

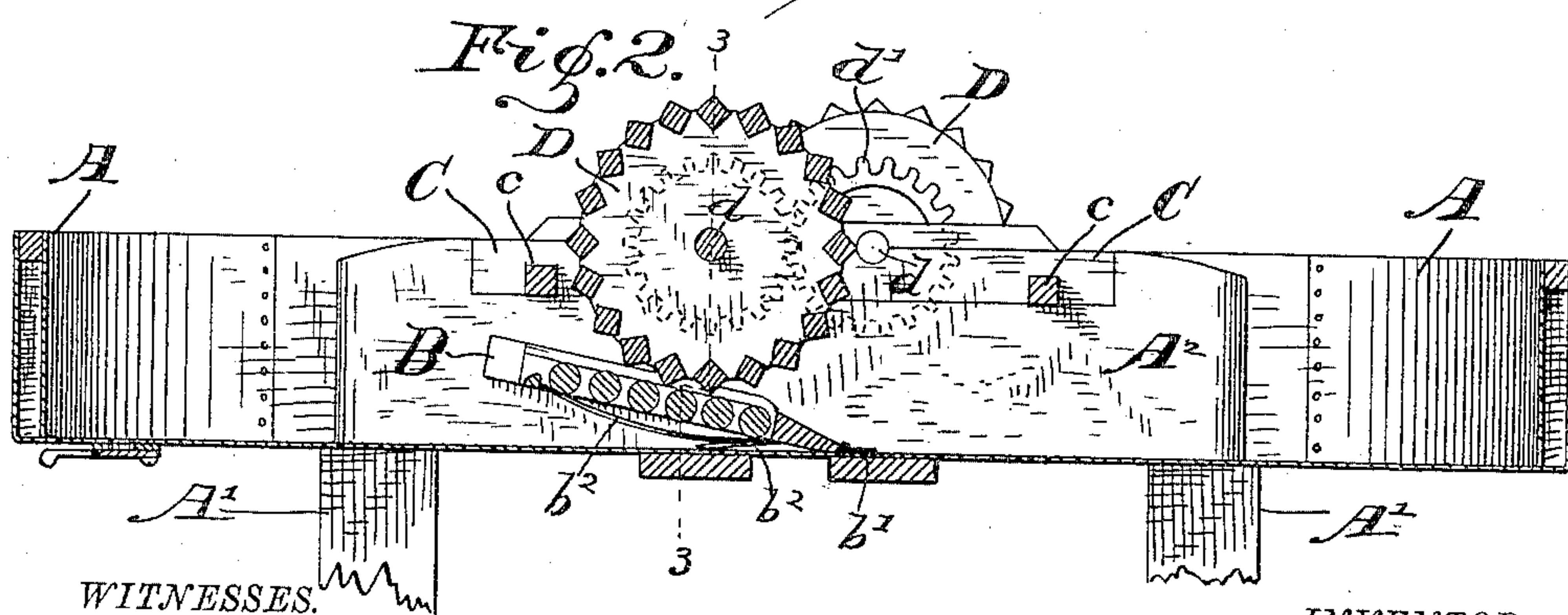
