

(No Model.)

E. KAIN.
WASHING MACHINE.

No. 576,198.

Patented Feb. 2, 1897.

Fig. 3.

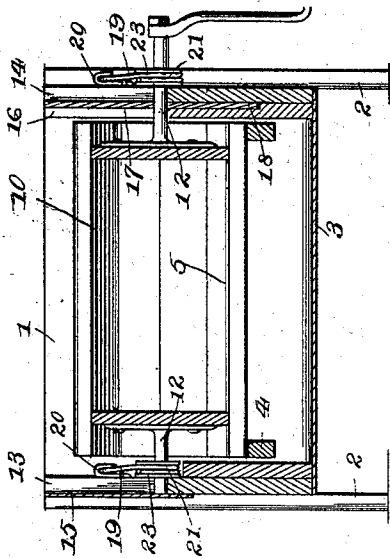


Fig. 4.

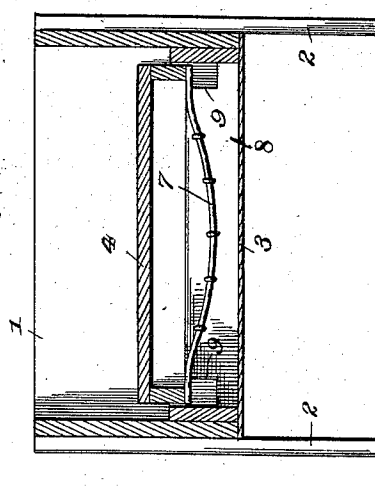


Fig. 1.

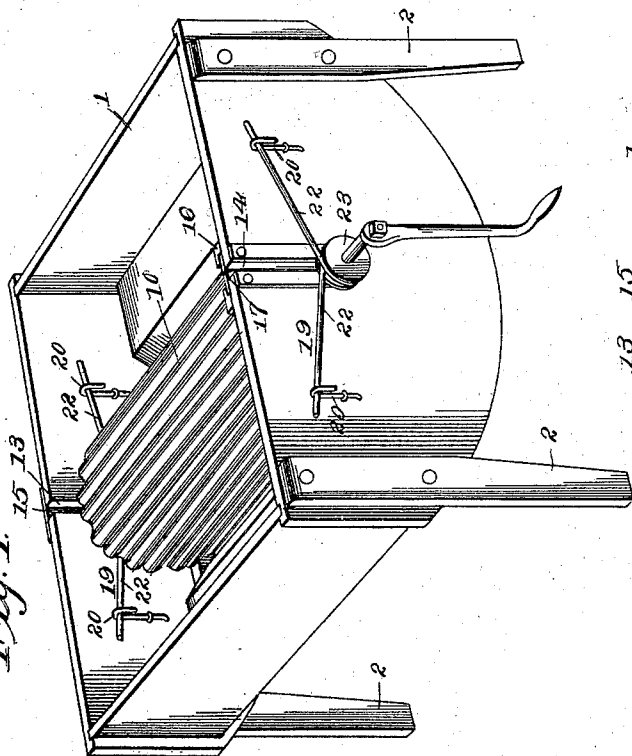
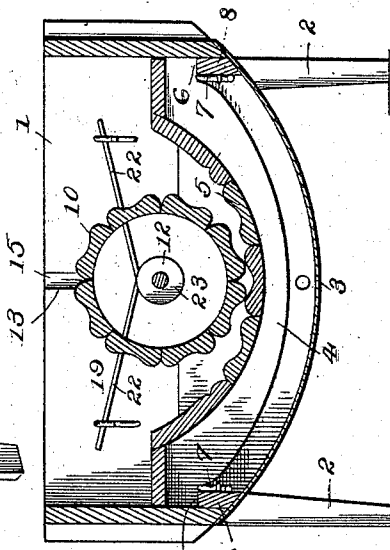


Fig. 2.



Inventor

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Witnesses

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UNITED STATES PATENT OFFICE.

EDWIN KAIN, OF CAMDEN, NEW JERSEY.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 576,198, dated February 2, 1897.

Application filed May 24, 1894. Serial No. 512,354. (No model.)

To all whom it may concern:

Be it known that I, EDWIN KAIN, a citizen of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented a new and useful Washing-Machine, of which the following is a specification.

The invention relates to improvements in washing-machines.

The object of the present invention is to improve the construction of washing-machines and to provide a simple and comparatively inexpensive one capable of rapidly and thoroughly washing clothes without injury to the fabrics.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a washing-machine constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view. Fig. 3 is a transverse sectional view. Fig. 4 is a detail sectional view illustrating the manner of yieldingly supporting the stationary rubber.

