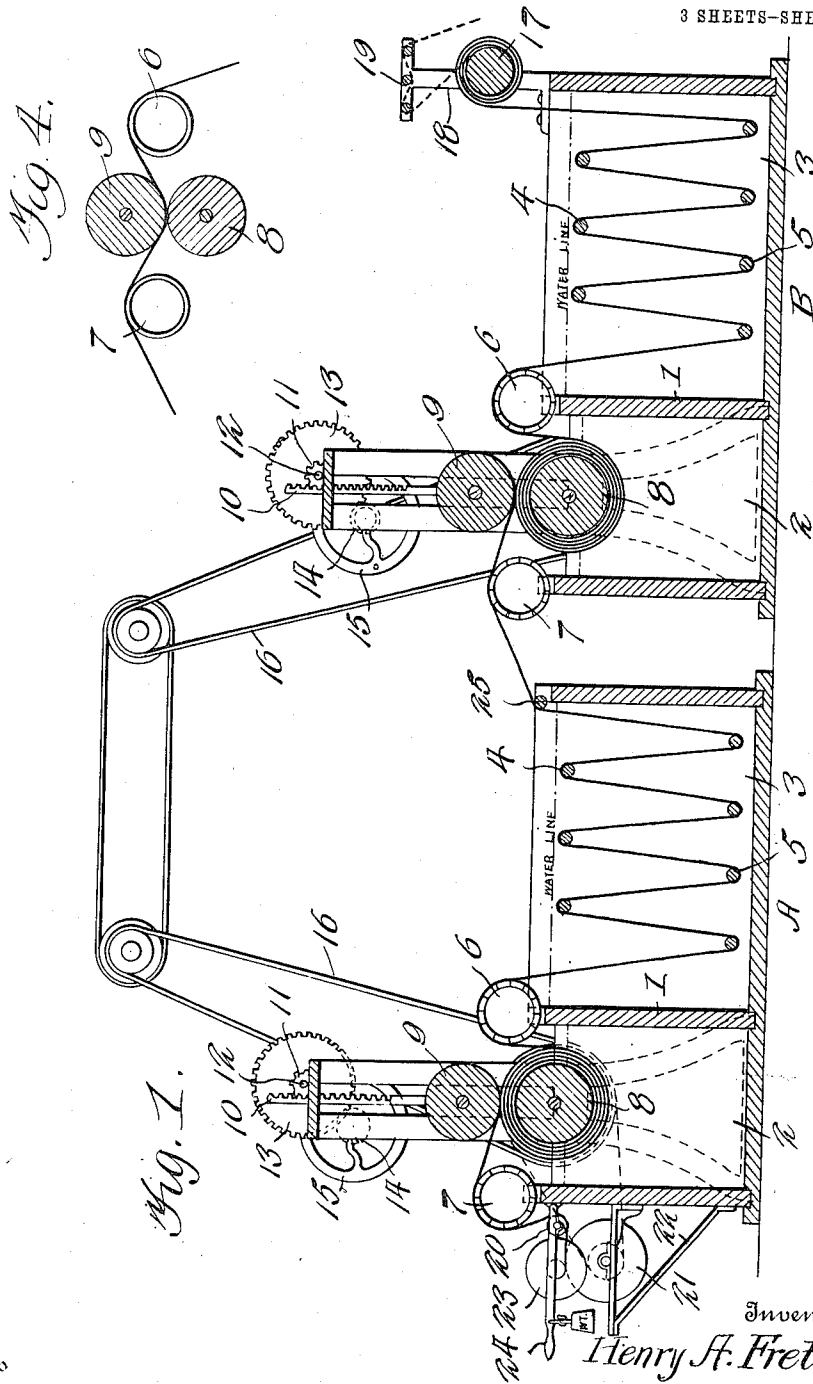


H. A. FRETTS.
CRABBING MACHINE.
APPLICATION FILED OCT. 15, 1909.

1,030,656.

Patented June 25, 1912.

