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(54) Method and device for filling containers of square or rectangular shape for textile material in the form of tops.

(57) For the accumulation of textile material in the form of tops or equivalent having coils which are progressively staggered by means of the so-called coiler, use is made of a prismatic container (3) of square or rectangular design, and the successive coils are staggered by linear displacement according to a cyclic trajectory (T1) parallel to the walls of the container and are tangent to said walls, at least one side of the container not being greater than twice the diametral dimension of the coils.

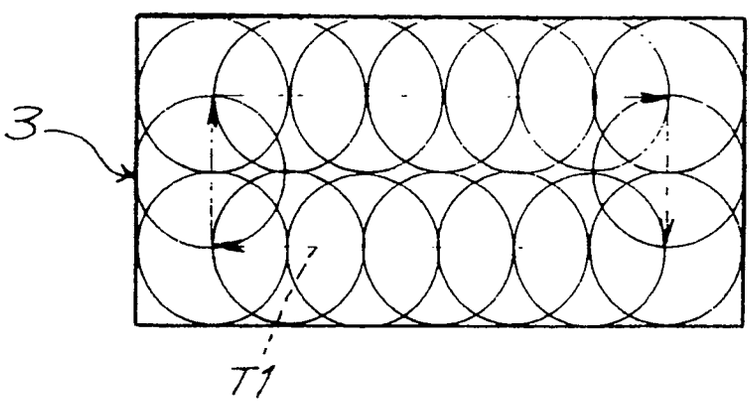

FIG. 4

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The invention relates to a method and to a device which permit the accumulation of coiled textile material, which is distributed by a so-called coiler, in order to create masses to be compressed for transfers and for feeding spinning machines. In general, the coiler is used to create so-called bump tops of essentially cylindrical shape in a cylindrical container, along which there are circumferentially formed progressively staggered coils which fill the cylindrical container. This is then passed to the press where the material for pressing is transferred, with any expedients to modify the external shape of the mass of pressed material.

The invention relates, to a mehod and a device which make it possible to simplify the formation of the accumulations of the textile materials of the abovementioned type, and which permit the formation of pressed masses of considerable weight without particular transfer difficulties and avoiding to the maximum stressing the textile material in the form of tops which is to be pressed and which is then to be unwound for the subsequent working of the fibres in weaving. These and other aims and advantages will become clear from reading the following text.

A first subject of the invention is a method for the accumulation of textile material in the form of tops or equivalent having progressively staggered coils, according to which a prismatic container is used, and the successive coils are staggered by cyclic linear displacement parallel to the walls of the container and are tangent to said walls.

In practice, and advantageously, use is made of a container which has a rectangular base with one side not greater than twice the diametral dimension of the coils, and relative cyclic and successive movements ate imposed in the two directions parallel to the walls, between the rotating distributor of the material and the, container which receives such material distributed in coils. If absolutely necessary, a container which has a square base can be used.

The container can be moved - in relation to the distributor - with cyclic motion according to a rectangular - or if absolutely necessary square - trajectory which has, toughly, two opposite sides equal to half of two opposite sides of the container and has the other two sides equal to the other two opposite sides of the container less one diameter of the coil according to which the material is distributed.

A further subject of the invention is a device for the accumulation of textile material in the form of tops or equivalent having progressively staggered coils, with a rotating-arm distributor and with a container for the material, which container has a rectangular base, while means ate provided for imposing a relative cyclic motion between distributor and container, which comprises successive rectilinear trajectories in the two directions parallel to the sides and in alternate directions.

The container (or the distributor) can be supported using a system of crossed guides and in this case means ate provided in order to displace the container (or the distributor) according to a cyclic rectangular or square trajectory.

Alternatively, the container can be supported by guides for its reciprocating displacement in a direction parallel to two sides, and the distributor is in this case movable in a reciprocating manner in a direction perpendicular to the former direction; the two movements ate intercalated with one another in order to obtain a relative rectangular or square trajectory.

The container can also be used in pressing or for a partial pressing.

