(No Model.) 2 Sheets—Sheet 1.

J. C. HACKNEY.

WASHING MACHINE.

No. 264,689. Patented Sept. 19, 1882.

FIG. 1.

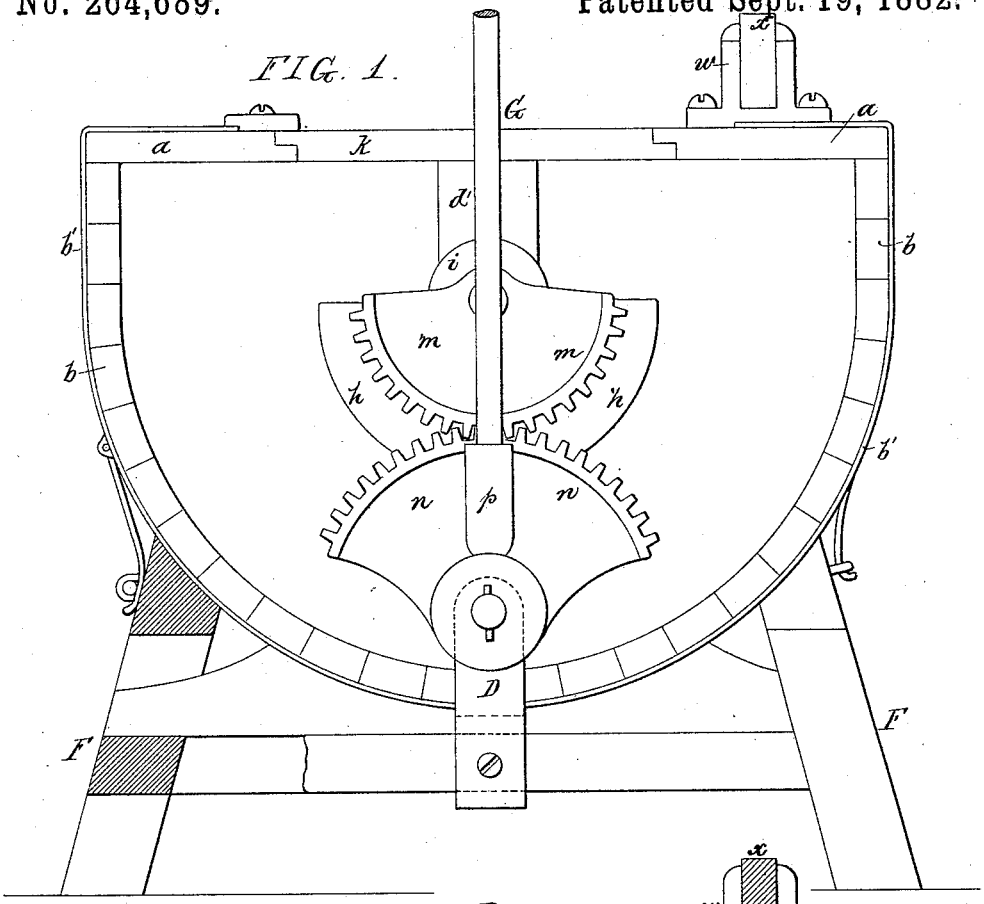
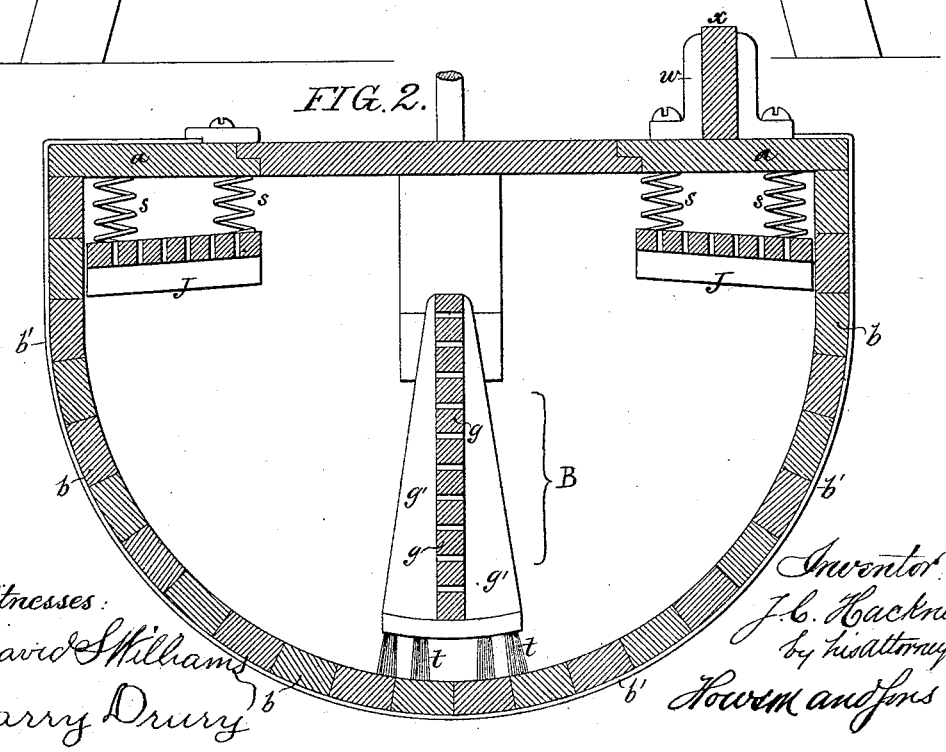


