(No Model.) 2 Sheets—Sheet 1.

A. COEN.

WASHING MACHINE.

No. 442,612. Patented Dec. 16, 1890.

Fig. 1.

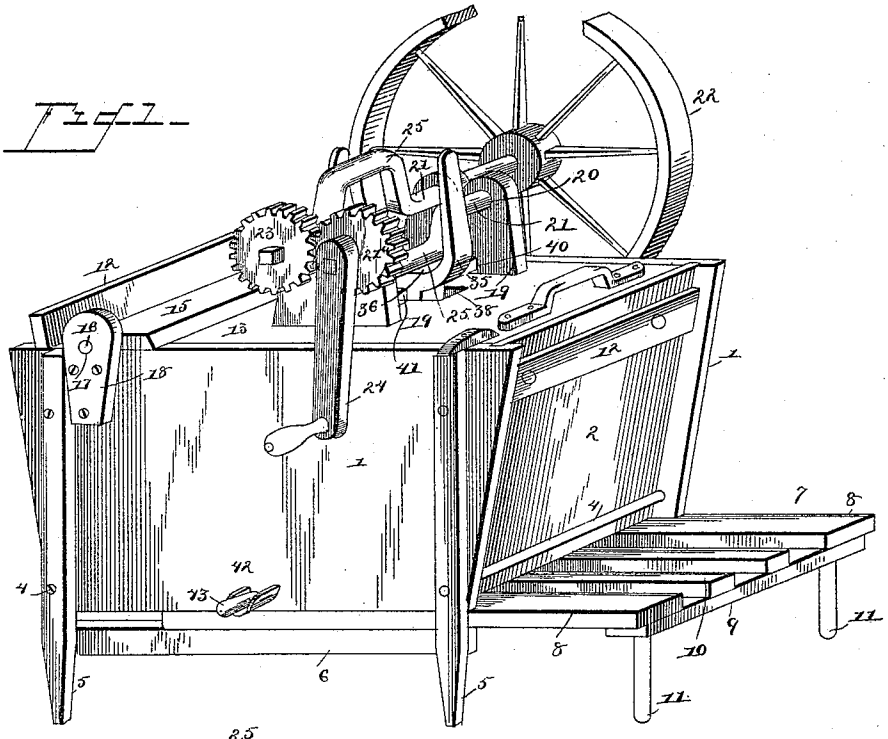


Fig. 3.

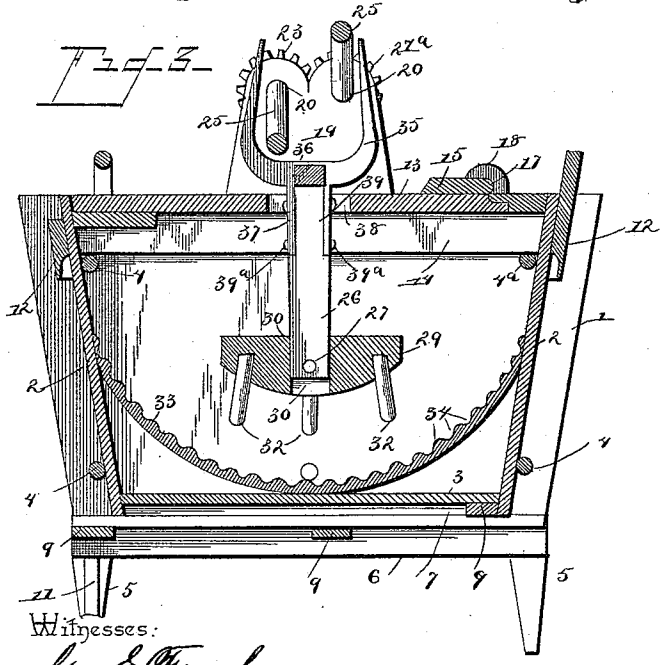
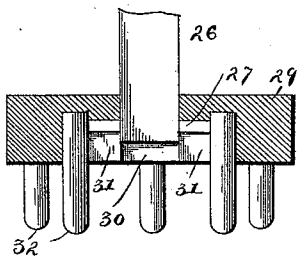


Fig. 5.



