(No Model.) 2 Sheets—Sheet 1.

B. R. BRILES.

WASHING MACHINE.

No. 435,479. Patented Sept. 2, 1890.

Fig. 1.

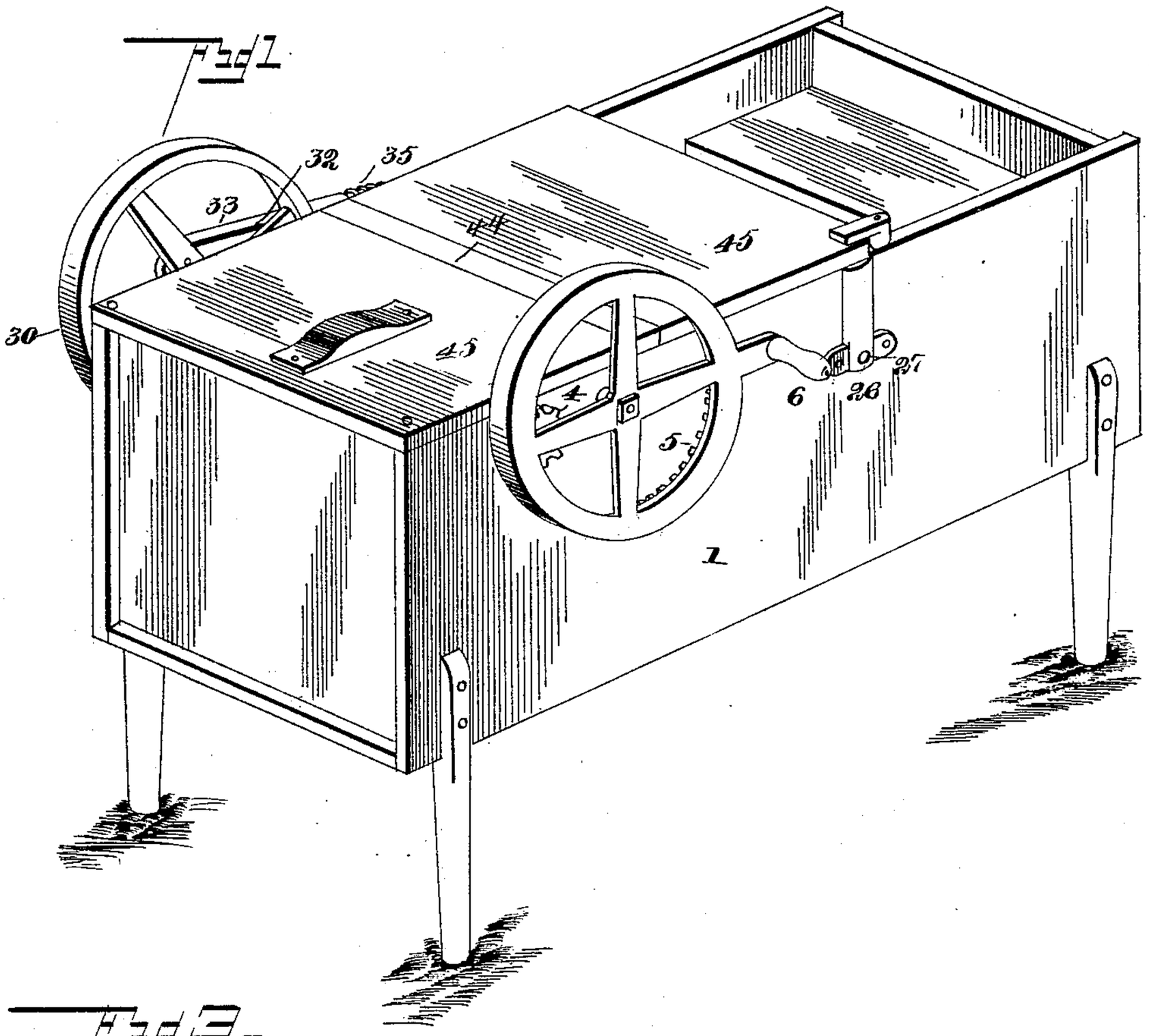
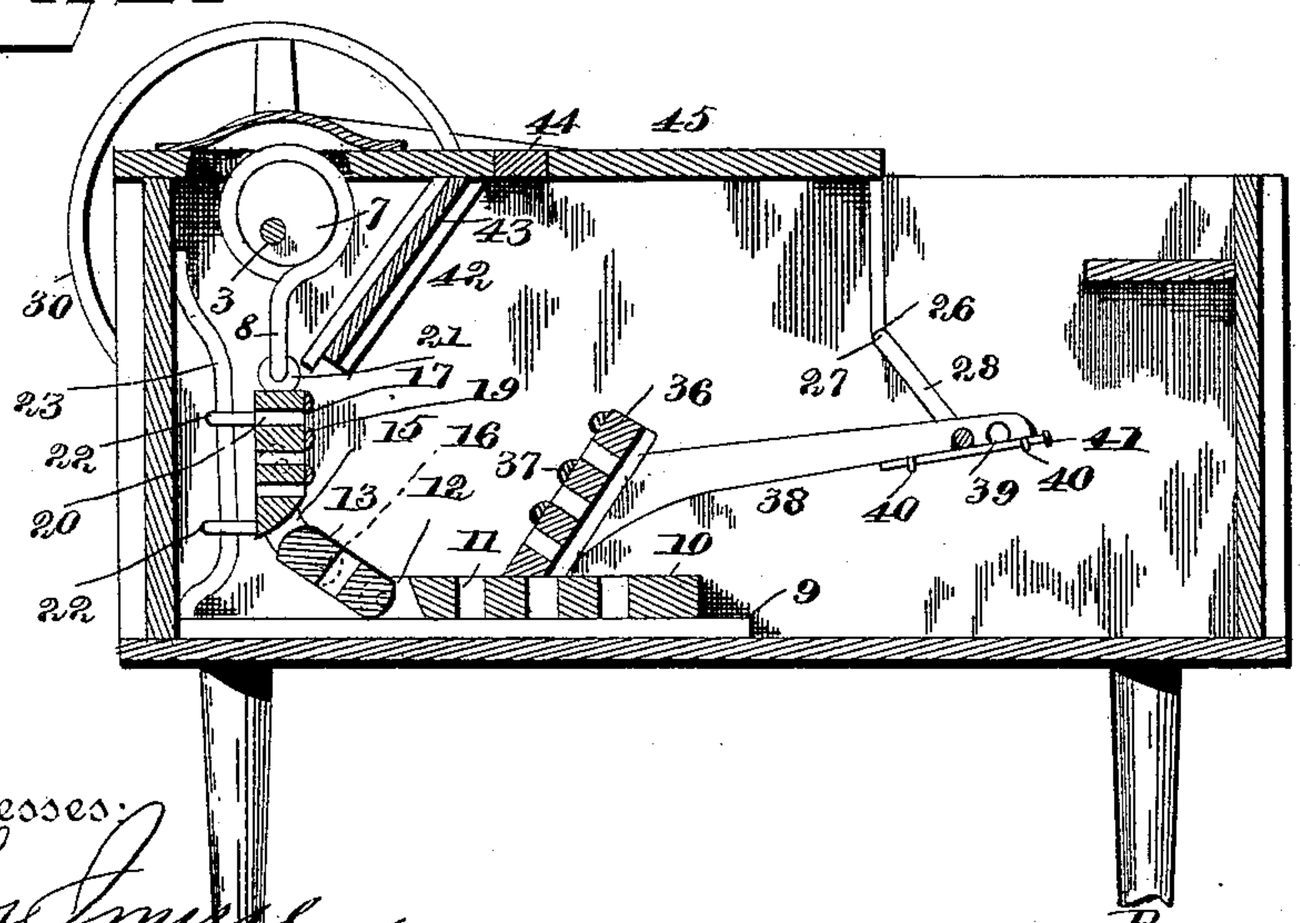


