No. 620,552. Patented Feb. 28, 1899.

J. H. THERIEN.

WASHING MACHINE.

(Application filed May 27, 1896.)

(No Model.)

FIG. 1.

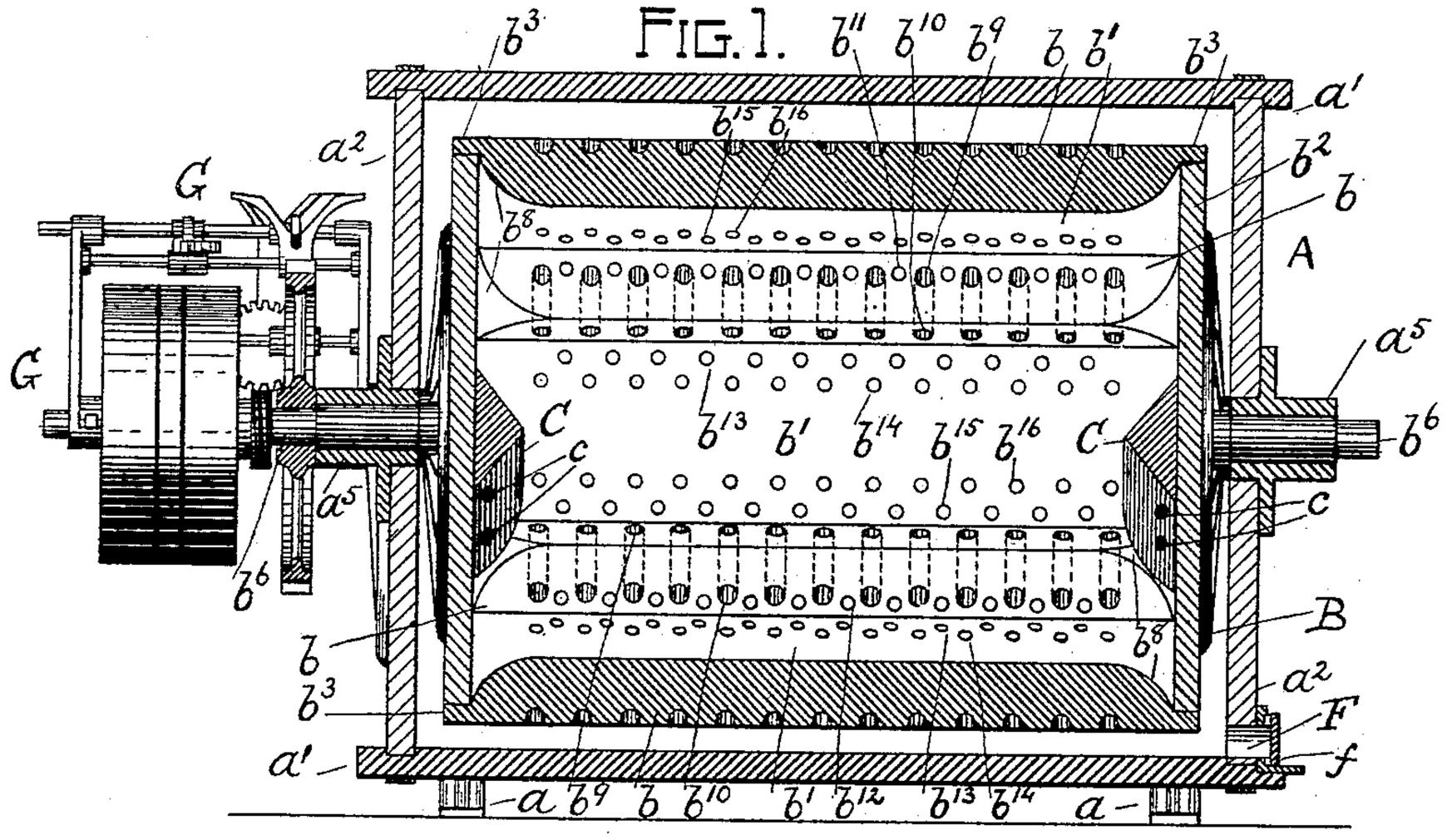
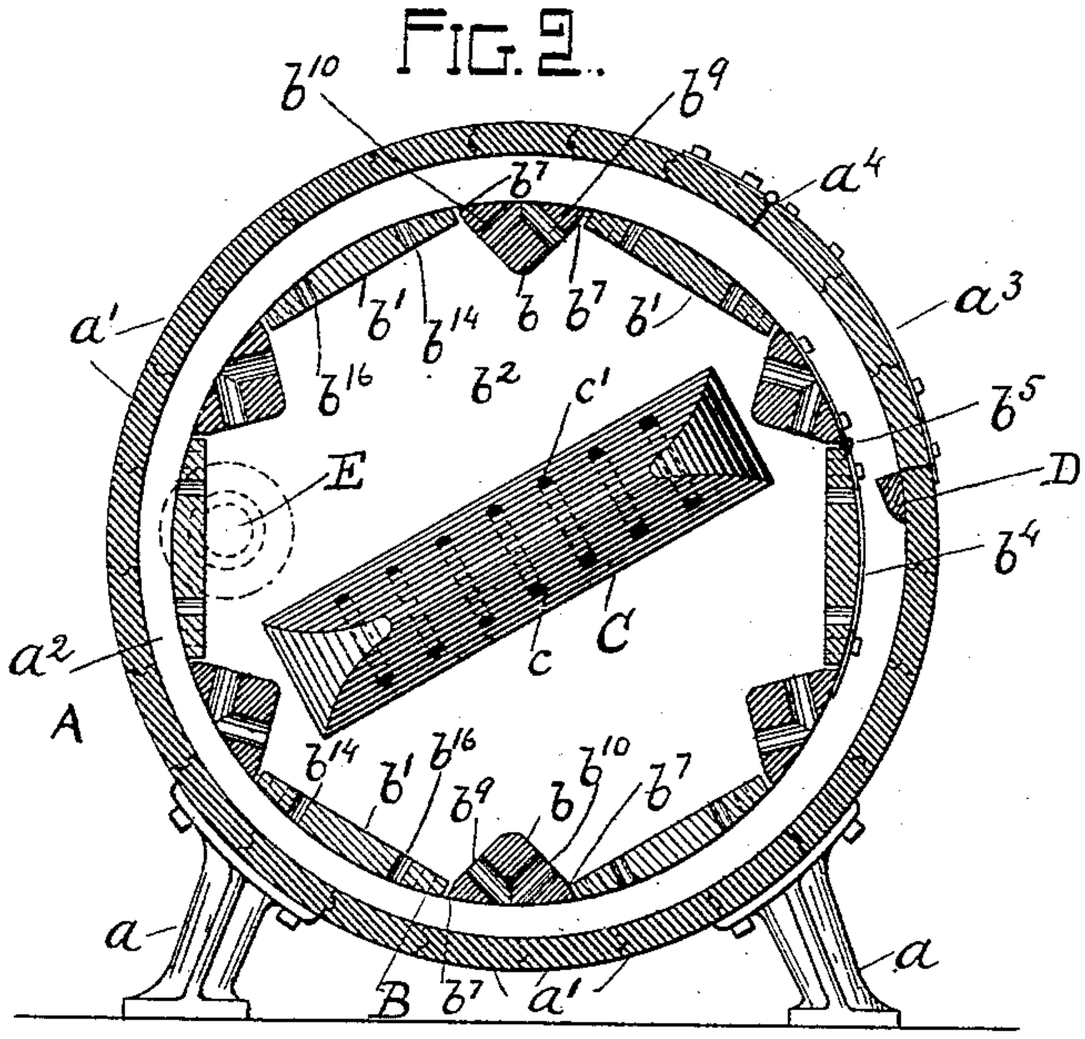