3 SHEETS-SHEET 1.



Witnesses

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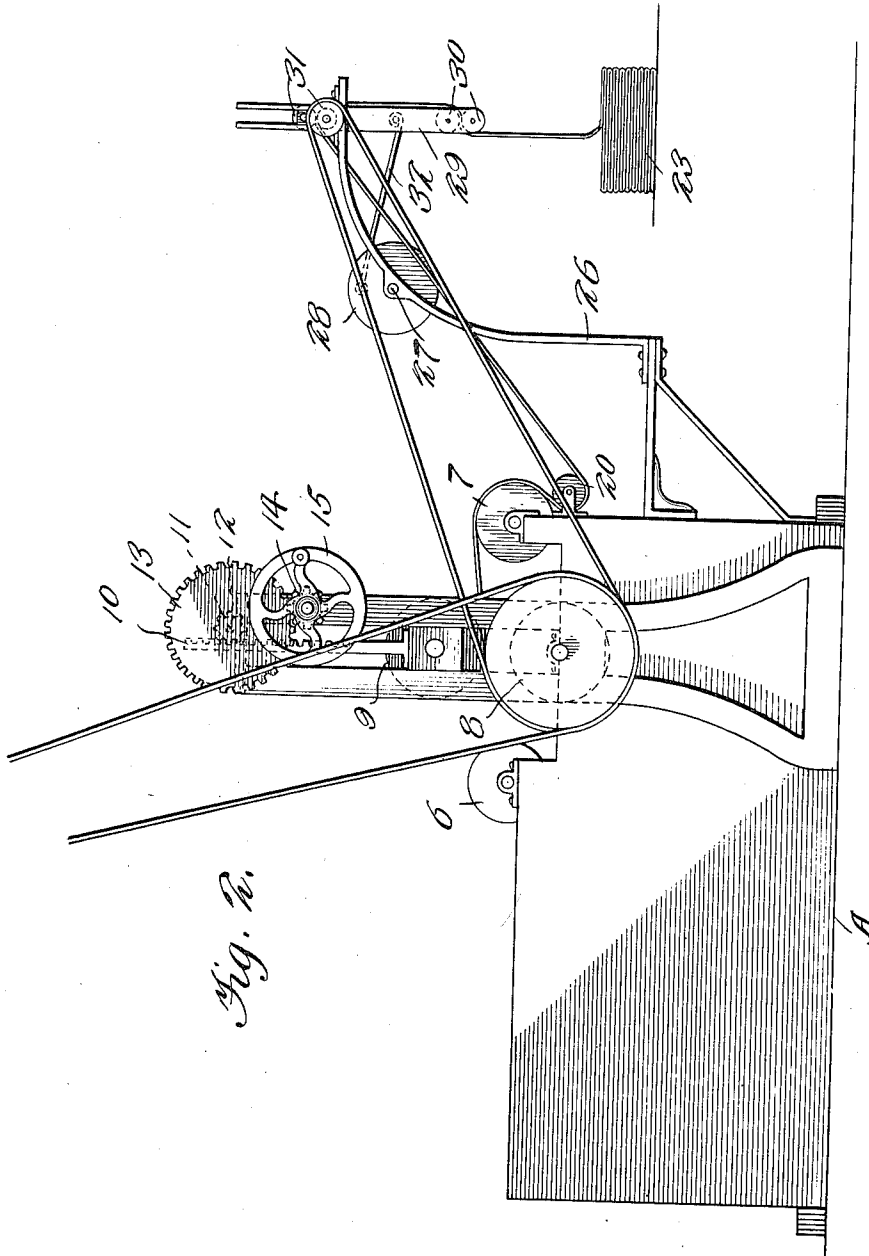


Fig. 2.

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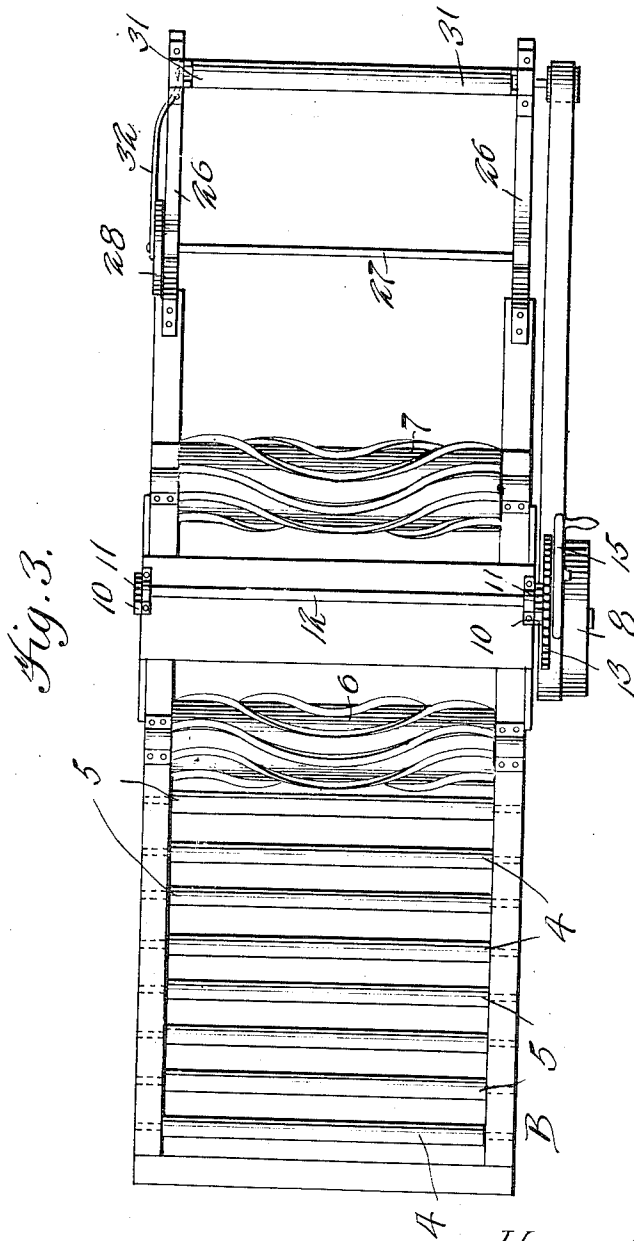
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3 SHEETS-SHEET 3.



