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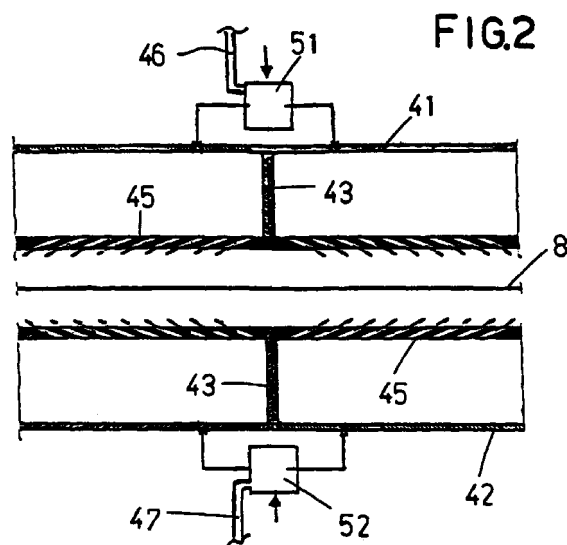
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(54) **Device for centring and widening of a fabric strip**

(57) Centring/widening device adapted to widen and centre a fabric strip on a reference axis, consisting of two parallel tubes (41, 42) which are separated between them and face each other, for their entire length, by a part of their wall which presents nozzles adapted for the blowing in of pressured air sent through said tubes by a fan.



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Description

[0001] The present invention refers to a device adapted to widen and centre a fabric strip on a processing line, for example that of a cut tubular fabric which must be wound on a stocking roll.

[0002] Different widening and centring devices for fabrics are already known. They usually consist of two different units, the one adapted for widening and the other for centring the fabric.

[0003] The widening device consists of two parallel motor rolls presenting helical ribs starting from the centre and extending outwards. As to the centring systems, two solutions are known: the hunting guides and the stave guides. The hunting guides consist of two or more rolls which can be bent in relationship to the advancement plane of the fabric so that this one is displaced transversally in order to keep it centred on the reference axis. The stave guide consists of a crown of staves the final parts of which are connected to swinging disks. By bending the disk in relationship to the axis of the advancement plane of the fabric, and by rotating the crown of staves, the fabric is centred on the reference axis.

[0004] A major disadvantage that these devices present, is represented by the fact that they are quite complex, they come into contact with the fabric, so that the fabric can be stretched more than it is needed, and they are very expensive.

[0005] It is an object of the present invention to provide a centring and widening device that allows to overcome the disadvantages mentioned above, that is a single device adapted to perform both functions.

[0006] It is another object of the present invention to reduce, as far as possible, the component parts of the device without compromising its effectiveness, in order to lower the overall production costs.

[0007] These and other objects are achieved by means of a widening/centring device adapted to widen and centre a fabric strip on a reference axis, presenting the characteristics disclosed in claim 1.

[0008] Further characteristics and advantages are disclosed in greater details in the following description which refers to the accompanying drawings provided as non-restrictive example, in which

figure 1 is a schematic side elevation view of an equipment for the processing of tubular fabrics and provided with the device according to the invention; figures 2 and 3 are sectional views, respectively longitudinal and transversal, of the widening/centring device mounted on the equipment in figure 1.

[0009] With reference to the figures, and starting by figure 1, reference number 2 indicates a machine continually performing a series of operations, such as cutting, on a tubular fabric 8 which progresses through it. It is part of this equipment an untwisting device 10 of a

known type, which makes the fabric, that arrives in rope-like form, for example after dyeing, rotate in both opposed senses, as to the advancing direction, so that it presents no torsion and can be inflated, by means of blowing air inside it. By inflating the tubular fabric the effectiveness of the untwisting unit is improved and the tubular fabric is better widened before reaching the cutting device. Upon being inflated and widened, the fabric is cut longitudinally along the missing weft and eventually widened and stretched.

[0010] The air is blown countercurrent by means of a motor fan 12 coupled to a conduit 13, and the fabric is dragged towards the cutting tool 15, normally consisting of a disk rotating on a vertical plane.

[0011] The machine makes use of a positioning device, which consists also of two motorised barrels 17 rotating on their own axis, and which is controlled by an optical reader 19, continually detecting the position of the missing weft and acting on the rotation of the barrels in order to keep the tubular fabric centred.

