

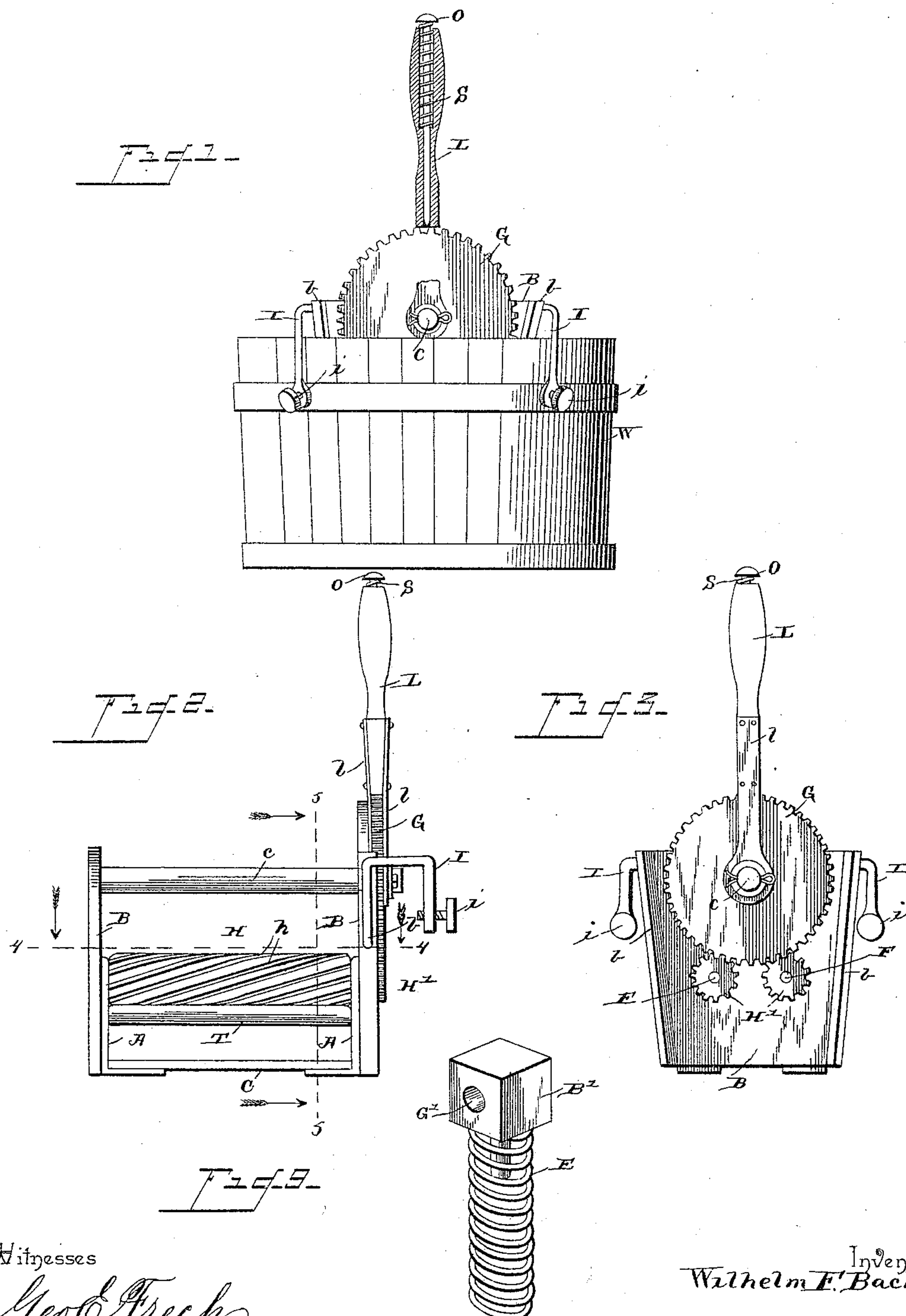
(No Model.)

2 Sheets—Sheet 1.

W. F. BACH.  
WASHING MACHINE.

No. 438,047.

Patented Oct. 7, 1890.



Witnesses

Geo. C. French.

