

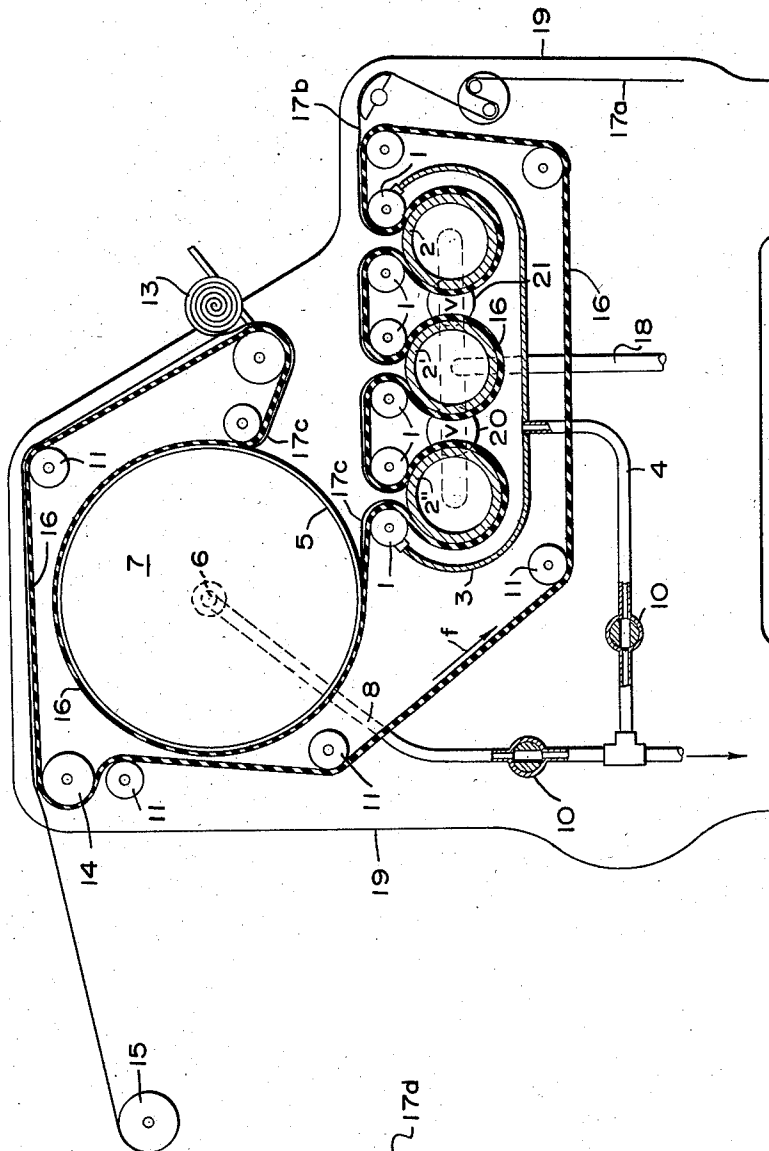
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APPARATUS FOR THE GRADUAL DECATIZING OF FABRICS

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APPARATUS FOR THE GRADUAL DECATIZING
OF FABRICS

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1 Claim. (Cl. 68—5)

This invention relates to an apparatus for the processing of woolen fabrics and the like, and relates more particularly to a device for the steam treatment or decatizing of various fabrics. The invention is particularly concerned with the use of several decatizing cylinders which operate in series to subject the fabric to a repeated decatizing process at predetermined intervals.

In prior art the decatizing of fabrics of all types was carried out by the use of a single decatizing cylinder of standard type. This procedure has the drawback that the steam often detrimentally affects the fabric under treatment and that sometimes the decatizing is not carried out uniformly or completely.

An object is the provision of an apparatus through the use of which a gradual and progressive decatizing of a fabric can be attained so that even the most delicate and thin fabrics will assume the softness and brightness which are characteristic of the decatizing process.

Other objects of the present invention will become apparent in the course of the following specification.

The objects of the present invention can be realized through the provision of an apparatus consisting of a plurality of decatizing cylinders which are interconnected in series and which are located in a chamber from which air may be evacuated by any suitable means. Steam is supplied to the decatizing cylinders at the required amounts and temperatures. According to a further inventive feature a conditioning cylinder is located at a distance from the decatizing cylinders to complete the treatment of the fabric.

It is apparent that when the fabric is passed over the decatizing cylinders and the conditioning cylinder it will be subjected to gradual successive treatments taking place at selected time intervals with the result that the fibres of the fabric will be subjected to successive elastic treatments enabling them to attain the desired characteristics.

The invention will appear more clearly from the following detailed description when taken in connection with the accompanying drawing, showing, by way of example only, a preferred embodiment of the inventive idea.

The sole figure of the drawing illustrates diagrammatically, partly in section and partly in side elevation, an apparatus constructed in accordance with the principles of the present invention.

The drawing shows three decatizing cylinders 2, 2' and 2'', which form a group. Obviously the number of the cylinders may be varied at will. The cylinders are preferably placed in alignment and are interconnected by any suitable means not shown in the drawing. The cylinders are located in a casing 3, constituting an air-tight chamber connected to a suction pipe 4. The pipe 4 is connected to any suitable exhausting means such as a vacuum pump (not shown).