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

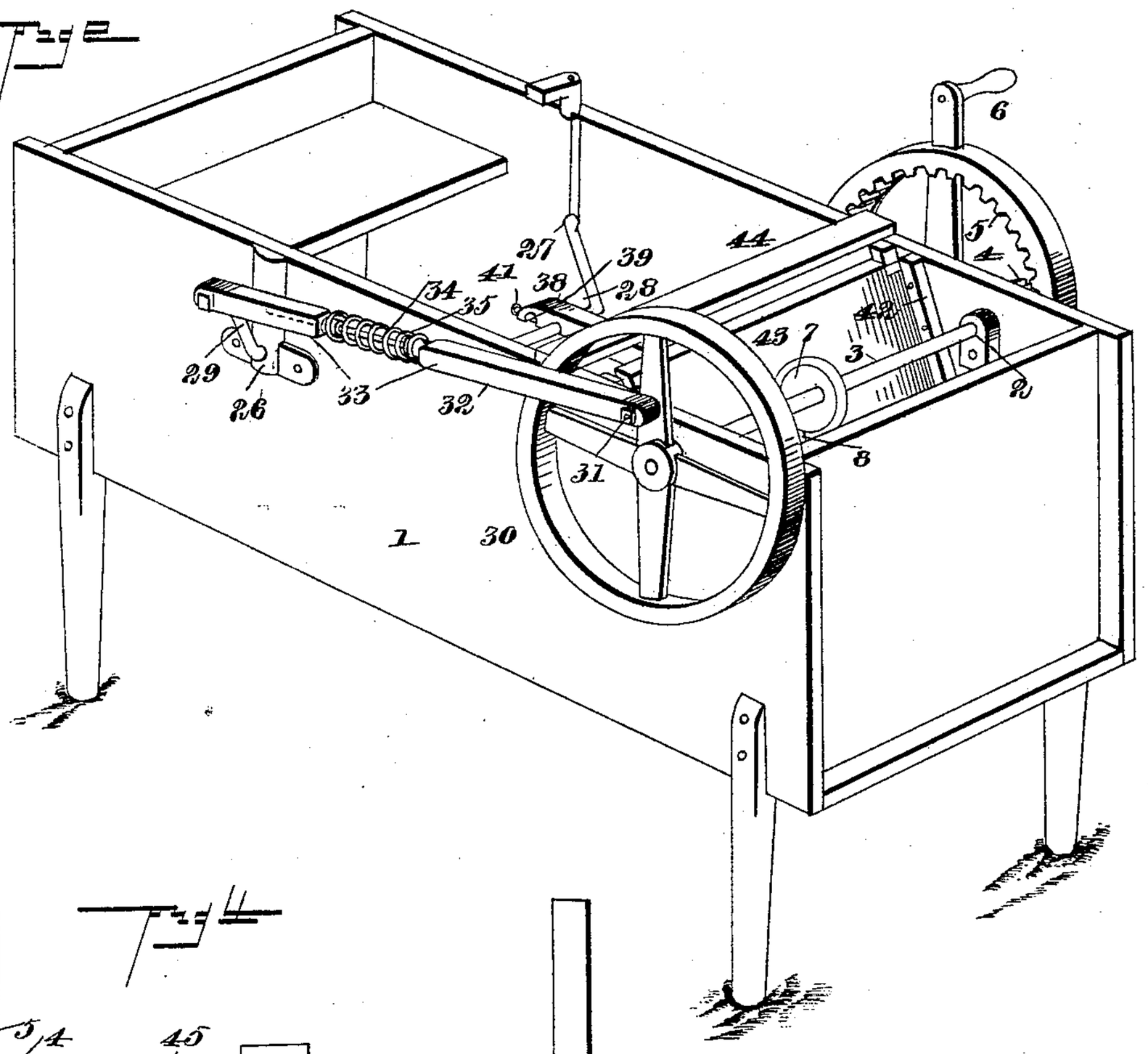


Fig. 4.

