J. Young.

Dyeing Machine.

No. 39,609. Patented Nov. 18, 1863.

Fig. 1.

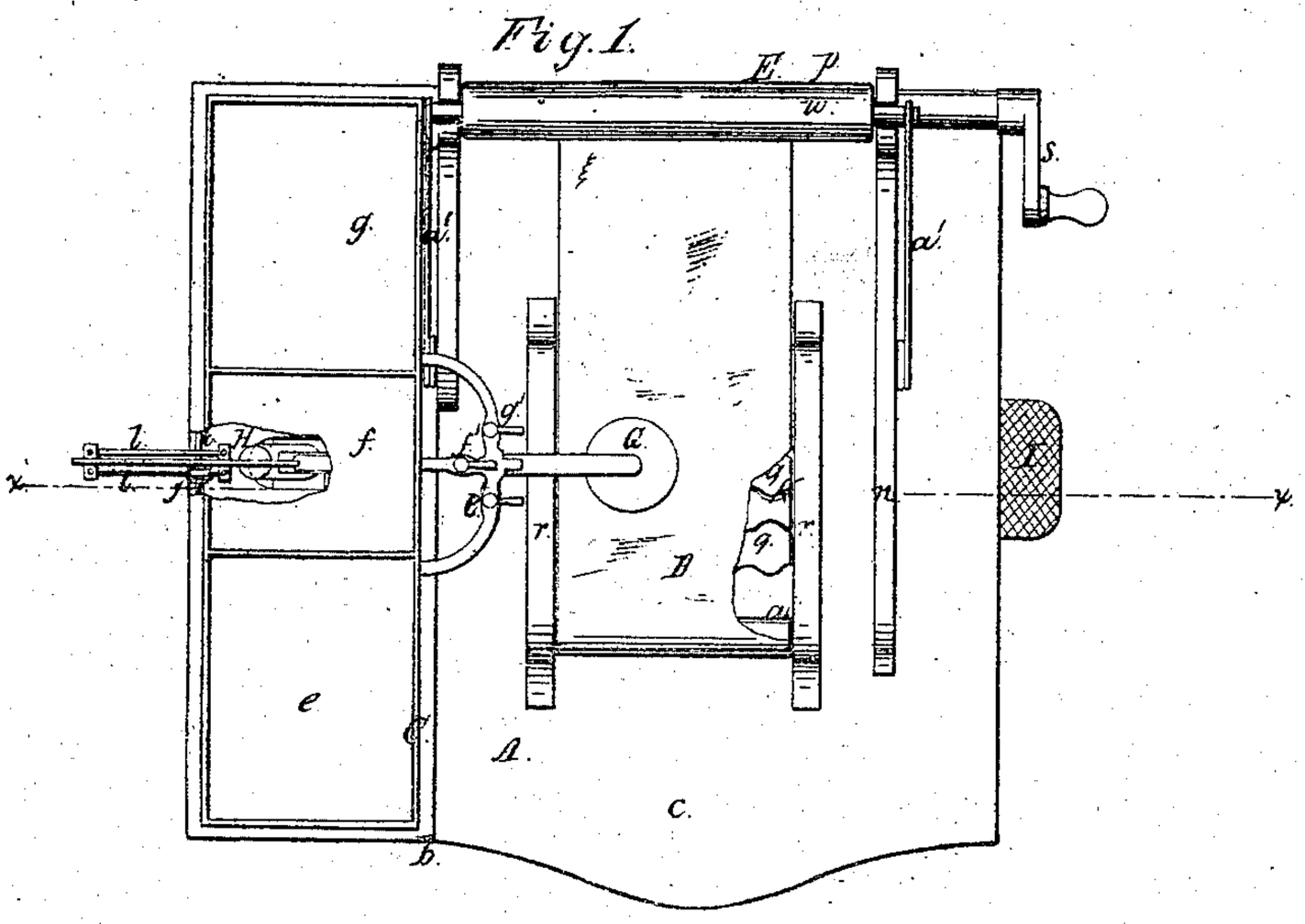


Fig. 4.

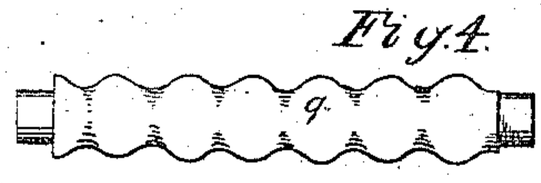
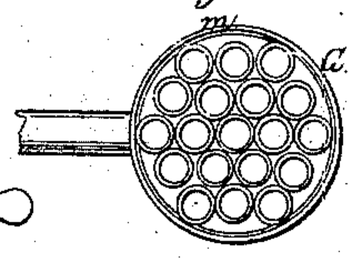


Fig. 2.

