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(54) **Raising machine drum with raising elements for high quality fabrics**

(57) The present invention relates to a drum (1) for a raising machine, the drum (1) comprising raising elements (3) which have been specifically designed for providing high quality raised fabrics, the drum (1) comprising a tubular cylindric body (2) having a surface on which are arranged the raising elements (3), the main feature

of the invention being that the raising elements (3) comprise supporting plates (10) supporting a resilient layer (13), thereon are provided a plurality of regions including metal needles (14) operating as a vegetable cardon or thistle. Holding plates (20) at least partially overlaying the resilient layer (13) and defining the metal needle (14) regions being moreover provided.

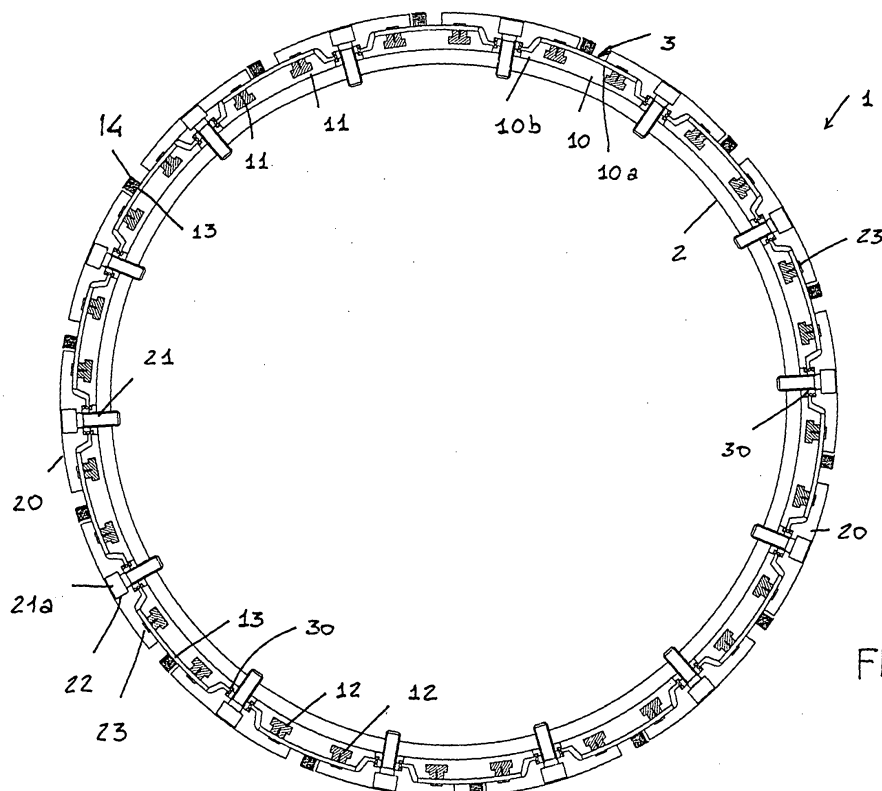


FIG. 1

EP 1 533 410 A2

Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a drum for raising machines, including raising elements which have been specifically designed for providing high quality raised fabrics.

[0002] Prior raising machines, designed for providing high quality raised fabrics, conventionally comprise a raising element obtained starting from vegetable cardons, adapted to provide the fabric being processed with high finishing features.

[0003] However, the provision of cardons having the desired features, is very complex and expensive.

[0004] Moreover, it is necessary to frequently replace the raising elements to provide high quality characteristics.

SUMMARY OF THE INVENTION

[0005] Accordingly, the aim of the present invention is to solve the above mentioned problems, by providing a raising drum for raising machines, including specifically designed raising elements, for making high quality raised fabrics, in which the vegetable "cardons" or raising elements can be replaced by metal raising needles so connected as to provide the fabric being processed with the desired raising features.

[0006] Within the scope of the above mentioned aim, a main object of the present invention is to provide such a drum for raising machines which is adapted to provide high quality fabrics, such as wood fabrics, chachemire fabrics, vicuna fabrics and the like, so as to provide the fabrics being processed with very good brilliant hair directionality and "hand" properties, which cannot be provided by prior raising machines and methods.

[0007] Yet another object of the present invention is to provide such a raising drum for raising machines which, owing to its specifically designed features, is very reliable and safe in operation, and in particular is adapted to prevent excessive processing waste from being generated.

[0008] Yet another object of the present invention is to provide such a raising drum for raising machines, including raising elements specifically designed for raising high quality fabrics, which can be easily made and which, moreover, is very competitive from a mere economic standpoint.