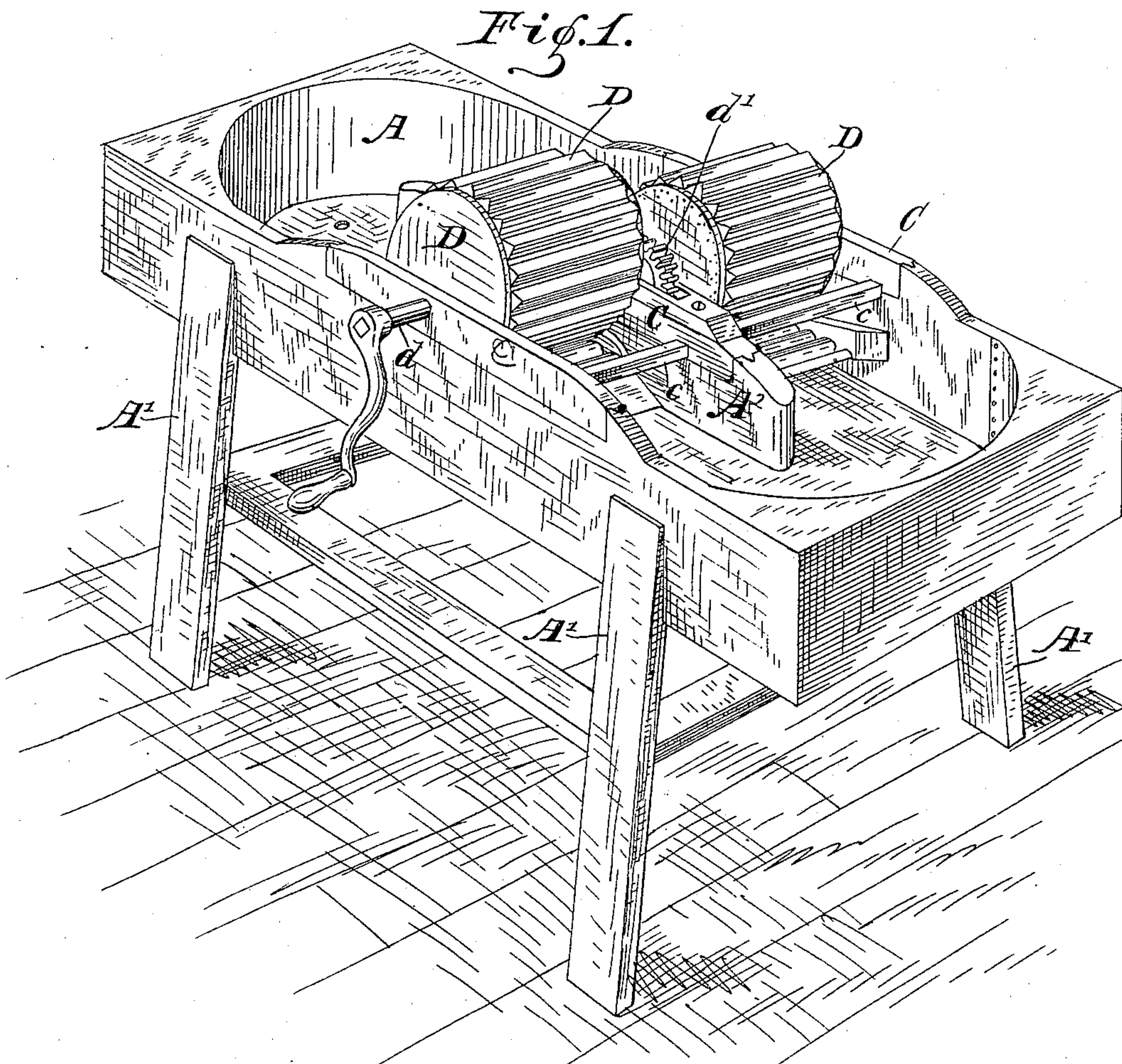
(No Model.)

