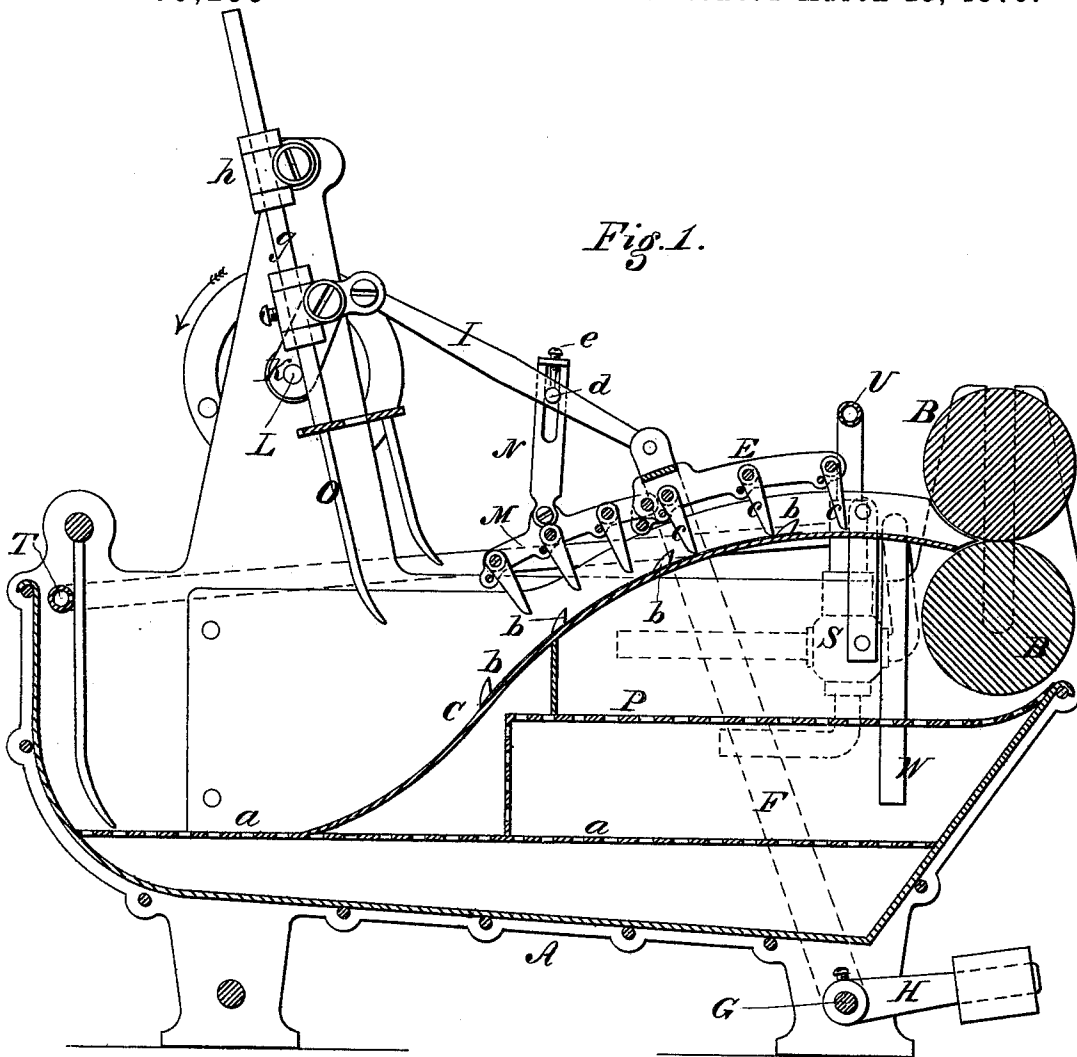


F. G. SARGENT.
WOOL WASHING-MACHINE.

No. 175,258.

Patented March 28, 1876.



Witnesses:

Donn Twitchell.
Will H. Dodge.

Inventor:

F. G. Sargent
By his attys.
Dodge & Son.

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Fig. 2.

