

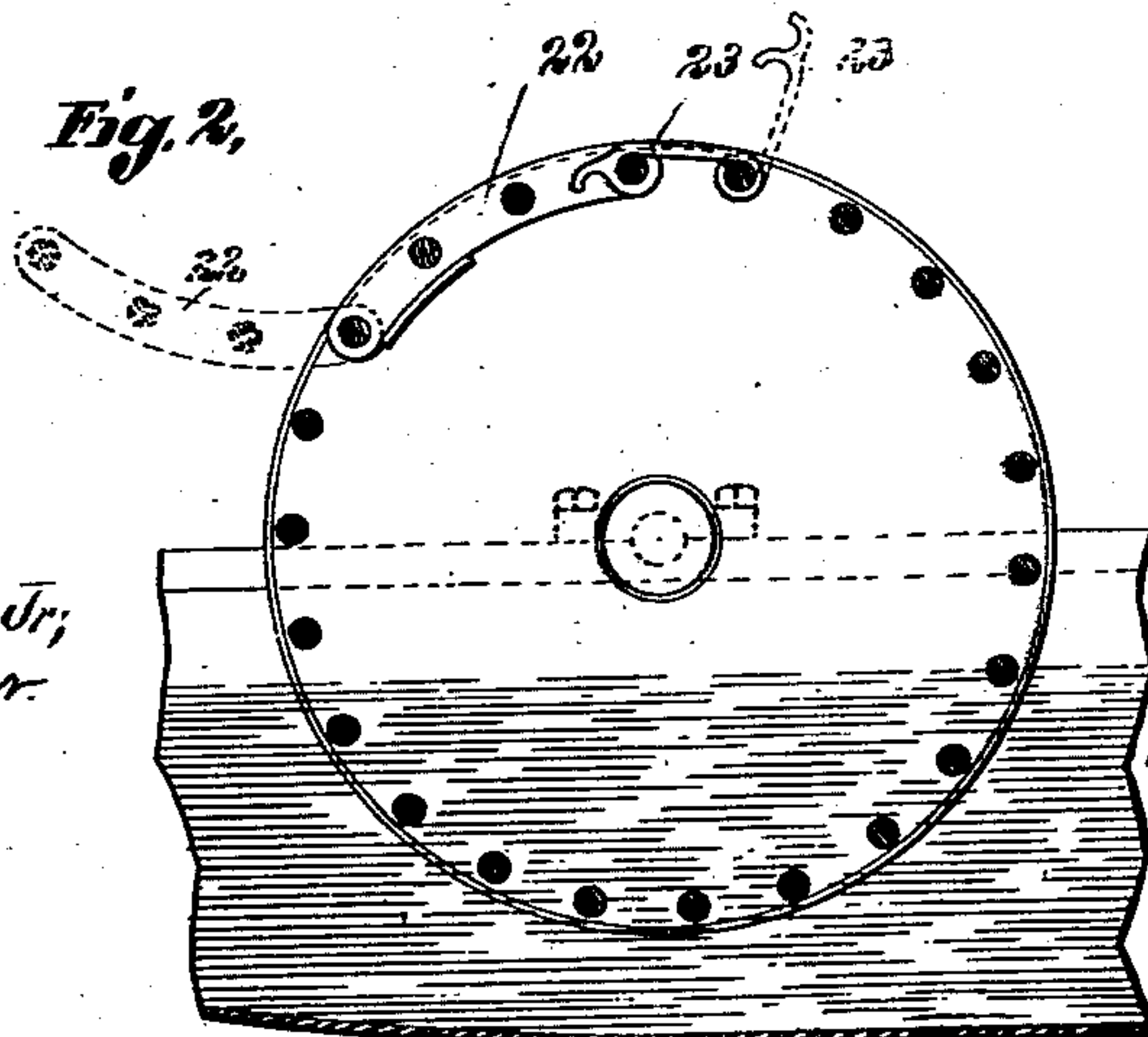
