

A. CLAVEL.
 APPARATUS FOR SMOOTHING HANKS OF TEXTILE MATERIALS.
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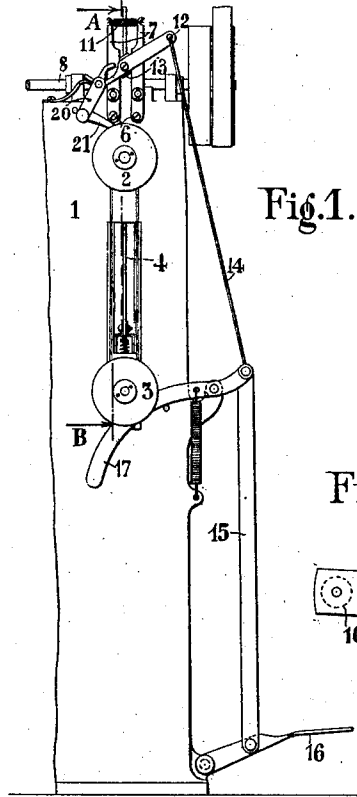


Fig. 1.

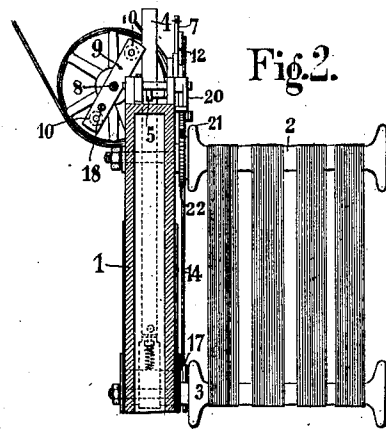


Fig. 2.

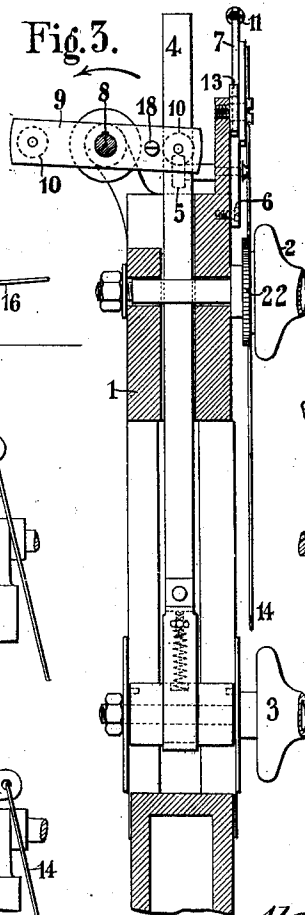


Fig. 3.

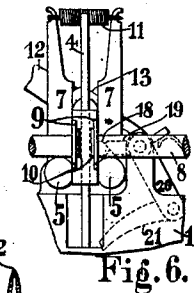


Fig. 6.

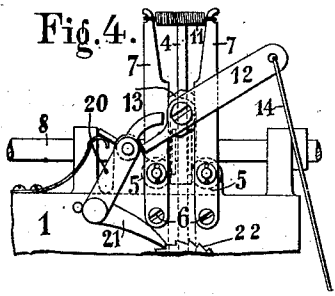


Fig. 4.

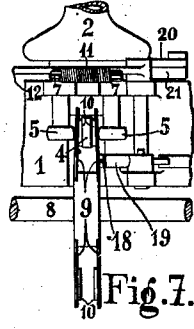


Fig. 7.

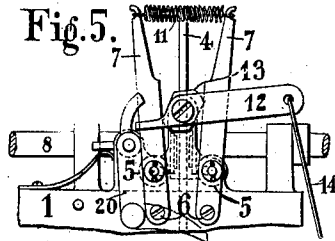


Fig. 5.

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APPARATUS FOR SMOOTHING HANKS OF TEXTILE MATERIALS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALEXANDER CLAVEL, a citizen of the Swiss Republic, and resident of Basel, Switzerland, have invented a new and useful Apparatus for Smoothing Hanks of Textile Materials, of which the following is a full, clear, and exact specification.

