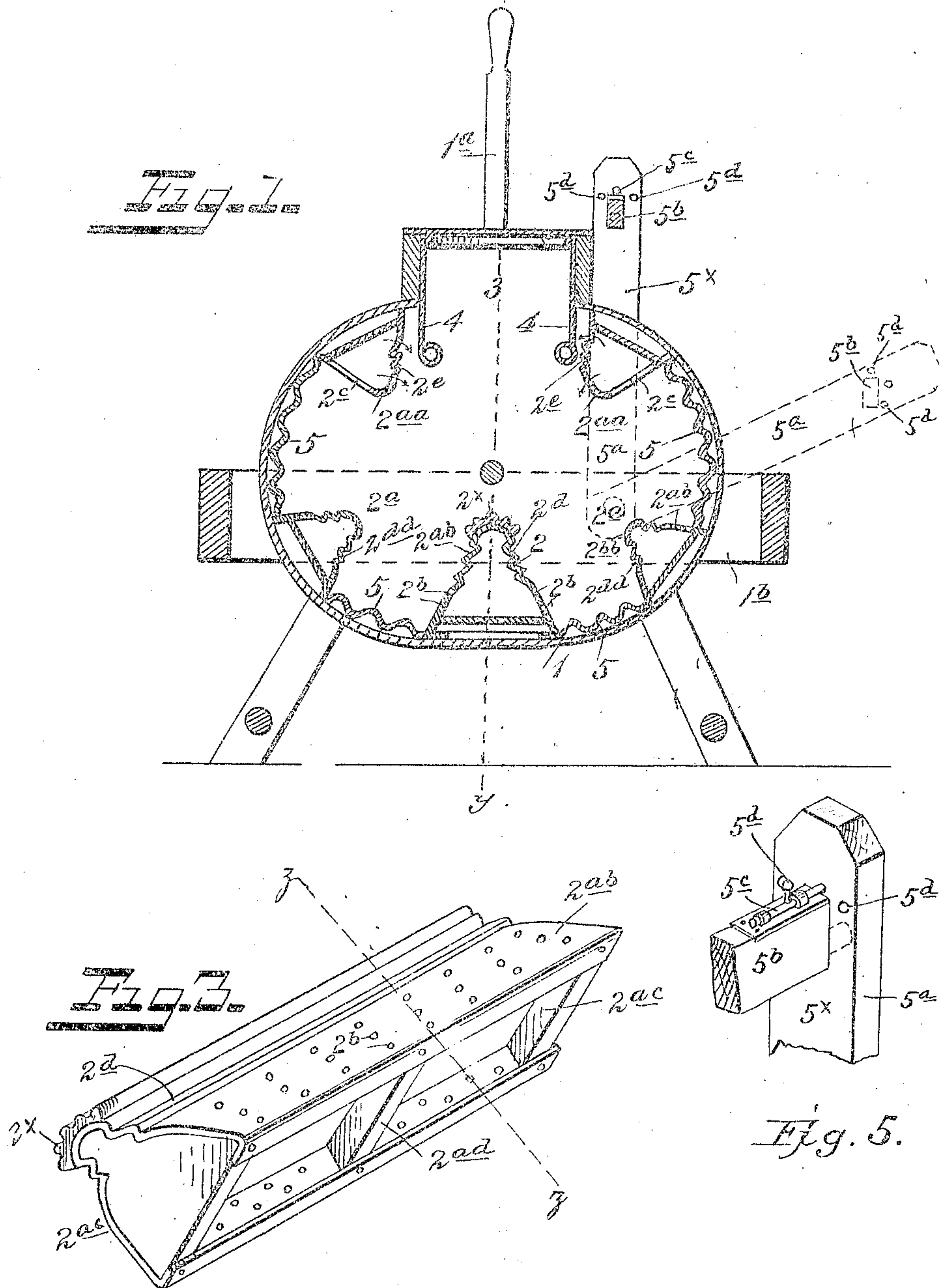


No. 821,850.

PATENTED MAY 29, 1906.