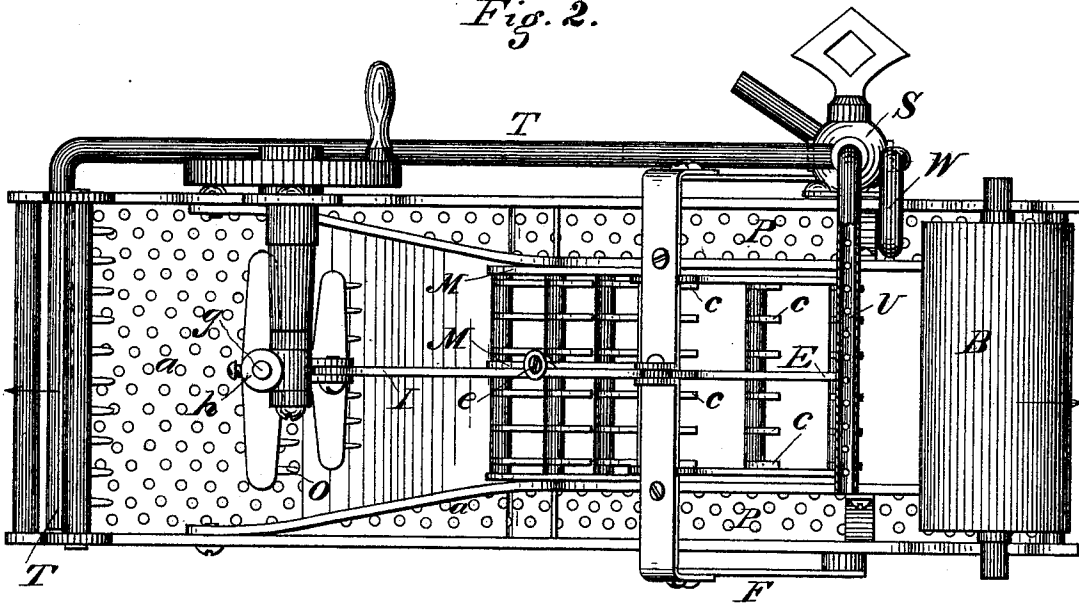
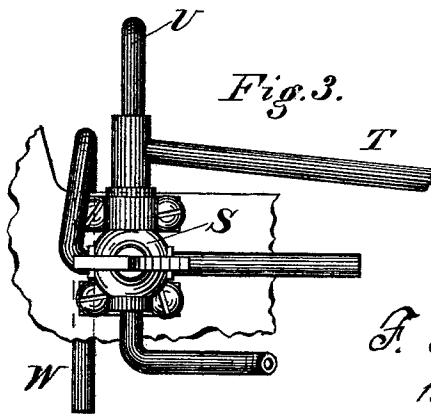


Fig. 3.



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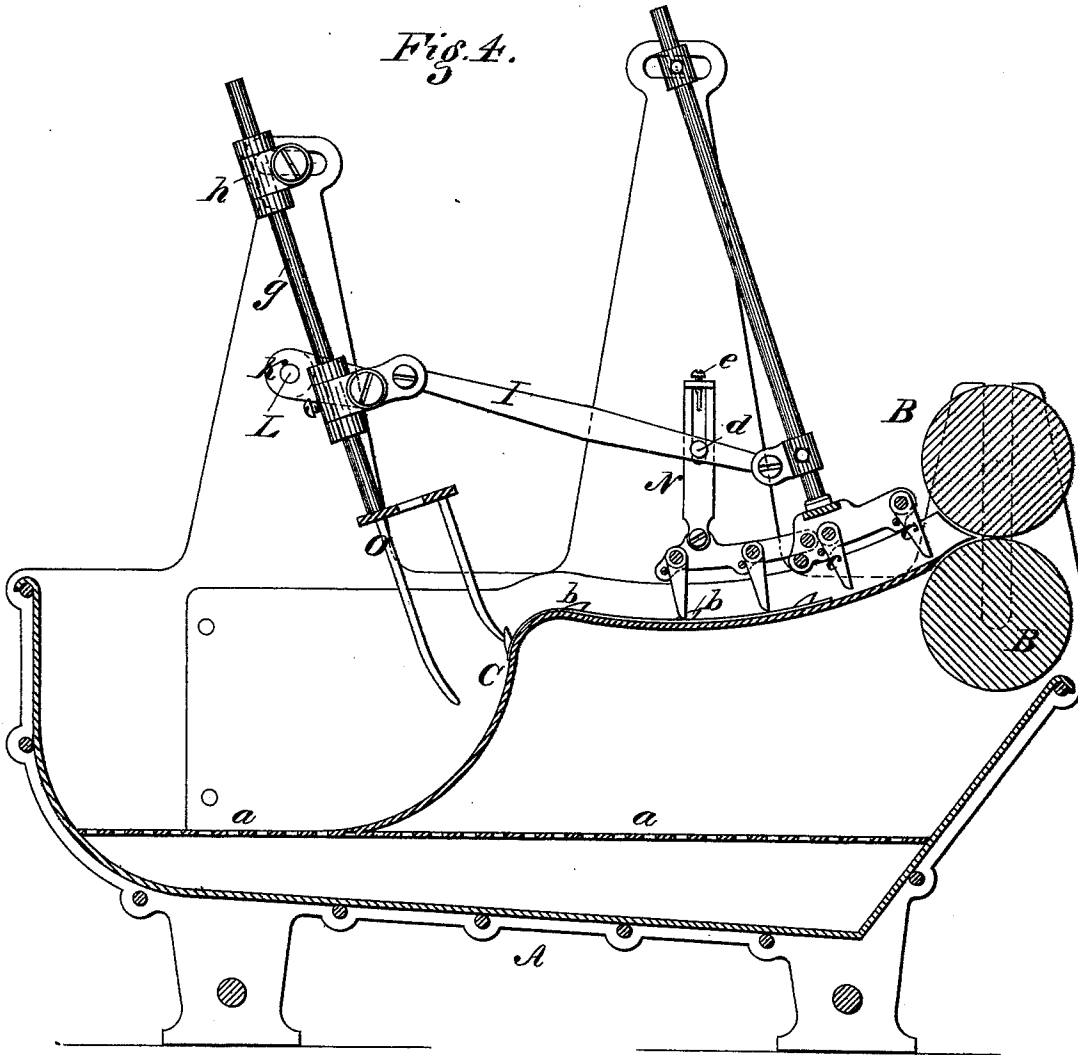
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Fig. 4.