Fig. 3.



Witnesses.

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JAMES YOUNG, OF NEW YORK, N. Y.

IMPROVED MACHINE FOR DYEING, BLEACHING, &c.

Specification forming part of Letters Patent No. **39,609**, dated August 18, 1863; antedated March 13, 1863.

To all whom it may concern:

Be it known that I, JAMES YOUNG, of the city, county, and State of New York, have invented a new and Improved Machine for Dyeing, Bleaching, and Washing; 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, in which—

Figure 1 represents a plan or top view of my invention; Fig. 2, a transverse vertical section of the same, the line *x x*, Fig. 1, indicating the plane of section. Fig. 3 is an inverted plan of the hammer, which forms the principal working part of my invention. Fig. 4 is an elevation of one of the rollers detached.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to furnish to hatters and dyers a machine for beating in their dyes, and save time and labor, and to bleachers a machine to clear and wash the goods of chemicals and acids, and replace the old dash-wheel and rollers, and also to effect the washing of clothes in families in a novel and easy manner, by beating and rubbing them with a hammer constructed of short india-rubber tubes, or of bristles or of any other suitable material, through which the water is conducted while the same acts on the goods or clothes. This hammer is operated by a treadle, and its stroke is adjustable by different-shaped stirrups, according to the quantity and quality of the clothes to be acted upon. Said hammer is also provided with a self-acting cut-off, which stops the discharge of the water through the hammer as soon as the latter rises from the goods or clothes, and which allows the water to flow as soon as the hammer descends. The goods or clothes are placed on an endless apron, which moves over corrugated rollers of glass, and the liquid used for dyeing or bleaching, or water for washing or rinsing, is taken from different tanks, which are intended to be filled with the various fluids to be used in dyeing or bleaching, or when used for family washing, one with soapsuds and one with hot water, or any other liquid that may be found to be of advantage; and these tanks may be subdivided into more apartments to hold other fluids for dyeing, bleaching, or washing purposes, the discharge of said liquids being regulated by a series of faucets that are in a convenient position to be reached by the operator.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation with reference to the drawings.

The table A, which supports the working parts of my invention, rests on four legs, B, which are united near to their bottom ends, and strengthened by rods *a*. The top of the table is divided into two parts, *b c*, one part, *b*, to support the subdivided tank C and the other part, *c*, to support the endless apron D and the wringer E. The tank C rests on standards *d*, and it is divided into a series of compartments, *e f g*, to contain different sorts of liquids to be used during the operation of dyeing, bleaching, or washing. From this tank the liquid is conducted through a flexible pipe, F, to the hammer G, and each compartment of the tank is provided with a separate stop-cock, *e' f' g'*, so that its contents can be cut off or let on at pleasure. The stem of the hammer is partially hollow, so that the liquid from the tank can pass through it to the head of the hammer, and its solid rear end is pivoted to the upper end of a working-beam, H, to which an oscillating motion is imparted by means of a treadle, I, the operation of which is assisted by a fly-wheel, J. The stroke of said working-beam is adjustable by means of a series of holes, *h*, in its lower end, which allow of changing the connecting-rod *i*. By the action of the working-beam a reciprocating motion is imparted to the hammer, and the amount of motion imparted to the hammer depends upon the stroke of the working-beam H. The rear end of the stem of the hammer is guided by a grooved roller, *j*, which is moved in a longitudinal direction on an arbor, *k*, so that it matches with one or the other of a series of stirrups, *l*, that are secured to the rear end of the stem of the hammer. The arbor *k* of the guide-roller *j* may be so arranged that it can be raised or lowered, and the stirrups *l* are of different form, and they are so shaped that during a portion of its stroke the hammer is raised higher or lower, according to the position of the guide-roller *j*. The head of the hammer G consists of a me-

