July 30, 1929. M. F. ROONEY 1,722,482

CONTINUOUS MACHINE FOR TREATING FABRICS

Filed Sept. 16, 1927

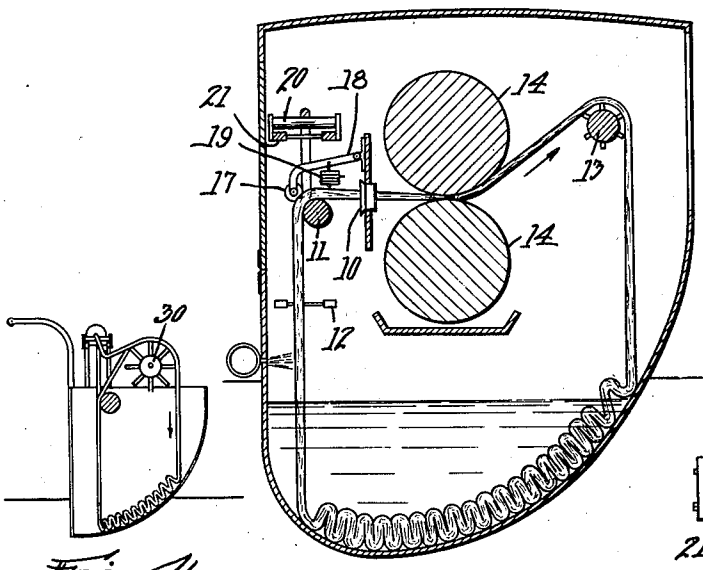


Fig. 2.

Fig. 4.

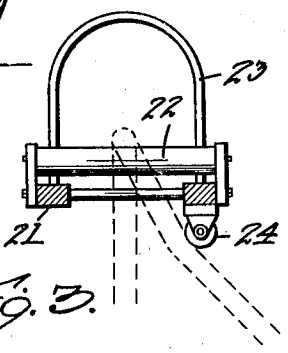
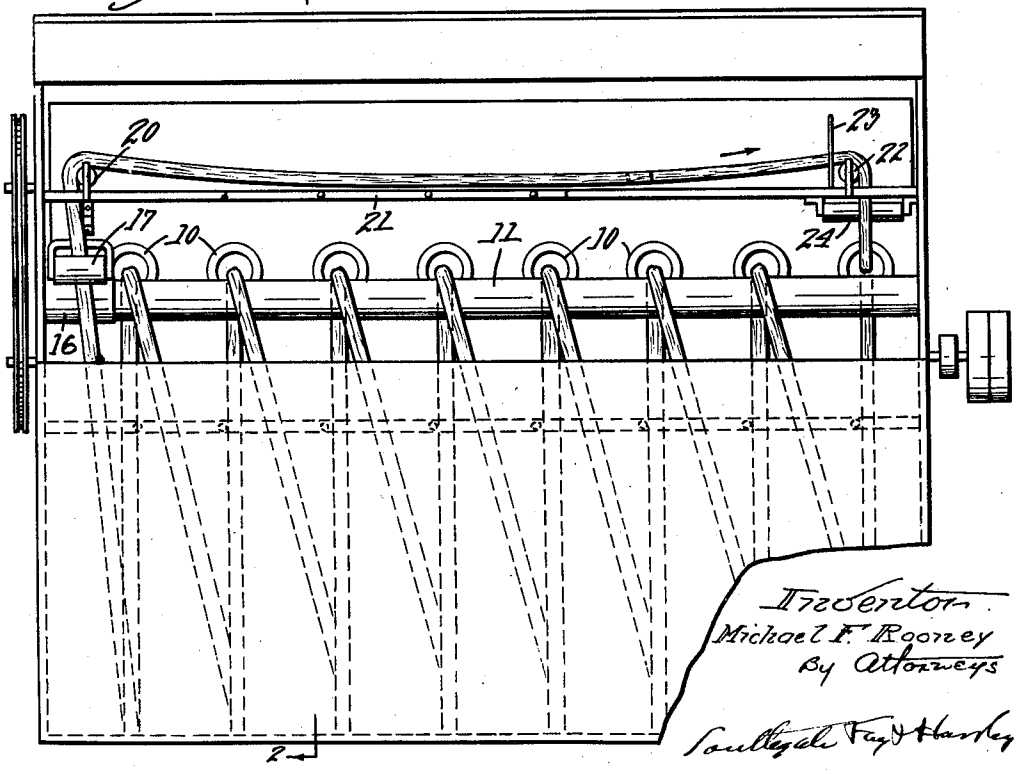


Fig. 3.

