(No Model.)

G. F. DUNNING.

WASHING MACHINE.

No. 376,238. Patented Jan. 10, 1888.

Fig. 1.

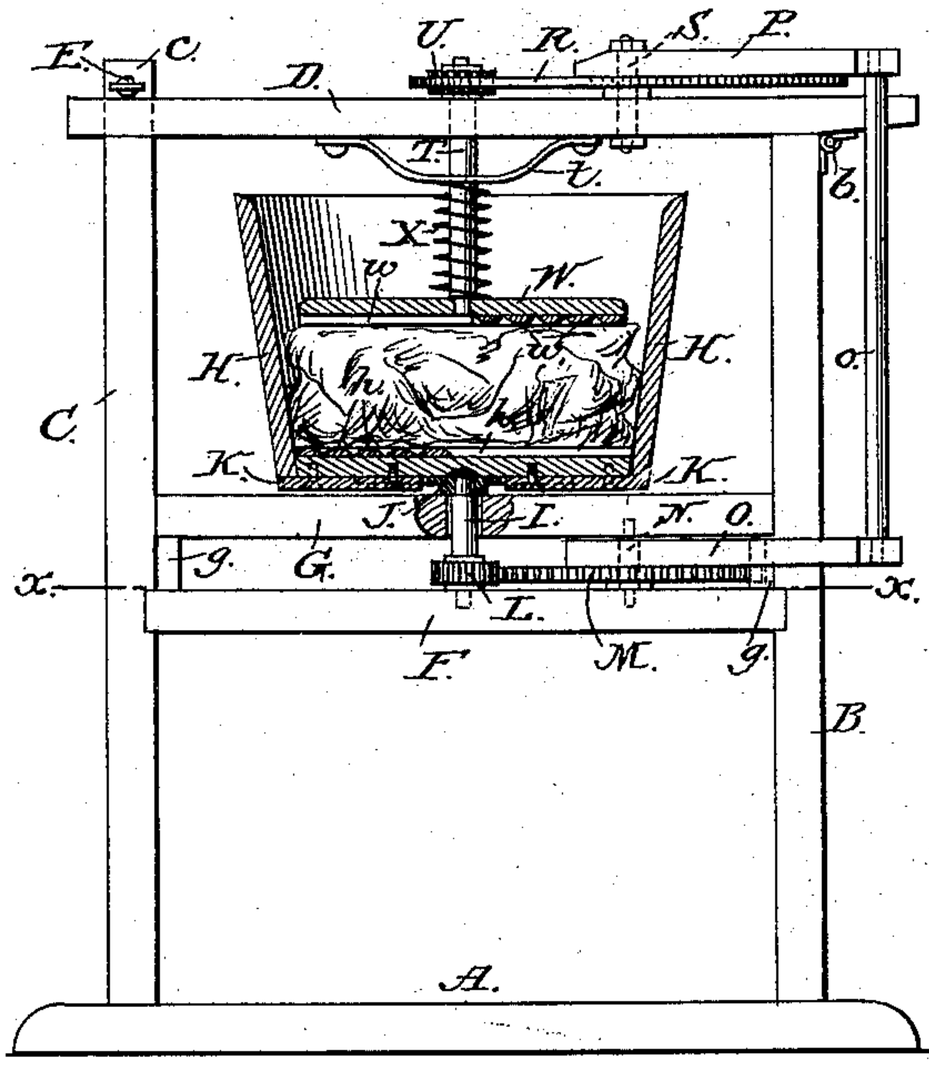


Fig. 2.