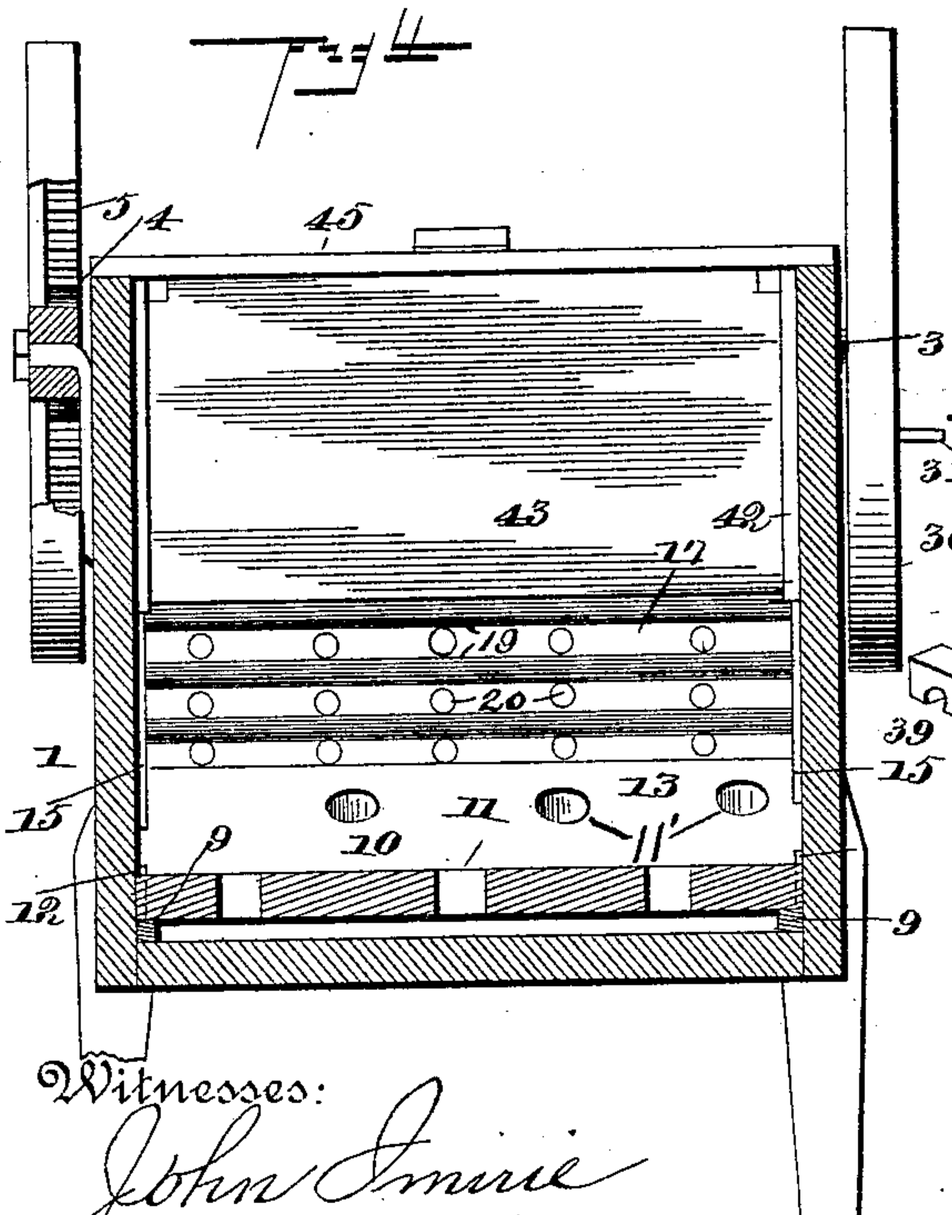
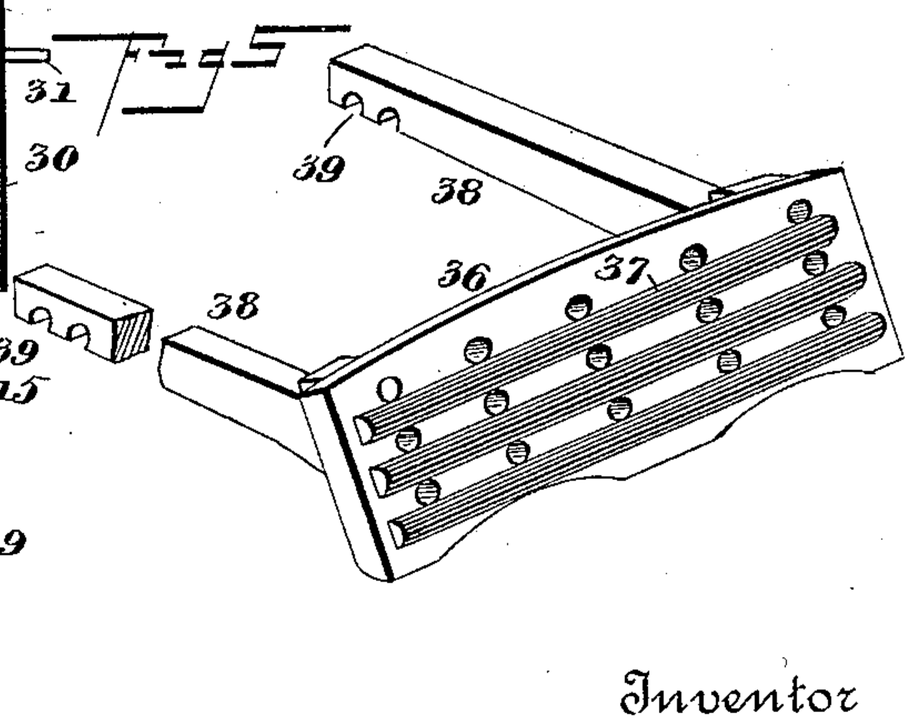


