

Aug. 18, 1925.

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P. STRÜDEL

TISSUE UNTHREADING MEANS

Filed April 20, 1923

Fig. 1.

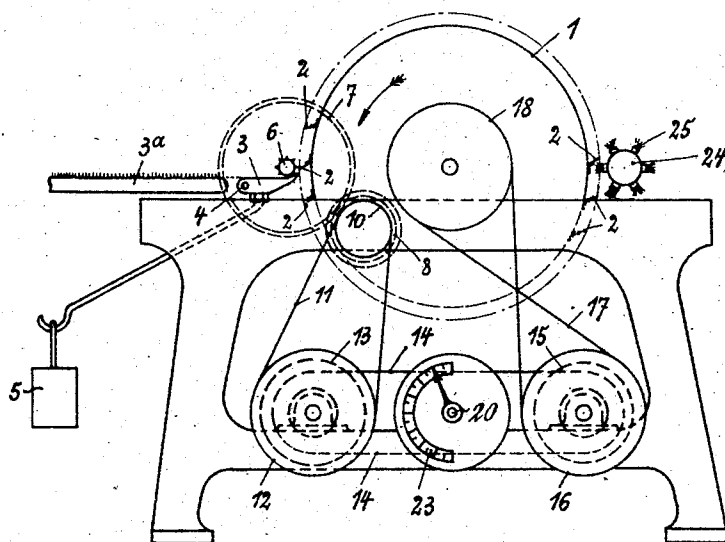
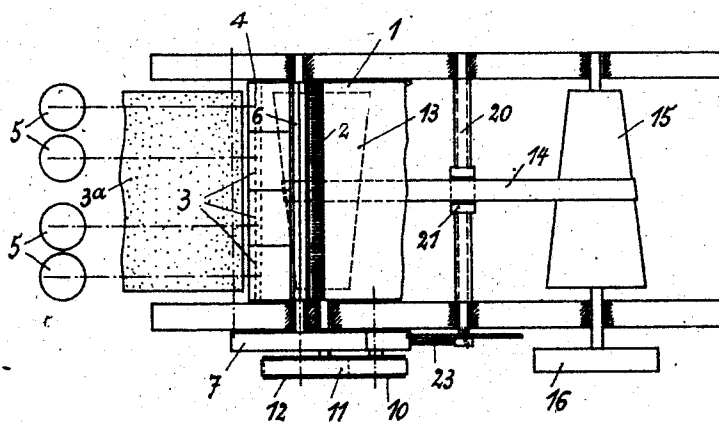


Fig. 2.



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TISSUE-UNTHREADING MEANS.

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To all whom it may concern:

Be it known that I, PATERNE STRÜDEL, a citizen of France, and a resident of Haasemannstrasse 9, in the town of Hanover-Linden, near Hanover, Germany, have invented certain new and useful Improvements in Tissue-Unthreading Means, of which the following is a specification.

This invention has reference to a machine for the unthreading or disentangling of tissues and woven fabrics generally by means of revolving series of needles to which the article to be treated is fed by fluted rollers, and it is intended to devise means for improving and facilitating the operation of machines of this kind, and to insure a more perfect operation and to prevent the tearing of the fabrics in the operation of such machine, and to further improve and perfect the unthreading or disentangling process.

In the machines of the kind referred to the material is fed to the revolving series of needles by means of two inter-engaging fluted rollers. There is the drawback, however, with these machines that there is a comparatively large distance between the nip of the two fluted rollers for the retaining of the material and the points of the needles, so that in accordance with the resistance presented by the material under treatment larger or smaller sized pieces are torn from the material, instead of producing the disentangling in a threadwise procedure.

In order to decrease this distance as much as possible so as to insure the seizing of the several individual threads with certainty, and to cause them to become detached with the least possible likelihood of being torn the fluted roller in accordance with my invention is so arranged as to cooperate with the cavities of the key-board like retaining means in such a manner that the material of the fabric is forced into the grooves of the delicate fluted roller rotating in such cavity, and is there retained during the entire movement, and is moved within the immediate vicinity of the revolving combs or series of needles of the drum, and in view thereof the edge of said depression adjacent the combs is correspondingly reduced in thickness.

By operating in this manner the individual warp thread is presented to the combs in accordance with the particular weave and

nature of the tissue, so that instead of an irregular tearing a systematic unthreading and withdrawing of the individual threads may be effected.

