

APPARATUS FOR TREATING CONTINUOUS BANDS

This invention relates to apparatus for treating, e.g. by shrinking, stretching or drying, a continuous band (e.g. of textile yarn or other strip form material) comprising a drying cylinder and a revolving guide
5 roller arranged at a distance from the drying cylinder and the diameter of which and the axial inclination of which are variable with respect to the drying cylinder, at least at one side, and in which a continuous band to be treated can be taken around the drying cylinder
10 and the guide roller in a plurality of turns which are offset from one another in the axial direction.

In known apparatus of this kind, experience shows that it is often not possible to set the guide roller in such a way exactly conically, i.e. to set
15 the diameter of the guide roller at one side so accurately that the encircling band is taut over the entire width of the guide roller.

The problem of the invention therefore consists in developing apparatus, of the kind discussed above,

in such a way that taut guidance of the band being treated is ensured over the entire width of the guide roller and of the drying cylinder.

This problem is solved in that there is arranged, 5 between the drying cylinder and the guide roller, in the vicinity of the drying cylinder, a guide roll for the band to be treated, which guide roll serves to enlarge the looping angle of or the bights of the band around the drying cylinder and which at its one 10 end, corresponding to the exit of the band out of the apparatus, is located so that it can be swung to and fro, against the effect of a counteracting bias, acting substantially in a plane of tension of the band, and which at its other end is hingedly mounted.

15 Advantageously, considered in the direction of travel of the belt, the guide roll is arranged behind the guide roller and in front of the drying cylinder.

In an advantageous embodiment, the guide roll is cylindrical in configuration. Advantageously the 20 guide roller is arranged above the drying cylinder, and the guide roll is held so as to be displaceable at its one end in a substantially horizontal plane. Preferably the guide roll is guided at its one end so as to be displaceable in a slotted-hole guide of the 25 apparatus.

In a preferred embodiment, the guide roll is connected, at its end which can be swung to and fro, by way of a rope or cable which extends over a pulley, to a weight, spring or the like.

5 The invention will be described further, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 is a diagrammatic side view of the apparatus in accordance with the invention;

10 Fig. 2 is a diagrammatic plan view with the drying cylinder omitted, which serves to enable the operation of the apparatus of Fig. 1 more readily to be understood; and

15 Fig. 3 is a front view of the apparatus of Figs. 1 and 2.

As shown in the drawings, a preferred embodiment of the apparatus of the invention, which is for subjecting a continuous band 17, which may be one or more textile yarns or threads, or maybe a rope, or a
20 narrow fabric or web, to a continuous treatment, such as shrinking, stretching or drying, comprises a drying cylinder 1 above which is a guide roller 2. As shown by Fig. 3, the guide roller 2 comprises several rods

or tubes 3 disposed in an array around its periphery and connected hingedly at their ends to spokes 4. The spokes 4 radiate from holders 5 which are displaceable along and flexible relative to a central axle 6 of the guide roller 2. By shifting one or both of the holders 5, the conicity of the guide roller 2 can be adjusted at will.

The one end of the axle 6 of the guide roller 2 is located in a holder 7 which is guided so as to be displaceable in a supporting frame 8 of the apparatus in such a way that the angle of inclination of the axle 6 with respect to the drying cylinder 1 is variable.

Arranged between the drying cylinder 1 and the guide roller 2, in the vicinity of the drying cylinder, is a cylindrical guide roll 9. This is arranged in such a way that the looping angle of the band 17 in its turns around the drying cylinder 1 is enlarged, that is to say the bights of the band 17 around the cylinder are of greater angular extent than would be the case if the band simply ran directly off the cylinder 1 to the roller 2 and back from the roller 2 to the cylinder 1. Axle 12 of the guide roll 9 is held at its one end which is the exit end from which the band exits from the apparatus, so that it can be displaced to and fro in a slotted guide hole 11 in

the supporting frame 8 of the apparatus in a substantially horizontal plane in the direction of the double arrow designated by the reference numeral 10 in Figs. 1 and 2. At its other end, the axle 12 of the guide roll 9 is mounted by a hinge 13 on the supporting frame 8 of the apparatus.

The end, guided in the slotted guide hole 11, of the axle 12 is connected, by way of a rope or cable 14 which extends over a pulley 15, to a weight 16.

As can be seen from Figs. 1 and 3, a band 17 to be treated is fed by way of the drying cylinder 1 to the guide roller 2 and then in turn passes by way of the guide roll 9 back to the drying cylinder 1. The guide roll 9 is, for this purpose, arranged in such a way that, in its central position along the slot 11, the band part running up tangentially to the roll 9 is approximately an angle of 90° to the part which runs off the roll 9 and towards the guide roller 2.

If, upon the treatment of the band 17, the conicity of the guide roll 2 is not so accurately adjusted that the band being treated is taut over the entire width of the guide roller 2, the guide roll 9 acts as a pendulum roller and is moved by the weight 16 in the directions indicated by the double arrow designated by the numeral 10 in such a way that the guide roll 9 butts tautly against the band 17.



CLAIMS

1. Apparatus for treating, e.g. by shrinking, stretching or drying, a continuous band, comprising a drying cylinder and a revolving guide roller arranged at a distance from the drying cylinder and
5 the diameter of which and the axial inclination of which are variable with respect to the drying cylinder, at least at one side, and in which a continuous band to be treated can be taken around the drying cylinder and the guide roller in a plurality of turns which
10 are offset from one another in the axial direction, characterised in that there is arranged, between the drying cylinder and the guide roller, in the vicinity of the drying cylinder, a guide roll which serves to enlarge the looping angle of or the bights of the band
15 around the drying cylinder, and which at its one end, corresponding to the exit of the band out of the apparatus, is located so that it can be swung to and fro, against the effect of a counteracting bias, acting substantially in a plane of tension of the band,
20 and which at its other end is hingedly mounted.

2. Apparatus as claimed in claim 1, characterised in that, considered in the direction of travel of the band, the guide roll is arranged behind the guide roller and in front of the drying cylinder.

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3. Apparatus as claimed in claim 1 or 2, characterised in that the guide roll is cylindrical in configuration.
4. Apparatus as claimed in claim 1, 2 or 3, characterised in that the guide roller is arranged above the drying cylinder, and in that the guide roll is held so as to be displaceable at its one end in a substantially horizontal plane.
5. Apparatus as claimed in any preceding claim characterised in that the guide roll is guided so as to be displaceable at its one end in a slotted guide hole of the apparatus.
6. Apparatus as claimed in any preceding claim characterised in that the guide roll is connected, at its end which can be swung to and fro, by way of a rope or cable which extends over a pulley, to a weight, spring or the like.
7. Apparatus for treating a continuous band substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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