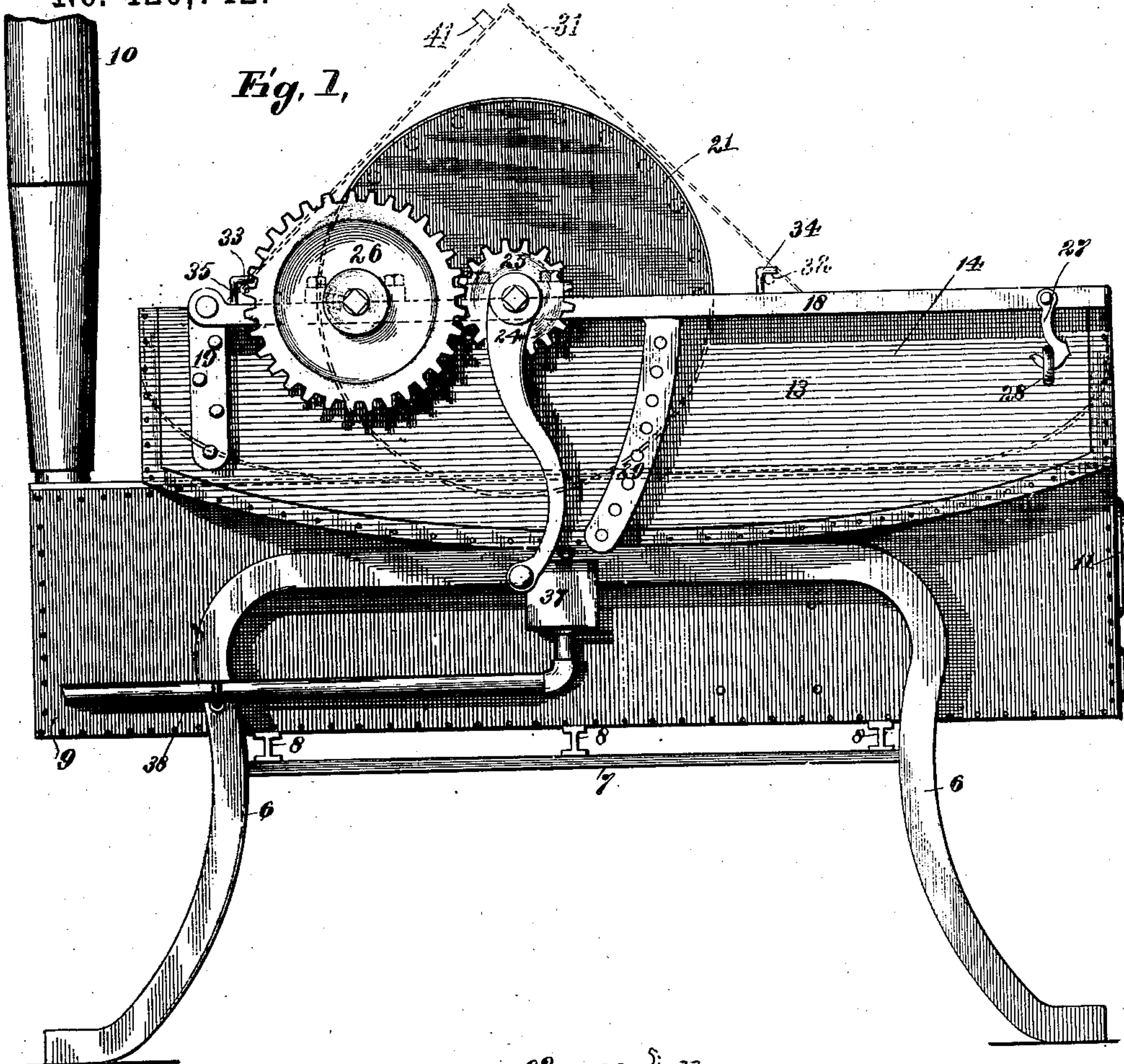
(No Model.)