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(No Model.)

2 Sheets—Sheet 2.

A. COEN.

WASHING MACHINE.

No. 442,612. Patented Dec. 16, 1890.

Fig. 2.

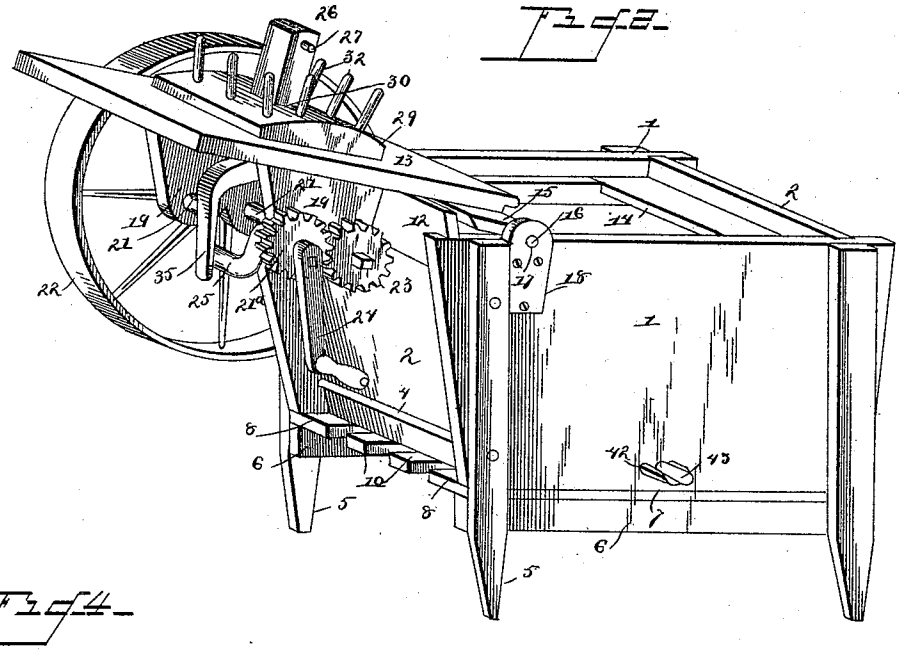


Fig. 4.

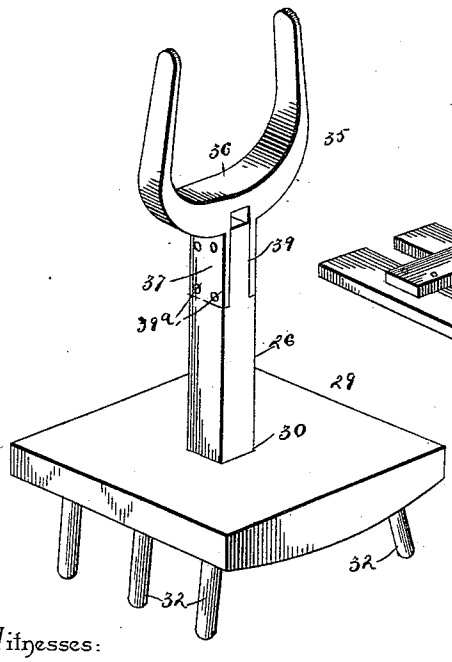
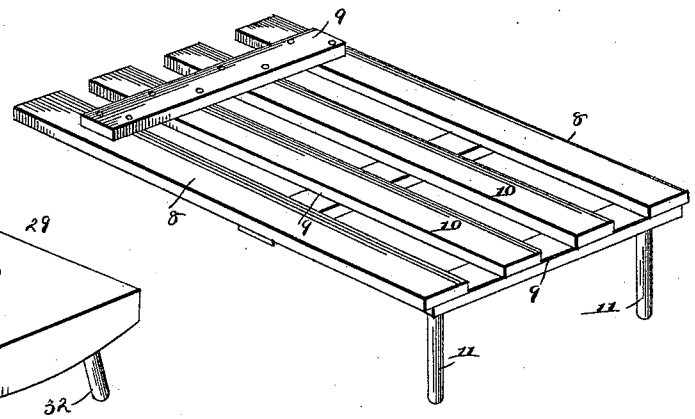


Fig. 5.