My invention is also distinguished from the previous state of the art comprising machines in which the fabric is supported upon a grooved counter-plate and is then unthreaded by series of reciprocating needles which cause the threads employed to be slowly withdrawn. Such machines, however, present the inconvenience of uneconomical operation in view of the reciprocation of the needles, and in view of the difficult frequent positioning and securing of the several fabric portions; nor do they admit without alterations and without tedious operations of the direct treating of any size and configuration of remnants of fabrics, and my invention in view thereof is so designed and constructed as to obviate the various difficulties of the machines referred to. I also desire to point out that the machine according to my invention is, furthermore, distinguished from the feeding means heretofore employed in connection with such machines, and consisting of a roller and concaved keyboard-shaped retaining means, inasmuch as in such machines which are employed as beaters the feeding roller is of entirely different construction, and there is no such depression with a reduced thickness of edge adjacent the operating portion, so that with beating machines of the kind referred to it is impossible to produce the results of my invention, the fabric failing to be presented for unthreading to the cooperating members, by which means according to this invention the withdrawing of the individual threads is effected systematically in a regular and reliable manner.

The invention will be further explained with reference to the accompany drawing, showing by way of example one form of embodiment of the principles of the invention in Figure 1 in elevation, and in Figure 2 in plan view.

The roller 1 is uniformly provided with a plurality of series of needles 2 only a part of which are shown on the drawing, and is rotated in the direction of the arrow. The fabric to be defibrated is fed by means of a feeding table 3^a provided with roughenings, substantially presenting minute teeth or needles and operating as a kind of speed regulating or braking means for the moving

fabric to a plurality of supporting members 3 side by side of each other, and rockably mounted on a shaft 4. The extremities of said supporting members are provided with cavities or depressions which are pressed by weights 5 or in any other suitable manner against the preferably longitudinally fluted roller 6 which serves for the pushing forward of the fabric and is uniformly rotated for this purpose. The said trough shaped depression, as appears from the drawing, has a reduced vertically angular substantially beak-shaped freely supported terminal portion adjacent the combs, so as to present the thread to be detached from the fabric as directly as possible to the needle combs towards which the thread is pushed by the individual groove of the roller 6 upon the depression of the member 3. The operation of the roller 1 and of the roller 6 may be effected, for instance, in the following manner. Upon the shaft of the roller 6 a gear wheel 7 is mounted meshing with a gear wheel 8 which is itself mounted upon the shaft of a pulley 10 connected by a belt 11 or the like to the pulley 12. On the shaft of the said pulley 12 a conical drum 13 is mounted which is connected by a belt 14 to an inversely arranged conical drum 15 on the same shaft with the pulley 16 which receives movement by a belt 17 from the pulley 18 mounted on the shaft of the cylindrical roller 1. A shaft 20 with forked belt shifter 21 serves for the displacement of the belt 14 in accordance with a graduation 23 the arrangement of which is governed by the nature of the fabric to be unthreaded, so that one is enabled in this manner to obtain an absolutely uniform regulation of the velocity of the cylinder 1 and of the roller 6, and it is possible in this manner to either increase or reduce the feeding speed of the fabric, and the speed of rotation of the series of needles 2, so as to be sure that only the desired amount of threads may be engaged in each case by the needles 2. The graduated scale 23 may be arranged at the top portion of the machine near the feeding table 3^a, and the transmission of movement to the shaft 20 may be effected by bevel gear wheels, and a downwardly inclined depending shafting, not shown on the drawing and not constituting any part of my invention.

A roller 24 with brushes 25 or the like may be provided for the purpose of detaching the fibers from the needles 2. By the combination of the transversely disposed longitudinally fluted guide roller 6 with the beak-like reduced terminal portions of the pivotally yielding blocks 3 the individual threads are loosened and are securely and separately carried to the top of the beak of the members 3, and are presented