2 Sheets—Sheet 1.

H. HAGGARD.  
WASHING MACHINE.

No. 387,069.

Patented July 31, 1888.



WITNESSES.

INVENTOR.

Cha<sup>s</sup> Leonard.  
Charles L. Thurber.

Harvey Haggard,  
PER C. E. W. Bradford,  
ATTORNEYS.



(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

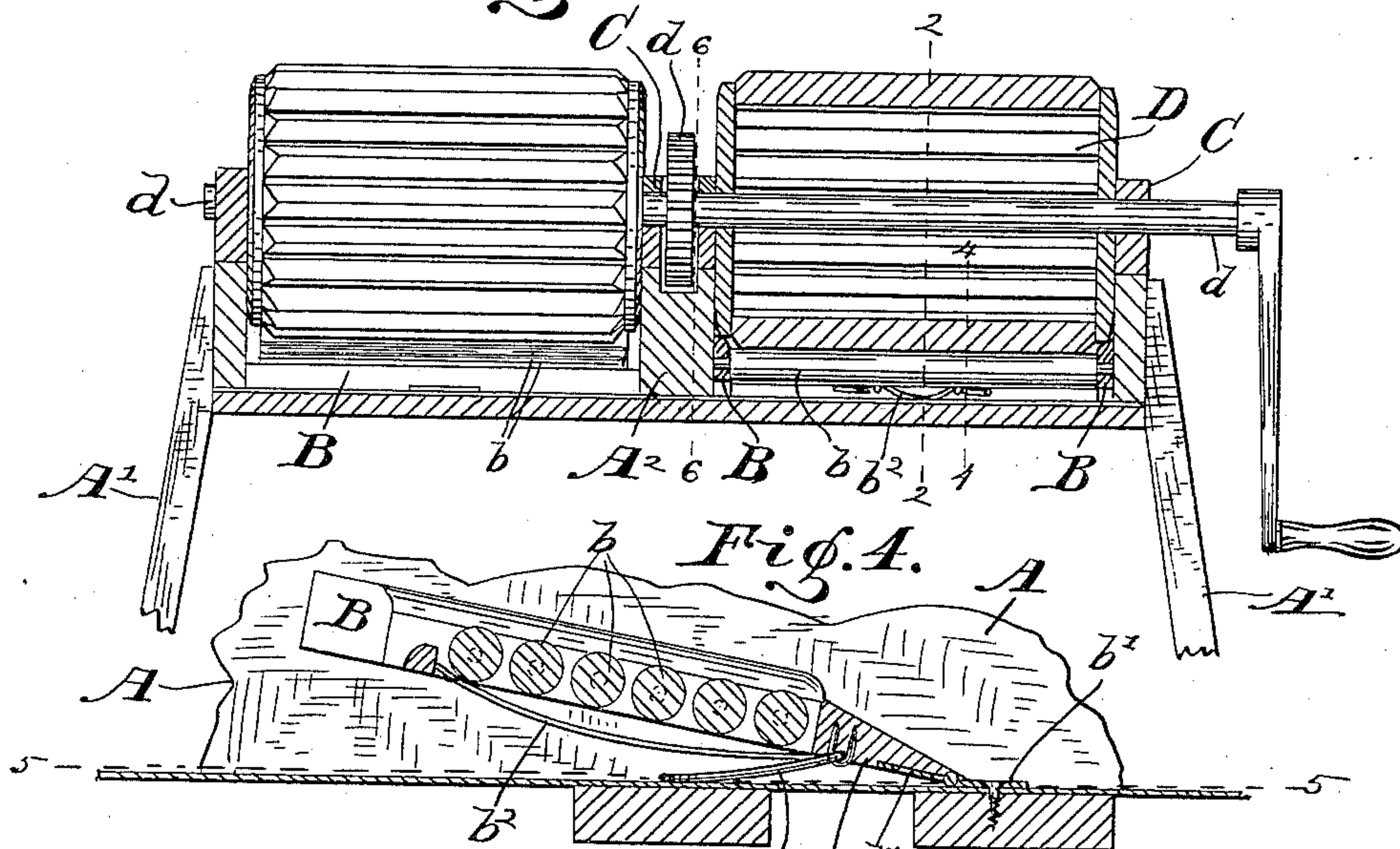


Fig. 4.

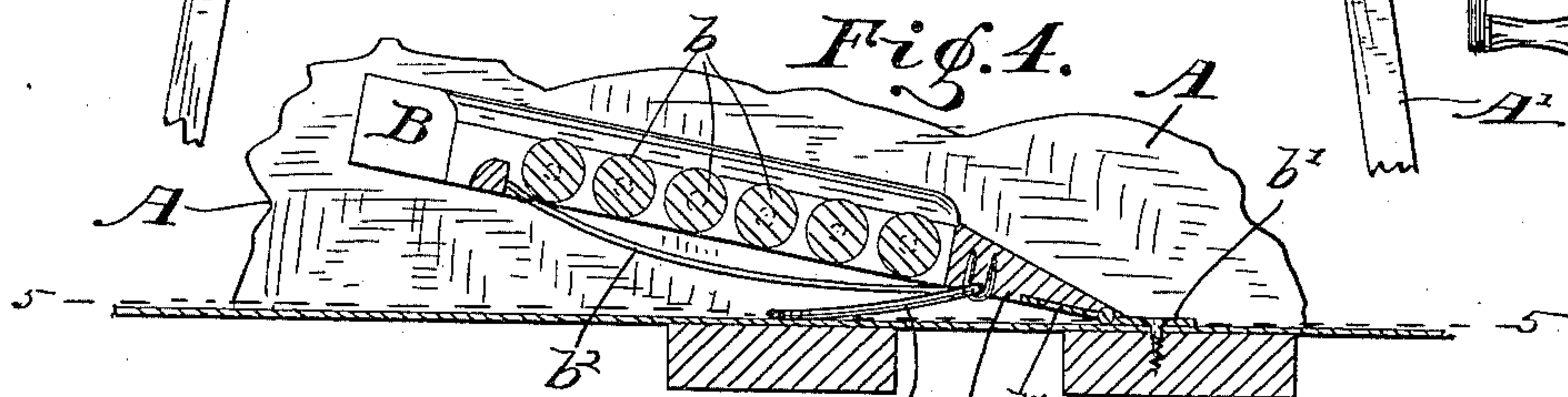


Fig. 5.