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UNITED STATES PATENT OFFICE.

ABRAHAM COEN, OF GARDNER, KANSAS.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 442,612, dated December 16, 1890.

Application filed June 21, 1890. Serial No. 356,274. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM COEN, a citizen of the United States, residing at Gardner, in the county of Johnson 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 the objects in view are to provide a machine of increased capacity, adapted to quickly and thoroughly cleanse articles subjected thereto, which machine requires but a small amount of power to operate the same, and whose operation is continuous throughout.

Various objects of the invention will hereinafter appear, and the novel features thereof will be 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, the lid open. Fig. 3 is a longitudinal vertical section. Fig. 4 is a detail in perspective of the rubber and its yoke. Fig. 5 is a transverse section of the rubber and its support. Fig. 6 is a detail in perspective of the clothes-shelf.

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

In practicing my invention I construct an oblong suds-box, consisting of opposite side walls 1 and end walls 2, the latter let into the former and converging toward their lower ends, and the four walls surrounding a bottom 3, elevated above the lower edges of said walls and let therein and secured by nails, screws, or other suitable fastening devices in position.

5 designates opposite pairs of legs, which, by suitable tie-bars 4, are bolted securely to the outer sides of the sides 1. The opposite legs 5, occurring at the sides of the suds-box, are connected by means of opposite guide-bars 6, said guide-bars being located a slight distance below and parallel to the lower edge of that side wall of the suds-box opposite the same, so that opposite ways 6 are provided.

7 represents a rack-frame, consisting of opposite side bars 8, connected at their ends and centers by cross-bars 9, which cross-bars between the side bars are connected by longitudinal bars 10. The rack is mounted in position and for sliding in and out of the ways 6, the front and central cross-bars 9 being upon the under side of the same and the rear cross-bar upon the upper side, so that said rear cross-bar acts as a stop by coming in contact with the lower edge of the end wall of the suds-box and prevents an entire withdrawal of the rack from the ways. The front end of the rack is provided with a pair of depending legs 11, which support the same and are secured in position on the front cross-bar 9. The rack is employed for supporting the clothing either in a pile or in a basket, either before or after they have been subjected to the action of the washing-machine. The opposite edges of the side walls extend beyond the end walls, and secured to the end walls between the side walls are opposite cleats 12, undercut upon their lower edges to form holds for the purpose of lifting the apparatus. The rear cleat extends above the upper edges of the side walls, as shown, and, as will hereinafter appear, serves as a rest for the hinged cover hereinafter mentioned.

13 designates the cover, adapted to fit between the side walls and between the top or uncovered portions between the end walls and to rest upon a rectangular open frame 14, located within the top of the suds-box and slightly below the lower edges thereof, whereby said cover is adapted to be closed flush with the upper edge of the box, the frame 14 serving to prevent the escape of the water during agitation, and the edge of the top is undercut to form a close fit with the cover. A cleat 15 is secured to the rear edge of the lid, and said cleat terminates at opposite ends in bearings 16, which enter bearing-openings 17, formed in opposite standards 18, bolted to the opposite side walls of the suds-box.

19 designates a pair of vertical standards secured to the cover near its opposite longitudinal edges, and each of said standards is provided with a pair of bearing-openings 20, in each opposite pair of which is mounted for rotation a shaft 21. The rear shaft 21 projects beyond one of the standards and is provided with a fly-wheel 22, and at its opposite end beyond its opposite standard with a small pinion 23. The opposite or companion shaft 21, at that standard at which is located the pinion 21^a, beyond said standard, is provided

with a crank 24 for operating the same, and between the crank and standard with a companion pinion 21^a, which engages and drives the aforesaid pinion 21^a, so that the two shafts move in unison, the same being driven by the crank, and their movements accelerated through the medium of the fly-wheel. Between their bearings each of the cranks is bent to form crank portions 25, which, when the cranks are in a vertical position, are oppositely disposed, and when in a horizontal position are similarly disposed.

