J. BACHELDER.
Wool-Washing Machine.

No. 198,557. **Patented Dec. 25, 1877.**

FIG. 1.

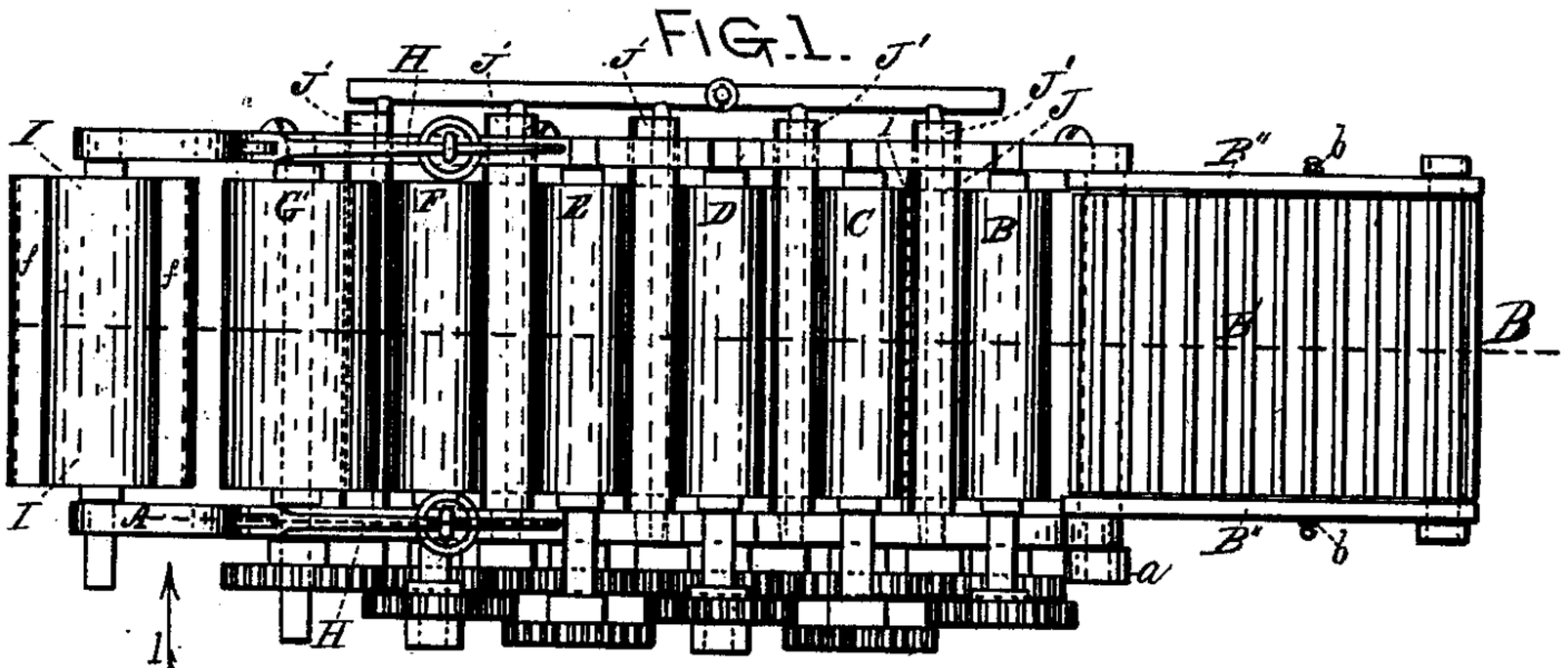


FIG. 2.