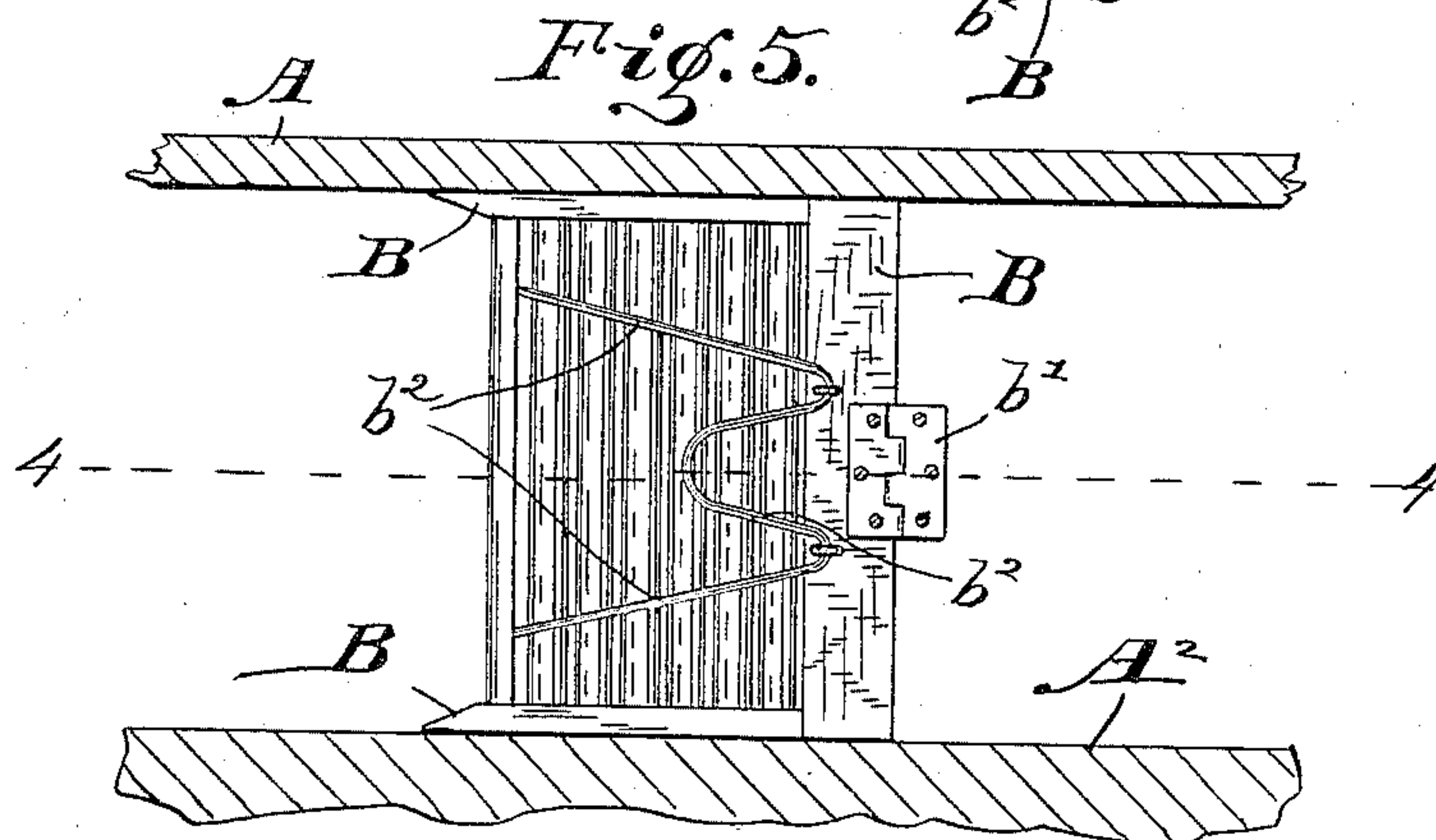
