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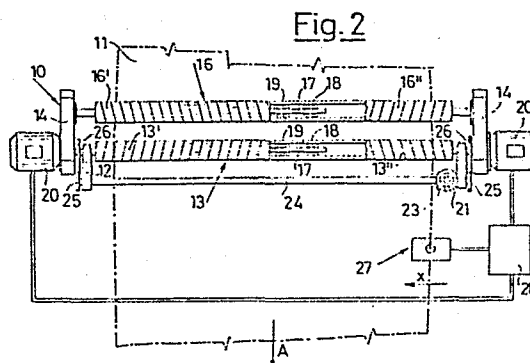
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54 Extension and centering device for rope fabric.

57 An extension and centering device for rope fabric is consisting of: an extension device, including a carrying structure at least two extension rollers with double helical rifling, driven in rotation in opposite sense of the advancing of the fabric and having their axes parallel, and sensor means, sensible of lateral change of direction of the fabric, fitted after the above mentioned rollers; each roller is divided in two tracts of substantial the same length which are engaged between them idle; the adjoining tract between them of the two rollers are put into rotation by respective motors; there are also foreseen piloted drives of the above mentioned sensors to change the speed of the motors on the other side of the lateral movement of the fabric, causing the variation of rotation speed of the two tracts of rollers connected to them; the increase of rotation speed of the two tracts causes the movement towards the outside of the fabric in the opposite side of the one in which it was moving until the pre-established direction is achieved again and the motors together with the respective tract of rollers return to turn at the same speed.



"Extension and centering device for rope fabric"

DESCRIPTION

The invention makes reference to an extension and centering device of the rope fabric.

There are known extension and centering devices of fabric composed of: one extension device, including a carrying structure at least two extension rollers with double helical rifling, driven in rotation in opposite sense of the advancing of the fabric, and having their axes parallel and means to move angularly this structure in order to modify the angle of inclination of the level containing the axes of the extension rollers; a centering device put at a pre-established distance after the extension device and including a carrying structure, at least two centering rollers fitted with parallel axes to a level which is substantially parallel to the axe of advancement of the fabric; such structure is hinged at its extremity, around perpendicular axes of the level, containing the axes of the centering rollers on two movable slides alongside two axes contained in a level parallel to the above mentioned level and convergent towards the axe of advancement of the fabric after the centering rollers; furthermore there are

foreseen sensor means sensible to the change of direction after the above mentioned rollers and piloted means for drive of such sensor means and apt to comand the displacement of one of the slides in order to change the inclination of the axes of the centering rollers between a central position in which such axes are perpendicular.

Such device, most useful and practical, in certain cases may result to much encumbering and/or expensive and therefore, the finder suggests now an extension and centering device which allows the elimination of the centering rolls, incorporating in the extension rollers the necessary means to retake the lateral mouvement during the advancement of the fabric between such extension rollers, according to piloted actuator means by means of sensible signaller of the lateral mouvement of the fabric and placed after the extension rollers.

The device will therefore be simplyfied structurally and economically and allows to reach the same advantages as the device above mentioned.

The reach such purpose the finder proposes to realize an extension and centering device for rope fabric, composed of: an extension device, including a carrying structure at least two extension rollers with double helical

rifling, driven in rotation in opposite sense of the advancing of the fabric and having their axes parallel, and sensor means, sensible of lateral change of direction of the fabric, fitted after the above mentioned rollers, characterized through the fact that each roller is built of two tracts, of substantial the same length which are engaged between them idle in correspondence of the ends in contact, whereas the other ends are put solid in rotation at the tract next to the other roller, driven by respective motors, having foreseen piloted actuator means of above mentioned sensor means to change the speed of one of the two motors, causing the variation of rotation speed of the two tracts of rollers to which they are connected, according to the sense of lateral movement of the fabric.

Figure 1 is a schematic, perspective view of the device of the finder;

Figure 2 is an elevated view, partially dissected of the device of Fig.1.

With 10 is indicated in his whole the expanding and centering device object of the finder destined to act on a fabric in rope form 11 to be opened.

With 12 are indicated two fixed rods in a porting frame in which are hinged the extremities of an extension roller

13 with double helical rifling. On such mentioned rods 12 are articulated, around an axe in coincidence with the axe of roller 13, two supporting structure 14, movable angularly around such axe. In such supporting structures are hinged the extremity of a second extension roller 16, also with double helical rifling and having his axe parallel to the one of roller 13.