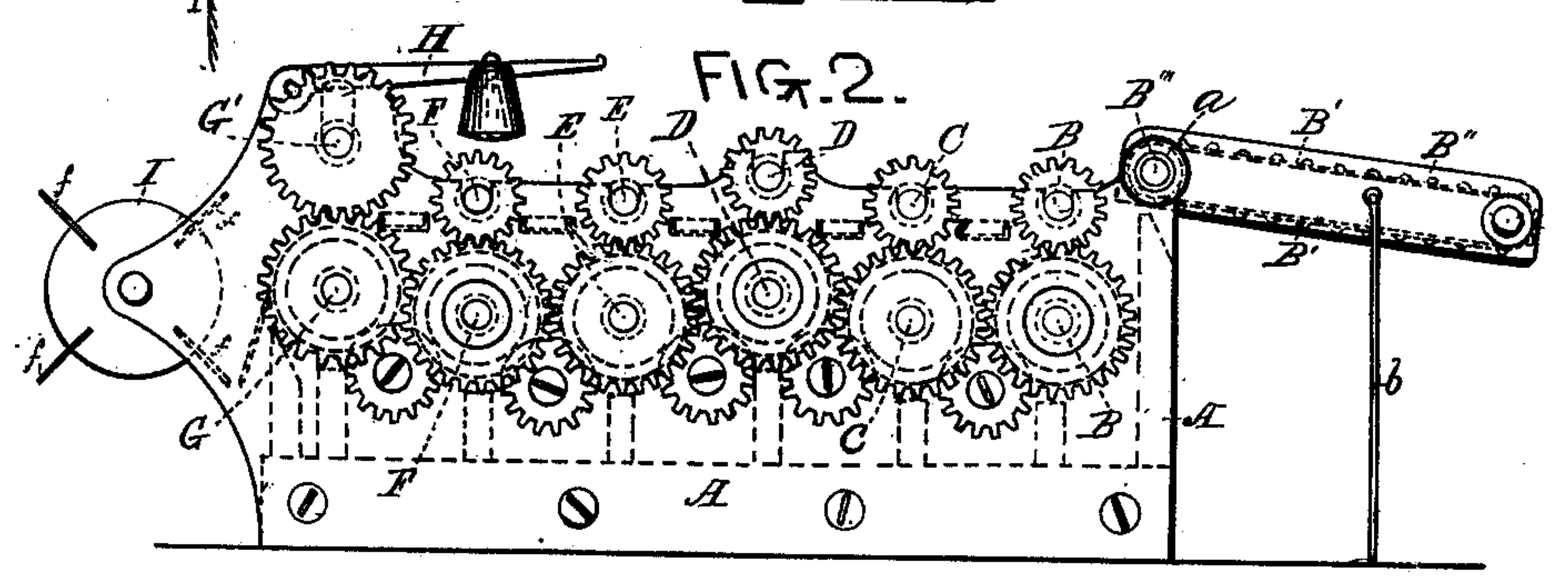


FIG. 3.

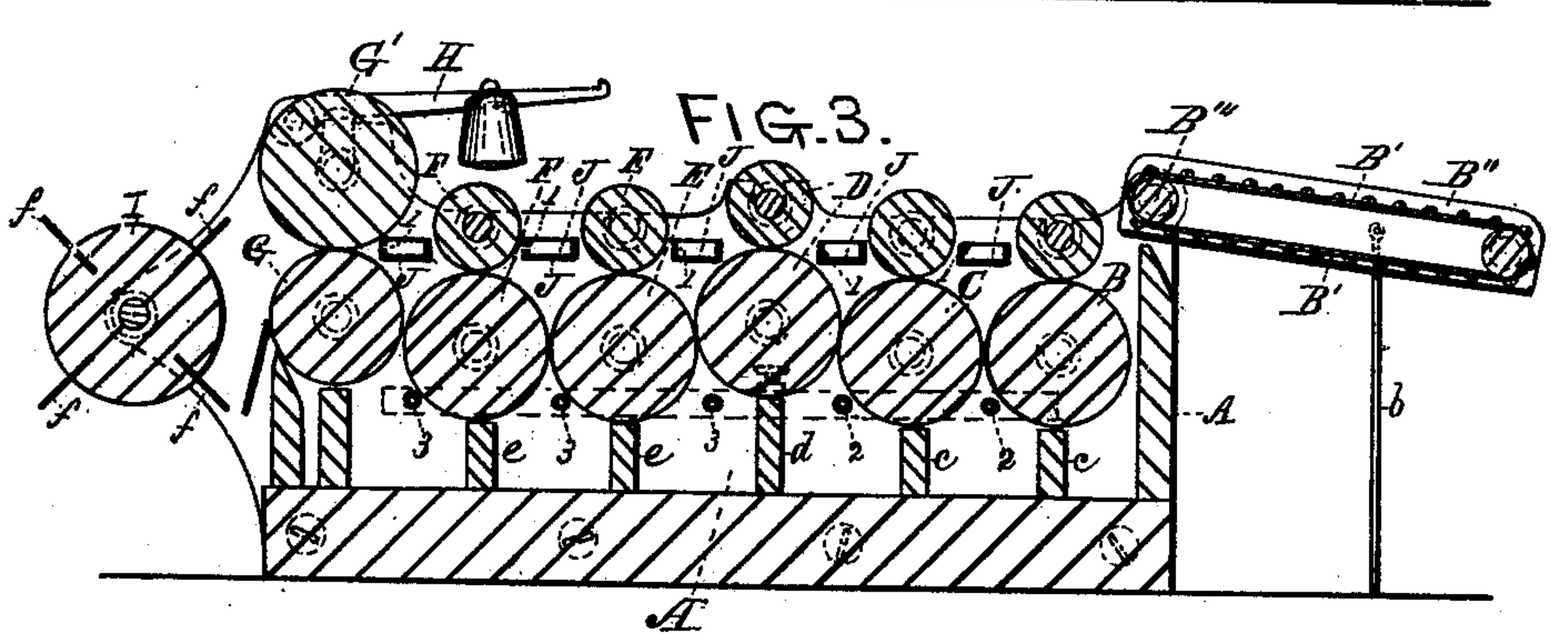
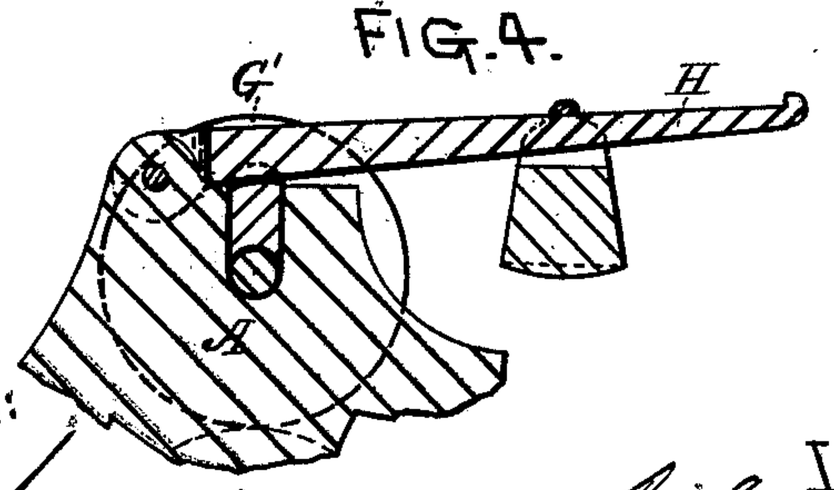