3 Sheets—Sheet 1.

W. H. H. SMALL.  
WASHING MACHINE.

No. 420,742.

Patented Feb. 4, 1890.



*Witnesses;*  
G. J. Winchman Jr.,  
W. S. Reeder.

*Inventor;*  
Wm. H. H. Small,  
By Fowler & Fowler  
Attorneys.

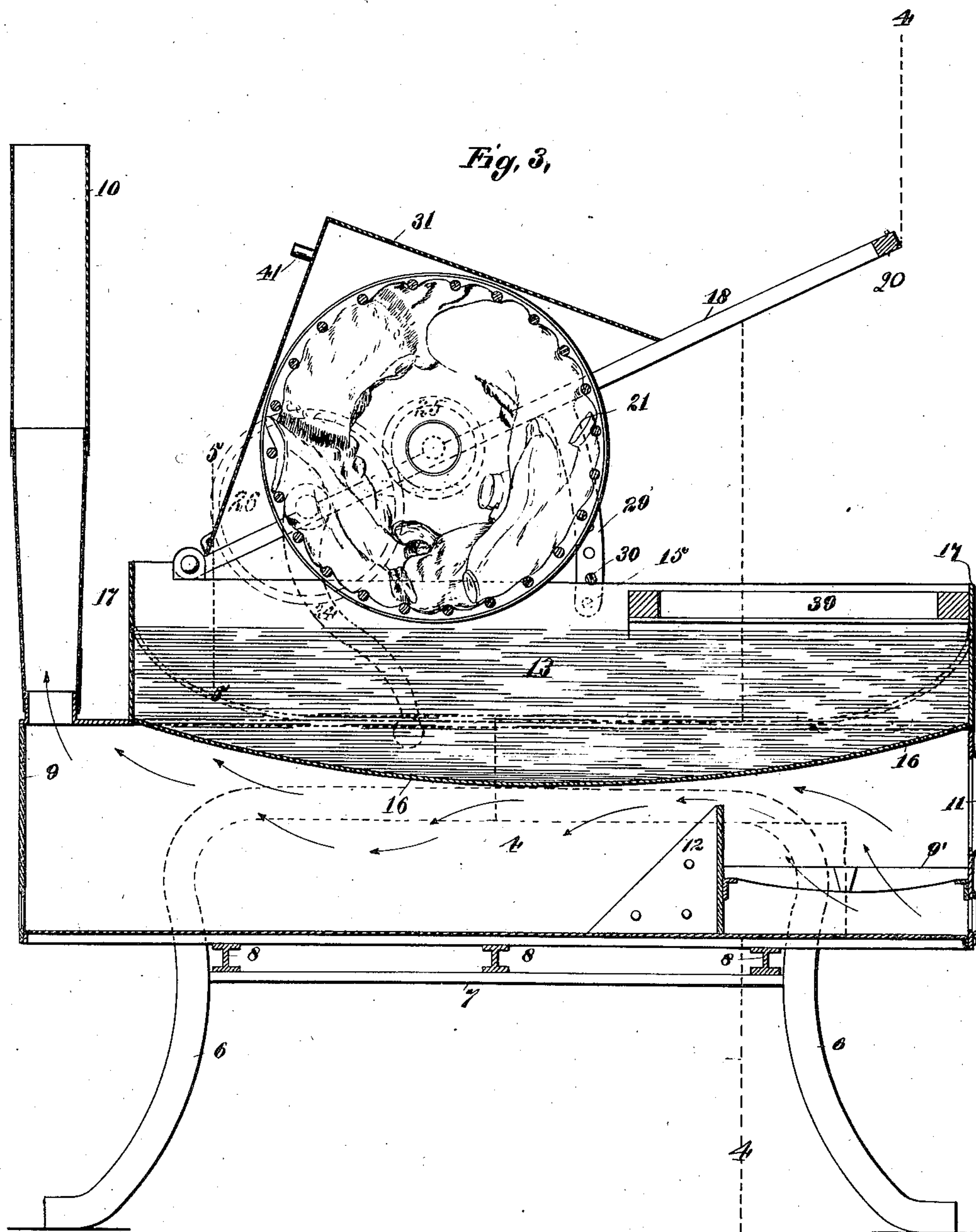
(No Model.)