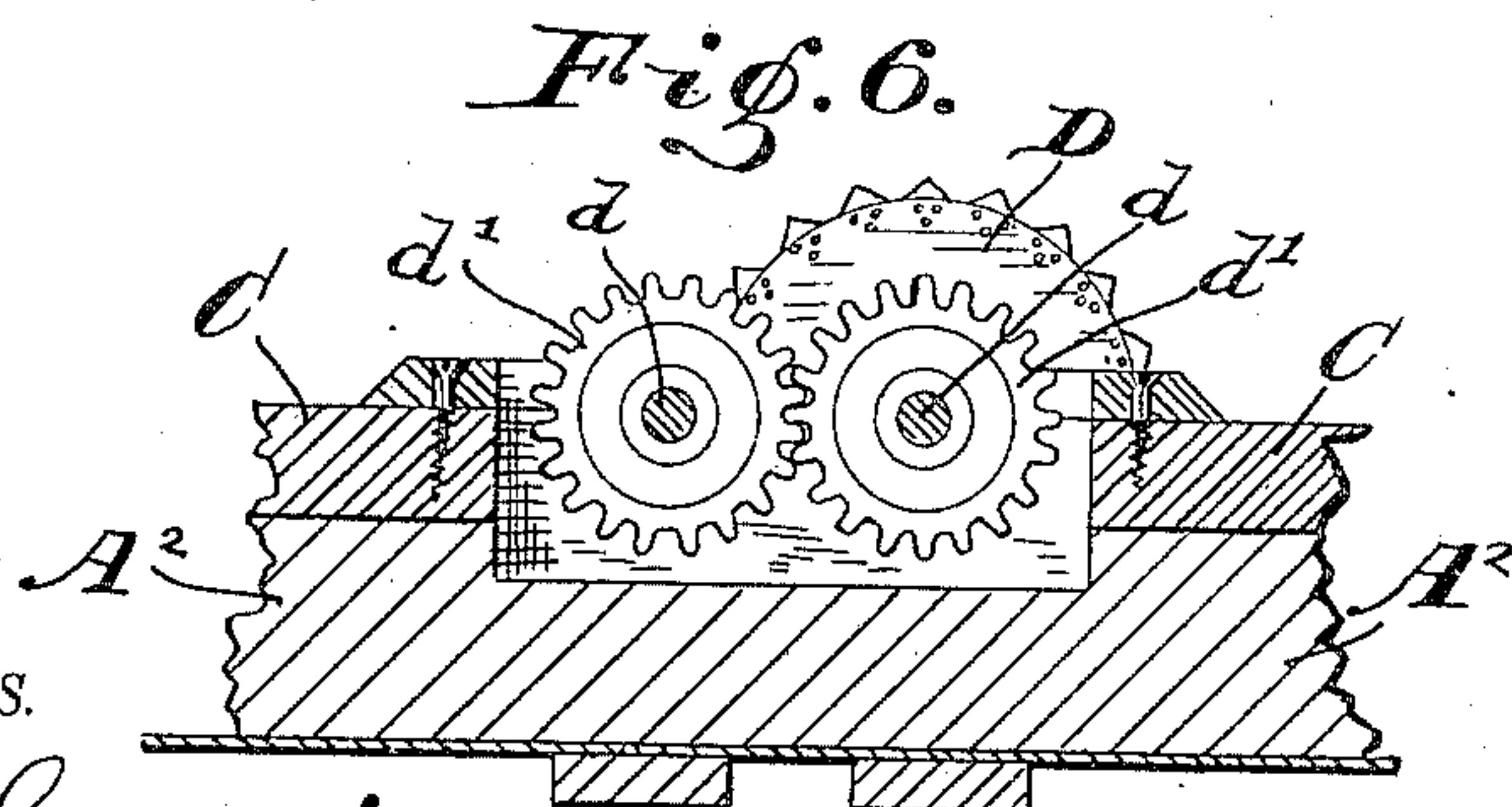