[0012] A widening/centring device according to the present invention is mounted on the machine 2, being overall indicated by reference number 20. It is to be understood that the embodiment described in the following represents just one of the possible applications of the device of the invention, the use of which is therefore not limited to the machine described above. The device consists of two tubes 41 and 42, the section of which is preferably and basically rectangular, and which are wide enough to cover the width of the fabric (figures 2 and 3). They are divided into two separate conduits, right and left respectively, by a central section 43. The tubes are placed facing each other by at least a part of the wall for their entire length. Nozzle-like holes 45 are made in said parts of the walls, their axis being bent, in relationship to the axis of the tube, towards its ends, so that the air, that is blown through the motor fan 12 (in this case it has been made use of a fan already implemented on the main machine, yet, if necessary, it will be possible to make use of a dedicated fan) and the conduits 46 and 47, is used to form air blasts diverging from the central part of the tubes, that is the point where the partition 43 is. Below the two tubes there is located a sensor 49 checking the position of the fabric strip that advances between them before it is wound, for example, on a stocking roll 50.

[0013] The sensor is adapted to detect the entire surface of the fabric or, alternatively, one of its edges, and controls two three-way valves 51 and 53, one for each tube 41 and 42, which valves adjust the air flow in the right and left part of the tubes.

[0014] The fabric strip is therefore stretched by the diverging air flows which keep the fabric straight.

[0015] Besides, according to the information received from the sensor 49 placed below, it is possible to vary the amount of air fed to the right and left conduits so that the strip is kept constantly centred in relationship to the reference axis (for example, the centre line of the

stocking roll). This device enables a full control of the position of the fabric, without need of any contact between the fabric and the device.

[0016] It is to be understood that the invention is not restricted to the embodiments described and shown above, being them provided as non-restrictive examples of possible embodiments of the widening/centring device, which can be modified in its form and location of component parts, as well as in its functional and construction details. The invention is intended to cover any variants included within its scope, as defined in the following claims.

Claims

1. Centring/widening device (20) adapted to widen and centre a fabric strip on a reference axis, characterised in that it consists of two parallel tubes (41, 42) which are separated between them and face each other by a part of their wall for their entire length, both of said parts of wall being provided with nozzles (45) intended to blow, on the fabric advancing between them, the pressured air which is sent through said tubes by a fan (12).
2. Centring/widening device as claimed in claim 1 characterised in that the tubes (41, 42) present a basically rectangular section.
3. Centring/widening device as claimed in claim 1 characterised in that the nozzles (45) diverge from the central part of the tubes towards their ends.
4. Centring/widening device as claimed in claim 1 characterised in that the tubes 41 are divided into two right and left half-tubes by a partition (43).
5. Centring/widening device as claimed in claims 1 and 3 characterised in that the air is sent to each half-tube and that the amount of air fed to each half-tube is controlled by two three-way valve (51, 52), one for each tube (41, 42).
6. Centring/widening device as claimed in claims 1 and 5 characterised in that the three-way valves are controlled by a sensor (49) detecting the position of the fabric located below the tubes (41).

