound unit and C the liquid containing receptacle.

In the example shown in Figs. 1 and 2 the holder A comprises two cup shaped members detachably connected together and having a smooth outer surface. In the example shown the upper portion of the holder has a T slot A^1 to engage a pin or projection A^2 on the lower portion of the holder so that such pin will occupy a position in one end or other of the horizontal portion of the T slot according to the direction in which the holder is driven. Two or more of these driving connections may be distributed around the holder. The upper portion of the holder is formed or provided with an axle a which runs in a ball bearing d in a rail D and carries a wharle a^1 which may be suitably driven. The wound unit B is mounted on a spindle 3 which is maintained in a central position in relation to bearings a^2 in the holder by springs b^1, the said springs permitting endwise movement of the spindle for insertion and removal purposes. The lower portion of the holder is provided with a tubular axle a^3 which runs in a ball bearing e in a rail E and dips down into the liquid in the receptacle which may be in the form of a trough extending along the machine. Extending across the lower end of the tubular axle a^3 are pins or tension devices a^4 between which the yarn from the wound unit passes and is maintained in an untwisted condition between such tension devices and the unit so that the impregnation is effected whilst the yarn is untwisted. After the strand or yarn has left the bottom tension device it passes under a roller c above the bottom of the trough C and all the twist is put into the strand or yarn between the tension devices a^4 and the roller c. The strand is then taken upwards through a guide eye F and through the rollers G from which it is wound on to the bobbin g in the usual manner. In the modification shown in Fig. 3 a skeleton holder A^3 is substituted for the cup shaped holder A and the wound unit B is arranged coaxially with such holder instead of transversely to it. In this construction the frame of the skeleton holder may be tubular, or channel shaped for the passage of the yarn. It is also shown enclosed in an outer shield or casing a^5 made in two parts hinged together at a^6 and provided at a^7 with fasteners.

What I declare as my invention and desire to secure by Letters Patent in the United States is:—

1. The method of impregnating and twisting yarn consisting in passing the yarn while rotating into the impregnating liquid within a receptacle, preventing twisting of the yarn to a predetermined point in the liquid, and guiding the yarn within the receptacle at a further point of its movement in the liquid above the bottom of and before passing from the receptacle so that the yarn is twisted between said points.

2. An apparatus for impregnating and twisting yarn comprising a liquid receptacle, means for passing yarn while rotating into the receptacle and preventing the yarn from twisting to a predetermined point in the liquid, and means in the receptacle at a point beyond said point for guiding the yarn so that the yarn is twisted between said points above the bottom of and before passing from the receptacle.

3. An apparatus for impregnating and twisting yarn comprising a liquid receptacle, a rotatable holder having an extension to dip in the liquid and provided with tension means past which the yarn is movable from the holder at a point in the liquid, and guiding means for the yarn in said receptacle so that the rotation of said holder will twist the yarn between said means.

4. An apparatus for impregnating and twisting yarn comprising a liquid receptacle, a rotatable holder having a tubular extension to dip in the liquid in the receptacle, tension means within said extension at a point below the liquid level to prevent twisting of the yarn above said point, and guiding means for the yarn in the receptacle below said extension so that the yarn is twisted between said means by the rotation of said holder.

In witness whereof I have signed this specification.

JOHN ERNEST MOORE.