Fig. 6.



WITNESSES.

Cha<sup>s</sup> McLeonard.  
Charles L. Hunter.

INVENTOR.

Harvey Haggard.  
PER  
C. E. Bradford.

ATTORNEYS



# UNITED STATES PATENT OFFICE.

HARVEY HAGGARD, OF JACKSON, MORGAN COUNTY, INDIANA.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 387,069, dated July 31, 1888.

Application filed September 24, 1887. Serial No. 250,571. (No model.)

*To all whom it may concern:*

Be it known that I, HARVEY HAGGARD, a citizen of the United States, residing in Jackson township, in the county of Morgan and State of Indiana, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification.

My said invention consists in certain improvements in the construction and arrangement of the parts of washing-machines, whereby a very simple and durable washer is provided, and one which is very effective in operation, as will be hereinafter more particularly described.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a perspective view of one of my improved washing-machines; Fig. 2, a longitudinal section through the same on the dotted line 2 2 in Fig. 3; Fig. 3, a cross-section through the same on the dotted line 3 3 in Fig. 2; and Figs. 4, 5, and 6, views illustrating different details on an enlarged scale, which will be readily understood.

In said drawings, the portions marked A represent the tub of the machine; B, spring-mounted rubbing-boards mounted in the bottom of said tub; C, a frame-work carrying the rotary rubbers, and D said rotary rubbers.

The tub A is preferably a rectangular-shaped tub, its ends being formed circular on the inside, as shown, to more readily permit and assist in imparting a circular motion to the water and articles being washed, as will be presently more particularly described. Said tub is supported on suitable legs, A', suitably braced, as shown. In its center it is provided with a short partition, A<sup>2</sup>, extending about one-fourth the length of the tub on each side of said center longitudinally thereof.

The rubbing-boards B consist of a suitable rectangular frame, having rollers, b, journaled therein to roll freely in their bearings. They are mounted directly beneath the rotary rubbers D, being hinged to the bottom of the tub at one end by means of suitable hinges, b', and the other end being supported in an elevated position by means of springs b<sup>2</sup>, mounted on their under sides and bearing against the bottom of the tub, as shown. (See especially Figs.

2, 4, and 5.) One of these boards is mounted on each side of said central partition, A<sup>2</sup>, as shown. They are hinged at relatively opposite ends, and the hinged end of each board is formed inclined from the tub-bottom to permit the contents of the tub to freely slide up over said boards, as will be presently described.

The frame C consists of three short pieces mounted, respectively, on the top of the two side pieces of the tub and the central partition, A<sup>2</sup>, being secured thereon preferably by being "let down" into notches formed in the tops of said parts, and having ribs formed on the ends of said pieces engaging with vertical slots in the sides of said notches, as shown most plainly in Fig. 1. Said pieces are connected and secured together by cross-bars c, and have suitable journal-bearings formed therein, in which the journals of the rotary rubbers are mounted.

The rotary rubbers D consist of circular end pieces having square or "cornered" bars mounted around their periphery near to each other, forming in effect a fluted roller, the square corners being set outward, as shown. They are mounted on suitable shafts, d, in appropriate bearings in the frame C, the inner ends of their shafts being provided with intermeshing cog-wheels, d', the center piece of the frame C and the central partition, A<sup>2</sup>, being mortised to form a recess for their accommodation. On the end of the shaft of one of the rotary rubbers I provide a crank or other means for applying power to operate the machine.

The operation of my said invention is as follows: When it is desired to use the machine, the articles to be washed are placed in the tub, which is filled with water, the rotary rubbers are set in motion, the clothes to be washed being fed forward under that rubber which revolves in the right direction to carry them forward, and then fed back under the other rubber, the two rotary rubbers being adapted to revolve in opposite directions by reason of the intermeshing cog-wheels, as will be readily understood. Thus the entire contents of the tub, after passing around once or twice, acquires a circular motion of its own sufficient momentum to carry the clothes along through the desired course, necessitating but



little attention from the operator. Thus the clothes are continuously carried over the spring-boards B and under the rotary rubbers D, which operation soon accomplishes the desired result. Said spring-boards operate to always keep the clothes in contact with the rotary rubbers, and the rollers not only act to assist the rubbing and to maintain sufficient friction to cleanse the clothes, but they also serve to prevent any tearing or any undue wear, as their combined spring and rotary action makes the operation very easy on the articles to be operated upon.

While I have shown a crank as the means for applying driving-power, it will be readily understood that a band-wheel or other gear-wheel for connecting with any convenient power can be substituted when desired.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a washing-machine, of a tub having the rounded inner ends, two rotary rubbers mounted in said tub, one on each side thereof, and geared to revolve in op-

posite directions, and rubbing-boards mounted beneath said rotary rubbers, substantially as set forth.

2. In a washing machine, the combination of a tub provided with a central partition, A<sup>2</sup>, extending only a portion of its length, and spring-mounted rubbing-boards hinged at one end to the bottom of the tub arranged on each side of said partition, and rotary rubbers mounted on each side of said partition above said rubbing-boards and geared to run in opposite directions, substantially as set forth.

3. A washing-machine consisting of a tub, rubbing boards, and rotary rubbers mounted above said rubbing-boards and geared to revolve in opposite directions, substantially as described, and for the purposes specified.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 20th day of September, A. D. 1887.

HARVEY HAGGARD. [L. S.]

Witnesses:

E. W. BRADFORD,  
CHARLES L. THURBER.