H. A. BIERLEY.  
WASHING MACHINE.  
APPLICATION FILED SEPT. 29, 1904.

2 SHEETS—SHEET 1.



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Inventor:  
*Henry A. Bierley,*  
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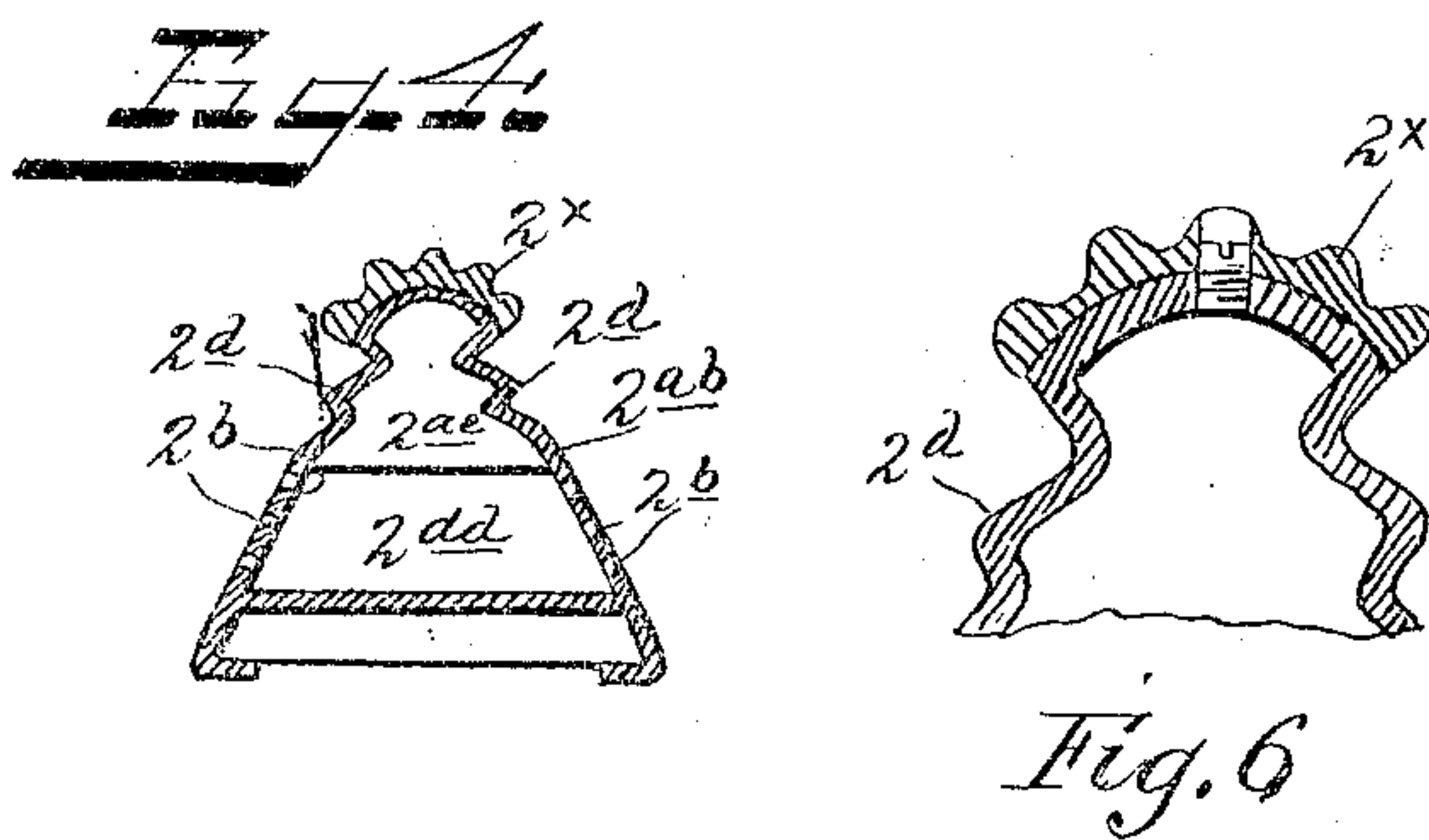
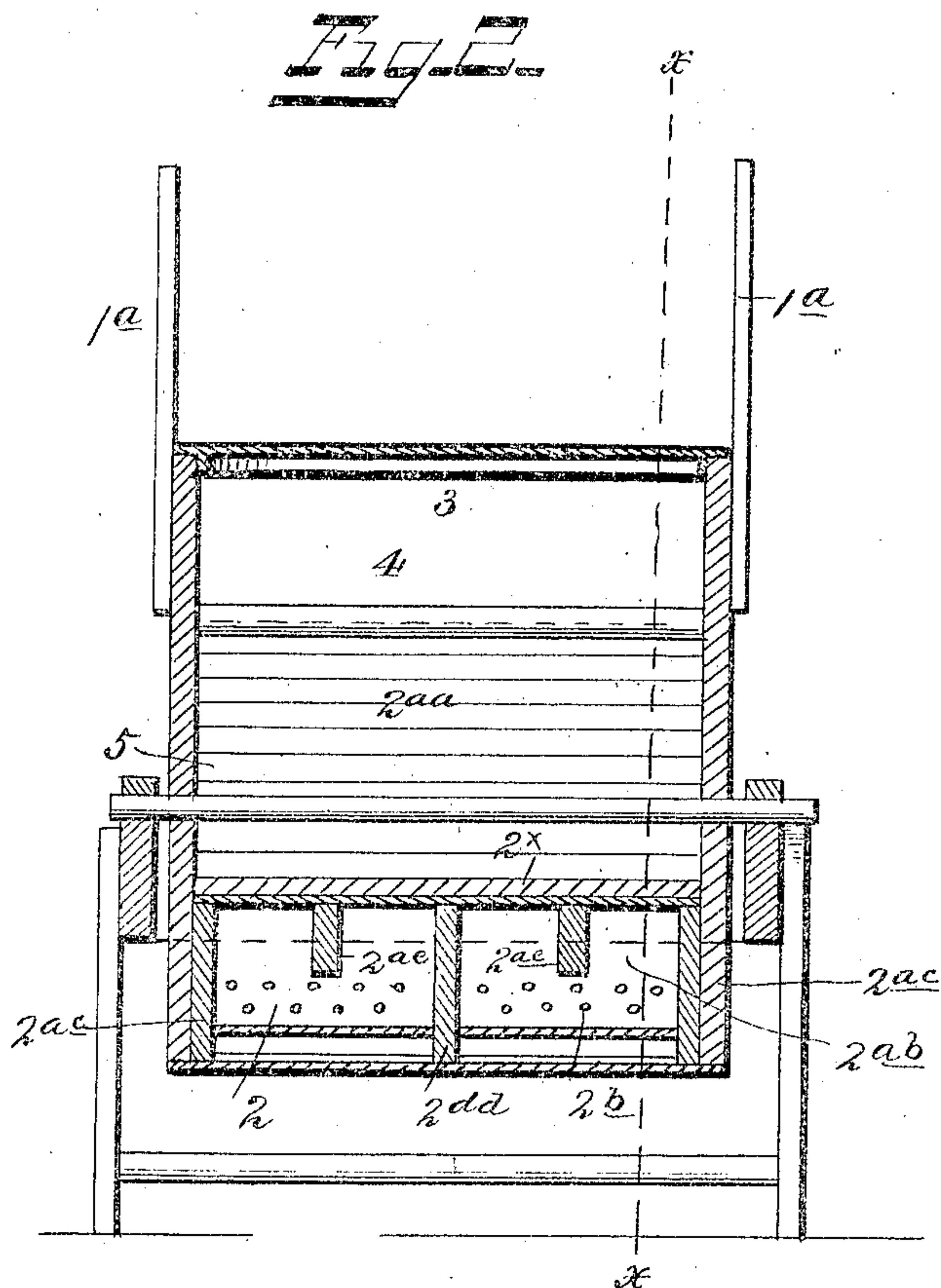
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2 SHEETS--SHEET 2.



