(Model.)

3 Sheets—Sheet 1.

J. G. CRAWFORD.

WASHING MACHINE.

No. 266,975. Patented Nov. 7, 1882.

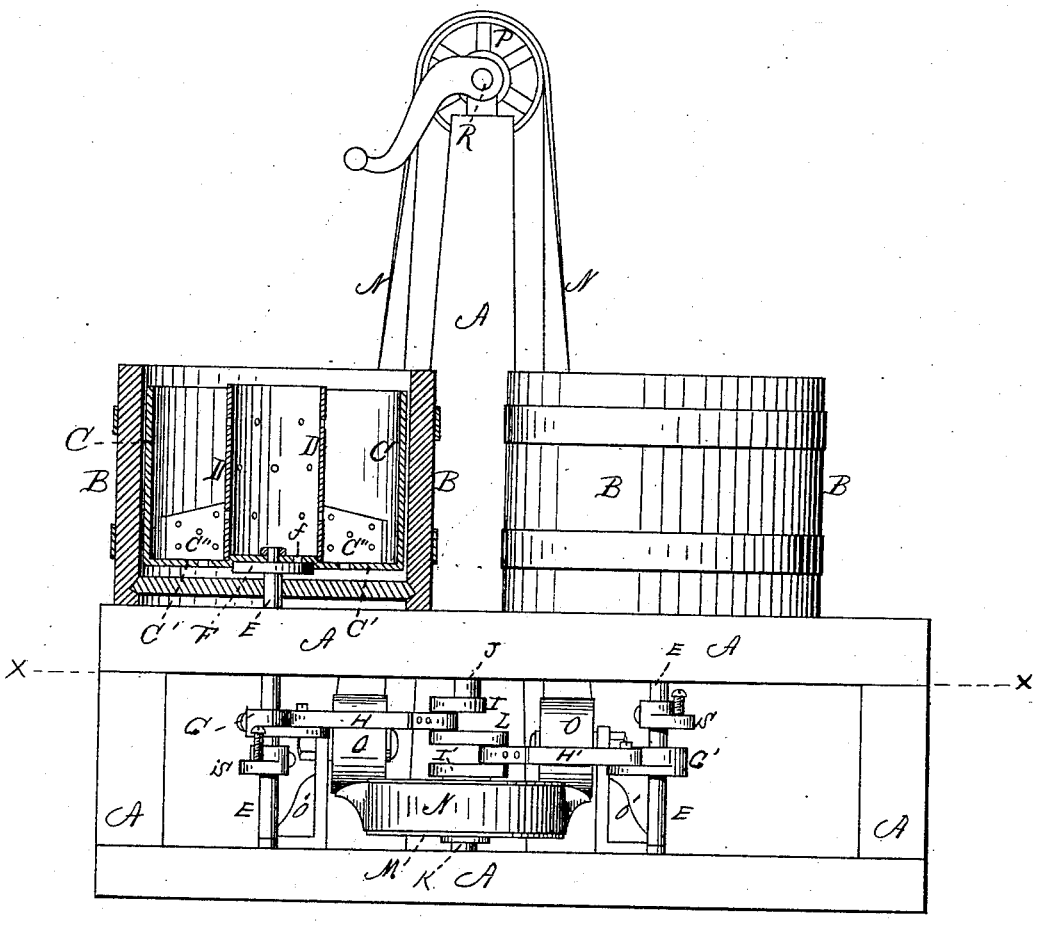

Fig. 1.

WITNESSES

Joseph Ashbaugh.

B. W. Williams.

INVENTOR

James G. Crawford.

By his Atty.

Henry W. Williams.

(Model.)