Fig. 1



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Patented July 30, 1929. 1,722,482

UNITED STATES PATENT OFFICE.

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CONTINUOUS MACHINE FOR TREATING FABRICS.

Application filed September 16, 1927. Serial No. 220,033.

This invention relates to a washing or scouring machine for cloth in the cut and is also applicable to bleaching and dyeing machines for treating fabrics continuously in long lengths.

The principal object of the invention is to provide an arrangement in the case of washing or scouring machines by which the cloth, as it comes from a crabbing machine with several cuts of cloth in a single length, can be taken therefrom and threaded into the scouring machine, without ripping apart the pieces except at one point, and so that when the single length of cloth is taken out of the scouring machine it can be put into the vacuum extractor with no more work than required in ripping and sewing at one point. This saves several slow operations of sewing and ripping in the whole process of treating the cloth. This reduces the labor cost and the time lost in stopping the machine several times after it has been started.

Another object is to accomplish a similar saving in the process of dyeing and bleaching. The invention also involves the provision of means located back of the rolls for guiding the cloth along the machine from one end to the other in order to provide for the continuous operation and other features of construction and combinations of parts.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which

Fig. 1 is a front view of a scouring machine with a preferred embodiment of this invention applied thereto;

Fig. 2 is a sectional view of the same on the line 2—2 of Fig. 1;

Fig. 3 is an end view of the ladder and associated parts extending along the back of the machine; and

Fig. 4 is a view like Fig. 2 on a small scale showing the invention as applied to a reel machine for dyeing or bleaching.

Ordinarily, cloth comes from the loom in cuts which are about fifty yards long and ordinarily is taken through a fulling or crabbing machine. The cloth goes through the fulling machine in fifty yard lengths and then goes to the washing or scouring machine. In order to put it into the ordinary machine of this kind, about eight of these cuts are sewed together end to end. This is done while the washer is running, but it is stopped while each pair of ends are sewed together. In the ordinary machine it is stopped eight times. After washing, the cloth goes to the vacuum extractor, before it enters which, it is sewed together to form a single length of eight of these cuts.

When a crabbing machine is used, the eight cuts of cloth are sewed together in one long length while it is going through the machine. When it comes out, these seams are ripped apart to put it through the ordinary scouring machine and then they are sewed together again to go through the extractor and folding machine in one length.

This machine is designed to save all but two of the ripping and sewing operations and, not merely to save these operations but, to save the delay occasioned by their taking place while the machine is stopped once for each seam. In this machine, the cloth coming in one long length from the crabbing machine does not have to be ripped into eight lengths and then sewed eight times, but is simply ripped once and then strung into this present machine and sewed once to make an endless strand. On coming out, it is simply ripped once and put into the extractor, through which it goes in one long length to the folding machine.

I have shown the invention as applied to well known types of scouring and dyeing machines. Referring to Figs. 1 and 2, the cloth comes through a series of eyes 10. Instead of each length passing through a separate eye, the whole length of eight pieces is strung through the several eyes 10 one after the other in the manner indicated. From each one, the cloth passes over a reel 13 down to the bottom, then up through a ladder 12 which separates the different strands in the usual way and up over a roll 11 back through the next eye 10 and to the squeeze rolls 14 and then down into the vat at a point farther along in it. Then the process is repeated over and over..

