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APPARATUS FOR THE WET TREATMENT OF TEXTILE GOODS

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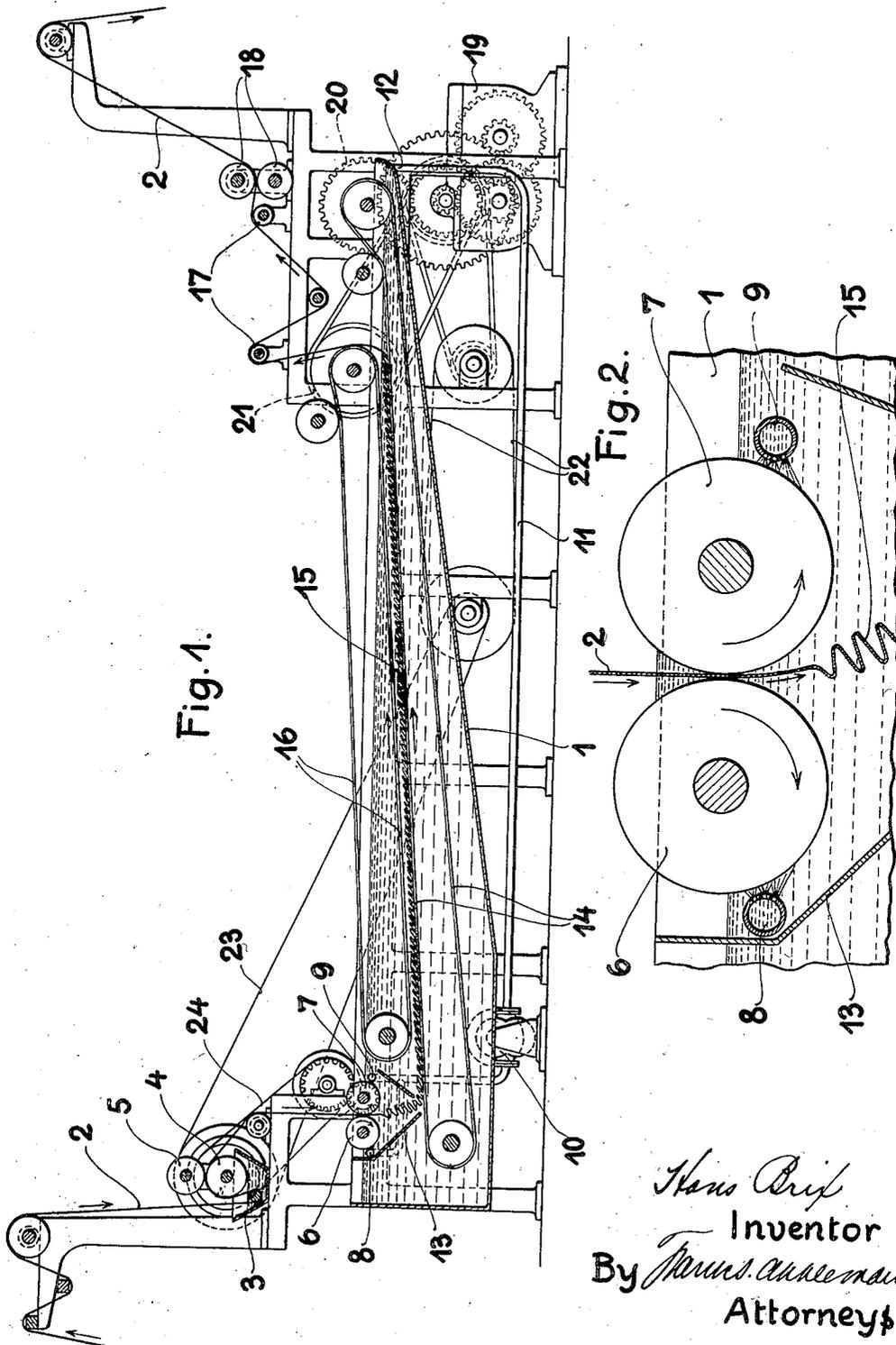


Fig. 1.

Fig. 2.