Fig. 5.



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UNITED STATES PATENT OFFICE.

BENJAMIN RANDOLPH BRILES, OF CROTTY, KANSAS.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 435,479, dated September 2, 1890.

Application filed March 26, 1890. Serial No. 345,400. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN RANDOLPH BRILES, a citizen of the United States, residing at Crotty, in the county of Coffey and State of Kansas, have invented a new and useful Washing-Machine, of which the following is a specification.

This invention has relation to washing-machines, and among the objects of the invention is to provide a machine exceedingly easy of operation and rapid and so constructed as to manipulate the clothes undergoing the operation of washing in such a manner as to present all portions of the same to the action of the water, which water is thrown in jets against the clothes and pressed therefrom.

A further object of the invention is to accomplish the above in such a manner as to avoid injury to the clothes, the manipulations being gentle and yet at the same time positive.

With the above main and other minor objects in view the invention consists in certain features of construction hereinafter specified, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective of a washing-machine constructed in accordance with my invention. Fig. 2 is a similar view of the opposite side of the machine, the covers removed. Fig. 3 is a vertical longitudinal section. Fig. 4 is a transverse section taken in front of the laterally-moving rubber. Fig. 5 is a detail in perspective of the longitudinally-movable rubber.

Like numerals of reference indicate like parts in all the figures of the drawings.

The suds-box 1 is oblong and constructed after the usual manner, and provided near one end and in the upper edges of its sides with bearings 2. In the bearings 2 is mounted the power-shaft 3, provided at one end with a small pinion 4, which engages and is operated by a ring-gear 5, which gear is provided with an operating-handle 6. The shaft is also provided at about its center with a grooved eccentric 7, and depending from the same and adapted to ride in the grooved periphery of said eccentric is a loose link 8, depending into the suds-box.

The opposite sides of the suds-box are provided near one end and slightly above the bottom with opposite longitudinal ways 9, and mounted in the same for longitudinal reciprocation is a movable bed 10. The movable bed 10 is perforated, as at 11, and is slightly elevated above the bottom of the box, and is provided with forwardly-projecting ears 12, in which there is pivoted a bed-section 13, likewise perforated, as at 11′. From the opposite ends of the bed-section 13 there projects a pair of upwardly-disposed L-shaped ears 15, the lower ends of the ears being pivoted, as at 16, to the opposite sides of the bed-section 13, and embracing at their upper ends a vertically-reciprocating rubbing-section 17, said section being provided with a series of transverse rubbing ribs or corrugations 19 and between the same with perforations 20. The upper end of the rubbing-section is provided with an eye 21, with which loosely couples the lower hooked end of the link depending from the eccentric of the power-shaft, so that during the revolutions of the shaft said eccentric will cause the vertical reciprocation of the rubbing-section, and the latter being connected to the perforated beds will cause a longitudinal reciprocation of the same in their ways. Eyes 22 are provided upon the rear face or side of the vertically-reciprocating rubbing-section, which eyes receive vertical guide-rods 23, secured to the end wall of the suds-box and to the bottom, so that said rubbing-section is maintained in place during its vertical reciprocations and guided.