At the end the fabric goes up from the bottom past the last eye over a guide-roll 16 mounted on the shaft with the roll 11 under a roll 17 which is hung on a lever 18 and weighted with a weight 19 so as to squeeze some of the liquor out, then up over a guide-roll 20 which is mounted on another ladder or convenient support 21. The cloth is drawn through here to another guide-roll 22 through a wicket or loop 23 to guide the cloth so that it will necessarily pass over this roll 22 and not run off the ends thereof and then goes down under a guide-roll 24 and either out of the machine or back to the base through the liquor several more times. The three guide-rolls 20, 22 and 24 are of the same size preferably. The upper ladder merely supports the cloth in case there is any slack between the rolls 20 and 23. It will be noticed that the fabric comes up to the eyes at an inclination instead of vertically as heretofore and that has an advantage in that the cloth is prevented from being rumpled up just before it enters the eye but, on account of the inclination, is allowed to spread by gravity. The roll 16 is made larger than the roll 11 to take up the slack and feed it forward more rapidly.

The showing of the invention in Fig. 4 as applied to a bleaching or dyeing machine is to illustrate another way in which the invention can be carried out, in which a reel 30 is employed over which the cloth goes time after time in a progressive manner from one end to the other as it goes through the machine. Here the liquor drains out between the operations. The other features are substantially the same.

Although I have illustrated and described only two applications of this invention, I am aware of the fact that other modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to all the details of construction herein shown, or to either form, and described, but what I do claim is:—

1. In a machine of the character described, the combination of a tank or vat, a guide-roll on which the cloth is adapted to be carried, a series of eyes at about the level of the guide-roll through which the cloth is guided in a continuous length from one eye to another and around through the bottom of the tank, a ladder in the tank for keeping the strands separate and a ladder above the first ladder having a guide-roll at each end over which the cloth is passed from one end of the tank to the other, the second ladder serving to prevent the falling of the cloth down on the first-named roll if there is too much slack.

2. In a cloth scouring machine, the combination of a series of eyes arranged in a horizontal line along the machine, means for guiding cloth in a continuous course through each eye down into the tank and back through the next eye and so on from one end of the machine to the other, and a pair of transverse rolls at the two sides of the machine above the eyes for guiding the cloth back from the delivery side of the machine to the feeding in side.

3. In a machine of the character described, the combination of a series of eyes arranged in horizontal alignment along the machine, means for guiding cloth in a continuous course through each eye down into the tank and back through the next eye and so on from one end of the machine to the other, means for guiding the cloth from the last end back to the first end at a level above the eyes, said means comprising a pair of rolls for supporting the cloth at the two sides of the machine, and a transverse guide-roll for guiding the cloth downwardly and outwardly.

4. In a machine of the character described, the combination of a series of eyes arranged in horizontal alignment along the machine, means for guiding cloth in a continuous course through each eye down into the tank and back through the next eye and so on from one end of the machine to the other, means for guiding the cloth from the last end back to the first end at a level above the eyes, said means comprising a pair of rolls for supporting the cloth at the two sides of the machine, a guide at one end of the machine to guide the cloth over the roll to which it passes and prevent its running off the end of that roll, and a pressure roll engaging the cloth as it comes up out of the liquid to squeeze part of the liquid therefrom, said pressure roll having a weight for making its operation more effective.

5. In a machine of the character described, the combination of a series of eyes arranged in horizontal alignment along the machine, means for guiding cloth in a continuous course through each eye down into the tank and back through the next eye and so on from one end of the machine to the other, a pressure roll engaging the cloth as it comes up out of the liquid to squeeze part of the liquid therefrom, said pressure roll having a weight for making its operation more effective, and a roll rotatable at a surface speed greater than the speed of the cloth up to that point, for the purpose described.

6. In a machine of the character described, the combination of means for guiding cloth in a continuous course and so on from one end of the machine to the other, means for guiding the cloth from the last end back to the first end, said means

comprising a pair of rolls for supporting the cloth at the two sides of the machine, a guide at one end of the machine to guide the cloth over the roll to which it passes and prevent its running off the end of that roll, and a pressure roll engaging the cloth as it comes up out of the liquid to squeeze part of the liquid therefrom, said pressure roll having a weight for making its operation more effective.

In testimony whereof I have hereunto affixed my signature.

MICHAEL F. ROONEY.