

Title (en)
METHOD FOR MAKING TAPERED YARN WINDINGS

Title (de)
VERFAHREN ZUM HERSTELLEN VON KONISCHEN WICKELN FADENFÖRMIGEN GUTES

Title (fr)
PROCEDE DE FABRICATION D'ENROULEMENTS TRONCONIQUES DE FIL

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Application
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Abstract (en)
[origin: FR2796631A1] To produce a bobbin with a truncated cone shape, yarn is wound in overlapping layers around a cylindrical bobbin sleeve (20) on a longitudinal axis (X). The bobbin has a main body (11) with one end (12) in a truncated cone with the generating line (L2) at an angle against the axis (X). The bobbin has a truncated cone shape at the other end (13) of the main body (11) with a generating line (L3) at an angle to the axis (X). The shape of the main body (11) of the bobbin is in a truncated cone shape with the generating line (L1), at an angle to the axis (X), connecting the generating lines (L2,L3) of the bobbin end shapes (12,13). The base cone (12) has a base (12a) with a diameter (D1) which is larger than the diameter (D2) of the base (13a) of the cone structure at the other end. The two cone bases (12a,13a) form the boundaries of the bobbin body end cone sections (11a,11b). The generating lines (L2,L3) of the end cones (12,13) are pitched at an acute angle (alpha , beta) against the axis (X). The angle (alpha) at the first cone end (12) is 40-75 deg and the angle (beta) at the other cone end (13) is 30-60 deg . The wound yarn is placed around the bobbin in two overlaid coils, with an intersection angle between their orientation of 0.5-6.0 deg . The bobbin length is 150-500 mm, between the extremities (12b,13b) of the end cone sections (12,13). An Independent claim is included for a bobbin winding operation where the yarn is guided while the bobbin is rotated so that the center bobbin body (11) is flanked by two conical sections (12,13) of different dimensions. The yarn guide action has two different effects, to start the shape of one conical end (12) and finish the shape of it to start the winding to form the center body (11) and the other conical end (13). Preferred Features: The first phase of the yarn guide movement is a reciprocating motion parallel to the bobbin axis (X) between an initial position and a final position at the outer ends of the conical sections (12,13) on a vertical projection through the bobbin sleeve (20). During the bobbin development, the change-over points at the ends of the reciprocating stroke movements are shifted inwards to give the conical end shapes until each end zone has achieved the required diameter. During the second yarn guide phase, the end points of the reciprocating stroke movements are at the inner ends of the flanking conical zones, to form the center section. During the development of the center section, one end point is shifted inwards, to give the required taper to the center section of the bobbin. During the first and second winding phases, the shifts in the end positions are by an equal length. The yarn guide is shifted, in the second phase, to combine the movement parallel to the bobbin axis (X) with a complementary movement at right angles to the bobbin axis (X) so that its line of travel is parallel to the angled generating line (L1) of the center body (11) of the bobbin. The movement patterns are set by an electronic drive control system. The yarn guide is rotated mechanically, parallel to the generating line (L1) of the center section (11), as a cam with a variable rotary speed. The bobbin spindle has a variable rotary speed. The yarn guide has a variable speed of travel, parallel to the bobbin axis (X).

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