J. MACADAM.

APPARATUS FOR BLEACHING AND SCOURING FIBROUS MATERIALS.

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1,107,160. Patented Aug. 11, 1914.

Fig. 2.

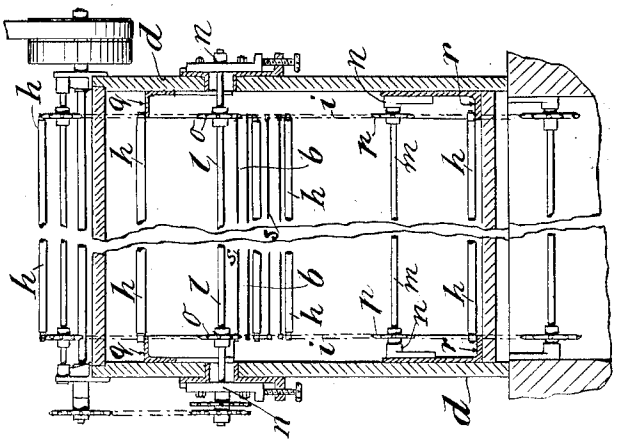
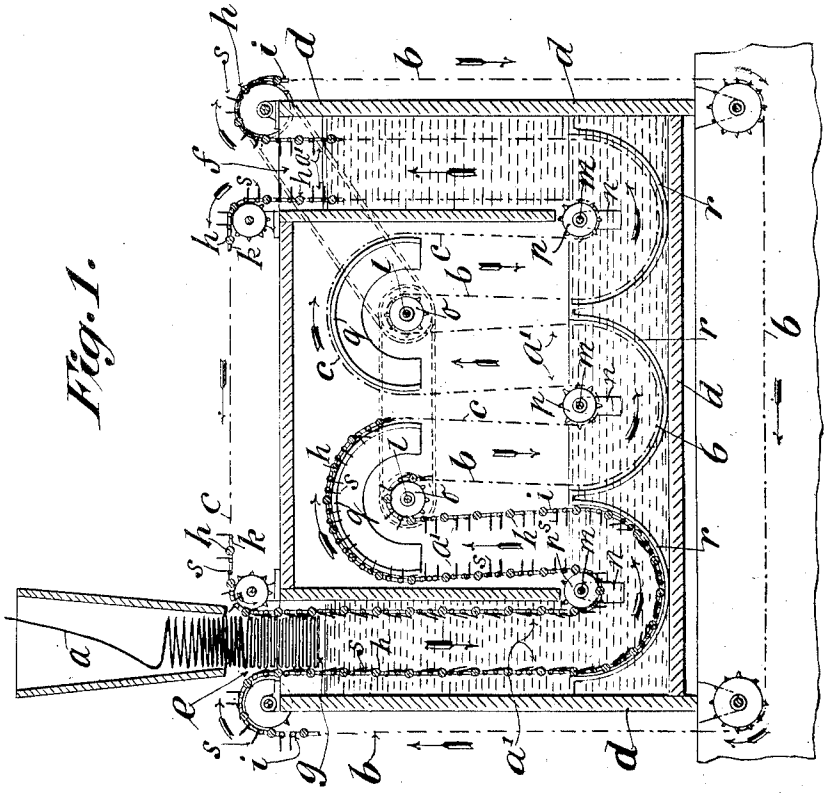


Fig. 1.



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UNITED STATES PATENT OFFICE.

JOHN MACADAM, OF CHESTER, PENNSYLVANIA, ASSIGNOR TO THE EDDYSTONE MANUFACTURING COMPANY, OF EDDYSTONE, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

APPARATUS FOR BLEACHING AND SCOURING FIBROUS MATERIALS.

1,107,160. Specification of Letters Patent. Patented Aug. 11, 1914.

Application filed February 16, 1914. Serial No. 819,100.

To all whom it may concern:

Be it known that I, JOHN MACADAM, citizen of the United States, residing at Chester, in the State of Pennsylvania, United States of America, have invented certain new and useful Improvements in Apparatus for Bleaching and Scouring Fibrous Materials; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in apparatus for bleaching and scouring fibrous materials and has for its object to provide means whereby the same can be treated in much larger quantities for a longer time than hitherto and in case of fabrics in open width can be run through the liquor without subjecting it to tension while at the same time keeping it sufficiently tight to prevent the selvages from curling.