According to the finder, as can be seen in fig.2; each roller 13 and 16 is constituted by two distinguished tracts of rollers 16', 16" and 13', 13" connected in the middle of the complete roller.

To allow the two tracts of each roller an independent rotation, one of the two tracts 16' and 13' (on the left in fig.2) presents a tang 17 protruding on its free extremity, on which is threaded the tubular extremity 18 of the other tract 16" and 13" of roller (on the right in fig.2).

between tang 17 and extremity 18 are fitted bearings 19 which allow the rotation of the two elements.

Two motors 20 fixed to the supporting structures 14 drive the rotation of each pair 13', 13" and 16', 16" the tracts of extension rollers 13 and 16 by means of respective transmissions with reduction gear placed inside of the supporting structures 14 (non illustrated).

The angular movement of the supporting structure 14 is normally actived by mouving a hand wheel 21 which drives the rotation of a conical gear 22 connected to a second conical gear 23, fixed on an shaft 24, hinged to the two posts 12, in parallel position to the axes of the extension rollers 13 and 16.

At the extremity of the shaft 24 are fixed two gears 25 engaged with toothed sectors 26 solid to the supporting structure 14.

With 27 is indicated a photoelectric sensor of the position of the fabric selvedge 11, connected electrically to a group 28 which elaborates the signals coming from the sensor and sends as signals to command the motors 20.

The sensor device could be, instead of the illustrated photocell, of any other type, as for instance mechanical or pneumatic.

The operation of the extension and centering device of rope fabrics 11 as above described is the following. The fabric 11, after having been put into rope from for the operations of finishing, as for instance dyeing, bleaching and washing is being advanced through the extension device 10 by a traction sustom (not illustrated and situated afeter the mentioned devices) which brings it ahead in the

direction indicated by the arrow A of Fig.2.

As generally known, the advancing level of the fabric substantially coincides with the vertical level. Always as known, in the extension device 10 the fabric passes with attrition through the extension rollers 13 and 16 which are driven in rotation in the opposite sense of the direction of the advancement of the fabric. In this way the extension rollers 13 and 16, thanks also to the double helical rifling, giving back to the fabric 11 its open form. The attrition with which the fabric passes in contact with the extension rollers 13 and 16 may be changed by varying the angle of inclination between the level of the axes of the extension rollers and the vertical level.

The variation of such angle is done by turning the handle 21 which drives, by means of conical wheels 22 and 23, the rotation of the toothed wheels 25 and the sectors 26 solied to the supporting structure 14 holding the extension rollers 13 and 16. In the case the sensor 27 feels a mouvement of the fabric 11 in transversal sense to the direction of advancement along the arrow A, the group 28 imparts a variation (increase) of speed to one of the motors 20, which determinates a consequent speed variation of rotation (increase) to the pair of tracts of the rollers 16

and 13 to which it is connected.

Therefore, the extension rollers exercise an antagonist on the fabric 11 with the tendency to bring it back in the desired position of advancement along the arrow A. As a fact in the case, for example, the fabric is moving to the left (arrow X of fig.2) the sensor is signaling it to the group 28, which opportunely realized sends an order to motor 20 of the right hand side (in fig.2) to increase his speed, with consequent increase of speed of rotation of tracts 13" and 16" of rollers 13 and 16 connected to them, causing the before said mouvement of fabric 11 to the right and therefore, in optimate position; when this position is once again reached, the sensor 27 will order the interruption of the order to increase the speed of motor 20 (right hand side) and the two pairs of tracts 16', 13' and 16", 13" will rotate again at the same speed.

A centering device of known type, not illustrated, could be eventually placed at a preestablished distance, after the extension device, for recuperating the lateral macroscopic mouvements, or for devices of very big dimensions, buto this does change nothing of the ambit of the finding, as also protected by the following claims.