tallic case, *m*, filled with a number of india-rubber tubes or with bristles, and it is so arranged that the liquid, which flows from the tank through the hollow stem of said hammer discharges through the india-rubber tubes or through or between the bristles contained in the case *m*. The hammer G, as it is moved by the action of the working-beam H, sweeps over the endless apron D, which is arranged on the front part, *c*, of the table A. This part *c* is inclined, so that the liquid used during the operation of washing, dyeing, or bleaching discharges over the side of the table, and a guard, *n*, protects the operator and prevents the liquid being thrown against his or her body. The apron D is stretched over the rollers *o p*, and it moves over a roller-platform, K, constructed of a series of corrugated rollers, *q*, which have their bearings and which rotate freely in the upright lugs or flanges *r*. The shape of these rollers is such as represented in Fig. 4, and for the sake of cleanliness I intend to construct the same of glass in preference to any other material, though zinc, hard rubber, or seasoned wood can be also used as an equivalent. The goods or clothes to be dyed, bleached, or washed are spread piece after piece on the apron D and under the hammer G; and the rollers are made corrugated in order to hold the goods in place, also to secure the friction necessary to remove the soil or stain or chemicals, and also to equalize the action of the hammer on such portions of the clothes which, when supported by cylindrical rollers, would be liable to be acted upon by the hammer with more force than desirable. The apron is moved along through under the hammer by means of a crank, *s*, attached to the end of the axle of the roller *p*, said crank being operated with one hand, while the other hand is engaged in keeping the clothes or goods on the apron in proper position. The speed with which the apron D is moved depends entirely upon the nature of the particular piece of goods to be dyed, bleached, or washed, and each portion of said piece can be exposed to the action of the hammer until it is perfectly clean, &c. In order to prevent an unnecessary waste of liquid, the hammer G is provided with a cut-off, L, which is operated automatically by the motion of the hammer itself. Said cut-off consists of a stop-cock, the handle *t* of which entends into an arched guide-piece, *u*, which rises from the top of a standard, *v*, and which is of such a shape that it causes the stop-cock to open and to allow a free discharge of the liquid whenever the hammer descends on the apron D, but as soon as the hammer rises, through the action of the stirrups *l*, the liquid is cut off. By these means the liquid is allowed to flow only during that portion of the stroke of the hammer when the latter acts on the goods or clothes to be dyed, bleached, or washed—that is, only at such intervals when the liquid is needed. After the goods or clothes are thoroughly dyed, bleached, or washed, they are carried by the action of the apron D over the roller *p*, and through between this roller and a roller, *w*, which is forced down on the surface of the roller *p* by means of springs *a'*, or in any other desirable manner, and in passing through between these two rollers, all the liquid adhering to the the clothes is squeezed out, and the goods or clothes on passing from the machine are ready to be rinsed or hung up for drying.

The principal advantage of this machine consists in the fact that the operator is not compelled to handle, displace or move the whole mass of liquid in order to effect the dyeing, bleaching, or washing; and, furthermore, the goods to be dyed, bleached, or washed, while being acted upon by the hammer are open to the inspection of the operator, and each part of a piece of cloth to be dyed, bleached, or washed can be kept under the hammer and rubbed and beaten until it is perfectly clean.

With ordinary washing-machines all the parts of the clothes, the clean as well as the dirty, are equally acted upon, and the operator is unable to see when the dirt from a certain piece or part of a piece of clothing is removed; it is all guess-work, and at the same time the whole mass of water in the tub or in the box must be churned or kept in motion or displaced, which renders the operation of ordinary washing-machines hard and laborious.

With this machine a lady can sit down and do her washing, one piece at a time, as easily, as quickly, and as perfectly as she can do her sewing on a good sewing-machine, and also can as readily regulate the flow of the washing-fluids and the blow of the hammer as she can adjust the stitch on a sewing-machine, so that my washing-machine can be adapted instantly to suit any kind of goods worn by a family.

My washing-machine imitates the action of hand-washing, and each piece of cloth independent of the greater or smaller quantity of dirt which may adhere to it, can be acted upon until it is perfectly clean, while at the same time it is the best machine invented to aid the hatter or dyer to heat in their dyes, and also a far better machine than the dash-wheel rollers or stocks for the factory bleacher, and it can be run by hand, foot, horse, or steam power.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The employment of the reciprocating rising and falling hammer G, in combination with the endless apron D, constructed and operating substantially as and for the purpose described.

2. Passing the liquid or liquids through the hammer unto the goods or clothes, substantially as and for the purpose set forth.

3. The arrangement of the two or more stirrups *l*, in combination with the longitudinally-sliding guide-roller *j*, and with the hammer G, constructed and operating substantially as and for the purpose specified.

4. The combination, with the reciprocating rising and falling hammer G, of a tank, C, divided into a series of compartments, *e f g*, and provided with faucets *e' f' g'*, all arranged and operating substantially in the manner and for the purpose described.

5. The arrangement of the automatic cut-off L, in combination with the hammer G, constructed and operating substantially in the manner and for the purpose specified.

6. The employment of corrugated glass rollers *q*, in combination with the hammer G and apron D, as and for the purpose set forth.

7. The arrangement and combination of the table A, tank C, hammer G, endless apron D, and wringer E, all constructed and operating substantially as and for the purpose described.

JAMER YOUNG.

Witnesses:
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