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UNITED STATES PATENT OFFICE.

FREDERICK G. SARGENT, OF GRANITEVILLE, MASSACHUSETTS.

IMPROVEMENT IN WOOL-WASHING MACHINES.

Specification forming part of Letters Patent No. **175,258**, dated March 28, 1876; application filed December 23, 1875.

To all whom it may concern:

Be it known that I, FREDERICK G. SARGENT, of Graniteville, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Wool-Washing Machines, of which the following is a specification:

My invention relates to that class of machines in which a vat or body containing the liquor is provided with squeezing or wringing rolls at one end, and with mechanism for feeding the fiber through the liquor and to the rolls.

The invention consists in the construction and arrangement of the mechanism for feeding the fiber to the rolls, in the peculiar arrangement of a screen below the rolls, and in the employment of an injector and perforated pipes for spraying water upon the fiber, all as hereinafter fully described.

Figure 1 represents a longitudinal vertical section of my machine; Fig. 2, a top-plan view of the same; Fig. 3, a side view of the injector; Fig. 4, a longitudinal central section of a modified form of the machine.

A represents the vat or body of the machine, mounted upon legs, and supporting all the working parts, and provided with an internal perforated false bottom, *a*. B B are the two squeezing or wringing rolls, mounted at one end of the body; and C is my inclined table, extending from the false bottom upward to the rolls. As shown in Fig. 1, the lower end of the table C is concave, and its upper end convex, and the upper end provided with rows of rigid teeth *b*, which are shaped so that, while they permit the fiber to pass readily forward toward the rolls, they effectually prevent it from moving backward. Above the upper toothed end of the table C there is mounted a reciprocating frame, E, provided with teeth *c*, pivoted thereto in such manner that, as the frame moves back, they yield and pass over the fiber, and that as the frame moves forward they lock fast in the frame and carry the fiber before them toward the rolls. The frame E is supported by two arms, F, extending down outside of the body, and attached at their lower ends to a transverse rock-shaft, G, which is provided with a weighted arm, H, which latter serves to counterbalance the

swinging frame, and render the action of the machine smooth and easy. The frame E receives its reciprocating motion through a pitman, I, from a crank, K, which latter is secured upon a shaft, L, mounted in a standard on the side of the body, as shown in Figs. 1 and 2. To the rear end of the frame E there is hinged another and similar frame, M, provided with similar pivoted teeth, and with a link, N, which has its upper end slotted, mounted loosely on a stud, *d*, on the pitman I, and provided with a vertical screw, *e*, entering the upper end of the slot, as shown in Figs. 1 and 4. As the pitman draws the frames backward from the rolls it raises the link N, and lifts the rear end of the frame M, as shown in Fig. 1, so that its teeth pass back over and clear of the fiber below, and then, as the frames start forward toward the rolls, the pitman lowers the link and the frame M, so that the teeth of the latter enter the fiber and carry a large mass of the same forward. By arranging the frame to rise and fall in the manner described, the fiber floating in the liquor is caught and fed forward with certainty, uniformity, and rapidity.

The reciprocating frames having the pivoted teeth would carry the fiber forward without having the rear frame arranged to rise and fall; but by giving the frame said movement the action of the machine is improved and rendered more satisfactory.

The frame E is attached rigidly to the upper ends of its supporting-arms F, and the face of the table is curved in the arc of a circle described from the axis of the arms as a center, so that the frame moves in a path parallel with the face of the table, this arrangement permitting the teeth or fingers of the frame to travel very near the face of the table during their entire movement. The rear frame M will have the hinge or joint by which it is connected to the frame E constructed in such manner as to limit its descent, and prevent its teeth from coming in contact with the face of the table.