To this end my invention consists chiefly in the use in a suitable tank, of two endless belts one located over the other with a space between for the reception of the material to be treated and of suitable means for supporting, guiding and running the said two belts jointly alternately down and up in the said tank and thereby the material in the said space through the liquor.

My invention consists further in providing the inner or opposing sides of the said two belts with means adapted to carry the material while the belts move upward.

I attain this object by the mechanism illustrated in the accompanying drawing, in which—

Figure 1 is a sectional side elevation, and Fig. 2 a sectional end view.

Similar letters refer to similar parts throughout the several views.

In carrying out my invention and referring to the figures generally, in the present instance, the material *a* is fabric in open width which is fed into the space *a'* between the belts *b*, *c* in folds or plaits by any suitable folding or plaiting device.

d is the tank, and *e* and *f* are respectively the inlet and outlet for the material, the former being provided with a removable bottom *g* to permit of accumulating the material to be treated sufficient in weight to insure the same becoming immersed in the liquor in the space *a'* between and of being carried around by the two belts *b*, *c*. Each belt is preferably formed of rollers *h* and two endless chains *i*, *k* to which the ends of the said rollers are pivoted. Near the top and bottom of the tank *d*, a number of shafts *l*, *m* are mounted in suitable bearings *n*, the bottom shaft *m* being situated between the top shafts *l* and each shaft carrying a pair of sprocket wheels *o*, *p*. In connection with the sprocket wheels *o*, *p* semi-circular guides *q*, *r* are arranged concentric with the respective shafts, the top guides *q* being located over the upper and the bottom guides *r* below the lower half of the said sprocket wheels. The top sprocket wheels *o* engage in the chains *i* of the belt *b* and the bottom sprocket wheels *p* in the chain *k* of the belt *c* while at the top the belt *c* passes around the exterior of the semi-circular guides *q* and at the bottom the belt *b* around the interior of the semi-circular guides *r*, so that the belts move over the tops of all guides. The bearings *n* of the sprocket wheel shafts *l* may be rendered vertically adjustable to provide for the proper tension of and to permit of slightly reducing the space *a'* between the two belts *b*, *c* at the top and bottom and thereby subject the material to more or less pressure or grip as may be required to carry same through the liquor. If deemed necessary to assist the upward travel of the material, plates *s* may be so pivoted to the inner or opposing sides of the chains of the belts *b*, *c* that when the belts travel upward the said plates will project between the material and carry the same upward and when the belts travel downward they will fall and become inoperative. Due to the rotation of the rollers of the said belts, the material under treatment will be caused to slightly change its position which is productive of a more even result in the treatment thereof.

It is obvious that the apparatus described may be made of any suitable length and also be used for bleaching and scouring fabric in rope form or for loose fibrous materials.

I claim:

1. In an apparatus for bleaching and scouring fibrous materials, a liquor tank, rotary members mounted near the bottom and the top in the said tank, guides concentric with and curving under the lower and over the upper members, two endless belts lo-

cated in parallelism with each other and having a space between them for the material to be treated and passing alternately down and around the said rotary members and over the upper faces of all guides, and means for drawing the said belts with the material between them jointly through the said liquor tank, for the purpose specified.

2. In an apparatus for bleaching and scouring fibrous materials, a liquor tank, rotary members and guides mounted near the bottom and the top in the said tank, two endless belts located over each other with a space between them for the material to be treated and passing alternately down and up around the said rotary members and guides, and plates pivoted to the inner sides of the said endless belts to grip and carry the material between them, for the purpose specified.

3. In an apparatus for bleaching and scouring fibrous materials, a liquor tank, rotary members and guides mounted near the bottom and the top in the said tank, and two endless belts located over each other with a space between them for the material to be treated and passing alternately down and up around the said rotary members and guides, the said endless belts consisting each of rollers and of a driving chain at each side thereof to the links of which the ends of the said rollers are pivoted, for the purpose specified.

4. In an apparatus for bleaching and scouring fibrous materials, a liquor tank, rotary members and guides mounted near the bottom and the top in the said tank, two endless belts located over each other with a space between them for the material to be treated and passing alternately down and up around the said rotary members and guides and means for rendering the upper rotary members adjustable in relation to the respective belt guides, for the purpose specified.

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

JOHN MACADAM.

Witnesses:
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