FIG. 2.



WITNESSES

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JOSEPH H. THERIEN, OF SAN FRANCISCO, CALIFORNIA.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 620,552, dated February 28, 1899.

Application filed May 27, 1896. Serial No. 593,339. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. THERIEN, of the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification.

The object of this invention is to provide an improved machine by means of which the washing of clothes may be done better and quicker than has ever been accomplished heretofore.

In the drawings hereto annexed, which form part of this specification and in which like letters of reference indicate like parts, Figure 1 is a longitudinal sectional elevation of my said machine, and Fig. 2 a vertical cross-section of the same.

The letter A represents a closed tub or outer cylinder, which rests on legs a and is composed of tongued-and-grooved staves a', bound together by suitable hoops and fastened to heads a^2. Access is had to the interior of this tub through a door a^3, cut into one of its sides near the top and hinged at a^4, so as to shut downward.

Within the tub A is mounted a rotary washing cylinder or drum B, consisting of an endless series of perforated wooden bars b and perforated boards b', alternately laid between heads b^2, to the periphery of which their ends b^3 are nailed. In the machine presently illustrated there are six bars and six boards thus assembled in one series, forming in all twelve sections, including a door b^4, which is made of a single board hinged to one of the adjoining bars, as at b^5. These bars and boards are closely set together, only a small space being left between each, chiefly to allow for the swelling of the wood caused by the water used in washing. The cylinder thus composed is suspended and adapted to rotate upon flanged shafts b^6, affixed to its heads b^2 and fitted in boxes a^5, passed through the heads a^2 of the outer cylinder. By preference the boxes a^5 are located below and somewhat to the rear of the center of the heads a^2, so that the washing-cylinder will be hung below the center of the tub and more in back than in front, as represented.