3 Sheets—Sheet 2.

W. H. H. SMALL.  
WASHING MACHINE.

No. 420,742.

Patented Feb. 4, 1890.



Witnesses;  
G. J. Hinchman Jr.  
W. S. Reeder.

Inventor;  
W. H. H. Small,  
By Fowler & Fowler  
Attorneys—



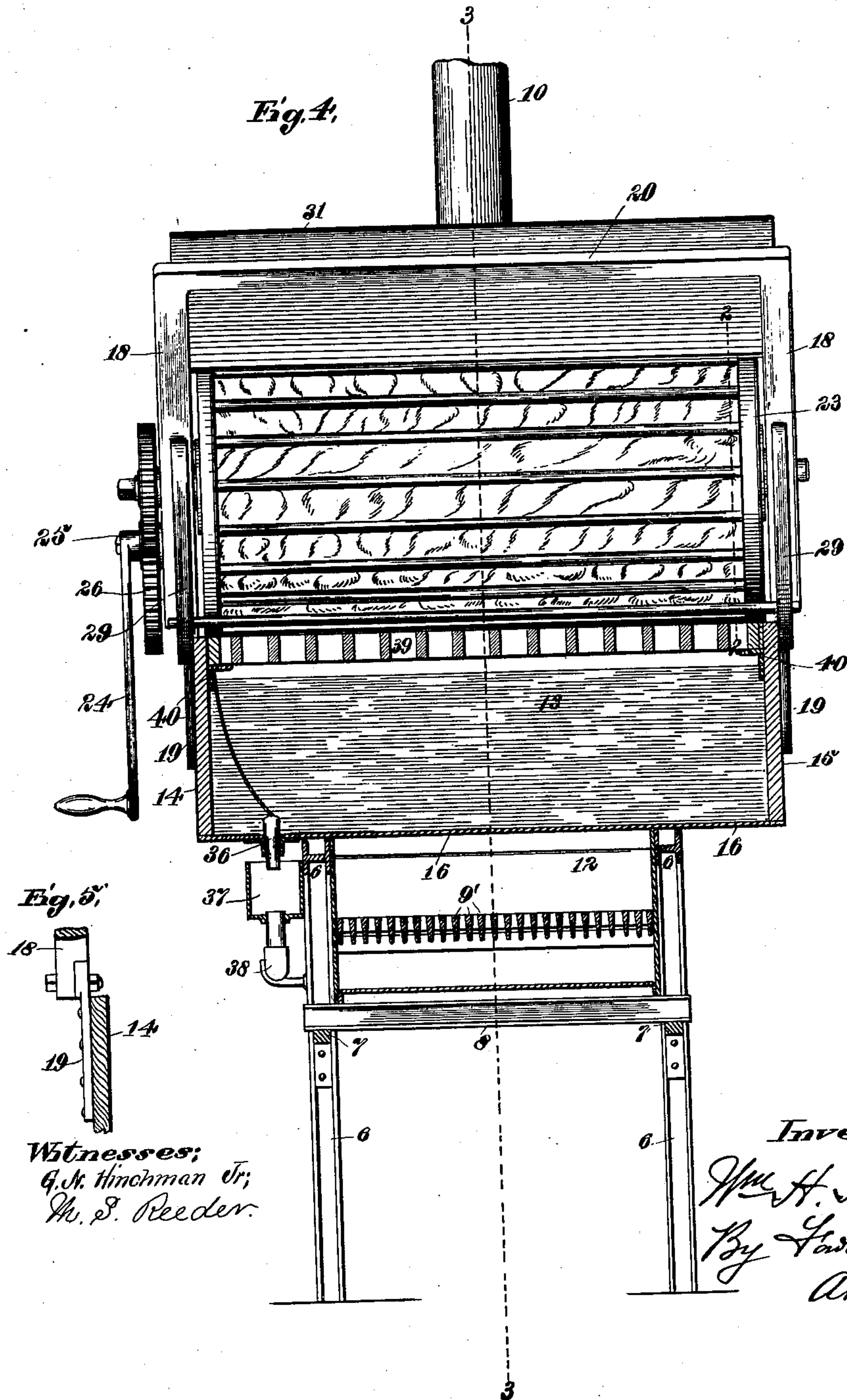
(No Model.)