Near the opposite end of the suds-box and about midway between the upper and lower edges of the sides there is formed in said sides a pair of bearings 26, journaled in which is a transversely-disposed shaft 27, said shaft being provided between the sides and within the box with a centrally-cranked portion 28, and at one end beyond the side wall of the box with a cranked portion 29. The power-shaft is provided at that end opposite to which is located the ring-gear with a fly-wheel 30, from which projects a bearing-pin 31, said bearing-pin being connected to the outer crank of the shaft 27 by means of a connecting bar or rod 32. The connecting-bar is preferably formed yielding, and in this instance consists of opposite sections 33, one of which is provided with a guide-pin 34, taking

into the adjacent end of the opposite section, and the two adjacent ends of the sections are connected in a yielding manner by a coiled spring-coupling 35, so that it will be evident that the connecting-rod is capable of expansion or contraction, for a purpose hereinafter apparent.

The longitudinally-movable rubber consists of a rubbing-head 36, mounted transversely in the suds-box and over the longitudinally-reciprocating bed-section, which head is perforated at intervals and intermediate its lines of perforations, corrugated, as shown at 37. From the rear of the head there projects a pair of parallel arms 38, which arms are provided with notches 39, arranged in series, those in one arm being opposite those in the other arm, said notches being adapted to take over and serve as bearings for the centrally-cranked portion 28 of the shaft 27. The under side of each of the arms and at each side of its notches is provided with a pair of aligning eyes or staples 40, and in each pair of eyes or staples there is mounted a removable pin 41, which pins serve to lock the arms pivotally upon the shaft 27.

The opposite sides of the box at the working end thereof are provided with a pair of opposite inclined grooves or ways 42, and in the same there is slid a removable deflecting-board 43, inclined in such a manner as to deflect the water thrown against the same back upon the clothes.

A cross-bar 44 is extended across the two sides of the box near its center, and at each side of the cross-bar there is mounted a removable cover-section 45.

A suitable quantity of water having been placed within the suds-box, a quantity of clothes or pieces to be washed are put in the rear end of the box in rear of the longitudinally-movable rubbing-surface, and a few at a time are placed upon the movable bed. The machine, being started by means of revolving the ring-gear, the eccentric from the power-shaft serves, as will be apparent, to vertically reciprocate the vertical rubbing-sections, and said section being pivoted to the front ends of the movable bed, said bed is longitudinally reciprocated within its ways. During its longitudinal reciprocation and the vertical reciprocation of the vertical rubbing-section it is apparent that the articles lying upon the movable bed will be turned so as to present different portions to the action of the water. This turning of the articles is caused by the longitudinally-movable rubbing-section actuated by the crank-shaft, which, it will be observed, is reciprocated back and forth over the bed, forcing the clothes toward the vertically-movable rubber at the time that said rubber is descending and the movable bed traveling toward the horizontally-movable rubbing-section. The water between the clothes is forced out through the various openings when the two rubbing-sections are near each other, and the articles are compressed between the sections, and when the horizontally-movable rubber moves to the rear the vertically-movable rubber travels in an upward direction, thus turning the clothes, which fall back upon the movable bed to be again caught, when the operation is repeated. In the agitations of the water by the movements of the rubbers the same is directed upwardly against the inclined deflector, and by the same deflected or directed down upon the clothes as they are tumbled back upon the movable base. By reason of the yielding connection between the fly-wheel and the crank-shaft 27 it will be apparent that the articles are compressed in a yielding manner by the two heads rubbing, so that the water is not ejected or squeezed from the articles with an immense force and suddenly, but in a gradual manner, thereby avoiding injury to the articles.