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FIG.1

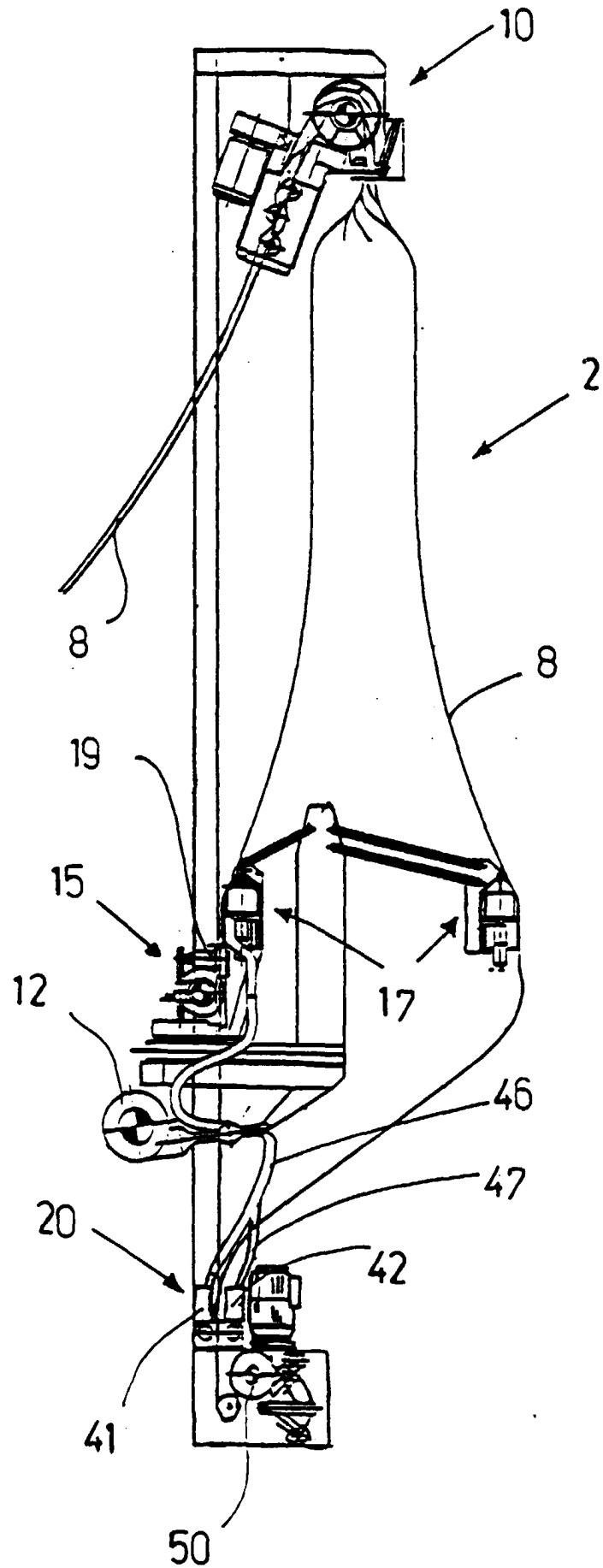


FIG.2

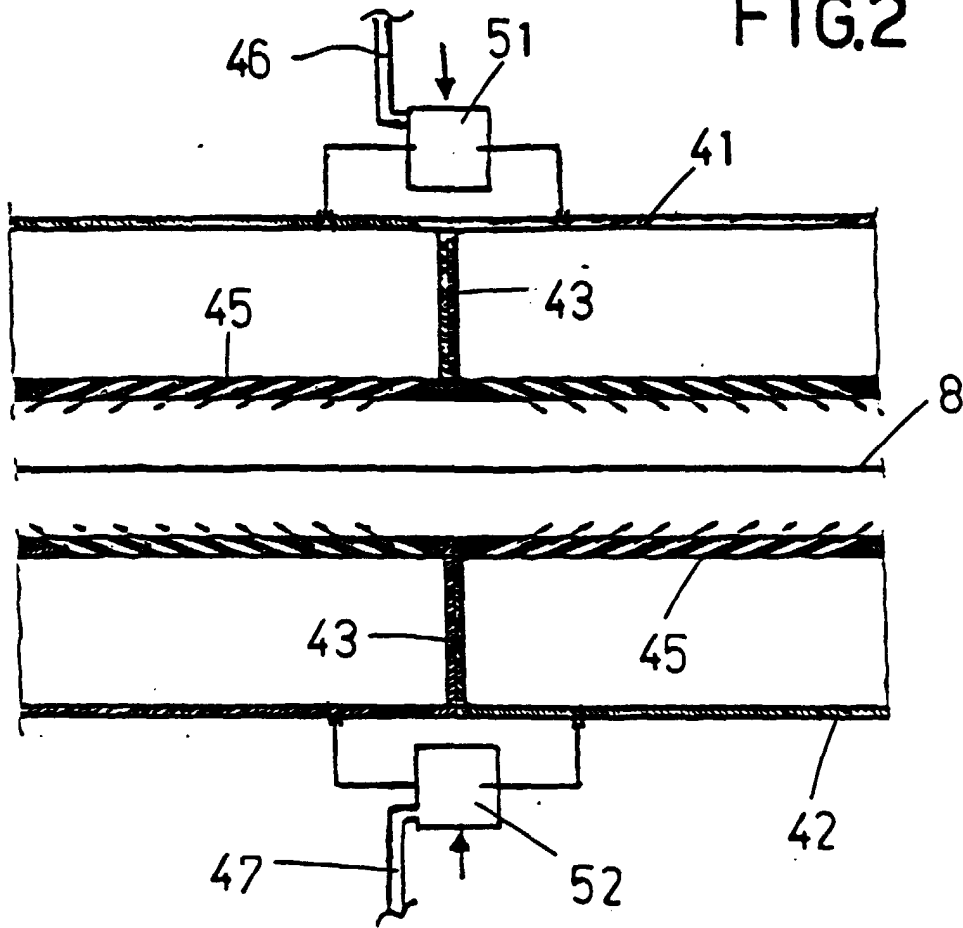


FIG.3