3 Sheets—Sheet 3.

W. H. H. SMALL.  
WASHING MACHINE.

No. 420,742.

Patented Feb. 4, 1890.





# UNITED STATES PATENT OFFICE.

WILLIAM HENRY H. SMALL, OF ST. LOUIS COUNTY, MISSOURI.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 420,742, dated February 4, 1890.

Application filed December 14, 1883. Serial No. 293,571. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM HENRY HARRISON SMALL, a citizen of the United States, residing in the county of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Washing-Machines, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention consists, briefly, in constructing a washing-machine so that the rotary cylinder in which the clothes are placed to be washed can, after the clothes are washed, be rotated rapidly to expel the water therefrom by the centrifugal force imparted thereto by the rotation; and the invention consists, also, in certain features and details of construction, the novel characteristics of which will be hereinafter set forth in detail, and will then be particularly pointed out in the claims making a part hereof.

Figure 1 is a side elevation of a washing-machine made in accordance with my invention. Fig. 2 is a section on the line 2 2 of Fig. 4, showing the cylinder in its lowered position. Fig. 3 is a section on the line 3 3 of Fig. 4. Fig. 4 is a sectional view on the line 4 4 of Fig. 3, and Fig. 5 is a section of a detail on the line 5 5 of Fig. 3.

The same figures of reference indicate the same parts throughout the several views.

6 are the legs upon which the apparatus stands. They are located at each side of the machine, and are preferably made of two flat bars, Fig. 4, which are bent in the form shown in Figs. 1 and 3. Between the two legs of the bent bars is a piece 7, across which rest, preferably, double T-irons 8, by which the furnace 9 is supported. The furnace is made in any desired form, and is provided with a grate 9' and a smoke-stack 10. The front part has a door 11, by which access may be had to the fire. At the rear of the fire-grate may be arranged a fire-wall 12, constructed in any well-known way. The top of said furnace may be left open, and upon it a boiler or vessel 13, having an inclined bottom, may be placed, which vessel is to be filled with wa-

ter for washing the clothes. I prefer, however, to have the top of the furnace closed and to have a flat-bottomed vessel 13 rest upon the same, as shown by dotted lines in Figs. 1 and 3. The boiler should preferably be wider than the furnace, as clearly shown in Fig. 4. It may be constructed of two side pieces 14 and 15, of wood, between which is a sheet-iron bottom, and ends 16 and 17, secured to said side pieces by any means. This makes a boiler which costs but comparatively little. The boiler could be made entirely of sheet-iron, and any other kind of boiler could be used, if desired.

Upon each of the side pieces 14 and 15 rests a bar 18, which is pivoted to a piece 19, that is secured to said side pieces. The bars 18 are joined by a cross-bar 20, the whole constituting a frame that is movably affixed to the boiler. Between and upon the bars 18 is journaled a washing-cylinder 21, which is made up of two end disks or heads and rods arranged around the periphery of and between the end disks at equidistance, making a slatted cylinder.

22, Fig. 2, is a door leading into the slatted cylinder, by which clothes may be introduced or withdrawn from said cylinder. 23 is a lock for holding said door closed. This form of slatted cylinder is old and well known in washing-machines. Any other suitable kind of cylinder could be employed in my apparatus.