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APPARATUS FOR THE WET TREATMENT OF TEXTILE GOODS

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6 Claims. (Cl. 8-16)

This invention relates to a process and apparatus for the wet treatment of textile goods of all kinds. According to the improved process, the textile goods to be treated are drawn with adjustable speed, from above, into a treating liquid by being passed between rollers partially immersed in said treating liquid, arranged in pleat-like folds on a conveyor band running more slowly than the drawing-in speed, the speed of which band is also adjustable, moved through the treating liquid, between this conveyor band and a second conveyor band preventing the floating of the goods and driven at the same speed as the first band, and finally carried away over stretching rollers. Owing to treating liquid being sprayed against both drawing-in rollers in an opposite direction to their direction of rotation, the goods drawn in are washed from the rollers and at the same time their pleating is initiated.

By means of the improved process, all the difficulties which have previously impeded the introduction of textile goods to be moved loosely through the bath and the adjusted passage thereof through the treating liquid, are completely overcome. Above all, by these means, any inclusion of air in the goods is avoided, this having hitherto been extraordinarily disturbing in the treatment of textile goods. In consequence of the pleat-like folds of the goods, the proportion of the quantity of goods treated to the bath is more favourable and there is given in a very desirable manner a longer action of the treating liquid on the goods. By regulation of the running speeds of the draw-in rollers and of the conveyor bands, the thickness of the layer of pleats and the duration of the retention of the goods in the bath can be varied within wide limits.

In consequence of the advantages enumerated, the improved process is suited in particular for the de-sizing of artificial silk fabrics, the threads of which before weaving are sized with a mass containing linseed oil, and also for the production of a so-called crepe effect in silk fabrics which is produced by shrinking of the threads. Other textile goods, such for example as loose cotton, textile fibres and the like, may also be treated according to the improved process with a better action.

The annexed drawing shows an example of the apparatus serving to carry out the process.

Fig. 1 shows a vertical longitudinal section; Fig. 2 shows a part of the apparatus on a larger scale.

At the head of the receptacle containing the treating liquid is arranged the feed device

for the goods to be treated, e. g., a fabric web 2, and at the other end of said receptacle is disposed the apparatus for the conveyance forward of the treated textile goods. The fabric web 2 is moistened in a receptacle 3, the liquid pressed into the goods by rollers 4, 5 and the fabric then carried to the draw-in rollers 6, 7 which are immersed for approximately half their diameter in the bath. Externally to these rollers, are fitted spray tubes 8, 9 to which the treating liquid is fed by means of a rotary pump 10 from a circulating pipe 11 which is connected at the other end of the receptacle at 12, so that there is a constant circulation of the treating liquid. By means of the spray tubes 8, 9 the liquid is driven along the circumferences of the rollers 6, 7 towards point at which the rollers contact with the fabric web, whereby the drawn-in web 2 is washed off from the rollers without the inclusion of air and a pleat formation of the web is initiated.

This web passes over a guide plate 13 to the conveyor band 14, which is driven more slowly than the draw-in speed of the web 2. The latter is thereby deposited in pleat-like folds and is then traversed through the bath between the conveyor band 14 and a second conveyor band 16 running at the same speed as the band 14 and preventing the floating of the goods. The web is then carried over stretching rollers 17 to the draw-out rollers 18. The uniform drive of the conveyor bands 14, 16 takes place through an intermediate gearing 19, and pulleys 20, 21, while by means of belt drives 22, 23, 24 the moistening device 3, 4, 5 and the draw-in rollers 6, 7, are driven. Each drive can be independently regulated. It is, however, also possible to adjust the entire drive simultaneously to a particular working speed.

I claim:—

1. Apparatus for use in the wet treatment of textile goods of the character described, comprising a container for a treating liquid, a pair of co-operating rollers immersed for approximately half of their diameters in said liquid, means for rotating said rollers in directions suitable for feeding textile goods supplied thereto into said liquid, a support immersed in the liquid and adapted to receive upon its upper surface the goods fed into the liquid by the rollers, a casing enclosing said rollers above said support and having side walls parallel to the rollers, said side walls being inclined toward each other to provide a narrow slot wherethrough the fabric passes from the rollers to the support, means

for traversing said support through the liquid at a speed less than the peripheral velocity of the feed rollers, means comprising stretching rollers for withdrawing the goods from the treating liquid, and means beneath the surface of the bath to supply sprays of treating liquid against the faces of said rollers at points remote from the goods whereby to provide treating liquid to the peripheries of said rollers prior to the contact of the rollers with the untreated part of the goods.