Hanks of textile materials, especially of silk, which have become crinkled in the process of dyeing, can, as is well known, be again made smooth by subjecting them to a stretching in jerks.

The present invention relates to an apparatus for smoothing hanks of textile materials (especially dyed silk hanks) suspended upon a supporting roller, by means of a stretching roller displaceable vertically. For the vertical motion of the stretching roller a lifting rod connected with this latter and a surrounding engagement fork are provided, said fork being so arranged with regard to the lifting rod and to a pair of guides attached one on each side thereof, that the fork, in the course of its rotation, passes between these guides, and that during this passage its limbs are pressed against the lifting rod frictionally by the said guides, in order to lift the lifting rod and consequently the stretching roller upward, and after the passage of the fork limbs between the guides to cause it to fall down again.

In the accompanying drawing, a construction of the invention is illustrated as follows:

Figure 1 shows the device in its entirety. Fig. 2 shows a vertical section of Fig. 1. Fig. 3 shows a section on an enlarged scale on the line A—B of Fig. 1. Figs. 4, 5, 6 and 7 show details, namely, Figs. 4, 5 and 6 are side elevations and Fig. 7 is a plan view.

In the frame 1 of the apparatus there is located, immovable in space, an upper roller 2 (Figs. 1 and 3) upon which the hanks are suspended, and underneath this suspension roller 2 is placed in the frame 1 a roller 3, the previously mentioned stretching roller, and is arranged to be vertically movable. These two rollers are freely revoluble upon their axles. With the stretching roller 3, or more correctly stated, with its axle, there

is connected a vertical lifting rod 4 which passes through above between the rolls 5 of two guiding levers 7 pivoted at 6 (Figs. 1, 3, 4 and 5).

A double engaging fork 9 placed upon a rotating shaft 8, is provided, which fork turns with the shaft 8 and is so adjusted with regard to the lifting rod 4 and to the guiding levers 7, that the fork limbs in the course of their rotation pass between the guiding rods 7 and that during this passage the respective fork limbs are pressed by the rollers 5 frictionally against the lifting rod 4, in order to raise the lifting rod 4 together with the stretching roller 3 upward, and to cause the lifting rod 4 with the roller 3 to fall down again and stretch the hank when the engaging fork ceases to touch the guiding rolls 5.

In order to insure the frictional contact of the fork 9 with the rod 4, the limbs of the fork are provided on the inside with linings 10 of leather, rubber or other material giving a good friction. The fork limbs themselves are formed slightly springy (Fig. 7). The guiding levers 7 are ordinarily held in the required position for the efficient working of the apparatus by means of a spring 11 (Figs. 4, 6 and 7). If the influence of these levers upon the limbs of the fork 9 is to be suspended, then a releasing lever 12, on the axle of which is placed a double projection 13 between the levers 7, is moved in order to push these levers 7 by means of the double projection so far apart (see Fig. 5) that the continually rotating engaging fork can no longer come in contact with the lever rollers 5. The motion of the releasing lever 12 can be occasioned by means of the mechanism 14, connected to the foot lever 16. When this foot lever is depressed, the lower roller 3, independently of the automatic device, can be raised sufficiently high for the removal and replacement of the hanks.

In the course of the rotation of the fork 9, the side projection 18 thereof (Figs. 3 and 6) strikes against a projection 19 connected to a lever 20, the catch 21 of which engages with a ratchet wheel 22 rigidly attached to the supporting or upper roller 2; by this means, at each rotation of the fork 9, the

upper roller 2 is moved on by a predetermined amount, and thereby the hanks are altered in their longitudinal direction, that is to say displaced around the rollers 2 and 3, step by step.

The method of working of the apparatus is easily understood from the above description. At each revolution of the shaft 8, the rod 4 is caused, by means of the rotary engaging fork 9 to rise and fall twice together with the stretching roll 3; consequently the roll imparts periodically a stretching blow to the hanks, whereby these latter are thoroughly stretched. At the same time the hanks are moved once by a predetermined amount around the rollers 2 and 3, on each rotation of the shaft 8, which is very advantageous for the sake of uniformity of the smoothing of the hanks. For the putting on and off of the hanks, pressure is applied to the foot lever 16 in order to raise the roll 3. In practice, several of the apparatuses described may advantageously be actuated from a single driving shaft whereby of course each of these apparatuses can be attended to independently of the others.

