

No. 660,029.

Patented Oct. 16, 1900.

E. REMY.

APPARATUS FOR WASHING PIECE GOODS.

(Application filed Dec. 7, 1897.)

(No Model.)

FIG. 2.

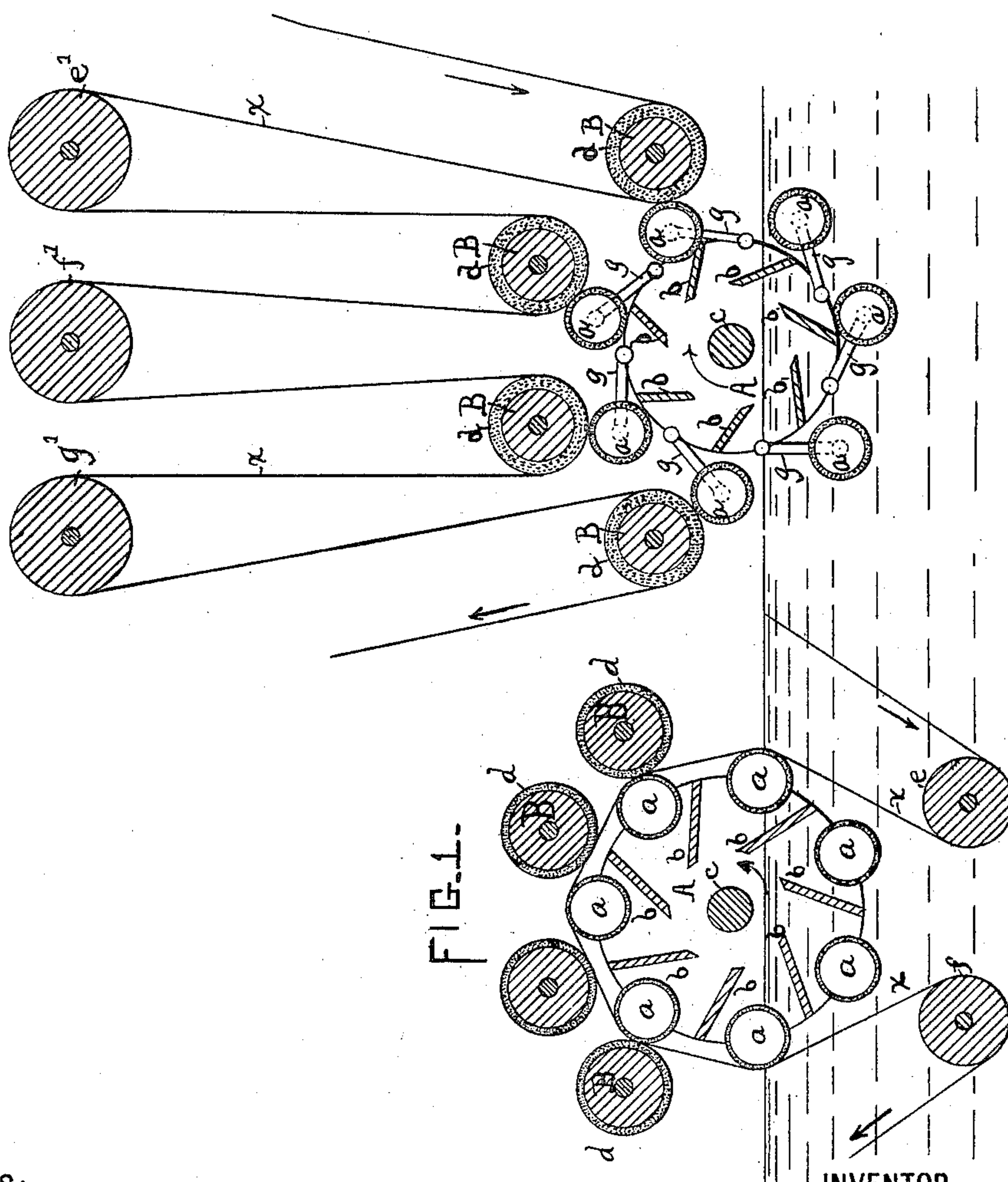


FIG. 1.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

EMILE REMY, OF MULHOUSE, GERMANY.

## APPARATUS FOR WASHING PIECE GOODS.

SPECIFICATION forming part of Letters Patent No. 660,029, dated October 16, 1900.

Application filed December 7, 1897. Serial No. 661,084. (No model.)

*To all whom it may concern:*

Be it known that I, EMILE REMY, engineer, a subject of the Emperor of Germany, residing in Mulhouse, Germany, have invented an Apparatus for Washing Printed Woven Goods with or without Soap after Steaming, of which the following is a specification.

This invention relates to apparatus for washing printed woven goods with or without soap after steaming.

