

(No Model.)

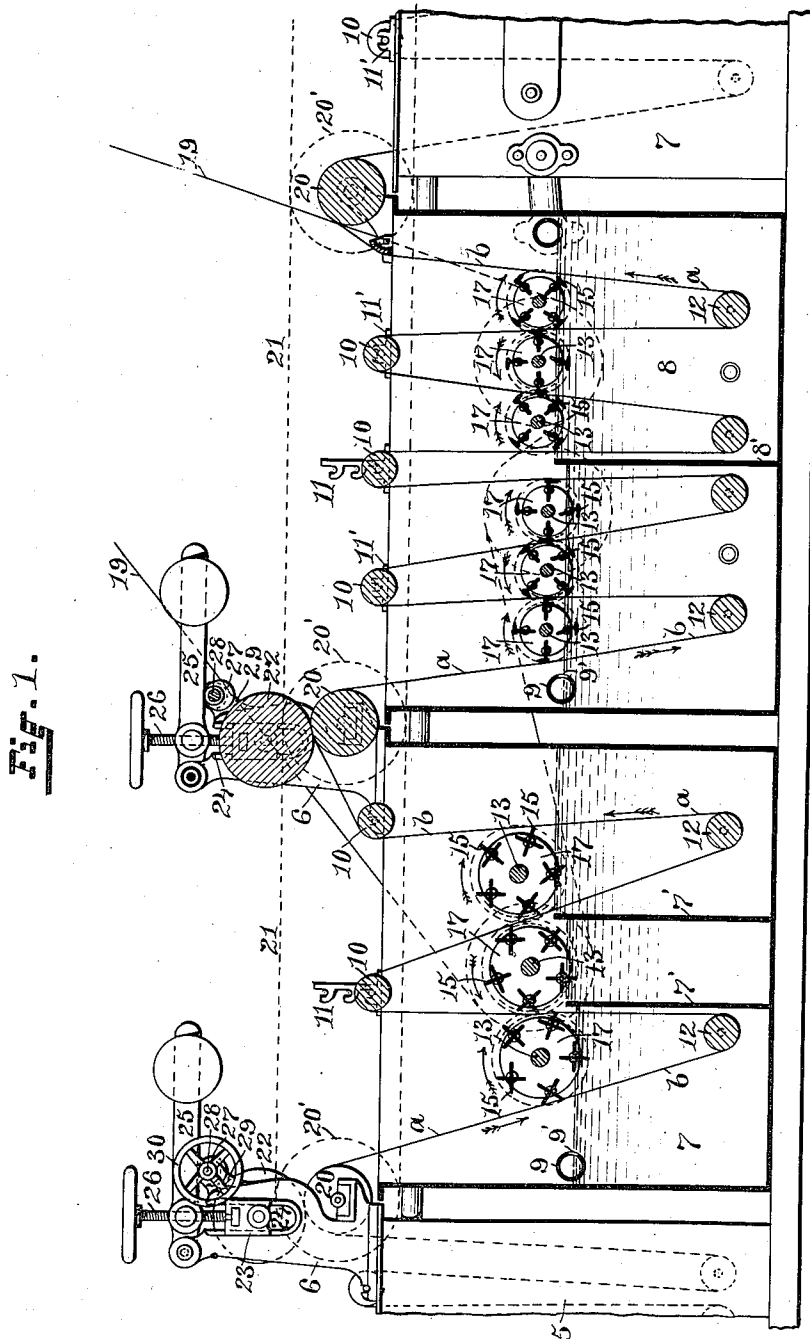
2 Sheets—Sheet 1.

E. A. RUSDEN.

MACHINE FOR CLEANING AND SOAPING FABRICS.

No. 473,266.

Patented Apr. 19, 1892.



WINTER 1955:

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Fig. 2.