[0009] According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a raising drum for raising machines, said raising drum including raising elements specifically designed for providing high quality raised fabrics, said raising drum comprising a cylindric tubular body, having a surface thereon raising elements are arranged, characterized in that said raising elements com-

prise a plurality of supporting plates for supporting a resilient layer, thereon metal needle regions are provided, said metal needle elements being adapted to operate as a vegetable cardon, holding plates at least partially overlapping on said resilient layer and defining said metal needle regions being moreover provided.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] Further characteristics and advantages of the present invention will become more apparent hereinafter from the following detailed disclosure of a preferred, though not exclusive, embodiment of a raising drum for raising machines, including raising elements specifically designed for providing high quality raised fabrics, which is illustrated, by way of an indicative, but not limitative, example in the accompanying drawings, where:

Figure 1 is a schematic view showing the raising drum for raising machine according to the invention, as seen in cross-section; and

Figure 2 is a further cross-sectional view, on an enlarged scale, showing a portion of the raising drum.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0011] With reference to the number references of the accompanying drawings, the raising drum for raising machines, according to the invention, which has been generally indicated by the reference number 1, comprises a cylindric body 2, which advantageously includes a tubular element having a tubular element surface on which a plurality of raising elements generally indicated by the reference number 3 are provided.

[0012] The main feature of the invention is that said raising elements 3 comprise supporting plates 10, extending longitudinally with respect to the axial direction of the raising drum 1, and including a projecting central portion 10a and recessed longitudinal edges 10b.

[0013] At said central portion 10a, wood longitudinal inserts 11, allowing to apply, by clamping elements 12, a resilient layer, are provided.

[0014] Said resilient layer, in particular, advantageously comprises a felt material layer 13, thereon are provided a plurality of longitudinally extending regions including metal needles 14, having their tips slightly slanted with respect to the longitudinal extension of said needles.

[0015] For affixing or restraining in their set positions said supporting plates 10, the latter comprise a plurality of holding or clamping plates 20, overlapping for a portion on the longitudinal edges of the felt material 13, thereby practically providing restraining clamping means.

[0016] For further clamping the holding plates 20, a plurality of clamping bolts 21 engaging with the tubular body 2 are provided, said clamping bolts having head portions 21a engaging in a recess 22 formed on said

holding plates 20.

[0017] Said holding plates 20 are moreover provided with a plurality of cut-outs 23 at said insert elements 11, thereby said plates do not interfere against the restraining clamp elements 12.

[0018] An urging spring 30 for urging the plates in a radial direction away from the tubular body 2 are furthermore provided thereby, as the clamping bolts 21 are released, the plates 20 can be removed or moved away, thereby allowing the related plates 10 to be easily removed to provide the replacement thereof.

[0019] The holding plates 20 provide a guide and sliding surface for the fabric being processed, which will engage the raising metal needles which, practically, afford the possibility of precisely reproducing the effect of the vegetable cardon, to provide a high quality optimally finished raised fabric.

[0020] From the above disclosure it should be apparent that the invention fully achieves the intended aim and objects.

[0021] In particular, the fact is to be pointed out that the invention provides to use metal needle raising elements adapted to evenly and consistently reproduce the raising characteristics which are provided by vegetable cardons.

[0022] Thus, it is possible to process high quality fabrics, to provide said fabrics with very good brilliant, hair directionality and hand features which cannot be obtained in prior raising machines and method.

[0023] The invention, as disclosed, is susceptible to several modifications and variations, all of which will come within the scope of the invention.

[0024] Moreover, all the constructional details can be replaced by other technically equivalent elements.

[0025] In practicing the invention, the used materials, as well as the contingent shapes and size, can be any, depending on requirements.