The object in having the washing-cylinder suspended below the center of the tub is to prevent the water and especially the suds from running up too high between them and reaching the outer door of the machine. If the washing-cylinder be placed, for instance, one inch from the bottom of the tub and three inches from the top, the space between the two will gradually increase in an upward direction on both sides, so that the water in the tub will spread out more and meet more air resistance as it is moved up by the turning of the cylinder and the agitation of its contents, and consequently will not rise so much. The idea in having the inner cylinder hung more in the back is to favor the front part of the machine. The back is closed and it matters not so much if the water is raised somewhat higher there, whereas in front it is important not to have the water and suds come up to the outer door. Having a wider space in the front than there is left at the back between the rotary cylinder and the tub more effectually prevents the water and suds from thus rising to the outer door. Besides having the inner cylinder hung as described offers some other practical advantages when opening the machine for repairs.

The bars b aforesaid are made of triangular pieces having two equal sides joined at a right angle, which is slightly rounded and turned toward the center of the cylinder B, the longest side of each triangle facing outward, where it is rounded off on a regular curve. These bars are cut away at their outer edges b^7 b^7 to render them parallel with the adjacent edges of the boards between which they are fitted. They project inward considerably from the boards adjoining them, being more than double their thickness, except at the ends b^8 b^8, where they are chamfered to have them recede from the heads b^2. The perforations in the bars b are all eccentrical, each bar having rows of alternate holes b^9 b^{10} b^{11} b^{12}, bored at right angles through its equal sides. The holes b^9 b^{10} are in the middle of the bars on their respective side and meet on the outside, as shown. The holes b^{11} b^{12} are about one-fourth less in size than the holes b^9 b^{10} and located between the latter and the lower edges of the bars, as represented at Fig. 1.

The boards b' are segmental in cross-sec-

tion and laid with their convex side outward—that is to say, they are rounded to conform with the outside of the adjoining bars *b* and the general outline of the washing-cylinder, of which they form part, while their inner surface is flat or tangent to a circle described within said cylinder and concentrical therewith. In other words, their inner surface is normal to the radius of the washing-drum. They are about twice as wide as the bars *b* and, like them, are perforated eccentrically, having rows of alternate holes b^{13} b^{14} b^{15} b^{16} bored in each of their sides at right angles to their flat surface. Their center is left imperforate.

C C represent cross-bars, one of which is placed upon each of the heads b^2 of the washing-cylinder in a central position on the inside. These cross-bars are shaped substantially like the bars *b*, having two equal sides faced inward, a rounded central edge, and chamfered ends, but they are shorter and perforated only through the center of their equal sides, as at *c c'*, the holes *c c'* communicating with each other. The bars C C cover about two-thirds of the diameter of the heads b^2 and are designed so as to dislodge the clothes that tend to remain at the ends of the washing-cylinder and which otherwise would merely turn upon the center of its heads without changing their position.

D is a light bar placed lengthwise of the machine at the lower edge of the door a^3 inside the tub A. This bar partly fills the vacant space between the tub and the washing-cylinder at that point and prevents the clothes from accidentally falling between them. It also helps to check the rise of the water or suds toward the outer door while the machine is at work.

The water to wash with is poured into the machine through a suitable inlet-pipe, as at E, and drained off through an outlet F, controlled by a valve or gate *f*.

The machine above described is designed to be operated especially as a reversible washer, and I have therefore provided it with a reversing-gear G, as illustrated. The details of construction of this reversing mechanism will not, however, be given herein, but are to form the subject-matter of another application for patent.

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

1. A washing-machine consisting of an outer closed casing, an inner washing-cylinder comprising closed heads journaled in the casing, a series of segmental-shaped boards having their flat faces presented inward, their ends secured to the heads, and having a series of perforations adjacent their edges, and a series of substantially right-angled bars interposed between the edges of the boards, secured to the heads and having two rows of inclined perforations leading from their inclined faces to their outer faces, the outer faces of the bars being substantially in line with the outer faces of the boards, substantially as described.

2. A washing-machine consisting of an outer closed casing, an inner washing-cylinder comprising heads, a series of segmental-shaped boards having their flat faces arranged inward, their ends secured to the heads, and a series of perforations adjacent their edges, a series of substantially right-angled bars interposed between the edges of the boards, secured to the heads and having rows of inclined perforations leading from their inner faces through their outer faces, and substantially right-angled bars on the heads extending across the center thereof, substantially as described.

3. A washing-machine consisting of an outer closed casing, an inner cylinder comprising closed heads, a series of segmental-shaped boards having their flat faces arranged inward, their ends secured to the peripheries of the heads and having a series of edge perforations, and a series of substantially right-angled bars having chamfered ends secured to the periphery of the heads and having a series of inclined perforations therein leading from the inclined sides through the outer face thereof, the outer faces of the bars being substantially in line with the outer faces of the boards, substantially as described.

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

J. H. THERIEN. [L. S.]

Witnesses:
A. H. STE. MARIE,
HENRY P. TRICOU.