A further subject of the invention is a container for the accumulation of textile material in the form of tops or equivalent in the form of staggeted coils, which has a rectangular or square cross-section.

The final subject of the invention is a package, of textile material in the form of tops or equivalent in the form of staggered and pressed coils, characterised in that the coils ate staggeted along a rectangular or square trajectory, the package having an essentially prismatic external shape.

The invention will be understood mote clearly by following the description and the attached drawing which shows a non-limiting exemplary embodiment of the invention itself and in which:

Figs 1, 2 and 3 show diagrammatically, in plan view and in two vertical cross-sections at right angles to one another, a device according to the invention;

Figs 4 and 5 show two alternative embodiments for accumulation in spaces of rectangular and square design, and

Fig. 6 shows by way of comparison with Fig. 5 the solution using a conventional cylindrical container system.

According to what is illustrated in the attached drawing, 1 indicates the so-called coiler which, drawing the textile material in the form of tops, brings about its accumulation in progressively staggered coils to form layers of coils for the accumulation of the material. As shown in Fig. 6, in a conventional arrangement, the accumulation of the material from the coiler 1 is achieved in a cylindrical container C, in which the coils ate accumulated through the effect of the relative motion between the container and the coiler distributor which rotates about a vertical axis; the centre of the coils following one another is situated along a circumference Co, the diameter of which is essentially half that of the cylinder C. The mass of material accumulated is thus of essentially cylindrical development and has to be transferred into a press of square or rectangular development in cross-section, or has to be pressed into bales of circular type, which does not in any case allow a rational exploitation of space; the transfet is a treatment not without stress for the material.

In order to avoid these disadvantages, according to the invention use is made, for accumulation, of a container 3 of rectangular shape, as shown in Figs 1 to 4, or, if absolutely necessary, of square shape respectively, as indicated by 33 in Fig. 5. The dimension of the shorter side of the container 3 or, respectively, the dimension of the side of the container 33, is approximately equal to twice the diameter of the coil which can be accumulated using the coiler 1. The dimension corresponding to the longer side of the rectangular cross-section of the container 3 can be of any size. The container 3 or 33 is placed on a structure which is indicated briefly by 5 and which can move according to two directions at right angles FA and FB by means of a system of crossed guides which is generally indicated by 7 and which can have any form of conventional type with independent and synchronised controls for the reciprocating displacement in the two directions FA and FB with intercalated courses in order to obtain rectangular (and if absolutely necessary square) trajectories. The coiler 1 is made to rotate for the distribution of the coils. The relative movement is clearly indicated in Figs 4 and 5, in which a rectangular trajectory T1, or a square trajectory T2 respectively, constitutes the locus of the centres of the distributed coils. The trajectory T1 will have the shorter side equal to half the length of the shorter side of the container 5 and the longer side equal to the length of the longer side of the container 5 less one diameter of the coil; in the case in Fig. 5, the trajectory T2 will have the side equal to half that of the rectangular container 33. It is cleat that the control of the cyclic reciprocating displacements of the crossed-guide system 7 will be synchronised for a combination such as will describe at each point of the container 3 or 33 a trajectory corresponding to that of T1 or T2; in other words, the trajectories T1 and T2 indicate the relative displacement of the centre of rotation of the rotating equipment of the coiler in relation to the container to be filled using said coiler.

Although it is not to be excluded that the cyclic movement with a rectangular or square trajectory can be assigned to the coiler in relation to a fixed container, the system using the crossed guides 7, which displace the structure 5 of the container 3 or 33 according to said trajectory T1 or T2, seems mote logical. Assignment of reciprocating motion in one direction to the container C and in the other to the coiler is also not excluded.

The container such as 3 or 33 will advantageously have a bottom 3A respectively 33A (not visible) which is vertically movable in such a manner that the container 3 or 33 can be placed directly on a press for pressing of the material directly in the container itself, thus giving rise to the formation of limitedly pressed masses of textile material having prismatic development; final pressing can take place, however, by sliding the container within the pressing seat of a final press.