to the needles of the picking roller, so that the threads are individually treated and kept entire, and tearing thereof is practically obviated. After being doffed from the needles 2, the detached threads, which for the sake of illustration may be regarded as the weft threads, though the invention may evidently apply as well to the removal of the warps, are caused to pass between two rollers, not shown in the drawing, and thence to any suitable conveying means, carrying them to any suitable kind of containing or packing means. The remaining intersecting threads, which, for purposes of illustration, may be considered to be the warp threads, remain suspended more or less from the concaved member 3 in accordance with their length; they are combed to some extent and loosened by the needles 2. In the case of short warp threads these drop down together with the wefts, and are carried to the conveying means along with said wefts. In the case of fabrics being introduced into the machine at an angle to the direction of the warps or fillers, so that both the warps and the filling or weft threads are simultaneously caught by the needles, the entire material is submitted to a combing action, and the disassembling of the threads, while as thorough and efficient as in the case of threads in the plane of the needles, is not effected as uniformly as in the latter case which is the preferred position for the disassembling of the threads.

The invention is herein shown and described merely in its broad aspects without, however, being restricted to the particular shape and arrangement of parts shown by way of example and as a matter of explanation, but changes and modifications may occur to suit existing conditions and the convenience of the operator, and without deviating from the spirit of my invention as expressed in the claims, hereunto appended.

I claim:—

1. In an unthreading device in combination yieldingly journaled supporting means, comprising an endwise reduced, slightly upwardly curved terminal portion, rotatable feeding means in engagement with said curved portion, and movably mounted thread picking means adjacent the feeding means and the curved terminal portion.

2. In an unthreading device in combination, a plurality of adjacently mounted and yieldingly journaled supporting means, having substantially parallel endwise reduced, slightly upwardly curved terminal portions, movable feeding means in engagement with said curved terminal portions, and rotatably mounted thread picking means adjacent the feeding means and the curved terminal portions.

3. In an unthreading device in combination, a plurality of adjacently mounted and

yieldingly journaled supporting means, having substantially parallel endwise reduced, and slightly upwardly curved terminal portions, a fluted roller in engagement with said curved terminal portions and transversely thereto, and rotatably mounted thread picking means adjacent the curved terminal portions and the fluted roller.

4. In an unthreading device in combination, a plurality of adjacently mounted and yieldingly journaled supporting means, having substantially parallel endwise reduced, and slightly upwardly curved terminal portions, a longitudinally fluted feeding roller in engagement with said curved terminal portions and transversely thereto, a plurality of rotatably mounted thread-picking means adjacent the curved terminal portion and the fluted roller.

5. In an unthreading device in combination, a picking roller, thread picking means on said roller, a plurality of adjacently disposed and yieldingly journaled supporting means comprising substantially parallel endwise reduced, and slightly upwardly concaved, substantially sectionally beak-shaped terminal portions, adjacent the thread picking means, and substantially in diametrical alinement with the picking roller, a fluted roller in engagement with said concaved terminal portions and transversely thereto and in parallel relation to the picking roller, and thread-removing means in engagement with the thread detaching means.

6. In an unthreading device in combination, a feeding table, a plurality of adjacently mounted yielding supporting blocks, having substantially parallel endwise reduced, slightly upwardly concaved, sectionally substantially angular terminal portions, a substantially longitudinally fluted roller

engaging the concaved portion transversely thereto, a picking roller, substantially diametrically opposite said supporting blocks, thread detaching means on the picking roller, adapted for cooperation with the angularly reduced concaved terminal portions and the fluted roller, means for rotating the picking roller and the fluted roller, and thread-removing means in engagement with the thread detaching means on the picking roller, and substantially opposite the supporting blocks and the fluted roller.

7. In an unthreading device in combination, a plurality of adjacently disposed, yieldingly pivoted supporting blocks, having vertically angularly reduced freely supported terminal portions, picking means, adjacent said terminal portions and movable relatively thereto, and a rotatable longitudinally fluted guide roller adjacent and above the angularly reduced terminal portion of the blocks and transverse thereto.

8. In an unthreading device in combination, a plurality of adjacently disposed endwise pivoted yielding supporting blocks, having angularly vertically reduced freely supported terminal portions, a rotatable picking roller adjacent to said terminal portions and transverse thereto, a rotatable lengthwise fluted guide roller, adjacent and above said terminal portion and in parallel relation to the picking roller, respectively oppositely conical, parallelly spaced driving rollers, respectively operatively connected to the guide roller and to the picking roller, a displaceable common driving belt upon said conical rollers, means adapted to displace said common belt along the conical rollers, and an indicator connected to said means for controlling the displacement thereof.

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