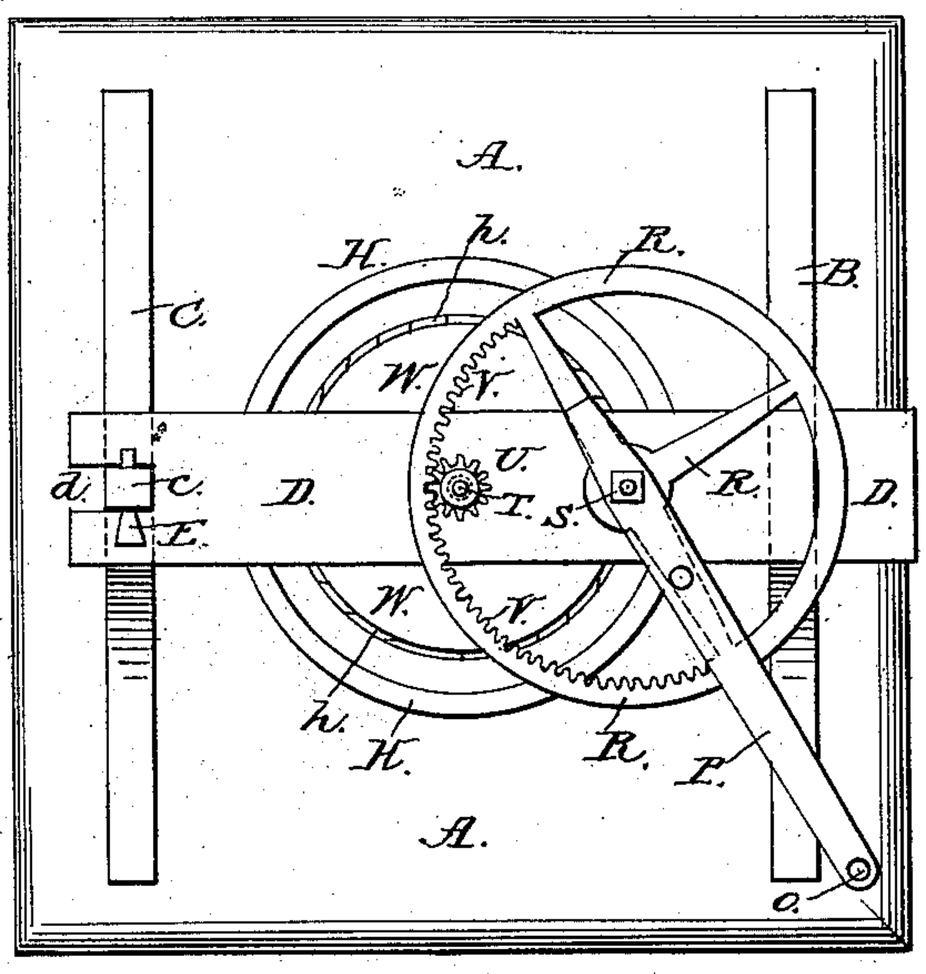
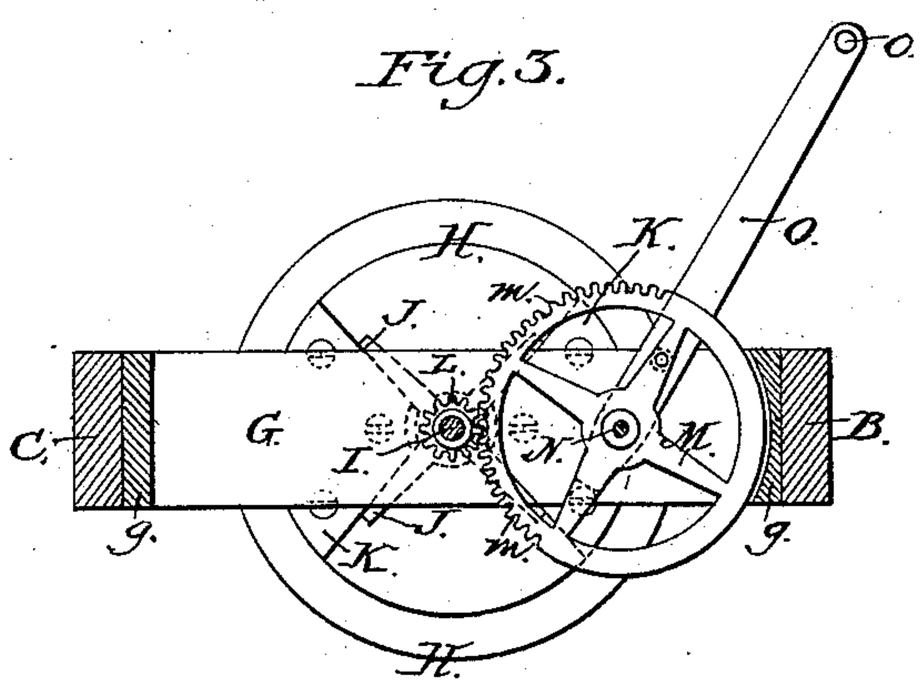


Fig. 3.



WITNESSES:

John A. Ellis.

C. Sedgwick.

INVENTOR:

G. F. Dunning.

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE F. DUNNING, OF DEEP WATER, MISSOURI.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 376,238, dated January 10, 1888.

Application filed March 9, 1887. Serial No. 230,236. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. DUNNING, of Deep Water, in the county of Henry and State of Missouri, have invented a new and Improved Washing-Machine, of which the following is a full, clear, and exact description.

My invention relates to machines adapted for washing clothes, and has for its object to provide a simple, inexpensive, and effective machine of this class which may be operated with economy of time and labor for thoroughly cleaning the clothes, and is arranged to give easy access to all its parts for handling the clothes or washing-fluid and for cleaning the machine when the work is finished.

The invention consists in certain novel features of construction and combinations of parts of the washing-machine, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a front view of my improved washing-machine, with the clothes-holding tub and upper rubber in vertical section. Fig. 2 is a plan view of the machine; and Fig. 3 is a bottom plan view in section on the line *x x*, Fig. 1.