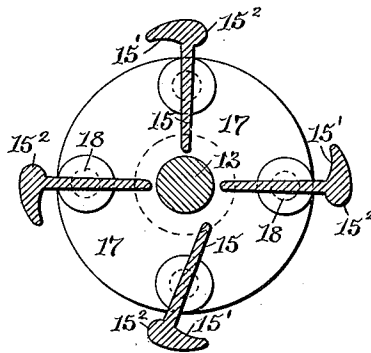
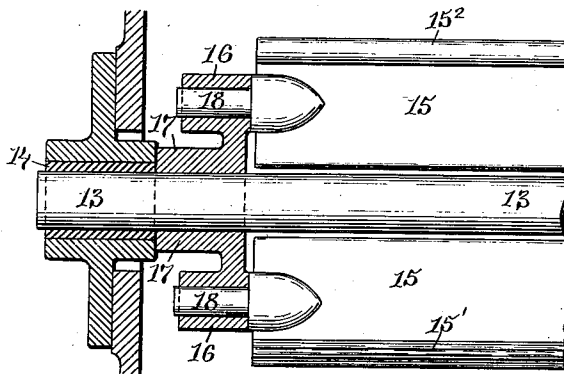


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ETHELBERT A. RUSDEN, OF PROVIDENCE, RHODE ISLAND.

MACHINE FOR CLEANING AND SOAPING FABRICS.

SPECIFICATION forming part of Letters Patent No. 473,266, dated April 19, 1892.

Application filed June 20, 1891. Serial No. 396,954. (No model.)

To all whom it may concern:

Be it known that I, ETHELBERT A. RUSDEN, of the city of Providence, in the county of Providence and State of Rhode Island, have
5 invented certain new and useful Improvements in Cleaning and Soaping Machines; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings,
10 ings, forming part of this specification.

This invention has reference to improvements in apparatus for cleansing and soaping textile fabrics.

The objects of this invention are to produce
15 an apparatus which will more thoroughly soap and cleanse the fabric passing through the tanks with which the apparatus is provided, and also to produce a more durable machine which will be more economical in its operation.
20 tion.

The invention consists in the novel construction and operation of the splasher-blades, and in the combination, with the tanks, of outlet-pipes adapted to skim the surface of the
25 liquid contained in the tanks, driving-rolls placed intermediate the tanks, and nip-rolls peculiarly operated and bearing on the fabric, passing over the driving-rolls at a point rearward of the center of said rolls to force
30 the surplus liquid back into the tank from whence the fabric is moving, as will be more clearly described hereinafter, and pointed out in the claims.

Figure 1 is a longitudinal sectional view of
35 two tanks of the improved machine, any number of which tanks and accompanying nip-rolls may be used. Fig. 2 is a cross-sectional view of the beating and splashing mechanism. Fig. 3 is an enlarged view of a portion
40 of the splashing-blades, the face-plate to which they are pivoted and the bearing for the shaft being shown in section.

Similar numbers and letters of reference designate corresponding parts throughout.

45 In the drawings, 5 indicates a portion of a fixing-tank provided with a driving-roll and a nip-roll supported in the side frames 6.

7 is a cleansing-tank, while 8 is a soaping-tank, these cleansing and soaping tanks being
50 placed alternately and each of them being provided with an outlet-pipe 9, which extends

across the tank and has a longitudinal slit 9', through which the scum from the liquid is allowed to pass, they being adjusted to the water-level by turning the pipe, fitting in suitable bearings from the outside of the tank. The tanks 7 and 8 are subdivided by the partitions 7' and 8', those marked 7' being of different heights to raise the level of the liquid to a point best adapted for the operation of
55 the splashers.