The extension of one of the journals of the cylinder 21 is preferably made angular, so as to receive a crank 24 for rotating said cylinder. Arranged upon said extension back of the crank may be a small pinion-wheel 25, which meshes with, preferably, a large spur-wheel 26, journaled upon one of the bars 18. The extension of the journal of the spur-wheel 26 is also made angular to receive the crank 24 when necessary. By this construction it will be seen that the cylinder when in its normal position (shown in Fig. 1) may be rotated by the crank 24 when upon the extension of the journal of the cylinder to wash the clothes, after which the cylinder can be raised out of the water by lifting up the cross-bar 20, and the crank 24 placed upon the extension of the journal of the spur-wheel 26,



which, being a larger wheel than the pinion-wheel 25, will drive the cylinder at a more rapid rate, and can be thus made to expel the water from the clothes after washing them.

5 27 is a hook pivoted to one of the bars 18, which may be made to take in an eye 28, secured to one of the side pieces of the boiler, so as to lock the bars 18 and hold the cylinder down in position when washing the  
10 clothes.

29 29 are arc-shaped pieces, that depend from the bars 18 outside of the boiler 13. They are provided with holes through which a rod 30 may be run to support the frame and  
15 the cylinder in its raised position. They could be dispensed with, if desired, and the cross-bar 20 sustained by hand during the operation of expelling the water from the clothes, or any other means used to raise the  
20 cylinder out of the water. To prevent the water from flying in all directions when the cylinder is raised to expel the water from the clothes, I provide, preferably, a gable-shaped housing 31 for said cylinder. This housing  
25 may be made of any material and be removably attached over the cylinder in any manner—as, for instance, by pins 32 and 33, which extend from said housing and engage hooks 34 and 35 upon the bars 18.

30 36, Fig. 4, is a plug, which closes a hole in the boiler at one side of the furnace. By withdrawing this plug the water can be let out into a sink 37, attached to the side of the furnace, and from thence conveyed off by a  
35 pipe 38, which may be supported from the side of the furnace.

The water can be expelled from the clothes after washing without raising the cylinder by letting the water out of the boiler or vessel  
40 and then rotating the cylinder rapidly.

39 is a grating that rests, preferably, upon angle-irons 40 40, attached to the sides of the boiler above the water. This grating can be supported in any other manner, if desired.  
45 It is used to put the clothes on before inserting them in the cylinder, and also after removing them from the cylinder.

41 is a small chimney, through which the steam may pass off.

50 The bars 18 can be detached from the boiler where they are pivoted to the same and the boiler and furnace removed to any place and be used to boil water for any purpose.

I am aware that slatted rotary cylinders are not new in washing-machines, and do not wish to be understood as laying claim, broadly, to such; but

What I desire to claim, and secure by Letters Patent of the United States as my invention, is—

1. A clothes-washing machine consisting of a boiler, a frame pivoted to said boiler, a slatted cylinder journaled in said frame, a door in said cylinder for the introduction and withdrawal of the clothes to be washed, and a gear-wheel on the shaft of the cylinder engaging a larger gear on the frame, whereby the cylinder can be rotated in its lowered position at one rate of speed to wash the clothes, and also rotated at a faster rate in its raised position to expel the water therefrom.

2. The combination, in a clothes-washing machine, of a vessel containing the washing-fluid, a frame pivoted to said vessel, a rotary cylinder journaled in said frame, a door in said cylinder closed to the exit of the clothes when the cylinder is rotated, and a detachable housing for said cylinder carried by the frame, whereby the cylinder can be rotated in its lowered position to wash the clothes, and can also be rotated in its raised position to expel the water therefrom.

3. A clothes-washing machine consisting of a boiler, a frame pivoted to said boiler, a slatted cylinder journaled in said frame, a door in said cylinder closed when the cylinder is rotated, a gear on the square-ended shaft of the cylinder meshing with a larger gear carried by the frame, and arc-shaped pieces depending from the sides of said frame and having holes therein adapted to receive a rod 30, whereby the cylinder may be rotated in its lowered position to wash the clothes, and may be raised and fixed in position and rotated to expel the water from the clothes.

In testimony whereof I have hereunto set my hand and affixed my seal, this 27th day of November, 1888, in the presence of the two subscribing witnesses.

WILLIAM HENRY H. SMALL. [L. S.]

Witnesses:

A. C. FOWLER,  
M. S. REEDER.