The operation of pressing can be carried out in parallel within containers positioned side by side in one and the same press, or respectively can also be brought about using successive pressings of accumulated material in containers which ate successively brought under the press for cumulative pressing on a number of successive occasions of the material of a number of containers.

It is intended that the drawing only shows an exemplary embodiment which is given only by way of practical demonstration of the invention, it being possible for the invention to vary in form and arrangement without moreover leaving the scope of the idea which forms the invention itself.

Claims

1. Method for the accumulation of textile material in the form of tops or equivalent having progressively staggered coils, characterised in that a prismatic container is used and in that the successive coils ate staggered by cyclic linear displacement parallel to the walls of the container and are tangent to said walls.

2. Method according to the preceding claim, characterised in that use is made of a container which has a rectangular base with one side not greater than twice the diametral dimension of the coils, and in that relative cyclic and successive movements ate imposed in the two directions parallel to the walls, between the rotating distributor of the material and the container which receives such material distributed in coils.

3. Method according to Claim 1 or 2, characterised in that use is made of a container which has a square base.

4. Method according to one of the preceding claims, characterised in that the container is moved - in relation to the distributor - with cyclic motion according to a rectangular - or if absolutely necessary square - trajectory which has, toughly, two opposite sides equal to half of two opposite sides of the container and has the other two sides equal to the other two opposite sides of the container less one diameter of the coil according to which the material is distributed.

5. Device for the accumulation of textile material in the form of tops or equivalent having progressively staggered coils, with a rotating-arm distributor and with a container for the material, characterised in that said container has a rectangular base, and in that means are provided for

imposing a relative cyclic motion between distributor and container, which comprises successive rectilinear trajectories in the two directions parallel to the sides and in alternate directions.

6. Device according to Claim 6, characterised in that the container is supported using a system of crossed guides and in that means ate provided in order to displace the container itself according to a cyclic rectangular or square trajectory.

7. Device according to Claim 5, characterised in that the distributor is supported using a system of crossed guides and in that means ate provided in order to displace the distributor itself according to a cyclic rectangular or square trajectory.

8. Device according to Claim 5, characterised in that the container is supported by guides for its reciprocating displacement in a direction parallel to two sides, and the distributor is movable in a reciprocating manner in a direction perpendicular to the former direction, the two movements being intercalated with one another in order to obtain a relative rectangular or square trajectory.

9. Device according to one of Claims 5 to 8, characterised in that the container is used in pressing also.

10. Container for the accumulation of textile material in the form of tops or equivalent in the form of staggered coils, characterised in that it has a rectangular or square cross-section.

11. A package of textile material in the form of tops or equivalent in the form of staggered and pressed coils, characterised in that the coils are staggered along a rectangular or square trajectory, the package having an essentially prismatic external shape.