26 designates the agitator-shaft, provided at its lower end with a transverse pin 27.

29 designates a square rubbing-head provided at its center with a square perforation 30, which loosely receives the shaft 26, and at the lower side of said opening is provided with opposite recesses 31, which receive the transverse pin 27 and permits the head to fall to a depth whereby its under surface is below the end of the shaft. The under surface of the head is convexed or curved, as shown, and is provided at its opposite sides and center, and it may be at other points, with depending pegs 32.

The bottom of the machine, or rather its rubbing-surface, which is located above the true bottom and designated as 33, is formed upon the arc of a circle the radius of which corresponds to that of the under surface of the rubbing-head. The opposite ends of the bottom terminate about midway the end walls 2 of the suds-box, said end walls being inclined to form a continuation of the curved surface. The curved bottom is preferably provided with a series of transverse corrugations extending throughout its length, as shown at 34; or cleats may be secured at intervals, as will be apparent.

35 designates a yoke provided with a U-shaped opening 36 and with a depending shank-portion 37, which extends downwardly through an opening 38, formed in the cover between the standards, said shank portion being bifurcated, as at 39, and embracing the upper end of the staff 26, for which purpose said staff is oppositely recessed, and through the shank and staff are passed bolts 39^a. The yoke receives the central crank portions 35 of the shafts 21, and it will be apparent that by revolving the crank 24 the two crank-shafts are moved in unison and the crank portions thereof operate alternately upon the opposite curved sides of the yoke, so that the rotary movement of the shafts is converted into a vibrating or oscillatory movement upon the part of the staff and rubbing-head.

The operation of my invention will be at once apparent from the above description. The clothes are introduced into the suds-box in the usual manner, the lid or cover closed thereupon and secured in position by means of ordinary turn-buttons, as shown, after which it is simply necessary to rotate the crank 24 at an ordinary rate of speed, which motion is converted by means of the cranks into an oscillatory motion of greatly-increased speed, so that the rubber is violently agitated back and forth over the articles and rubbing-surface. The weight of the head is sufficient to give the same the desired tension upon the articles and sufficient to eradicate all dirt therefrom.

Any means may be employed for pivotally supporting the U-shaped yoke upon the cover, and in the present instance I provide the opposite standards of said cover with a pair of opposite lower bearings 40, in which are journaled the opposite ends of a rock-shaft 41, passing through the shank portion of and secured to the shank of the yoke.

The suds-box is provided with the usual discharge-opening 42, having a removable plug 43, said opening being located opposite the curved bottom 33.

Having described my invention, what I claim is—

1. In a washing-machine, the combination, with the suds-box having opposite standards, each provided with a pair of bearings, of a pair of shafts mounted in the bearings and parallel to each other and provided with centrally-cranked portions, a crank mounted upon one of the shafts, pinions mounted upon each of the shafts and engaging each other, a U-shaped yoke mounted in bearings between the standards and terminating at its lower end in an agitator-staff, and a rubbing-head mounted on the lower ends of the staff, substantially as specified.

2. In a washing-machine, the combination, with the suds-box having a curved bottom provided with corrugations and with a lid and standards mounted upon the lid and provided with opposite pairs of bearing-openings, of a pair of centrally-cranked shafts journaled in the bearing-openings and disposed parallel to each other, pinions mounted on the shaft engaging each other, a crank mounted on one shaft and a fly-wheel upon the other, a U-shaped yoke pivoted in the standards and embracing the cranks, an agitator-staff connected with the yoke, and a rubbing-head having a curved under surface secured to the lower end of the staff, substantially as specified.

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

ABRAHAM COEN.

Witnesses:
S. T. DUFFIELD,
JOHN MCKASSON.