The frame of the washing-machine consists, mainly, of a suitable base, A, two opposite side pieces or standards, B C, a head-piece or cross-bar, D, which is hinged at *b* to the standard B, and is slotted at *d* to receive a tenon, *c*, formed on the upper end of the standard C, and a pin or key, E, passed through a hole in the tenon *c*, above the head-bar D, locks said bar firmly in place to give substantial support to the upper rotary rubber and its operating mechanism, presently explained. About at the center of the frame a cross-bar, F, is fitted to the opposite standards, B C, and, preferably, by letting its opposite ends into notches or mortises of the standards, as shown, and above the bar F another cross-bar, G, is fitted, and is shown resting on end cleats, *g g*, to which it is nailed, and the cleats are nailed to the standards. The space between the cross-bars F G gives room for the mechanism which operates the rotatable tub H, in which the clothes to be washed are placed.

In the center of the cross-bars F G there is journaled a short upright shaft, I, to which is fixed above the bar G a four-armed metal frame or spider, J, onto which the tub H rests, and to the bottom of the tub cleats K K are fastened by screws or otherwise, and so as to fit between the arms of the frame J, to cause the tub to be turned as the frame J and its shaft I are rotated by means of a pinion, L, which meshes into a semicircular rack, *m*, formed at the periphery of a wheel or plate, M, which is fixed to a short shaft, N, journaled in the cross-bars F G of the frame. To this shaft N, or to the wheel or plate M, or both, is fixed the lower bar, O, of a lever-frame, the upper bar, P, of which is fixed to a wheel, R, which is fast to a shaft, S, journaled in the frame-head bar D. In the bar D, and in a bowed bearing-plate, *t*, fixed to the under side of the bar, there is journaled a shaft, T, which carries fixedly a pinion, U, which meshes with an internal gear or segmental rack, V, formed on the wheel R. The upper rubber, W, is fixed to the lower end of the shaft T, and a spring, X, fitted around the shaft between the rubber W and the bearing-plate *t*, normally forces the rubber down onto the clothes placed in the tub. The pinion U will in practice be made long enough to allow considerable range of vertical movement of the rubber without disconnecting the pinion from the rack V, which operates it.

The upper and lower bars, O P, of the lever-frame are connected by a cross round or bar, *o*, which is or may be grasped by the operator in using the machine, and the connection of the upper bar, P, to the round *o* is loose, allowing disconnection of the bar P from the round when the upper cross-bar, D, is swung over backward on its hinge *b* to carry the upper rubber, W, upward and over clear of the tub H, to place the clothes in the tub to be washed, or to remove the washed clothes from the tub, or for allowing washing-fluid to be placed in or removed from the tub, or for permitting the tub itself to be lifted bodily from the spider-frame J for cleaning the tub or when it may be needed for any other purpose.

The opposing faces of the tub-bottom and the upper rubber are formed or provided with ribbed projections, *h w*, respectively, which are

preferably disposed at various angles to give the best rubbing effect on the clothes.

The operation of the machine is as follows: When the tub H is placed on the spider-frame J and the clothes, with a suitable washing-fluid, are placed in the tub, the cross-bar D, with the rubber W, will be swung down and fastened by the pin E, and when the lever-frame O P *o* is moved first to one side and then to the other side, or is reciprocated through an arc somewhat less than a half-circle, the arrangement of gearing L *m* U V will cause the tub and upper rubber, H W, to be rotated in different directions at each half-stroke of the lever-frame, and the motions of the tub and rubber will be reversed each time the motion of the lever is reversed; consequently the clothes will be most thoroughly agitated and rubbed to very quickly remove the dirt from them, and the operation may be performed without greatly fatiguing the person working the lever.

Should the upper rubber, W, be made considerably smaller than the diameter of the tub, the washing-fluid and clothes may be put in and removed from the tub without swinging the cross-bar O and rubber W over on the hinge *b*, as will readily be understood.

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

1. In a washing-machine, the combination, with a supporting-frame, of a shaft, I, journaled therein and provided with a pinion on its lower end and a spider on its upper end for supporting a tub, a segmental rack meshing with the said pinion, a rubber-shaft journaled in the upper part of the frame and provided with a pinion on its upper end, a wheel having an internal rack meshing with the pinion on the rubber-shaft, arms or bars secured to the segmental rack and to the wheel having the internal rack, and a round or bar connecting the said arms or bars, substantially as herein shown and described.

2. The combination, in a washing-machine, of a suitable frame, a shaft, I, journaled therein, a spide frame, J, fixed to the shaft, a tub, H, having cleats or retainers K engaging the frame J, a pinion, L, on shaft I, a wheel or plate, M, having an external rack, *m*, engaging said pinion, a shaft, T, journaled on the frame, a rubber, W, on shaft T and adapted for rotation in the tub H, a pinion, U, on shaft T, a wheel, R, having an internal rack, V, engaging pinion U, and a lever-frame, O P *o*, connected to the rack-wheel M R, all arranged for operation substantially as shown and described.

GEORGE F. DUNNING.

Witnesses:
U. B. MCNEMAR,
JAMES FLANAGAN.