FIG. 4.



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UNITED STATES PATENT OFFICE.

JOHN BACHELDER, OF NAPA, CALIFORNIA.

IMPROVEMENT IN WOOL-WASHING MACHINES.

Specification forming part of Letters Patent No. **198,557**, dated December 25, 1877; application filed June 4, 1877.

To all whom it may concern:

Be it known that I, JOHN BACHELDER, of Napa, in the county of Napa and State of California, have invented certain new and useful Improvements in Wool-Scouring Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a top or plan view of my improved wool-scouring machine. Fig. 2 represents a view of the geared side of the machine. Fig. 3 represents a vertical longitudinal central section on line A B, Fig. 1, looking in the direction of arrow 1; and Fig. 4 represents a section on line A, Fig. 1, only a portion of the machine being shown, as will be hereinafter more fully explained.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

In the drawings, the part marked A represents the box or frame part of the machine, and which is made water-tight, so that the scouring-liquor and cleansing-water can only escape as hereinafter set forth. Box or frame A, in this instance, is provided with six sets of rolls, all of them turning in suitable bearings arranged in the sides of the box or frame A, and all of said sets of rolls are geared together, so as to be driven by a positive and uniform motion. (See Figs. 1 and 2 for the arrangement of the gearing.) In front of the first set of rolls B is arranged an endless apron, B′, upon a swinging frame, B″, which is fitted to swing upon the shaft B‴, which carries upon its outer end a small pulley, *a*, by means of which apron B′ can be driven by a belt running from a pulley on the shaft of the lower roll of the first set of rolls B; or it may be driven in any other suitable manner.

Swinging frame B″ is provided with two hinged legs, *b*, one on each side, so that when the machine is not in use, being shipped, or put away on storage, hinged frame B″, endless apron B′, and the hinged legs *b* can be turned over on top of the machine, thereby economizing space or room.

Box or frame A is provided at its front end with two sets of rolls, B and C, and under each set of rolls is arranged a division-piece, *c*, which extends from side to side of the box A, and extends up so as to almost touch the bottom of the bottom roll of its respective set. Near the center of the box A is arranged the set of rolls D, which set of rolls is arranged higher than the others, and underneath the lower roll of the set is a partition or cut-off piece, *d*, extending from side to side of the box, and extending up so as to form a close fit against the surface of the lower roll of the set D, as indicated in Fig. 3 of the drawings. In rear of the central set of rolls D are arranged two other sets of rolls, E and F; but these rolls are dropped down upon a line, or nearly so, with the journals of the two first sets of rolls B and C.

Division-pieces *e* are arranged in box A under these rolls, said division-pieces *e* extending up nearly to the peripheries of the lower rolls, as indicated in Fig. 3 of the drawings. In rear of these last-named rolls another set of rolls, G, are arranged, but in an elevated position, as indicated in the drawings, and the journal of the upper roll G′ of this set is pressed down by weighted lever H on each end of the roll, as is clearly represented in the drawings. In rear of the weighted set of rolls G is arranged an opening-beater, I, having projecting wings *f*.