Having thus described my invention, what I claim is—

1. In a washing-machine, the combination, with the suds-box having ways, of a vertically-movable rubbing-head arranged in the ways, a power-shaft journaled in the sides of the box, means for operating the same, an eccentric mounted upon the shaft and having a peripheral groove, and a link mounted in the groove and loosely connected at its lower end to the upper end of the head, substantially as specified.

2. In a washing-machine, the combination, with the suds-box having horizontal and vertical ways, of a bed perforated and mounted in the horizontal ways, and a rubbing-head mounted in the vertical ways and pivotally connected at their adjacent ends, a power-shaft journaled in the sides of the box, a grooved eccentric mounted on the shaft, a link embracing the eccentric and loosely connected at its lower end to the head, and means for operating the shaft, substantially as specified.

3. In a washing-machine, the combination, with the suds-box, horizontal and vertical ways mounted therein, a horizontally-movable bed, and a vertically-movable rubbing-section mounted upon their respective ways and loosely connected at their adjacent ends, of a horizontally-movable rubbing-head mounted upon the bed, and means for simultaneously operating the two heads and bed, substantially as specified.

4. In a washing-machine, the combination, with the suds-box having horizontal and vertical ways, of a perforated bed mounted upon the horizontal ways, a perforated and ribbed rubbing-section mounted upon the vertical ways, and perforated and ribbed horizontally-movable section mounted upon the bed-section, and means, substantially as specified, for simultaneously reciprocating the bed and rubbing sections, substantially as specified.

5. In a washing-machine, the combination, with the suds-box having ways both horizontally and vertically disposed, and opposite in-

clined ways arranged above the vertical ways, of a bed mounted upon the horizontal ways, a rubbing-section mounted in the vertical ways and an inclined deflector arranged above the rubbing-section, and means for operating the bed and section, substantially as specified.

6. In a washing-machine, the combination, with the suds-box having horizontal and vertical ways, of a horizontal bed mounted in the horizontal ways, a vertical rubbing-section mounted in the vertical ways, a power-shaft and means for operating the same mounted in the sides of the box, an eccentric loosely connected with and adapted to operate the vertical head, a crank-shaft journaled in the sides of the box, a rubbing-section mounted on the bed and connected with the crank portion of the crank-shaft, a fly-wheel mounted on the power-shaft, and a connecting-rod connecting the fly-wheel with the cranked end of the crank-shaft, substantially as specified.

7. In a washing-machine, the combination, with the suds-box having horizontal and vertical ways, of a horizontal bed mounted in the horizontal ways, a vertical rubbing-section mounted in the vertical ways, a power-shaft and means for operating the same mounted in the sides of the box, an eccentric loosely connected with and adapted to operate the vertical head, a crank-shaft journaled in the sides of the box, a rubbing-section mounted on the bed and connected with the crank portion of the crank-shaft, a fly-wheel mounted on the power-shaft, and a yielding connecting-rod connecting the fly-wheel with the cranked end of the crank-shaft, substantially as specified.

8. In a washing-machine, the combination, with the oblong suds-box provided with opposite horizontal ways slightly elevated above the bottom and with opposite vertical end ways, of a horizontally-movable perforated bed mounted on the horizontal ways and provided with forwardly-projecting ears, a bed-section perforated and pivoted in the ears, a rubbing-head having corrugations and perforations, and guide-eyes mounted upon the vertical ways and provided with opposite L-shaped straps pivoted at their lower ends to the bed-section, a power-shaft having an eccentric the periphery of which is grooved, a link loosely mounted in the groove and connected at its lower end to the vertically-reciprocating head or rubbing-section, a pinion mounted on one end of the power-shaft and a fly-wheel on the other, a ring-gear for operating the pinion and provided with a handle, a shaft having a central and side crank journaled in the sides of the suds-box, a rubbing-head mounted for longitudinal horizontal movement upon the movable bed and having rearwardly-projecting arms loosely journaled upon the central crank portion of the shaft, and a yielding connecting-rod connecting the fly-wheel with the side crank of the shaft, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

BENJAMIN RANDOLPH BRILES.

Witnesses:
WM. H. RUDRAUFF,
F. GREGG.