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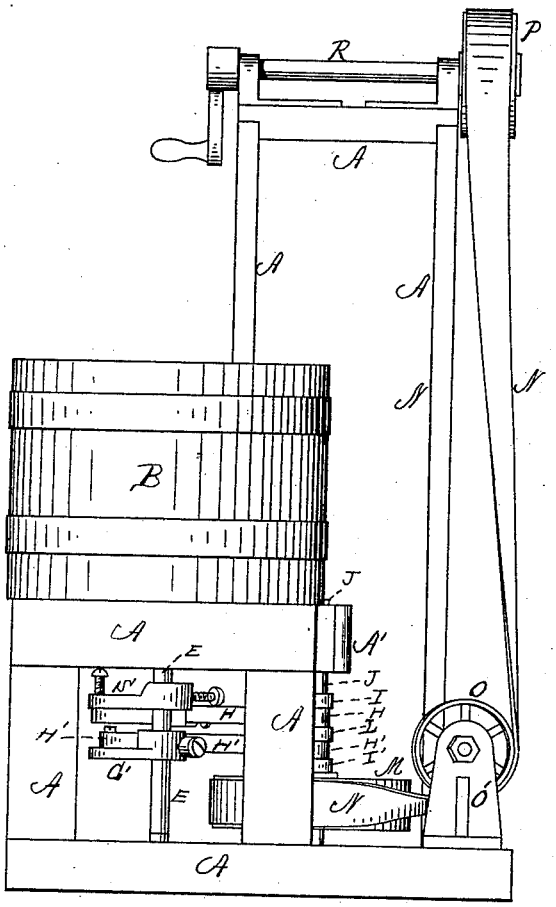

Fig. 2.

WITNESSES

Joseph Ashbaugh.

H. M. Williams

INVENTOR

James G. Crawford

By his Atty.

Henry M. Williams.

(Model.) 3 Sheets—Sheet 3.

J. G. CRAWFORD.

WASHING MACHINE.

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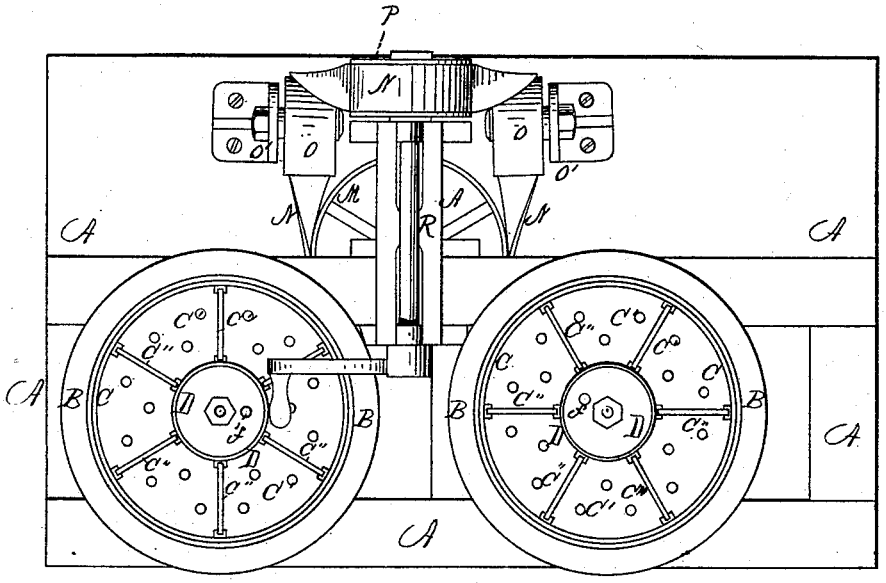

Fig. 3.

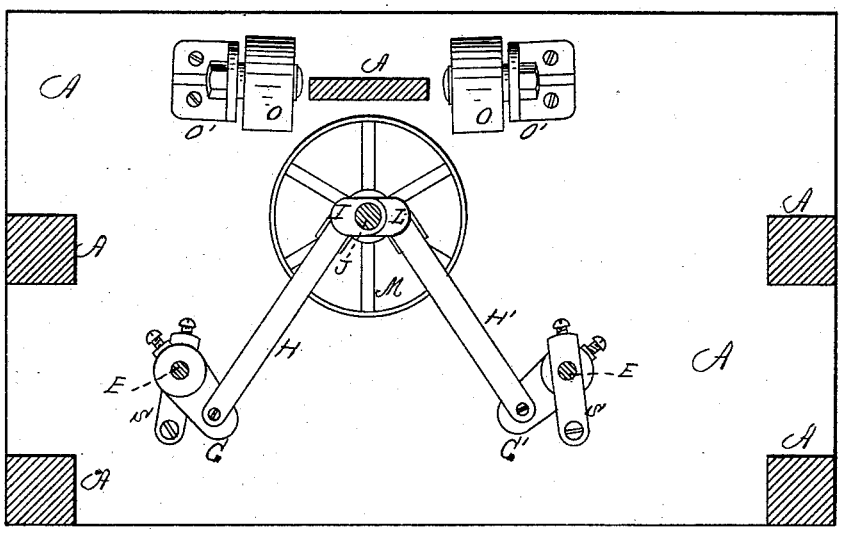

Fig. 4.