FIG. 2.



Witnesses:
David S. Williams
Harry Drury

Inventor
J. C. Hackney
by his attorneys
Howson and Sons

(No Model.) 2 Sheets—Sheet 2.

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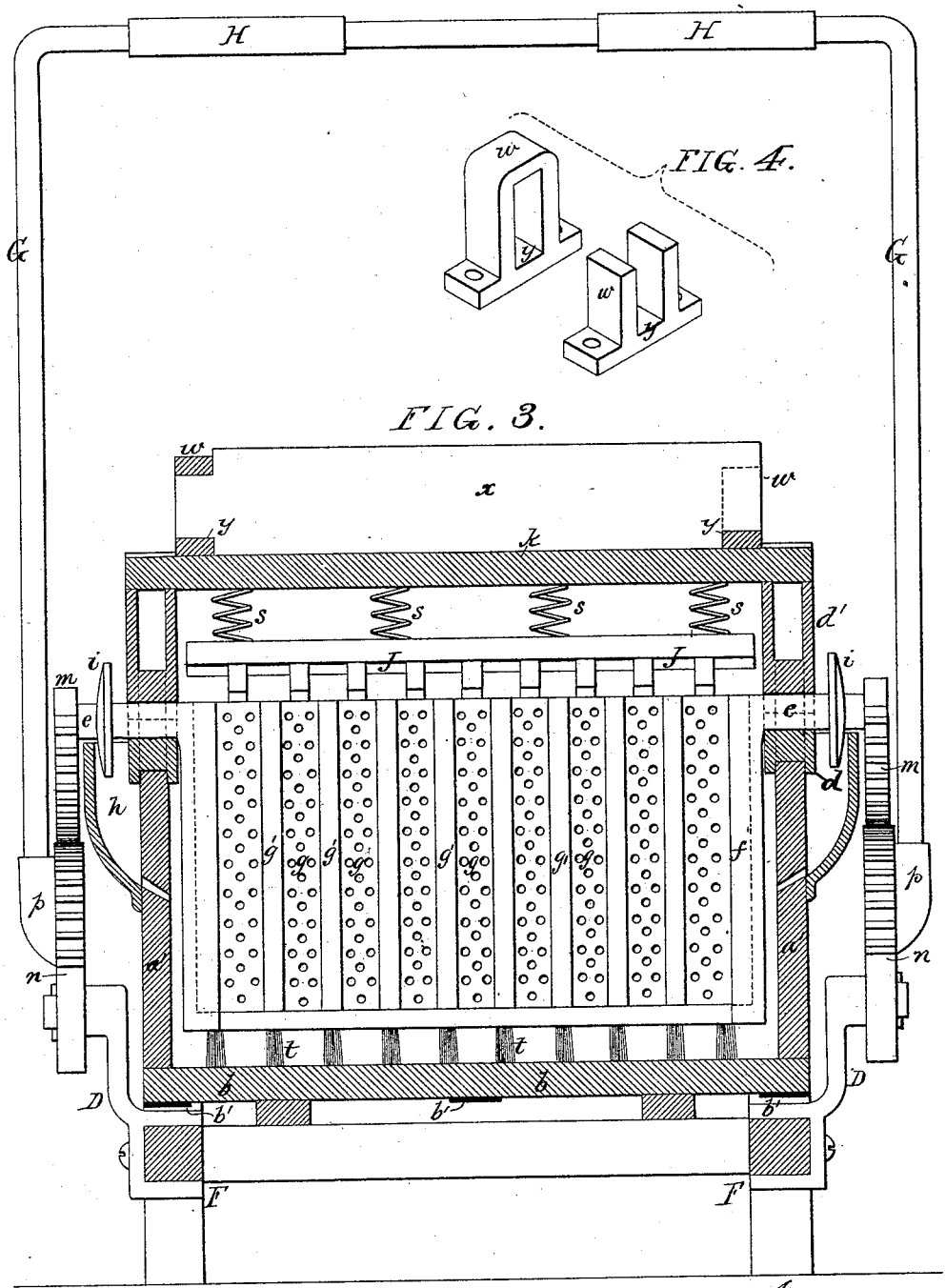
FIG. 4.