Claims

1. A raising drum for raising machines, said raising drum including raising elements specifically designed for providing high quality raised fabrics, said raising drum comprising a cylindric tubular body, having a surface thereon raising elements are arranged, **characterized in that** said raising elements comprise a plurality of supporting plates for supporting a resilient layer, thereon metal needle regions are provided, said metal needle elements being adapted to operate as a vegetable cardon, holding plates at least partially overlapping on said resilient layer and defining said metal needle regions being moreover provided.
2. A drum for raising machine, according to the preceding claim, **characterized in that** said supporting plates extend longitudinally along a direction substantially parallel to the axial direction of said drum.
3. A drum for raising machine, according to claim 1, **characterized in that** said supporting plates have a projecting central portion adjoining recessed longitudinal edges.
4. A drum for raising machine, according to claim 1, **characterized in that** said drum further comprises wood inserts, extending longitudinally on the supporting plates, on opposite parts with respect to the metal needle regions.
5. A drum for raising machine, according to claim 1, **characterized in that** said drum further comprises metal clamps for clamping said resilient layer on said supporting plate.
6. A drum for raising machine, according to claim 1, **characterized in that** said resilient layer is made of a felt material.
7. A drum for raising machine, according to claim 1, **characterized in that** said holding plates can be clamped in said supporting plates by clamping bolts.
8. A drum for raising machine, according to claim 1, **characterized in that** said holding plates comprise recesses for housing therein head portions of said clamping bolts.
9. A drum for raising machine, according to claim 1, **characterized in that** said drum comprises moreover urging springs affecting said bolts for moving away said holding plates as said clamping bolts are released.
10. A drum for raising machine, according to claim 1, **characterized in that** said holding plates comprise a plurality of longitudinally extending cut-outs arranged at said inserts of said supporting plates.
11. A drum for raising machine, according to claim 1, **characterized in that** said holding plates provide a guiding and sliding surface for a fabric being processes.
12. A drum for raising machine, according to claim 1, **characterized in that** said metal needle regions extend longitudinally on said drum.

