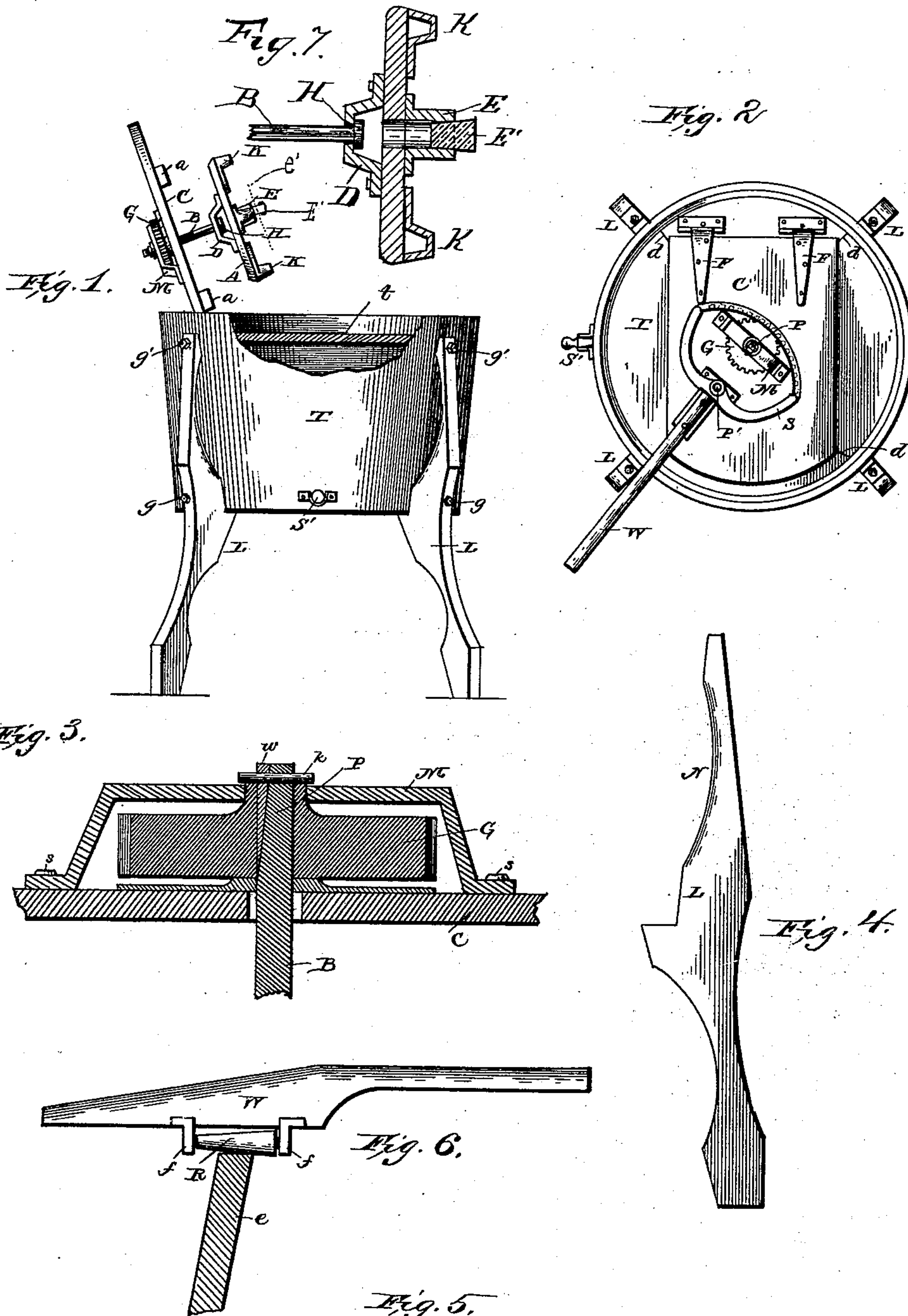


(No Model.)

D. SAVAGE.  
WASHING MACHINE.

No. 407,453.

Patented July 23, 1889.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

DAVID SAVAGE, OF BLOOMSBURG, PENNSYLVANIA.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 407,453, dated July 23, 1889.

Application filed June 29, 1888. Serial No. 278,524. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID SAVAGE, a citizen of the United States, residing at Bloomsburg, in the county of Columbia and State of Pennsylvania, have invented certain new and useful Improvements in Washing-Machines, of which the following is so full, clear, and exact a description as will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of my washer with a part of the side of the top broken away to show the depressed top of the washer, and the handle and geared sector removed. Fig. 2 is a top view of my washer. Fig. 3 is a transverse vertical section showing the method of attachment of the gear-wheel to the square agitator-bar. Fig. 4 is a side view of one of the legs of my washer, showing the construction whereby it serves as a handle. Fig. 5 is a vertical section of one of the hollow agitator-knobs with attachment-flange. Fig. 6 is a side view of the handle of my washer, showing a part of the side of the tub in section and a friction-roller attached to the handle. Fig. 7 is a vertical section of the rubber and shaft, showing manner of attachment of the head to the shaft.