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

1 designates a washing-machine body provided with legs 2 and having a curved sheet-metal bottom 3 to enable the water necessary for washing to be maintained at the desired temperature by means of any suitable heating apparatus, such as an oil-stove (not shown) or the like. Within the washing-machine body is arranged a stationary rubber 4, having a curved convex lower face to fit snugly against the bottom of the body, but it is held out of contact with the same by means hereinafter described. The stationary rubber is provided with a concave rubbing-surface and is composed of corrugated slats 5, attached to longitudinal strips 4, the latter being recessed or notched in their lower edges, forming shoulders 6 at their ends, which rest upon the end portions of the springs 7 and operate in the recesses 9. The springs 7 are secured to cleats 8, which are arranged within the washing-machine body at the ends thereof, and they are provided at their ends

with recesses 9 to permit the said shoulders 6 to move upward and downward on the springs. The springs are secured intermediate of their ends, which are free to support the stationary rubber.

An octagonal rubbing-cylinder 10 coöperates with the stationary rubber, and is provided at its periphery with corrugations formed by grooved strips. The rubbing-cylinder is mounted on a shaft 12, which is journaled in bearing-slots 13 and 14 and has vertical movement therein, the slots forming open bearings to enable the shaft and the rubbing-cylinder to be readily removed from the body when the operation of washing has been completed. The bearing-slots 13 and 14 of the sides of the body form ways for the journals of the roller and permit the same to move up and down during the operation of washing.

The bearing-slot 13 is closed at the outer face of the adjacent side by a plate 15, and ways 16 are arranged on the inner face of the other side of the body at opposite sides of the bearing-slot 14 for the reception of a sliding plate or gate 17, arranged on the inner face of the adjacent side of the body and provided with an opening to receive the shaft and carried by the same. The plate 17 prevents water from escaping through the slot 14, and its lower portion fits in a socket 18 of the adjacent side of the body.

The pressure exerted on the clothes during the operation of washing is obtained by means of springs 19, arranged adjacent to opposite sides of the body at each end of the shaft. The springs detachably engage hooks 20, arranged in pairs on the inner face of one side of the body and the outer face of the other, and each spring consists of a central coil 21 and upward-diverging arms 22, which engage the hooks. The coil of each spring is arranged in a grooved disk 23, mounted on the shaft. The groove of the disk is formed in the periphery thereof, and by this means the spring is strengthened and supported and is prevented from being injured. The grooved disks also form bearings for the journals of the roller when the said journals move up and down in the ways of the washing-machine body, and the arms of the springs, which extend from opposite sides of the journals,

also serve to support them and to prevent a jerky movement of the journals in the ways. The yieldingly-supported stationary rubber and the rubbing-cylinder are adapted to conform to the thickness of fabric and the quantity of clothes passed between them to avoid wearing, tearing, or otherwise injuring the fabrics or being themselves injured.

The washing-machine body may be provided with any suitable construction of cover.

The octagonal rubbing-cylinder 10 consists of two heads and a series of grooved slats or bars secured to the peripheries of the heads and projecting beyond the same, so as to locate the heads within the ends of the cylinder. The shaft consists of two journals arranged at the ends of the cylinder and provided at their inner terminals with securing plates, and one of the journals is extended outward beyond the body and has a crank-handle secured to it.

It will be seen that the washing-machine is simple and exceedingly inexpensive in construction, that it is positive and reliable in operation, and that the stationary rubber and the rubbing-cylinder are yieldingly mounted and are adapted to give to any increased thicknesses of fabrics passing between them to avoid injuring the fabrics or breaking the machine.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

What I claim is—

1. In a washing-machine, the combination of a body, transverse cleats secured to the body at the ends thereof, located near the bottom of the same and provided at their terminals with vertical recesses extending downward from their upper edges, transversely-disposed curved springs secured to the faces of said cleats and having short end portions

spanning the recesses and capable of upward and downward movement, and a rubber provided at opposite sides with depending longitudinally-disposed strips having their ends resting upon said springs and guided in the said recesses and held against lateral movement by the same, substantially as described.

2. In a washing-machine, the combination of a body provided at opposite sides with vertically-disposed slots having ways at one side arranged at opposite sides of the adjacent slot, a stationary plate 15 secured to the outer face of the outer side of the body and closing the adjacent slot, a vertically-movable plate arranged in the said ways and closing the adjacent slot, a removable rotating rubber provided with journals, one of the journals being loosely arranged in the slot adjacent to the stationary plate, and the other journal passing through a perforation of the vertically-movable plate and carrying the latter with it, grooved disks provided with bearing-openings and mounted on the said journals, permitting a free rotation of the same and located at the inner face of one side of the washing-machine body and at the outer face of the other, springs comprising oppositely-disposed arms extending outward from the journals, and central coils formed integral with the arms and arranged in the grooves of the disks, whereby the springs are adapted to force the rubber downward without binding against the journals thereof, and inverted hooks mounted on the washing-machine body, engaging the arms of the springs and detachably securing the same to the body, substantially as described.

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

EDWIN KAIN.

Witnesses:

C. T. SHARPLESS,
D. W. CURTIS.