FIG. 3.



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UNITED STATES PATENT OFFICE.

JOSEPH C. HACKNEY, OF PHILADELPHIA, PENNSYLVANIA.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 264,689, dated September 19, 1882.

Application filed February 13, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH C. HACKNEY, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Washing-Machines, of which the following is a specification.

My invention relates to improvements in that class of washing-machines in which the clothes are pressed between a vibrating dasher and an abutment or abutments in the tub, my invention comprising certain details in the construction of the machine, the objects of which are too fully set forth hereinafter to need specific mention in this portion of the specification.

In the accompanying drawings, Figure 1 is an end view of my improved washing-machine; Fig. 2, a transverse section of the same; Fig. 3, a front view, partly in section; and Fig. 4, a perspective view of part of the machine.

The tub or receptacle of the machine comprises a top, *a*, ends *a'*, and a segmental body, *b*, the latter being composed of staves, and the whole being bound together by hoops *b'*, secured to the staves and to the top *a*, a tub thus constructed being stronger and more compact than a rectangular wooden tub, and being free from the objections to the metal tubs which are sometimes employed.

In the ends *a'* of the tub are vertical slots for the reception of the boxes, which form the bearings for the shafts *e* of the dasher B, each shaft having on the inside of the tub a slotted bar, *f*, adapted for the reception of one end of the dasher, the latter consisting of a perforated strip, *g*, having on each side a series of inclined ribs, *g'*.

Each of the shaft-boxes consists of two halves, *d d'*, and each half has internal and external flanges for overlapping the edges of the slot in the tub and forming a water-tight joint. The upper half, *d'*, of each box extends to the top of the tub, and is made hollow in order to reduce its weight.

The shafts *e* fit loosely in their boxes, so that when the machine is in operation and its contents are agitated water from the tub can flow through the boxes, this water serving as a lubricant, and thus preventing that soiling of the clothes which is an objection to washing-machines having tight boxes, forming bearings which must be lubricated with oil or grease.

The water which flows through the boxes is discharged into receptacles *h*, secured to each end of the tub, flanges *i* on the shafts *e* serving to deflect the water into these receptacles and prevent it from splashing over the edges of the same. The receptacles communicate with the interior of the tub through openings in the ends *a'* of the same, as shown in Fig. 3.

To insure strength and prevent leakage, I make each receptacle *h* in the form of a semicircular concavo-convex or dished plate, with a flange around the edge for securing the same to the tub, the whole being struck up from a single plate of metal by means of suitable dies.

The outer end of each shaft *e* is furnished with a toothed segment, *m*, which gears into a similarly-toothed segment, *n*, hung to a stud on a bracket, D, secured to one of the transverse bars of the trestle F, which supports the tub. This trestle comprises suitable transverse and longitudinal bars, forming a proper bearing for the tub, hooked pins, and staples at the rear of the tub and trestle, and a hasp-staple and pin at the front of the same, providing a ready means of securing said tub to the trestle, but permitting the two to be readily detached from each other when the machine is not in use and it is desirable to separately store the parts.