2. Apparatus for use in the wet treatment of textile goods of the character described, comprising a container for a treating liquid, a pair of co-operating rollers immersed for approximately half of their diameters in said liquid, means for rotating said rollers in directions suitable for feeding textile goods supplied thereto into said liquid, a support immersed in the liquid and adapted to receive upon its upper surface the goods fed into the liquid by the rollers, a casing enclosing said rollers above said support and having side walls parallel to the rollers, said side walls being inclined toward each other to provide a narrow slot wherethrough the fabric passes from the rollers to the support, a retaining surface spaced vertically from the support and extending substantially parallel with the upper surface thereof, means for traversing both said retaining surface and said support through the liquid in the same directions at a speed less than the peripheral velocity of the feed rollers, means comprising stretching rollers for withdrawing the goods from the treating liquid, and means beneath the surface of the bath to supply sprays of treating liquid against the faces of said rollers at points remote from the goods whereby to provide treating liquid to the peripheries of said rollers prior to the contact of the rollers with the untreated part of the goods.

3. Apparatus for use in the wet treatment of textile goods of the character described, comprising a container for a treating liquid, a pair of co-operating rollers immersed for approximately half of their diameters in said liquid, means for rotating said rollers in directions suitable for feeding textile goods supplied thereto into said liquid, means located below the surface of said liquid for directing jets of treating liquid against said rollers in directions opposed to those in which they are rotated, a support immersed in the liquid and adapted to receive upon its upper surface the goods fed into the liquid by the rollers, means for traversing said support through the liquid at a speed less than the peripheral velocity of the feed rollers and means comprising stretching rollers for withdrawing the goods from the treating liquid.

4. Apparatus for use in the wet treatment of textile goods of the character described, comprising a container for a treating liquid, a pair of co-operating rollers immersed for approximately half of their diameters in said liquid, means for rotating said rollers in directions suitable for feeding textile goods supplied thereto into said liquid, means located below the surface of said liquid for directing jets of treating liquid

against said rollers in directions opposed to those in which they are rotated, a support immersed in the liquid and adapted to receive upon its upper surface the goods fed into the liquid by the rollers, a retaining surface spaced vertically from the support and extending substantially parallel with the upper surface thereof, means for traversing both said retaining surface and said support through the liquid in the same directions at a speed less than the peripheral velocity of the feed rollers and means comprising stretching rollers for withdrawing the goods from the treating liquid.

5. Apparatus for use in wet treatment of textile goods of the character described, comprising a container for a treating liquid, a pair of co-operating rollers immersed for approximately half of their diameters in said liquid, means for rotating said rollers in directions suitable for feeding textile goods supplied thereto into said liquid, a support immersed in the liquid and adapted to receive upon its upper surface the goods fed into the liquid by the rollers, a casing enclosing said rollers above said support and having side walls parallel to the rollers, said side walls being inclined toward each other to provide a narrow slot wherethrough the fabric passes from the rollers to the support, means for traversing said support through the liquid at a speed less than the peripheral velocity of the feed rollers, means comprising stretching rollers for withdrawing the goods from the treating liquid, and spray pipes within said casing extending parallel to the rollers below the surface of said liquid and directing treating liquid against said rollers in directions opposite the directions of rotation of the rollers.

6. Apparatus for use in the wet treatment of textile goods of the character described, comprising a container for a treating liquid, a pair of cooperating rollers immersed for approximately half of their diameters in said liquid, means for rotating said rollers in directions suitable for feeding textile goods supplied thereto into said liquid, a support immersed in the liquid and adapted to receive upon its upper surface the goods fed into the liquid by the rollers, a casing enclosing said rollers above said support and having side walls parallel to the rollers, said side walls being inclined toward each other to provide a narrow slot wherethrough the fabric passes from the rollers to the support, a retaining surface spaced vertically from the support and extending substantially parallel with the upper surface thereof, means for traversing both said retaining surface and said support through the liquid in the same directions at a speed less than the peripheral velocity of the feed rollers, means comprising stretching rollers for withdrawing the goods from the treating liquid, and spray pipes within said casing extending parallel to the rollers below the surface of said liquid and directing treating liquid against said rollers in directions opposite to the directions of rotation of the rollers.