Power is communicated to the geared sets of rolls in any convenient manner, so as to cause them to revolve with a slow but positive motion, while the beater I is driven with sufficient velocity to open the wool and deliver it from the machine in a suitable manner for drying.

At the top of box A, and between each set of rolls, is arranged a conductor, J, running from side to side of the machine, the rear edge of which is perforated with holes 1, and said conductors have open ends J′, extending out through the side of box A, opposite to the gearing.

At the sides of the box, near the lower surface of the lower roll of ea chof the sets B C and E F, an inlet-pipe is arranged, the inlet-pipes 2 2 being in front of the division-piece *d*, while the inlet-pipes 3 3 are in the rear of division-piece *d*.

Inlet-pipes 2 and 3 are connected with suitable pipes upon the outside of the machine, for conveying or conducting hot scouring water or suds through inlet-pipes 2 2 and clear cleansing cold water through inlet-pipes 3 3, and such hot scouring-water may be supplied from any suitable tank or reservoir, arranged at such a height as to cause the hot scouring-water to flow freely through inlet-pipes 2 2, and up and out through conductors J, such water passing ordinarily through the small perforations 1 in the rear edge of conductors J into said conductors, and thence running out of the open ends of the conductors at the side of the machine.

The operation of the cleansing or cold water in its passage into and out of box A through its respective inlet-pipes and outlet-conductors is the same as that of the hot scouring-water.

The operation of the machine is as follows: Box A being filled with hot scouring-water forward of division-piece *d*, and with cold cleansing-water in rear of division-piece *d*, and motion being given to the endless apron B′, geared sets of rolls B, C, D, E, F, and G and opening-beater I, the attendant places the wool to be scoured upon the endless apron B′, and continues to feed the wool to said apron as it revolves, the wool being carried forward by the apron and delivered to the first set of rolls, B, which draw it down into the hot scouring-water, by which it is saturated, and in its passage between the first set of rolls, B, it is squeezed so as to expel the water, after which it is saturated again in its passage through the hot water to the second set of squeezing-rolls, C, and again saturated in its passage to the third set of squeezing-rolls, D, after which it passes into the cold cleansing-water in the rear division of the machine, and is alternately saturated and squeezed in its passage through the various sets of rolls in this division of the machine, until it is finally delivered by the weighted set of rolls G, in a comparatively dry state, having been thoroughly squeezed by the great pressure of said rolls, to the opening-beater I, by which it is opened and thrown back in the proper condition for completing the drying operation.

From the foregoing description it will be seen that the construction of the machine is such that the ingress of the water to both divisions causes upward currents through the wool during its passage through the machine, whereby three important practical results are obtained, viz: First, the dirt or light floating matter is carried off by the water which escapes through the conductors, while the sand and heavy substances are deposited in the bottom of the box; second, an upward current through the wool prevents it from being wound about the bottom rolls; and, third, the outlet being on a line not much above the bites of the respective sets of rolls, the dirty water expelled by the rolls is at once conducted or carried off from the box A, instead of being allowed to mingle and mix with the incoming clean water, all of which tends greatly to insure a perfect and economical scouring and cleansing of the wool.

It will be understood that any number of sets of rolls may be employed in each division of the machine, the number depending somewhat upon the character of the wool to be scoured.

It will be understood that the dirt and sediment deposited in the bottom of box A can be removed by any suitable arrangement for that purpose, and that the waste water may be conducted into suitable tanks, and, after being filtered or otherwise separated from the dirt, used over again.

I am aware that Letters Patent were granted to Israel Hoagland, July 16, 1867, for washing and wringing machines; and I do not wish to be understood as claiming anything shown or described in said Hoagland's patent, nor do I wish to be understood as claiming anything shown or described in the Letters Patent granted to me September 8, 1874, for improved wool-washing wachine; and I hereby disclaim the inventions described and shown in both and each of said Letters Patents; but,

Having described my improvements in wool-scouring machines, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The improved mode or process herein described of scouring and cleansing wool, consisting of a continuous operation of alternately saturating the wool with scouring liquor and water, expelling the same by mechanism operating substantially as described, while the scouring liquor and water are fed in from below and carried off from the top just in front of each set of rolls, as and for the purposes set forth.

2. The combination, with the elevated division set of squeezing-rolls D, arranged in a box, A, having a division-piece, *d*, of one or more sets of squeezing-rolls on each side, substantially as and for the purposes set forth.

3. The combination, with the box A and squeezing-rolls, of perforated conductors J and inlet-pipes 2 and 3, substantially as and for the purposes set forth.

JOHN BACHELDER.

Witnesses:
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