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UNITED STATES PATENT OFFICE.

HENRY A. FRETTS, OF HYDE PARK, MASSACHUSETTS.

CRABBING-MACHINE.

1,030,656.

Specification of Letters Patent.

Patented June 25, 1912.

Application filed October 15, 1909. Serial No. 522,812.

To all whom it may concern:

Be it known that I, HENRY A. FRETTS, a citizen of the United States, residing at Hyde Park, in the county of Norfolk and State of Massachusetts, have invented new and useful Improvements in Crabbing-Machines, of which the following is a specification.

This invention provides a machine for treating fabrics, whereby their texture, firmness and general character are enhanced, the machine involving tanks and suitable guide rollers for causing the fabric to pass through the bath contained in the tanks in a tortuous or zigzag course, said machine embodying stretcher and pressure rolls for acting upon the fabric while the same is in motion.

The invention consists of the novel features, details of construction and combination of parts, which hereinafter will be more particularly set forth, illustrated in the accompanying drawings, and pointed out in the appended claims.

Referring to the drawings, forming a part of the specification, Figure 1 is a vertical central longitudinal section of a machine of the character aforesaid embodying the invention. Fig. 2 is a side view of a modification. Fig. 3 is a top plan view of the modification. Fig. 4 is a detail view of a set of pressure rolls and stretching rolls showing the fabric passing over the stretching rolls and between the pressure rolls.

Corresponding and like parts are referred to in the following description, and indicated in all the views of the drawings, by the same reference characters.

It is contemplated to provide a series of tanks and arrange the same in tandem, whereby the fabric may pass over one to the other in a straight line, the parts being so combined that the process may be intermittent or continuous with reference to the passage of the fabric through the several tanks and cooperating parts.

Referring to Fig. 1, which illustrates the preferred arrangement, two tanks A and B are illustrated and arranged in longitudinal alinement. Inasmuch as the tanks involve a similar construction a detailed description of one will suffice for a clear understanding of both. Each of the tanks is subdivided

by means of a partition 1, thereby forming two compartments 2 and 3, the latter being considerably longer than the former. The tanks are extended to receive a bath for the fabric to be treated, said bath consisting usually of hot water. The compartment 3 is provided with an upper series of guides 4 and a lower series of guides 5, said guides consisting of rollers usually of brass, the fabric passing around the rollers or guides 4 and 5 in a zigzag course so as to be subjected for a comparatively great length of time to the bath contained within the tank. A stretching roll 6 is located above the partition 1 and the fabric passes thereover and is stretched laterally thereby. A second stretching roll 7 is located over the rear or delivery end of the tank and operates in a manner similar to the stretching roller 6. The pressure rolls 6 and 7 have ribs which incline spirally from the center of each roll toward the ends thereof, this construction being shown most clearly in Fig. 3. The compartments 2 and 3 of the tanks are adapted to receive hot water, which softens and loosens the fibers of the fabric during the treatment thereof. It will thus be observed that the fabric is alternately stretched and compressed. A roll 8 is arranged intermediate of the stretching rolls 6 and 7 and in a lower plane so as to have its lower portion dip into the compartment 2. The fabric may wind upon the roll 8 or pass thereover according to the operation or the process to which the fabric may be subjected. The roll 8 may be used for compression. A pressure roll 9 is located above the roll 8 and coöperates therewith to subject the fabric to compressive force. The pressure roll 9 is mounted to move vertically and its bearings are provided with rack bars 10, which engage pinions 11 fastened to a shaft 12 extending transversely of the tank. A gear wheel 13, secured to the shaft 12, meshes with a pinion 14 fastened to a shaft provided with a crank wheel 15. Upon operating the crank wheel 15 the pressure roll 9 may be moved vertically either upwardly or downwardly, thereby admitting of increasing the pressure upon the fabric either passing between the rolls 8 and 9 or winding upon the roll 8. The roll 8 may be positively driven in any manner, as by

