

J. HEMMER.
SCOURING MACHINE.
APPLICATION FILED MAY 25, 1910.

987,721.

Patented Mar. 28, 1911.

Fig. 1

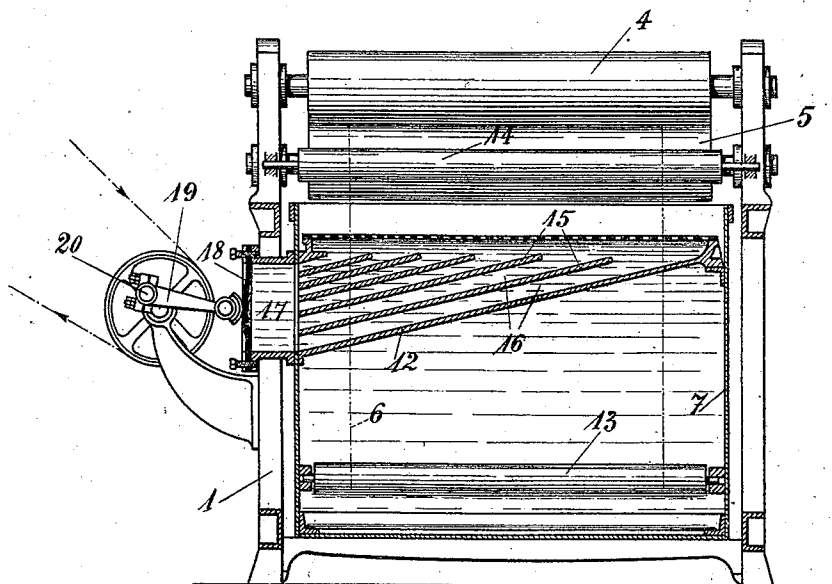


Fig. 2

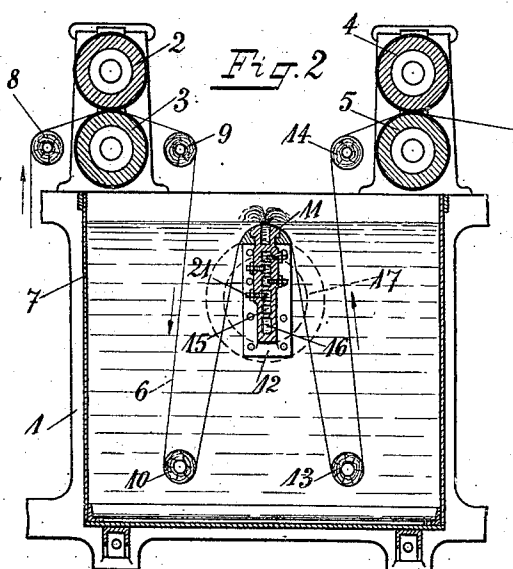
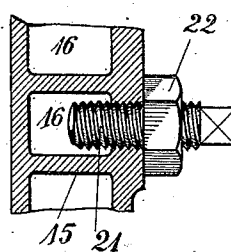


Fig. 3



Witnesses:
Les. C. Heinicke
J. E. Fehlen

Inventor:
per *Josef Hemmer*
D. Singer
Attorney.

UNITED STATES PATENT OFFICE.

JOSEF HEMMER, OF AIX-LA-CHAPELLE, GERMANY.

SCOURING-MACHINE.

987,721.

Specification of Letters Patent.

Patented Mar. 28, 1911.

Application filed May 25, 1910. Serial No. 563,308.

To all whom it may concern:

Be it known that I, JOSEF HEMMER, machine manufacturer, a subject of the King of Prussia, residing at No. 40 Krugenofen, Aix-la-Chapelle, in the Kingdom of Prussia, Empire of Germany, have invented certain new and useful Improvements in Scouring-Machines; 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.

The object of my invention is a scouring machine, wherein the impurities received by the textile fabric during the manufacture are thoroughly removed in the most simple manner. To this end the tissue, passing through the washing-suds, is guided over the sieve-like cover of a casing arranged in the washing-vat, the interior of which is subdivided by canals with regulatable cross-sections in such a manner that the washing-suds driven or sucked through these canals by a membrane-pump, or other pump exert at all points of the sieve-like cover a uniformly strong pressing and sucking action upon the tissue guided over it, since the flow obtained through the cover is everywhere the same. This innovation has the great advantage over other devices of this kind that the tissue is uniformly worked and cleaned in all points of its whole breadth, a result which could not be obtained with the scouring machines of this kind hitherto known, for the reason that the washing-suds ordinarily pressed or sucked by a pump through the tissue exert close to the sucking or pressing tube of the pump a greater action on the tissue than at more remote points. The result of such a treatment of the tissue as shown by the fact that the cleaning was not uniform which serious drawback is thoroughly removed by the present invention.