The segments *n* have sockets *p* for the reception of the ends of the operating-lever G of the machine, the latter consisting of a bent rod or tube of wrought-iron provided with handles H, which consist simply of sections of rubber tubing slipped over the rod or tube from the ends and secured in proper position; or, in place of two of such handles, a single section of tubing extending from end to end of the longitudinal portion of the lever G may be used.

Handles of the kind described are more durable and afford a better grip than wooden handles, and can be slipped over the rod or tube after the latter is bent.

By attaching the bearings D for the segments *n* to the trestle F instead of to the tub, the necessity of forming screw-holes in the ends of said tub is prevented, and leakage from this cause or from the straining of the tub is overcome.

The dasher B of the machine acts in conjunction with abutments J, located in each of the upper corners of the tub, said abutments consisting of ribbed and perforated plates suspended from the top of the tub by means of springs *s*, so that they are free to yield when undue pressure is imparted to the operating devices of the dasher, thus preventing injury to the machine due to a sudden or excessive application of power to the lever G.

The level of the water in the tub cannot rise above the bearings of the shafts *e*, as the water is free to escape through said bearings, and it will be noticed on reference to Fig. 2 that the abutments J are considerably above this level. In consequence of this the clothes are lifted above the surface of the water on each vibration of the dasher, so that during the operation of the machine the clothes are first immersed, and the saturated mass is then lifted from the water and subjected to pressure, so as to force the water therefrom, the operation being then repeated. By this means the water acts more effectively, and the clothes are washed with greater thoroughness and in less time than in machines in which the pressure is imparted to the clothes while the latter are immersed.

A special draining-opening may be formed in the tub to co-operate with the shaft-bearings in preventing the rise of the water above the proper level, but said bearings will in most cases be sufficient.

On the top *a* of the tub, near the rear of the same, are a pair of standards, *w*, adapted for the reception of the ends of a bar, *x*, one of the standards being closed and the other open at the top, as shown in Figs. 3 and 4, and the ends of the bar *x* having recesses *y* to accommodate the bases of the standards.

The bar can be readily adapted to the standards by first fitting one end longitudinally into the closed standard and then dropping the other end into the standard which is open at the top, the fitting of the ends of the bar to the bases of the standards effectually preventing any longitudinal displacement of the bar, the removal of which can only be effected by a reversal of the operations above described. The bar is designed for attachment to a wringing-machine, which can thus be applied to or removed from the tub without the necessity of operating the clamping-screws, as usual.

Both of the standards *w* may be open at the top, if desired, but the construction shown is preferred.

The top *a* of the tub is cut away at the center for the reception of the detachable cover *k*, whereby access is had to the interior of the machine.

In order to effect the proper upward carriage of the clothes on the vibration of the dasher, the latter should fit with comparative closeness to the interior of the tub; but if the wooden portion of the dasher is made to fit thus closely, the clothes are liable to be caught between the same and the tub and torn or otherwise injured. I therefore provide the outer end of the dasher with a brush, *t*, which can fit with proper closeness to the tub, but is free to yield when subjected to such a strain as would be likely to cause injury to the clothes.

In machines of limited capacity but one abutment, J, may be used; but the double-acting machine shown in the drawings is preferred, as it permits the application of power on both the forward and backward strokes of the lever G.

I claim as my invention—

1. The combination of the dasher and its shafts, each of the latter having a flange, *i*, with the tub having shaft-boxes and external receptacles, *h*, as specified.

2. The combination of the trestle, the operating-lever G, the segments *n*, secured thereto and pivoted to bearings on the trestle, the tub detachable from the trestle, and the dasher having shafts *e*, with segments *m*, adapted to engage with the segments *n*, as set forth.

3. The combination of the tub having a draining-opening, whereby the water is prevented from rising above a certain level, a vibrating dasher, and an abutment located above the level of the water in the tub, whereby the clothes are subjected to pressure after being raised from the water, as set forth.

4. The combination of the segmental tub with the vibrating dasher having a brush, *t*, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH C. HACKNEY.

Witnesses:
HARRY DRURY,
HARRY SMITH.