In the accompanying drawings corresponding parts are always designated by the same letters.

In Fig. 1 my washer is shown with the cover raised and the agitator exposed to view. This agitator is constructed as follows: Upon a round board A are screwed the four hollow knobs K, which are made of galvanized iron. Through the center of this board is cut a hole, over which is screwed the flanged rod-protector E on the same side with the hollow knobs. On the opposite or upper side of the board A is fastened the guide-piece D, provided with a square hole set opposite to the round hole in the rod-protector E, and through which the square agitator-rod B is free to slide. This agitator-rod is provided, as seen in Fig. 1, with an upset head H, which prevents the agitator from slipping off the rod. In Fig. 3 is shown the fastening of this rod to the gear-wheel G. This is a rigid fastening, and is preferably accomplished by means of

the wedge and key shown at *w* and *k* in Fig. 3. The gear-wheel G, by means of which the agitator is worked, is held to the washer-cover by means of the bearing-strap M. A preferred means of operating this gear-wheel is shown in Fig. 2, in which S is a geared sector pivoted firmly at P' and designed to rotate back and forth about this pivot when the handle W is drawn back and forth by the operator. The sector S is provided on the side opposite the handle with teeth, which extend downward and mesh with those of the gear-wheel G. Thus when the handle and sector are swung back and forth this rotation is transmitted through the gear-wheel and agitator-rod to the agitator.

The whole of this mechanism is attached to the cover of the washer, as shown in Fig. 1.

Fig. 5 shows one of the galvanized-iron knobs K on the agitator. These are hollow, as seen at *c*, and are screwed to the agitator-plank by means of screws passing through the apertures *h* in the attached flange.

In Fig. 4 the peculiar construction and attachment of the legs L are shown. As will be seen, these legs are bolted to the tub at two points *g g'*. Between these two points the leg is so shaped as to leave a considerable space between the side of the tub and the upper portion of the leg. The construction of the four legs being the same, this space N serves as a convenient handle for the carriage of the washer.

At R in Fig. 6 may be seen the tapering roller pivoted in the bearings *f* and designed to roll along the top of the edge *e* of the washer. This device is for the purpose of obviating the friction and wear which would otherwise arise between the handle and the edge of the tub.

My washer will then be operated as follows: Upon raising the cover by means of the handle W the agitator will naturally fall back until the guide D rests against the inside of the cover. This will leave the door of the washer quite free for the entrance of the clothes. The door being then closed, the agitator will rest upon the clothes with no more than its own weight, as it is free to slide upon the agitator-rod B and assume a position corresponding to the amount of clothes. This will permit of the use of my machine for



washing fine cambrics, lace, and other delicate material. By crowding more clothes into the washer and forcing the agitator back against the cover a more vigorous action may  
5 be obtained suited to the coarser fabrics. The movement of my handle being always in the same horizontal plane, which plane is at a convenient height for the operator, two features of prime importance are thereby at-  
10 tained. In the first place, the operator is always able to stand upright, thus relieving the muscles of the back. In the second place, almost his whole weight is available for work, inasmuch as the plane of motion is horizon-  
15 tal and is approximately that of his center of gravity.

It is noted here that the rod-protector E is provided with a plug E', which serves to steady the agitator and keep the metallic  
20 protuberances on its bottom up above the bottom of the clothes-receptacle, which is particularly desirable in shipping the machine. The plug may be cut off, as shown in

dotted lines at  $e'$ , when very delicate fabrics are being washed and the operator desires to  
25 keep them wholly out of contact with the lower end of the agitator-rod. At such a time an ordinary cork might be used to plug up the lower end of the rod-protector.

Having now described the object, uses, and  
30 advantages of my invention, what I believe to be new, and desire to secure by Letters Patent, and what I therefore claim, is—

In a washing-machine, the clothes-receptacle and an agitator-rod, in combination  
35 with a perforated agitator which slides upon said agitator-rod, said agitator having a hollow rod-projector extending below the rubber and closed at its lower end, substantially  
40 as and for the purposes specified.

In testimony whereof I affix my signature in the presence of two witnesses.

DAVID SAVAGE.

Witnesses:

GUY JACOBY,

WM. B. CUMMINGS.