In the accompanying drawing: Figure 1 shows a longitudinal section, and Fig. 2 cross-section of the machine, Fig. 3 a detail view of a part of the casing arranged in the washing-vat, on an enlarged scale.

In the frame 1 of the machine are journaled the main pairs of rollers 2, 3 and 4, 5, by means of which the tissue 6 is guided through the washing-lye contained in the vat 7. If, for instance, the tissue is to be moved in the direction of the arrow, it passes over the guiding-roller 8 between the

main rollers 2, 3 and then over the guiding-rollers 9 and 10 to the sieve-like cover 11 of the casing 12 lying below the level of the washing fluid, whereupon it passes over the guiding-rollers 13 and 14 to the pair of main rollers 4, 5 and by these it is removed out of the washing-lye. The tissue can, of course, also be moved in the opposite direction through the machine.

The casing 12 extends through the whole length of the washing-vat 7 and is subdivided by transverse walls 15 into canals 16, whose cross-sections successively decrease from the bottom toward the top. The lower ends of the canals 16 communicate with a chamber 17, the outside wall of which is formed by a membrane 18. In the center of the last a connecting-rod 19 has its point of application; and by means of this rod and the crank-shaft 20 driven by a belt or the like, the membrane is receiving its movement. An equal flow of the washing fluid in the canals is everywhere obtained by the differences in their cross-sections.

If the connecting rod works, the membrane is moved to and fro, in consequence of which the washing-lye standing in the canals 16 is, during the forward movement of the membrane, pressed through the perforations of the cover 11 and through the tissue moved along over the latter, but during the return movement of the membrane new lye is sucked through the cover and tissue.

In order to regulate the speed of the washing-lye pressed or sucked through the tissue when it is not quite uniform over the whole breadth of the tissue, each one of the canals 16 is provided with a device adapted to its cross-section, which can be introduced more or less deeply into the canal changing its cross-section as required. For this purpose suitable screws 21 are passed through a wall of the canal, which can be secured in any position by means of a nut 22. As by means of this arrangement the speed of the washing-lye, pressed or sucked through, may be made to be uniform everywhere, there can be obtained also a uniform cleaning of the tissue, which was hitherto not possible, as the washing-lye nearest to the actuating-medium was moved with a greater speed than at the points farther removed from the same, where it was moved slower or almost not at all.

I claim:—

1. A scouring machine consisting of a washing-vat, adapted to contain the washing-suds, of two pairs of main rollers and several guiding rollers, by means of which 5 rollers the tissue to be washed is passed through the suds, with a casing located within the washing-vat and having a perforated cover, over which the tissue is guided, said 10 casing extending through the whole length of the vat and being subdivided by transverse walls into canals the lower ends of which communicate with the chamber of a pump and the cross-sections of which suc- 15 cessively decrease in the direction from the bottom to the top of the vat, in order to make uniform the speed of the lye coming out of or going into the upper ends of the canals, so as to make equal the action of the 20 moved lye upon the tissue at the whole breadth of the last.

2. A scouring machine consisting of a washing-vat, adapted to contain the washing-suds, of two pairs of main rollers and 25 several guiding rollers, by means of which rollers the tissue to be washed is passed through the suds, with a casing located within the washing-vat and having a perforated cover, over which the tissue is guided, said 30 casing extending through the whole length of the vat and being subdivided by transverse walls into canals the lower ends of which communicate with the chamber of a pump and screws introduced more or less 35 deeply into the canals for regulating their cross-sections in order to make uniform the speed of the lye coming out of or going into the upper ends of the canals, so as to make equal the action of the moved lye upon the 40 tissue at the whole breadth of the last.

3. A scouring machine consisting of a

washing-vat, adapted to contain the wash- 45 ing-suds, of two pairs of main rollers and several guiding rollers, by means of which rollers the tissue to be washed is passed through the suds, with a casing located with 50 in the washing-vat and having a perforated cover over which the tissue is guided, said casing extending through the whole length of the vat and being subdivided by trans- 55 verse walls into canals the lower ends of which communicate with the chamber of a pump and the cross-sections of which suc- 60 cessively decrease in the direction from the bottom to the top of the vat, and screws introduced more or less deeply into the canals for regulating their cross-sections in order to make uniform the speed of the lye coming out of or going into the upper ends of the 65 canals, so as to make equal the action of the moved lye upon the tissue at the whole breadth of the last.

4. A scouring machine of the kind de- 65 scribed consisting of a washing-vat, of rollers by means of which the tissue to be washed is passed through the suds, of a casing located within the washing-vat and having a perforated cover, over which the tissue is guided, said casing extending 70 through the whole length of the vat and being subdivided by transverse walls into canals a pump the chamber of which communicates with the canals and is closed on one side by a membrane and means for mov- 75 ing the membrane to and fro.

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

JOSEF HEMMER.

Witnesses:

MORITZ WEERTH,
HENRY CUADFLIEY.