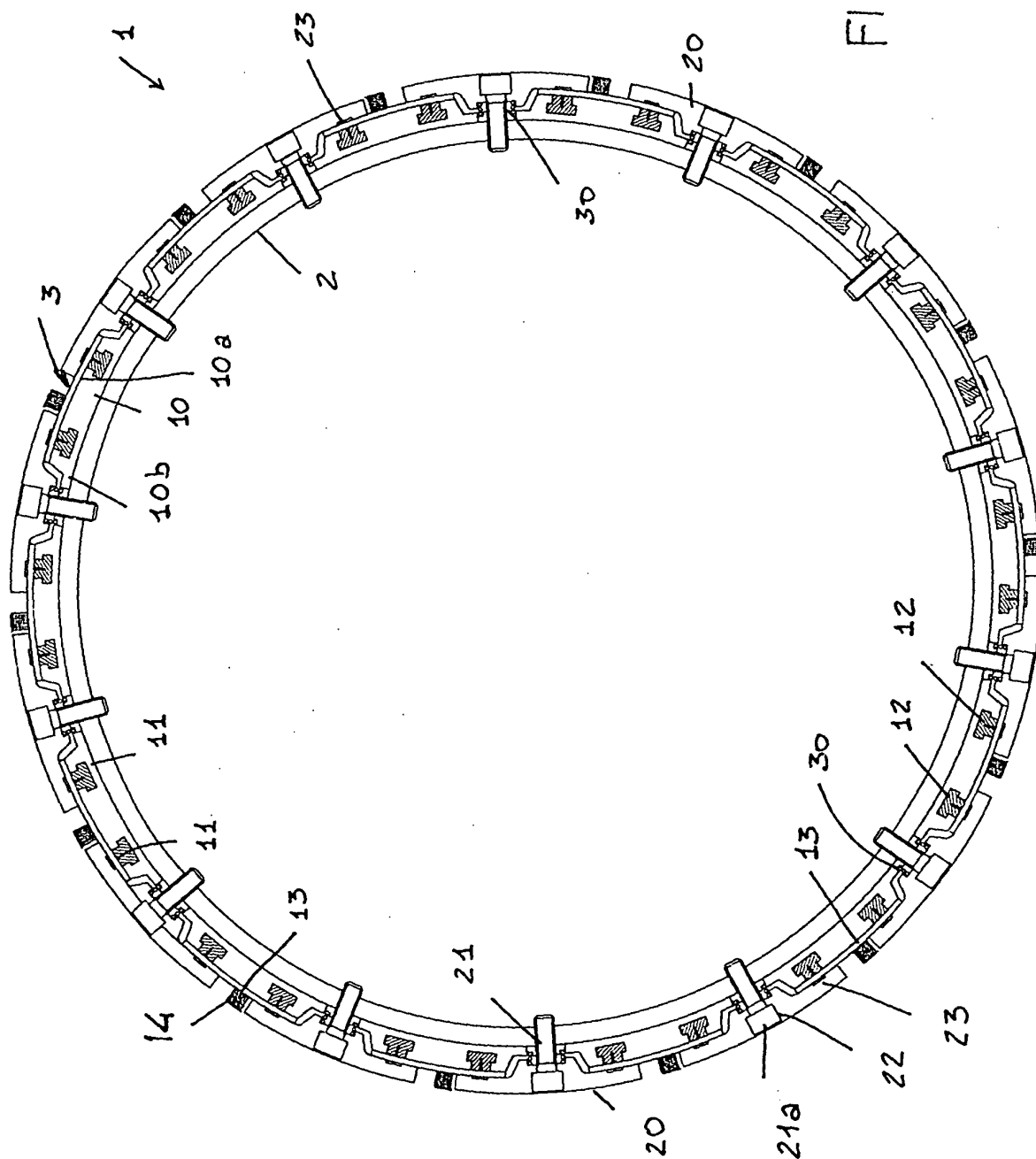


FIG. 1

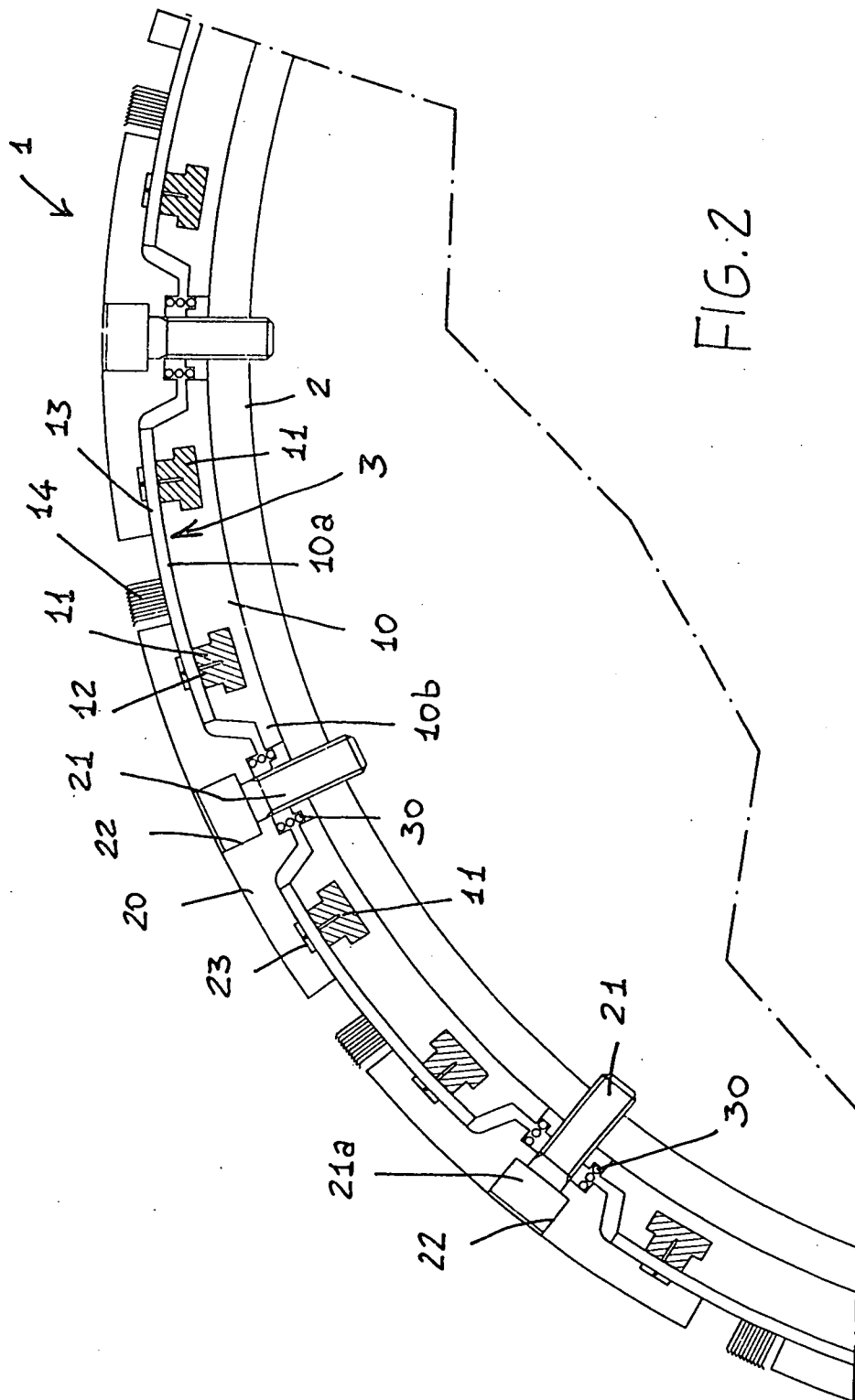


FIG. 2