means of drive belts 16, which make connection with pulleys upon overhead countershafts. When the cloth or fabric is to be passed between the rolls 8 and 9 the pressure roll 9 may be held in engagement with the roll 8 so as to exert any degree of compressive force. This result may be obtained in a variety of ways, either by securing the rack bars 10 or by fastening the pinions 11 or the gear wheel 13. When the fabric is to be wound upon the roll 8 the roll 9 is free to move to accommodate itself to the increasing diameter of the roll 8. Some force is required to move the roll 9 and the gearing cooperating therewith, hence the cloth winding upon the roll 8 is at the same time subjected to compression. A roll 17 is mounted upon standards 18 at the front of the tank B and contains the fabric to be treated. A tension device may be mounted upon the standards 18 and be of any construction. The tension device illustrated consists of a series of guides or rollers 19, around which the fabric passes, as indicated by the dotted lines in Fig. 1. Either of the tanks may be used separately or jointly according to the nature of the process and the character of the fabric to be treated. The tank A is provided at its rear end with a stretching roll 20 under which the fabric passes. A roll 21 is mounted upon a bracket 22 and the fabric may wind thereon. A second roll 23 is arranged above the roll 21 and the fabric may wind thereon or pass thereunder when wound upon the roll 21. The roll 23 is mounted so as to move vertically and is supported by means of a weighted lever 24, whereby the desired pressure may be exerted upon the fabric during winding thereof. Should it be required to subject the fabric to different baths in the series of tanks, it may be caused to pass intermittently from one tank to the other or continuously through the two tanks, as may be required. In the intermittent operation the fabric is unwound from the roll 17 and after passing through the bath in the tank B is wound upon the roll 8, the pressure roll 9 moving vertically according as the diameter of the roll 8 increases as the fabric is wound thereon. The fabric may then be unwound from the roll 8 and passing over the stretching roll 7, thence over a guide roll 25 at the upper receiving end of the tank A and around the guide rolls in the compartment 3 of tank A and thence over the stretching rolls 6 and 7 and between the rolls 8 and 9 and finally wound upon either one of the rolls 21 or 23. In this form of the machine the fabric after being treated is wound upon a roll.

In the modification shown in Figs. 2 and 3 the tank is provided with means for folding the fabric instead of winding the same

on a roll. The tank A and the parts mounted thereon are substantially the same as the corresponding tank and parts illustrated in Fig. 1. A bracket 26 is secured to the delivery end of the tank A and supports a shaft 27 provided with a crank wheel 28. A vibrating frame 29 is mounted upon the outer end of the bracket 26 and is provided at its lower end with a pair of rolls 30 between which the fabric passes. A pair of rolls 31 is provided near the upper end of the vibrating frame 29 and the fabric passes between them. A link or rod 32 connects the vibrating frame 29 with the crank wheel 28 so as to impart a vibrating movement to the frame 29, whereby the fabric is laid in folds, as indicated at 33.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention what is claimed as new, is:—

1. In a crabbing machine, the combination of a tank, a vertical partition subdividing the tank into compartments each adapted to receive a bath, upper and lower sets of rolls arranged in one of the compartments for the fabric to be treated to pass around in a zigzag or tortuous path, a stretching roll located at the top of the partition, a roll located in the upper portion of the second compartment and dipping into the bath contained therein, and a pressure roll in contact with the aforesaid roll.

2. In a crabbing machine, the combination of a tank, a vertical partition subdividing the tank into two compartments each adapted to receive a bath, upper and lower sets of rolls located in one of the compartments to cause the fabric to be treated to pass through the bath in a zigzag direction, stretching rolls located the one above the said partition and the other above the rear wall of the tank, a roll located in the upper portion of the second compartment between the stretching rolls, and a pressure roll cooperating with the said roll.

3. In combination a series of tanks, a partition dividing each of the tanks into two compartments which are adapted to receive a bath, upper and lower rolls arranged in the first compartment of each of the tanks to cause the fabric to travel in a zigzag di-

rection, stretcher rolls above the partition
and rear roll of the second compartment of
each of the tanks, rolls adapted to transport
the fabric or to roll the fabric thereon
5 mounted in the upper portion of the second
compartment, pressure rolls coöperating
with the last mentioned rolls, and means lo-
cated in the rear of the last tank of the se-

ries for forming the fabric into a small
package for convenience of handling.

In testimony whereof I affix my signature
in presence of two witnesses.

HENRY A. FRETTS.

Witnesses:

FREDERICK A. GASKINS,
FREDERIC M. McINTIRE.

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