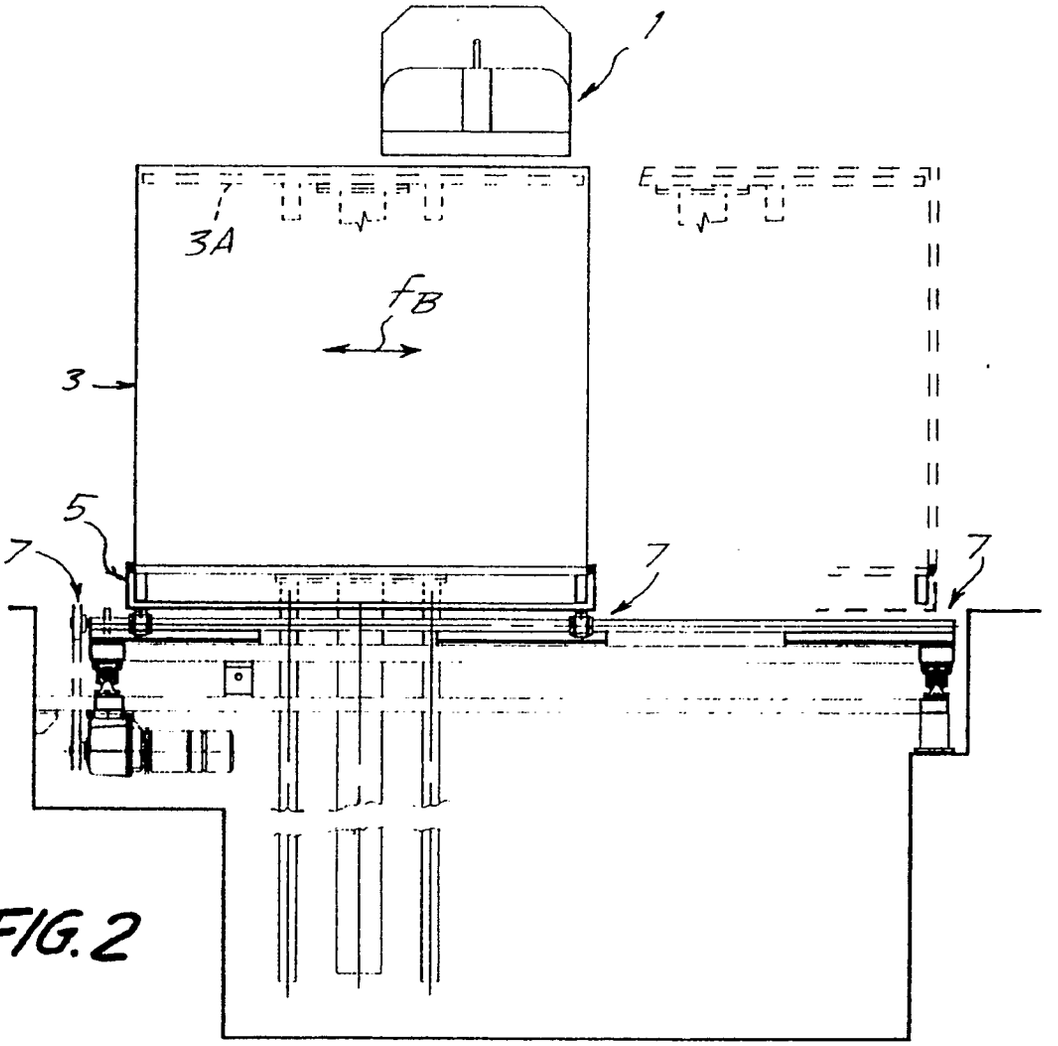
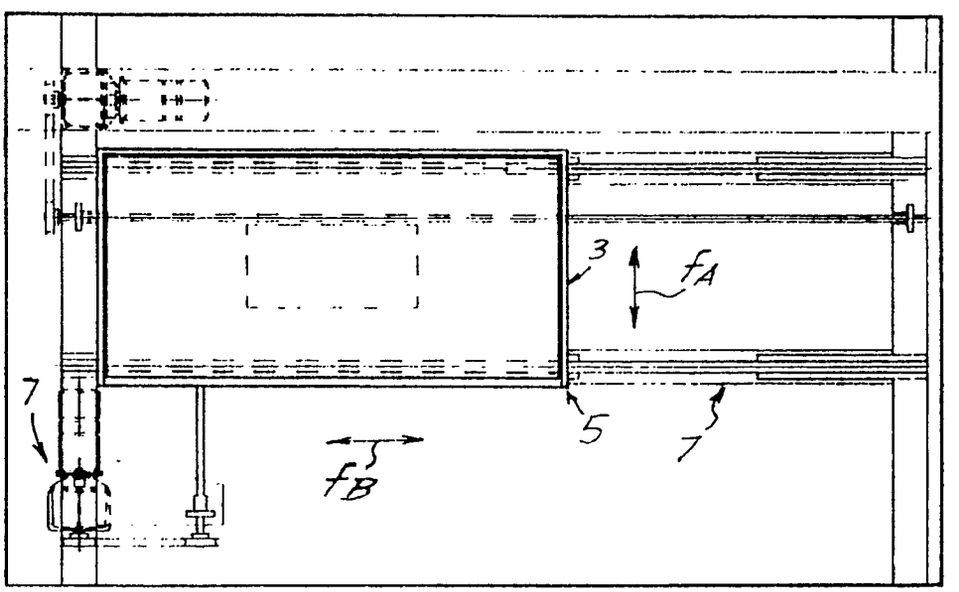