Printed cloth after having been steamed requires washing either with or without soap, so as to eliminate any excess of coloring-matter which it may contain. Generally speaking, the colors used for these materials consist of coloring agents dissolved in a thickener, which serves as a vehicle for them and whereof the only object, as implied by its name, is to render the color sufficiently thick to answer the purposes of printing. The thickeners employed in attaining this object are composed of more or less readily-soluble gums, starches, and the like. The printed material is dried in hot chambers, after which by a series of suitable operations the color is fixed onto the textile fiber direct, the superfluous color being next eliminated by soaping or washing. Now the thickeners generally used at the present time when once dry are soluble, but with great difficulty, and the machines which are to perform this operation in a continuous manner and the action of which consists merely in passing the material through water or subjecting the same to the contact of soap made to impinge on it with greater or less force have to be of a very considerable size where anything like a normal output is expected. This inconvenience is remedied by the novel apparatus forming the subject of the present invention, which while being reduced to the minimum in bulk enables any superfluous quantity of the thickener, even in the case of very heavily-charged fabrics, to be eliminated in a very short time and in a continuous manner. This new device operates in the main by steeping (or dipping) and beating the printed goods, so as to break up the various hardened molecules of the thickener, so that these may be removed by simply rinsing or flushing the goods.

The arrangement and operation of the improved device will be best understood by

reference to the accompanying drawings, in which—

Figure 1 is a diagram of washing apparatus constructed in accordance with my invention. Fig. 2 shows a modification of the arrangement shown in Fig. 1.

As shown in Fig. 1, the apparatus comprises a rotary drum or barrel A, formed of two disks or end plates connected by rollers *a*, capable of revolving on such plates or disks, and by paddles *b*, interposed between the rollers *a*. This drum or barrel is mounted upon a horizontal shaft *c*, by the aid of which rapid rotary motion may be imparted to it, while its lower part is immersed in liquid contained in a trough or bath. (Not shown.) The upper part of the barrel is surrounded by rollers B, each of which is enveloped in a flexible india-rubber sheath or case *d*. The journals of these rollers engage in slideways radiating from the center of the barrel A, the distances between them being so adjusted that they may be each in succession struck and raised by the rollers *a* of the rotary barrel A. Thus we have here two rows or series of rollers—*a* and B—arranged circularly, and through these the cloth *x*, which is to be washed, is passed. The cloth to be so conducted through the machine is held by the cylinders *e* and *f*, provided at the inlet and outlet ends of the set of rollers *a* B, the course that such cloth takes and the direction of motion of the barrel A or rollers *a* being indicated in the drawings by arrows. Now, supposing the apparatus to be in operation, it will be seen that the rollers *a* impart a series of successive strokes or impulses to the rollers B, the number of such strokes per minute depending upon the speed of rotation of the barrel or cylinder A. Thus if this speed be three hundred revolutions per minute, the number of rollers *a* being seven and that of the rollers B four, then seven multiplied by three hundred multiplied by four equals eight thousand four hundred strokes, or eight thousand four hundred divided by sixty equals one hundred and forty strokes per second. The cloth *x* is thus beaten while immersed in liquid and the molecules of the thickener are thoroughly disintegrated. Besides, as the liquid is thrown against the cloth by the paddles *b* the liquid washes off and carries away such molecules. In other



words, the cloth is freed from its impurities with the greatest speed.

As a modification of the arrangement the rollers *a*, instead of being journaled in the end plates of the cylinder A, may be mounted upon arms *g*, as shown in Fig. 2, which are linked to the said cylinder, while the rollers B, instead of being movable in slideways, may be mounted upon stationary spindles. Also the cloth *x* to be washed instead of passing between the two series of rollers *a* and B, surrounding the cylinder A, may pass to the rollers B direct and over cylinders *e'*, *f'*, and *g'*, interposed between such rollers. In this case the rollers *a* act upon the rollers B by centrifugal force and the cloth is at all times subjected to the action of numerous and successive strokes or beatings, exercising a sort of hammering action upon the molecules, thereby reducing the latter to such a condition that their separation from the fabric becomes an easy matter.

As will be seen, the main point in each case is the beating of the material by successive strokes produced upon the cloth by means of two sets of rollers, between which the cloth travels, so as to break up the particles of the thickener employed, and it will be readily understood that the number and construction of the rollers in each set are optional and that any suitable mechanism may be used in operating them. Again, it should be observed that the apparatus herein described

may be employed not only in washing woven fabrics after printing, but also in fulling or felting fabrics.

What I claim is—

1. In an apparatus for washing and soaping printed fabrics, the combination of a rotary barrel, carrying a series of rollers adapted to turn on their own axes, with another set of rollers arranged concentrically around the first set and at such distance apart as to be adapted to be successively struck by the rollers upon the rotary barrel, paddles carried by the barrel and a vat or trough adapted to contain the liquid, as and for the purpose set forth.

2. In an apparatus for washing and soaping printed fabrics, a rotary barrel having a series of hinged arms and rollers mounted to turn in said hinged arms and adapted to be thrown outward by centrifugal force, in combination with another set of rollers mounted concentrically about the first set and adapted to be successively struck by the rollers of said first set and a trough or vat containing the liquid, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EMILE REMY.

Witnesses:

EUGENE SCHULTZ,  
EMILE KAUFFMANN.