N. L. Gollamer.

By His Attorneys,

Chas. W. Snow

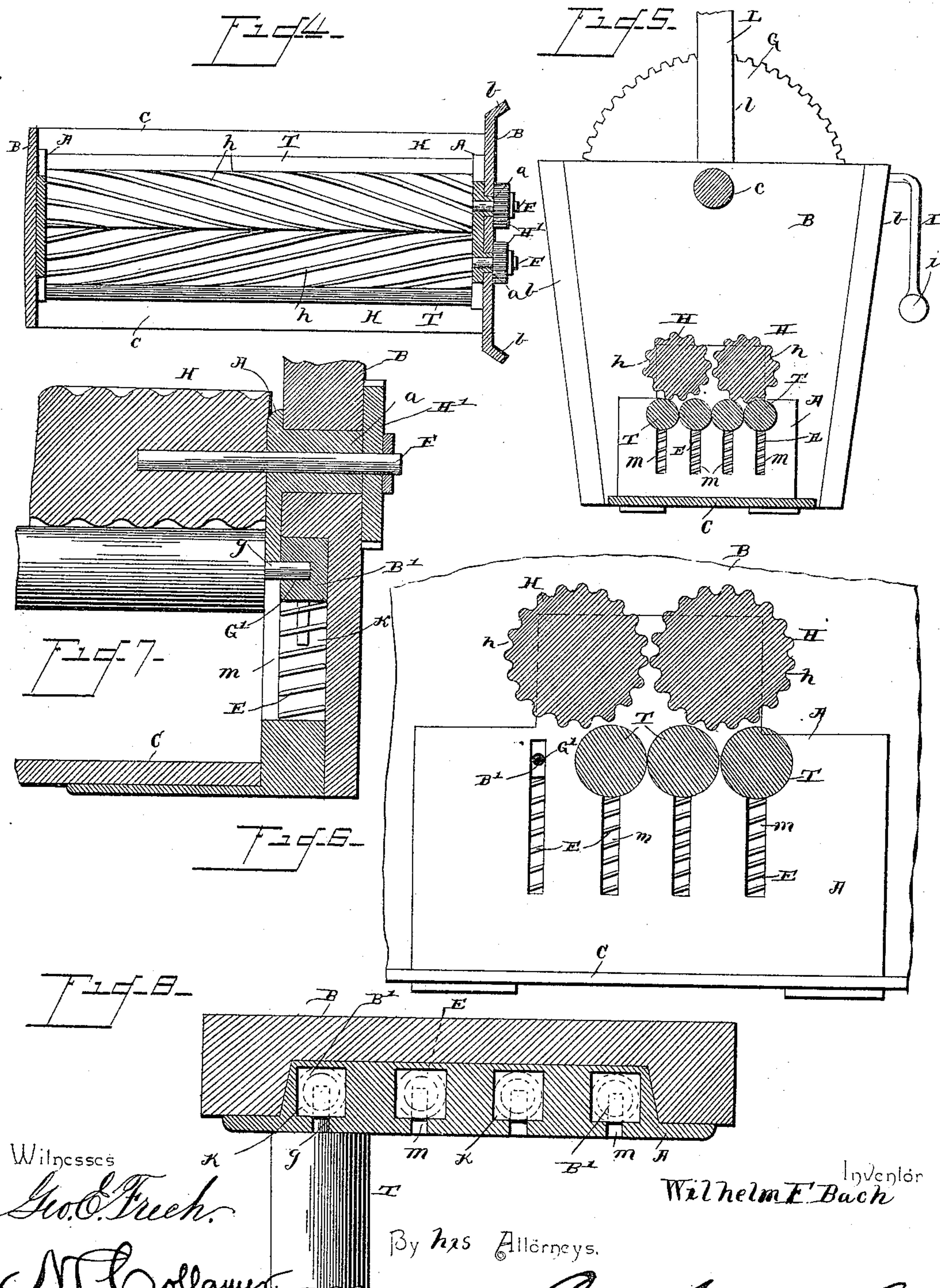
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*Geo. C. French.*

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Inventor

*Wilhelm F. Bach*

By *hys* Attorneys.

*C. A. Snow & Co.*



# UNITED STATES PATENT OFFICE.

WILHELM FRIEDRICH BACH, OF CHICAGO, ILLINOIS.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 438,047, dated October 7, 1890.

Application filed May 24, 1890. Serial No. 353,043. (No model.)

*To all whom it may concern:*

Be it known that I, WILHELM FRIEDRICH BACH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Washing-Machine, of which the following is a specification.

This invention relates to washing-machines; and the object thereof is to provide a device of this general character capable of being attached to an ordinary wash-tub.

The invention consists of the details of construction hereinafter more fully described, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a wash-tub with my improved washing-machine therein, showing the latter in end elevation, partly broken away to illustrate the spring-catch for the driving-gear. Fig. 2 is a side elevation, and Fig. 3 an end elevation, of the washing-machine proper. Fig. 4 is a transverse section of the same on the line 4 4 of Fig. 2, taken just above the grooved rollers. Fig. 5 is a vertical transverse section on the line 5 5 in Fig. 2. Figs. 6, 7, and 8 are transverse, longitudinal, and horizontal sections of the casting connecting the end and bottom of the frame and portions of the devices held therein. Fig. 9 is a detail perspective of one of the spring-bearings within said casting.

Referring to the said drawings, the letter W designates a wash-tub of the ordinary style and size, to which my improved washing-machine is attached.