Each of the tanks 7 and 8 is supplied with a number of guide-rolls 10, which are journaled in bearing-frames 11 or 11', secured to the tops of the tanks. By the use of the bearing-frames 11 the guide-rolls may be set at
60 different heights to adjust the angle at which the fabric is carried past the splashers, which in some instances are journaled farther apart than shown in the drawings, so that the fabric
70 will not be subjected to the rubbing of the splash-blades, but will be merely washed by the water thrown against it. The guide-rolls 12 are revoluble in bearings secured inside and near the bottom of the tanks, the fabric
75 *a b* passing over the rollers 10 and under those marked 12, by which it is guided through the liquid held in the tanks and against the splashers or beaters. The splashers or beaters are carried by the shafts 13, journaled in
80 the bearings 14, secured to the sides of the tanks at proper heights, and consist of splasher-blades 15, pivoted at each end in bearings 16, forming part of the face-plates 17, which are secured to the shafts and turn with them.
85 These splash-blades may consist of groups of longitudinally-extending blades secured together and revolving on a common pivot, as is shown in the tank 7, or they may be formed as represented in Figs. 2 and 3, each blade revolving on independent pivots and having
90 the end turned to form a scoop or bucket 15' at right angles, more or less, with the face of the plate and having the rounded head or shoulder 15² extending backward of the blade,
95 the outer surface being rounded, while the thin blade 15 extends inward from the pivot 18, so as to just clear the shaft 13. The outer ends of the shafts 13 are geared together and are revolved by the belt 19, passing over a
100 pulley with which the end of one of the shafts is provided, and the splasher-wheels are gen-

erally arranged in groups of three, as shown in the drawings. The driving-rolls 20 are carried on shafts, which are journaled in bearings secured in frames 6, placed intermediate the tanks, and motion is imparted to their pulleys 20' by the chain band 21, while the nip-rolls 22 are supported on shafts journaled in the blocks 23, vertically movable in the slots 24, provided in the upper portion of the frames 6 off the center of the driving-rolls, against which driving-rolls the nip-rolls are forced by the weighted levers 25, having the bearing-screws 26 passing through threaded perforations in the same and pivotally secured in the blocks 23. The weighted levers 25 may be lifted by cams 27, secured to the shafts 28, which extend across the tanks, being journaled in bearings on the brackets 29, secured to the frames 6, and are operated by hand-wheels 30, secured to the ends of said shafts. The raising of these levers 25 lifts the nip-rolls 22 away from the driving-rolls 20 or from the fabric passing over the driving-rolls. The fabric *a b* passes through the tanks in the direction indicated by the arrows, passing under the guide-rolls 12 and over those marked 10, which are supported in the brackets 11. In passing from one tank to the other the fabric is carried along by the driving-rolls 20, and the surplus liquid is squeezed therefrom by the nip-rolls 22, this liquid running back through or over the fabric into the tank from whence the fabric is passing and giving the fabric a thorough rinsing, the position of the nip-rolls relative to the driving-rolls preventing any considerable quantity of liquid being carried from one tank to another. While the fabric *a b* is passing through the tanks the splashers are rapidly revolved by the belt 19, passing over the splasher-pulleys, and the splash-blades 15 throw the liquid against the fabric and follow it up by a scrubbing motion as their edges pass over the surface of the fabric, the pivoting of the blades preventing undue strain on the fabric and more thoroughly splashing the liquid over the same.

The splashers shown in Figs. 2 and 3 are particularly adapted for use in a machine of this class, the rapid revolution of the shaft 13 keeping the weighted buckets in a position to take up a large quantity of liquid and throw it against the fabric, while the rounded rubbing-surface will thoroughly scrub the surface of the same. The lower bucket in Fig. 2 is shown in a position as when passing through the liquid. An important feature in this improved apparatus is the economy with which it may be operated, as all the wear from the motion of the blades 15 comes on the pivots 18 and their bearings and there can be no sudden or continued shocks to the machine from the blades striking the shafts or other portions of the mechanism when starting or stopping.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a machine of the class described, the combination, with shafts rotatable in tanks and carrying face-plates, of splash-blades having their edges bent at angles with the face thereof and pivoted in said face-plates, as described.

2. The combination, with the shafts 13, journaled in the bearings 14 and carrying the face-plates 17, having the bearings 16, of the splash-blades 15, having the buckets 15' and heads 15², supported in the bearings 16 by the pivots 18, as described.

3. The combination, with the tanks of a cleansing and soaping machine, having the longitudinally-slitted outlet-pipe 9 journaled in the sides thereof, of a series of shafts rotatable in said tanks, face-plates carried on said shafts, and splash-blades 15, having the buckets 15' and a rounded outer surface, pivoted in said face-plates, as described.

ETHELBERT A. RUSDEN.

Witnesses:

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