FIG.2

FIG.1



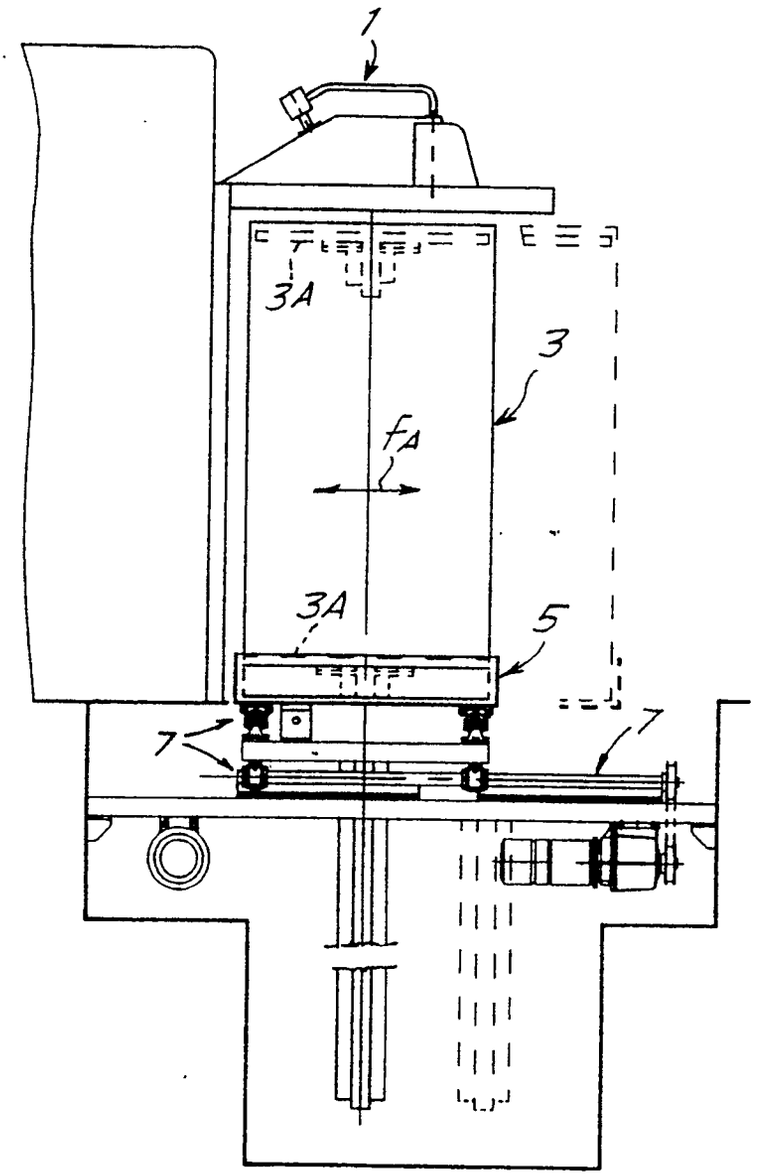


FIG. 3

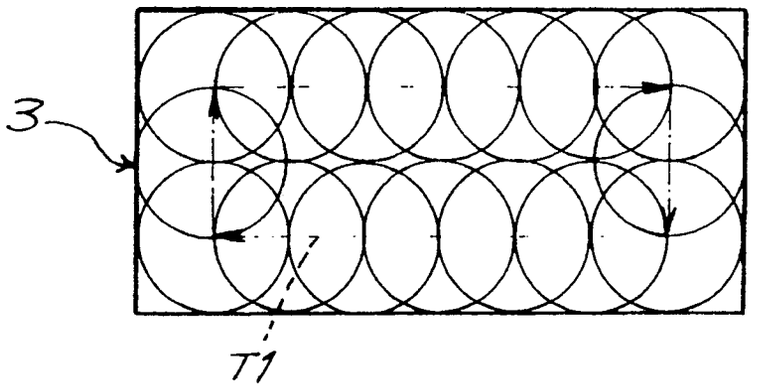


FIG. 4

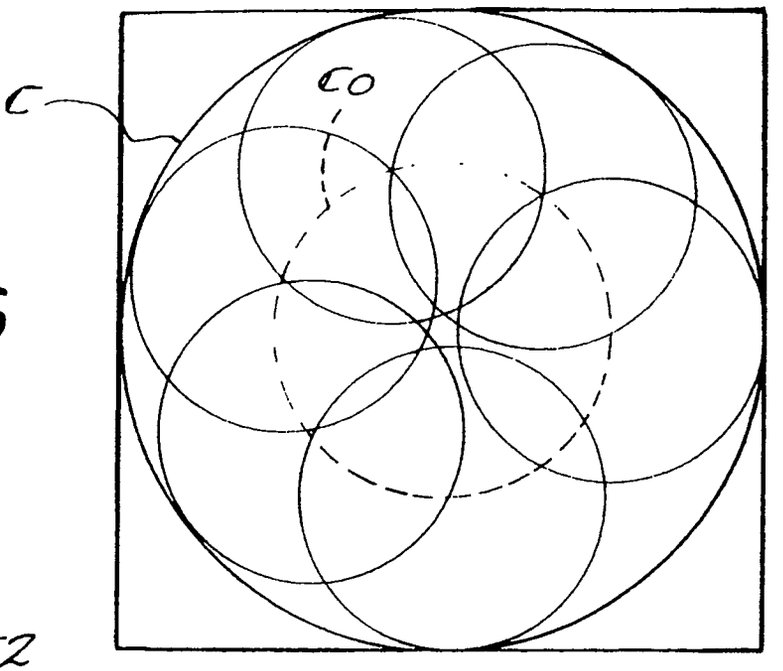


FIG. 6

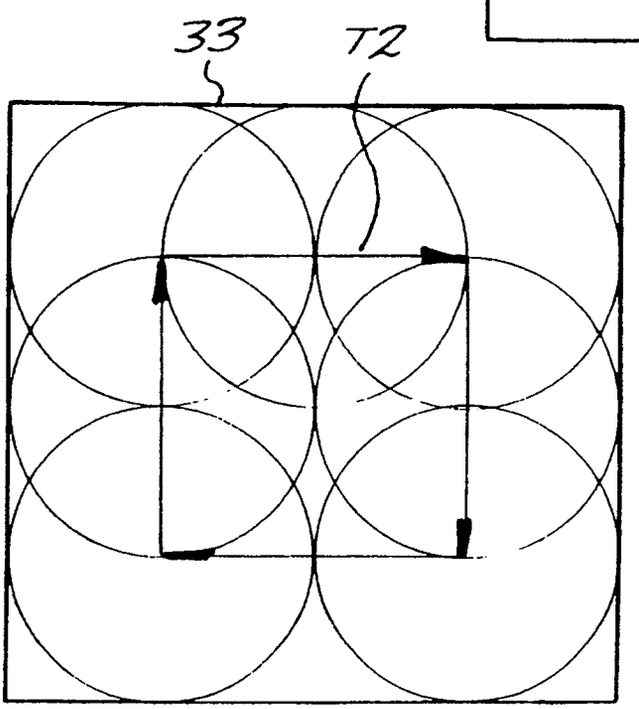


FIG. 5

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

DOCUMENTS CONSIDERED TO BE RELEVANT

EP 91830212.6

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	GB - A - 2 048 321 (W. REINERS VERWALTUNGS-GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG) * Fig. 5,7 *	1-11	B 65 H 54/76
X	EP - A1 - 0 344 484 (SCAGLIA S.P.A.) * Fig. 1,2 *	1,2,5	
X	DE - B - 1 923 621 (BREMER WOLLKÄMMEREI) * Fig. *	1,2,5	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B 65 H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
VIENNA	12-07-1991	NETZER

CATEGORY OF CITED DOCUMENTS

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