B B are the end pieces, and C is the bottom piece, comprising the frame of my washing-machine, the upper ends of the end pieces being connected by a rod or rods *c*, and the edges of the larger end piece B having wings *b* extending outwardly in a true line from the axis of the wash-tub, which the frame is adapted to fit, and converging slightly toward their lower ends to conform with the shape of the interior of the tub. Connected to the outer face of each wing *b* is a curved arm *I*, adapted to pass over the upper edge of the tub, and having in its end a binding-screw *i*, which bears against the exterior of the tub or one of its hoops, as shown in Fig. 1, and holds the washing-machine in position. The outer faces of the wings *b*, which stand against the

interior of the tub, are spaced so far apart and are connected by a straight end piece B in such a manner that a space is formed between said end piece and the side of the tub, and in this space is located the driving mechanism for the washing-machine, which is constructed as follows:

G is a large gear, preferably journaled upon the extended end of the connecting-rod *c*, and L is the operating-lever, having extensions *l* at its lower end, which pass along either face of the driving-gear G, and are also journaled to said rod *c*. The handle of the lever L is hollow, and within this hollow handle slides a catch O, adapted to engage the teeth of the gear-wheel between the extensions *l*, but pressed normally out of engagement by a spring S, as shown, and the upper end of the rod O is headed, in order that it may be easily depressed by the thumb of the operator as she grasps the lever to reciprocate it.

A is a casting connecting the lower end of each end piece with the outer end of the bottom C, as shown in Fig. 7, and this casting has two tubular bosses *a*, through which extend and in which are journaled shafts F. The inner ends of the shafts extend into rollers H, having the spiral corrugations or grooves *h* on their peripheries. The outer ends of the shafts F carry pinions H', keyed thereon, which intermesh with the driving-gear G, whereby when the lever L is reciprocated the grooved rollers H will be rotated simultaneously and in the same direction. The adjacent faces of these rollers are nearly but not quite in contact, so that the suds may have a free passage therethrough; but it is not intended that the clothes being washed shall pass between them. In order that the clothes will be held with considerable force against these revolving grooved rollers, I provide the following devices:

T are cylindrical rollers, having journals *g* at their ends, which pass through vertical slots *m* in the castings A and rotate in holes G', formed transversely through blocks B', which slide vertically in chambers K in the castings, and which are held in normally-raised positions by coiled springs E within said chambers. There are preferably four of these rollers T, located two beneath and in contact with each grooved roller H, as seen in Fig. 5.



The several parts of this washing-machine being constructed as above described, the end pieces and bottom of the frame being connected by the castings A, and the rollers, gear-wheels, and lever being put in place, the operation of the device is as follows: The frame is inserted in an ordinary wash-tub, and the binding-screws *i* are turned to impinge against the tub, as shown, whereby the frame is locked therein. The tub is then filled or partially filled with suds, and the clothes are passed thereinto piece by piece and directed by hand between one of the grooved and the outer cylindrical roller. The lever is then grasped, the rod O depressed so as to engage the teeth of the driving-gear, and the lever moved in the proper direction to draw the clothes between the rollers, as will be understood. The springs E press the blocks D upwardly within the chambers K, and the bearings of the cylindrical rollers T are thereby held in normally-raised position, whereby said rollers are caused to press the clothes upwardly against the grooved rollers H. If the grooves in these rollers were made parallel with the axes, they would cause a snap each time they came opposite one of the small cylindrical rollers, and the machine would therefore make considerable noise and be likely to cut the clothes; but by making these grooves spiral I am enabled to secure all the advantages arising from the use of such grooves, yet I avoid the disadvantageous and objectionable characteristics incidental to the use of grooves or serrations standing in parallelism with the axes.

What I claim is—

1. In a washing-machine, the combination, with a frame, a pair of spirally-grooved rollers journaled therein, and means for rotating

them simultaneously in the same direction, of independent cylindrical rollers arranged in said frame and springs pressing each normally into contact with one of the grooved rollers, substantially as described.

2. The herein-described washing-machine, the same comprising a frame consisting of end pieces connected by a bottom piece and cross-rods, outwardly-flaring and downwardly-converging wings along the edges of one end piece resting against the interior of the tub, and arms extending from said wings over the edge of the tub, in combination with a driving-gear and driven pinions located in the space between said wings and between the tub and the end piece of the frame, grooved rollers on the shafts of said driven pinions, cylindrical rollers below said grooved rollers, and a handle connected to said driving-gear, the whole operating substantially as set forth.

3. In a washing-machine, the combination, with the end and bottom pieces of the frame, of the castings A, having perforated bosses *a* and vertical chambers with slotted mouths *m*, the grooved rollers having shafts F journaled in said bosses, means for rotating them, the boxes D, having transverse holes G located in said chambers, the coiled springs E, pressing said boxes normally upward, and the cylindrical rollers T, having journals *g* passing through said slots *m* and mounted in the holes in the boxes D, the whole operating substantially as hereinbefore set forth.

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

WILHELM FRIEDRICH BACH.

Witnesses:

FRED WORMSTADT,  
WILHELM PROLLINS.