For the purpose of feeding the fiber to the frames M E, I employ a swinging carrier, O, provided with an arm or rod, *g*, the upper end of which slides through a pivoted box, *h*, while its lower end is mounted on and carried

by the crank K, which drives the reciprocating frames, as before explained. The movement of the crank causes the carrier O to descend into the outer end of the body and move forward the fiber before it, and then rise and move back in the air to its first position. The lower concave end of the table is given a curvature corresponding to the path of the carrier, so that the latter will travel close thereto during its forward movement. The fiber, being introduced at the end of the body, is carried through the liquor and forward upon the rear teeth of the table by the carrier O, then advanced still farther by the frame M, and finally carried between the rolls by the frame E.

In order to prevent the fiber which may adhere to the rolls and be carried back into the body below the rolls from falling into the liquor again, I arrange in the body, below the table, a screen, P, as clearly shown in Fig. 1, upon which the fiber will be collected and retained.

For the purpose of washing and rinsing the fiber the more effectually, I mount on the side of the body a steam-injector, S, provided with perforated pipes T and U, through which the injector forces a stream of water or other desired fluid, the pipe T delivering a spray upon the fiber when it first enters the machine, and the pipe U delivering a spray upon it just previous to its entering between the rolls.

This injector may be of any of the common and well-known forms to be found in the market; or, if preferred, a pump may be used in its place.

In addition to the spraying-pipes T U, a third pipe, W, may be arranged to dip into the body, as shown, and the parts so arranged that fresh water or other fluid may be delivered through said pipe W into the body, or the fluid in the body drawn out through said pipe and delivered through the spraying-pipes into the body again.

It is obvious that in constructing the machine different devices may be used for feeding the fiber to the toothed frames, and that, instead of swinging the said frames from a point below the body, as shown in Fig. 1, they may be suspended by an arm or arms swinging from a point above the table, as shown in Fig. 4, in which case the face of the table will be made concave, instead of convex, as in the machine first described, the action of the two arrangements being essentially alike. It is preferred, however, to construct the machine as in Fig. 1, with the table of the convex form at its upper end, for the reason that I find in practice that when the retaining-teeth are full of fiber the surplus fiber will roll back into the liquor more readily on the convex table than on one of any other form. It will of course be understood that although the form of table represented in Fig. 1 is the equivalent of that represented in Fig. 4, so far as upholding the fiber to the feeding mechanism is concerned, it is not an equivalent

in other respects, as the table with the convex upper end facilitates the return of the surplus fiber to the bath, while the concave table, on the contrary, prevents such return.

I am aware that the tables having concave upper ends are old and in common use, and it is to overcome the difficulties incident to their use that my convex table is designed. The concave table is shown in Fig. 4, not as a full equivalent of the convex table, but simply to illustrate the application of my feeding mechanism thereto, and to show the applicability of said mechanism to both forms of table.

In operating the machines thus constructed I find that as a large mass of fiber is carried up at each movement of the carrier, and only at portion of the same retained upon the table, every portion is carried out of the liquor and then dropped into the same again one or more times before it is carried to the squeezing-rolls, the result being a much more thorough and effective cleansing of the fiber than could otherwise be attained. In place of the crank, pitman, and link, other devices may be employed for operating the toothed frames, and instead of using both pipes T and U, either one may be omitted without affecting the other.

Having thus fully described my invention, what I claim is—

1. In combination with the curved table C, provided with the rigid teeth *b*, the frame E, supported by a pivoted arm or arms, F, and provided with the pivoted teeth *c*, substantially as shown and described.
2. In combination with the table C and the reciprocating toothed frame E, the toothed frame M, hinged to the frame E, and arranged to rise and fall, substantially as shown and described.
3. The combination of the frames E and M, pitman I, crank K, and link N, substantially as shown.
4. In combination with the pitman I and link N, arranged and operating as described, the screw *e*.
5. The combination of the frame E, arms F, rock-shaft G, and the weighted arm H, as shown.
6. In combination with a wool-washing machine, the injector S, or its equivalent, provided with the perforated pipes T and U, or either of them, arranged to deliver a spray upon top of the fiber, as shown and described.
7. In combination with the injector S, or its equivalent, the pipes T and U, or either of them, and the pipe W, arranged as shown, whereby the water may be withdrawn from the bottom of the tank and delivered upon the fiber, as described.
8. In combination with the body A and rolls B, the screen P, arranged in the body below the rolls, but above the liquor-level, as and for the purpose described.
9. In combination with the body A and

rolls B, the inclined table C, having the concave lower and convex upper end, and devices, substantially such as shown, for feeding the fiber from the body upon the table to the rolls.

10. In a wool-washing machine, a table, C, having its upper end made of a convex

form, substantially as and for the purpose described.

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Witnesses:

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