The cylinders 2, 2' and 2'' cooperate with pairs of guide rollers 1, which are so located that they form

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passages for the fabric, as will be described in greater detail hereinafter.

A conditioning drum or cylinder 7 is located at a distance from the chamber 3. The cylinder 7 has a perforated outer cylindrical surface.

For the purposes of the present invention it is immaterial whether the perforations of the cylinder 7 are formed by holes located upon metal plates forming the cylindrical portion thereof, or whether this cylindrical portion consists of a mesh formed by rods, bars or other elements placed closer to each other to provide vent holes in between. The side walls of the cylinder 7 are solid.

In the example illustrated the cylinder 7 has a perforated cylindrical wall 5 and a side wall provided with an opening 6 which receives one end of a pipe 8. The pipe 8 is connected with a pipe 4 and the two pipes lead to the above-mentioned suction pipe. Thus the interior of the cylinder 7 is exhausted during operation along with the chamber 3. Any suitable means (not shown) may be used to drive the cylinder 7.

The pipes 4 and 8 carry suitable valves 10.

An endless belt 16 passes over the decatizing cylinders 2, 2' and 2'', and over the conditioning or extracting cylinder 7. The endless band 16 moves in the direction of the arrow *f* by any suitable drive which is not shown in the drawing. It is apparent that the band 16 passes over the guide rollers 1 and the decatizing cylinders 2, 2' and 2'', and over a large portion of the conditioning cylinder 7. The endless band is guided by rollers 11 and 14. Due to this arrangement the endless band 16 moves at a desired speed over the decatizing cylinders in the chamber 3 and over the major portion of the conditioning cylinder 7.

The fabric to be treated has a portion 17a and 17b wherein it is subjected to the usual preliminary treatment prior to its entry into the chamber 3. Then the fabric passes over one of the rollers 1 and over the decatizing cylinder 2. It then passes over two other rollers 1 and over the decatizing cylinder 2', then over two more rollers 1 and the decatizing cylinder 2'' emerging out of the chamber 3 over the last roller 1. This length of the fabric is designated by the numeral 17c. Then the fabric moves over the conditioning cylinder 7. If desired it may be wound upon a winding roller 13.

On the other hand the fabric may be withdrawn from the apparatus and caused to move over the roller 15. This end of the fabric is designated by the numeral 17d in the drawing.

The decatizing cylinders and the conditioning cylinders may be conveniently supported upon the frame 19 indicated diagrammatically in the drawing.

Steam is introduced into the interior of the decatizing cylinders 2, 2' and 2'' through the pipe 18. It is apparent that the mass of steam supplied to the decatizing cylinders may be varied at will and that suitable valves 20, 21 may be provided for the purpose of varying the amount of steam and the temperature thereof in each of the decatizing cylinders as compared to other cylinders. Furthermore, the degree of vacuum provided in the chamber 3 by the pipe 4 and within the cylinder 7 by the pipe 8 may be varied at will. The desired degree of vacuum may be dependent on the amount of steam supplied and upon the temperature of the steam.

The operation of the device is apparent from the above description. It is apparent that the fabric passing over the decatizing cylinders will be subjected to a gradual or progressive action of the steam, and that the effects of the treatment may be conveniently varied, depending upon the technological characteristics of the fibres of which the fabric is composed and of the desired results of the treatment.

After the fabric has passed the decatizing cylinders it will be subjected to a drying operation while it is in contact with the cylindrical wall 5 of the cylinder 7, which constitutes the conditioning cylinder. It is apparent that this treatment of the fabric depends to the extent of vacuum supplied to the interior of the cylinder 7.

As already stated the fabric may be wound on the roller 13 or moved over the roller 15 whereupon it may be deposited upon a carriage of standard type (not shown).

It is apparent that the above example has been given solely by way of illustration and not by way of limitation, and that many changes may be made therein within the scope of the present invention. For example the number of decatizing cylinders may be varied and they may be arranged in a different manner without affecting the decatizing process.

All such other variations and modifications are to be included within the scope of the present invention.

What is claimed is:

An apparatus for the gradual decatizing of fabrics, said apparatus comprising a plurality of hollow spaced decatizing cylinders located side by side, interconnected pipes communicating with the interiors of said cylinders, a steam feed pipe connected with one of the first-mentioned pipes, a casing enclosing said cylinders and having an open side, guide rollers located in pairs upon said

open side, each pair being located adjacent a separate cylinder and having portions extending outside of said casing, two of said guide rollers engaging opposite edges of said open side of the casing, a hollow perforated cylinder larger in size than said decatizing cylinders and located outside of said casing, an endless belt extending over said decatizing cylinders, said guide rollers and the last-mentioned cylinder, whereby a portion of said endless belt constitutes a closure for said open side of the casing, air-and-steam evacuating pipe connected with the interior of said casing, another air-and-steam evacuating pipe connected with the last-mentioned pipe and with the interior of the last-mentioned cylinder, valves carried by the two last-mentioned pipes, and means supplying the fabric to be treated upon said endless belt to cause said fabric to move over each decatizing cylinder and each guide roller and thereupon over the last-mentioned cylinder.

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