

Title (en)
AUTOMATIC HOOK NEEDLE WINDING MACHINE

Title (de)
AUTOMATISCHE HAKENNADEL-WICKELMASCHINE

Title (fr)
ENROULEUSE AUTOMATIQUE D'AIGUILLES À CROCHET

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Application
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Priority
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Abstract (en)
The present invention relates to a hook winding machine (1) for winding a coil (2) of wire (3) onto a toroidal core (4) having a through hole (5), an axis (6) defined by said through hole (5), an outer periphery (7), a first side (8) defined by a first axial end face of the core and a second side (9) which is opposite said first side (8) and defined by a second axial end face of the core (4), the hook winding machine (1) comprising- a core holding device (10) for holding the core (4) during the winding process,- a hook mechanism (11) with a longitudinally driven hook (12) for capturing the wire (3) and pulling the wire (3) from the first side (8) of the core (4) through the through hole of the core (4) to the second side (9) of the core (4),- a wire bending device (13) for bending the wire (3) back from the second side (9) of the core (4) over the outer periphery of the core (4) to the first side (8) of the core (4), wherein the wire bending device (13) comprises a rotatable arm (14) that is rotatable about a first rotation axis (15) which is substantially perpendicular to the axis (7) of the toroidal core (4) or to an axis which is parallel to the axis (7) of the toroidal core (4), the rotatable arm (14) comprising a wire grabbing portion for grabbing the wire (3) and holding the wire (3) during bending the wire (3),- and a control via which the hook winding machine (1) is adapted to alternately perform a pulling step during which the wire (3) is pulled by the hook mechanism (11) from the first side (8) of the core (4) through the through hole (5) of the core (4) to the second side (9) of the core (4) and a bending step during which the wire (3) is bent back by the wire bending mechanism (13) from the second side (9) of the core (4) over the outer periphery (7) of the core (4) to the first side (8) of the core (4), and wherein one winding cycle of the hook winding machine (1) is defined by a pulling step and a consecutive bending step. According to the invention, the wire bending device (13) comprises a retracting mechanism for retracting the wire grabbing portion in a retracting direction (21) which is parallel to the first rotation axis (15) from an extended position in which the wire grabbing portion automatically grabs the wire (3) when the rotatable arm (14) rotates around the first rotation axis (15) after a pulling step to a retracted position in which the rotatable arm (14) with its wire grabbing portion is adapted to bypass the wire (3) when the rotatable arm (14) rotates around the first rotation axis (15) after a pulling step.

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Citation (search report)
• [XAYI] JP H03276607 A 19911206 - SUZUKI KIKAI KK
• [YA] JP 2015050254 A 20150316 - TAGA MFG
• [YA] JP H11238643 A 19990831 - TOKIN CORP
• [A] US 3601731 A 19710824 - CHRISTIANA WILLIAM R, et al
• [A] CH 353810 A 19610430 - STANDARD TELEPHON & RADIO AG [CH]

Cited by
CN114334432A; CN113674990A

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