WITNESSES

Joseph Ashbaugh

B. W. Williams

INVENTOR

James G. Crawford,

By his Atty

Henry W. Williams

UNITED STATES PATENT OFFICE.

JAMES G. CRAWFORD, OF BOSTON, MASSACHUSETTS.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 266,975, dated November 7, 1882.

Application filed April 12, 1882. (Model.)

To all whom it may concern:

Be it known that I, JAMES G. CRAWFORD, of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Washing-Machines, of which the following is a specification.

This invention relates to that class of washing-machines adapted for use in laundries, hotels, public institutions, and like places.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a front elevation of a washing-machine embodying my improvements, one of the tubs being shown in vertical section. Fig. 2 is an end elevation of the same. Fig. 3 is a plan view. Fig. 4 is a horizontal section on line *x x*, Fig. 1.

A is a frame, upon which are rigidly placed one or more tubs, B, similar in construction throughout. Within these tubs are inner tubs or "baskets," C, for holding the clothes to be washed. These baskets C are provided with perforated bottoms C′ and perforated agitators or partitions C″, rigidly secured to the baskets, as shown. Thus far there is nothing novel. The water having been poured into the tubs or baskets, reciprocating rotary motion is applied to the baskets C, for the purpose of agitating the contents, and thus washing the clothes, by means of mechanism below described. When the baskets are constructed as is now common—*i. e.*, with the agitators only—the action of the water, caused by the combined forces of rotary movement, reversing, and gravitation, is such that the clothes are thrown in toward the center of the basket and twisted together in a very complicated manner. The water seems first to be moved toward and up the sides of the basket by centrifugal force, and then, when the basket reverses, in seeking its level, it is thrown violently inward with a twisting motion, which results in tangling and twisting the clothes at the center of the tub in an intricate manner. The principal evils connected with this twisting or tangling are, that it takes much time to untwist the garments to remove them, and after removal, and that it is difficult for the water to penetrate and cleanse them while they are knotted together in the center of the basket C. In order to remedy this evil, I have provided in this improvement the central annular guard or tube, D, rigidly secured at its base to the basket C, suitably perforated, and extending nearly or quite as high as the top of the basket. As the water dashes violently inward it is checked by this guard D, (within which the water is quiet, there being no agitators nor clothes therein,) and the clothes are thereby prevented from being thrown to the center of the basket, and no tangling, nor even twisting, results. On the contrary, they slip off from the guard as they are thrown against it without any knotting whatever, the clothes from opposite sides not impinging against each other, as formerly.

Rotary reciprocating motion is imparted to the baskets C as follows: The vertical shafts E are secured, by means of the disks F and pins *f*, to the bottom C′ of the baskets. These shafts E, which have their bearings at their lower ends in the base of the frame A, have fixed to them the cranks G G′, which are, by means of the rods or links H H′, swiveled to said cranks, connected with the cranks I I′ loosely, said cranks being fixed to the vertical shafts J K, respectively, and connected by the swiveled link L in order to overcome the dead-point. The shaft J has its bearing in the part A′ (see Fig. 2) of the frame A, and the shaft K has its bearing in the base of the frame and carries the large pulley M, which acts as a balance-wheel. A belt, N, passes around the pulley M and the small pulleys O O to the pulley P on the shaft R, to which power is applied. The small pulleys O O have bearings in brackets O′ O′, supported by the base of the frame A. By means of studs S other tubs may be connected.

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

In a washing-machine, the combination, with the reciprocating rotary tub or basket C, constructed substantially as described, of the central annular guard or tube, D, secured in said tub or basket, substantially as and for the purpose set forth.

JAMES G. CRAWFORD.

Witnesses:
HENRY W. WILLIAMS,
JOSEPH ISHBAUGH.