What I claim is:

1. In a device for smoothing hanks of textile material, especially hanks of dyed silk, a suspending roller upon which the hanks are to be suspended, a device for imparting to the suspending roller a stepwise rotation on its own axis, a vertically movable stretching roller arranged beneath the said suspending roller, a lifting rod attached to the said stretching roller, a rotating engaging fork and two guides placed one on each side of the lifting rod, the said engaging fork being so placed with regard to the lifting rod and to the said guides that the fork in the course of its rotation passes between the said guides and that during this passage its limbs are pressed against the lifting rod frictionally by means of the said guides, whereby the lifting rod together with the stretching roller, is lifted, and after the passage of the fork limbs between the guides, is allowed to fall down again.

2. In a device for smoothing hanks of textile material, especially hanks of dyed silk, a suspending roller upon which the hanks are to be suspended, a device for imparting to the suspending roller a stepwise rotation on its own axis, a vertically movable stretching roller arranged beneath the said suspending roller, a lifting rod attached to the said stretching roller, a rotating engaging fork and two roll levers placed one on each side of the lifting rod, the said engaging fork being so placed with regard to the lifting rod and to the said roll levers that the fork in the course of its rotation passes between the rolls of the said levers and that during this passage its limbs are pressed against the

lifting rod frictionally by means of the said rolls, substantially as described.

3. In a device for smoothing hanks of textile material, especially hanks of dyed silk, a suspending roller upon which the hanks are to be suspended, a device for imparting to the suspending roller a stepwise rotation on its own axis, a vertically movable stretching roller arranged beneath the said suspending roller, a lifting rod attached to the said stretching roller, a rotating engaging fork, two roll levers placed one on each side of the lifting rod and maintained in their normal position by a spring connecting the free ends of the said levers and a releasing lever for pushing the said roll levers into such a position that their influence upon the limbs of the fork is suspended, the said engaging fork being so placed with regard to the lifting rod and to the said roll levers that the fork in the course of its rotation passes between the rolls of the said levers and that during this passage its limbs are pressed against the lifting rod frictionally by means of the said rolls, substantially as described.

4. In a device for smoothing hanks of textile material, especially hanks of dyed silk, a suspending roller upon which the hanks are to be suspended, a vertically movable stretching roller arranged beneath the said suspending roller, a lifting rod attached to the said stretching roller, a rotating engaging fork, two guides placed one on each side of the lifting rod, a ratchet wheel connected to the suspending roller, a device by means of which the engaging fork acts on its rotation upon the said ratchet wheel and produces a stepwise rotation of the suspending roller, the said engaging fork being so placed with regard to the lifting rod and to the said guides, that the fork in the course of its rotation passes between the said guides and that during this passage its limbs are pressed against the lifting rod frictionally by means of the said guides, substantially as described.

5. In a device for smoothing hanks of textile material, especially hanks of dyed silk, a suspending roller upon which the hanks are to be suspended, a device for imparting to the suspending roller a stepwise rotation on its own axis, a vertically movable stretching roller arranged beneath the said suspending roller, a lifting rod attached to the said stretching roller, a rotating engaging fork provided on the inside of its limbs with linings of material advantageous for frictional contact and two guides placed one on each side of the lifting rod, the said engaging fork being so placed with regard to the lifting rod and to the said guides that the fork in the course of its rotation passes between the said guides and that during this

passage its limbs are pressed against the lifting rod frictionally by means of the said guides, whereby the lifting rod together with the stretching roller, is lifted, and after the
5 passage of the fork limbs between the guides, is allowed to fall down again.

In witness whereof I have hereunto signed

my name this 13th day of January 1910, in the presence of two subscribing witnesses.

ALEXANDER CLAVEL.

Witnesses:

GEO. GIFFORD,

AMAND RITTER.