CLAIMS

1. Extension and centering device for rope fabric, consisting of: one extension device, including a carrying structure at least two extension rollers with double helical rifling, driven in rotation in opposite sense of the advancing of the fabric and having their axes parallel, and sensor means, sensible of lateral change of direction of the fabric, fitted after the above mentioned rollers, characterized by the fact that each roller is built of two tracts of substantial the same length which are engaged between them idle in correspondence to the facing extremities, whereas the other extremities are kept solid in rotation at the tract adjacent of the other roller, driven by respective motors, there being also foreseen piloted actuator means of above mentioned sensors to change the speed of one of the two motors, causing the variation of speed of rotation of the two tracts of rollers connected to them, according to the lateral movement of the fabric.

2. device according claim 1, characterized by the fact that the actuator means are of such kind to increase the speed of rotation of the motor, and therefore of the tracts of rollers, opposite of the direction of the lateral movement of the fabric.

3. Device according claim 1, characterized by the fact that at the extremities where they are engaged idle, one tract of the roller presents an axial tang, which is introduced in a cavity of the other tract; between the tang and walls at the extremity of the cavity being interposed ball bearings.

Fig. 1

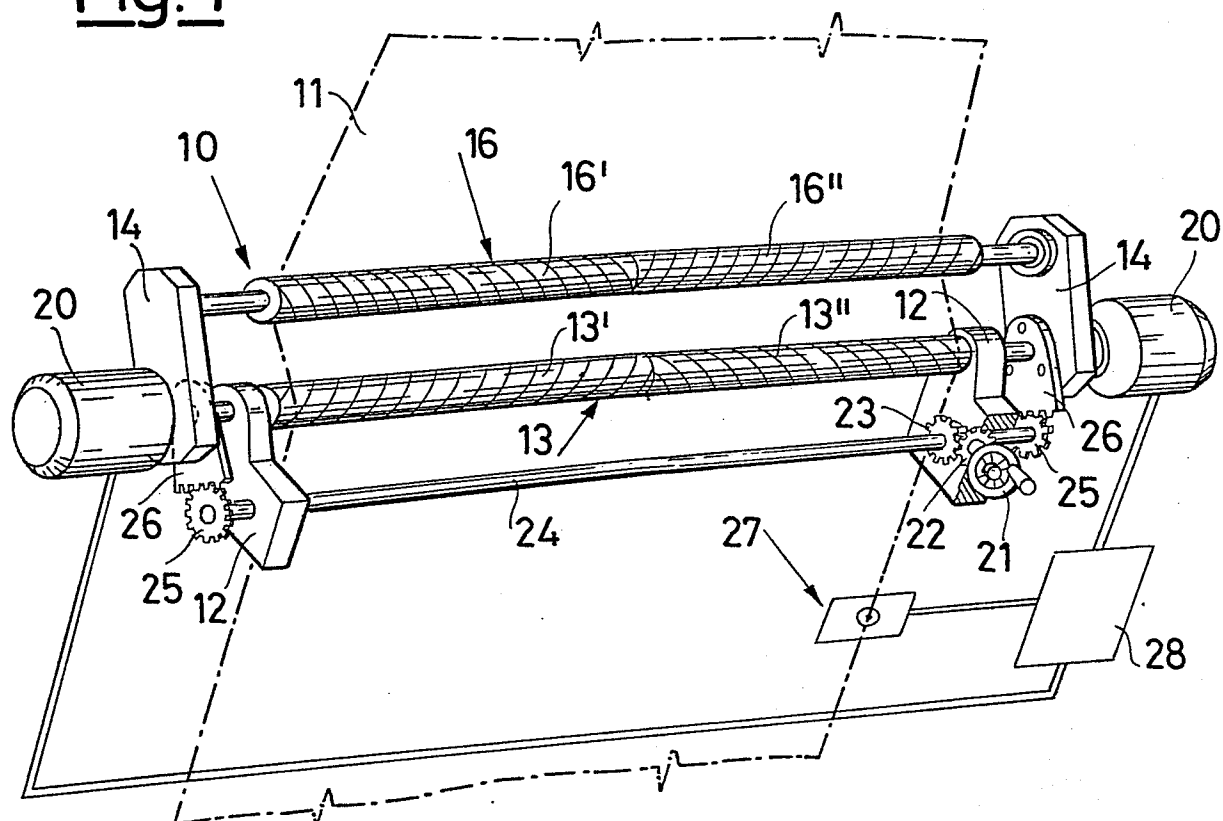


Fig. 2