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# UNITED STATES PATENT OFFICE.

HENRY A. BIERLEY, OF PORTSMOUTH, OHIO.

## WASHING-MACHINE.

No. 821,850.

Specification of Letters Patent.

Patented May 29, 1906.

Application filed September 29, 1904. Serial No. 226 466.

*To all whom it may concern:*

Be it known that I, HENRY A. BIERLEY, a citizen of the United States, residing at Portsmouth, in the county of Scioto and State of Ohio, have invented new and useful Improvements in Washing-Machines, of which the following is a specification.

The present invention relates to improvements upon my washing-machine as covered by Letters Patent dated July 26, 1904, and numbered 766,097.

Said improvements have for their object more especially to greatly increase the efficiency of the washing or cleansing operation both as to the rubbing action and the direct action of the water upon the clothes or fabrics and to effect this in a simple and expeditious manner.

To these ends said invention consists of certain detailed structural features, substantially as hereinafter fully disclosed, and specifically pointed out by the claims.

In the accompanying drawings, illustrating the preferred embodiment of my improvements, Figure 1 is a vertical section produced on the line *xx* of Fig. 2. Fig. 2 is a longitudinal section taken on the line *yy* of Fig. 1. Fig. 3 is a perspective view of the main rubber, and Fig. 4 is a cross-section thereof through the dotted line. Fig. 5 is a broken-away detailed perspective view upon a somewhat-enlarged scale, showing more fully the wringer-supporting bar or bracket. Fig. 6 is a vertical section produced through the central rubber, disclosing more especially its rub-bar means of fastening for rendering the rub-bar readily removable. In the carrying out of my improvements I construct the clothes receptacle or tub 1 in general outline preferably oval or elliptical in its vertical longitudinal section instead of circular or cylindric to provide, as in reciprocating or operating the same, for subjecting the fabrics to a proportionate increased rubbing action and to throw them with great force, especially against the main rubbers, as will presently more fully appear. Said receptacle suitably hung in position and having upstanding hand-bars 1<sup>a</sup> for its manual actuation, preferably as in said patent, has applied to its interior at suitable or equal intervals apart five (more or less) rubbers 2, 2<sup>a</sup>, and 2<sup>aa</sup>, each of general conical or tapering form and hollow or chambered, with their ends secured to the heads or sides of said receptacle, preferably by screws or like fastenings, the apices of said rubbers

being presented toward the center of said receptacle. In general, as thus far described, said rubbers, except as to arrangement and number, correspond to the rubbers 3 and 4, respectively, of said patent, the rubber 2, which I term the "main" rubber, being of somewhat greater dimensions than the rubbers 2<sup>a</sup> 2<sup>aa</sup>. These rubbers, however, while having their bottoms somewhat removed or distant from the opposite surface of the receptacle 1, as in said patent, are in communication with the interior of said receptacle, both the main rubber 2 and its more adjacent rubbers 2<sup>a</sup> having lateral perforations or apertures 2<sup>b</sup> and 2<sup>bb</sup>, respectively, to permit water to percolate through their walls and the other rubbers 2<sup>aa</sup> having each in its lower side or wall an opening 2<sup>c</sup>, extending nearly the entire length thereof, for the entrance of water to said rubbers.

Bodily the rubbers are formed each of a metal member or portion 2<sup>ab</sup>, within which are suitably secured transversely thereof two end pieces 2<sup>ac</sup>, a central piece or partition 2<sup>ad</sup>, each of the same depth as said metal portion, and two shorter pieces 2<sup>ae</sup>, strengthening or bracing the latter, said metal portion having its lateral bottom edges extended or tucked inward under and suitably secured to the lower edges of said transverse pieces 2<sup>ac</sup> and 2<sup>ad</sup>, still further strengthening or bracing the rubbers. The walls of both the rubbers 2 and 2<sup>a</sup> are longitudinally corrugated, as at 2<sup>d</sup> and 2<sup>dd</sup>, respectively, being in this respect the same as the corresponding rubbers in said patent, while the relatively upper wall of each of the rubbers 2<sup>aa</sup> is similarly corrugated, as at 2<sup>e</sup>, for effectively acting upon the fabrics as the receptacle carrying said rubbers is reciprocated.

It will be noted that with the lower sides of the rubbers substantially entirely open the water passing or surging thereinto will by its momentum be forced back out of said rubbers during the actuation of the receptacle, and thus be discharged therefrom with considerable force upon and aid to effectively cleanse the fabrics. A readily-removable longitudinally-corrugated rub-bar 2<sup>x</sup>, having its inner surface conforming to the apex or tapering portion of the rubber 2, is applied to the latter and forms a continuation of the corresponding rubbing-surface thereof, said rub-bar being screwed or otherwise suitably secured to said rubber. This rub-bar has the advantage of being adapted to be removed



from the rubber, as when its usefulness has been exhausted, and of being replaced by a new or effective rub-bar and the same rubber still be retained for use.

5 Alongside of the entrance-opening 3 and depending within the receptacle 1 a suitable distance are suitably secured to said receptacle opposite deflectors or guards 4, in this instance having their lower end terminals pre-  
 10 sented oppositely to that of the corresponding parts in said patent to guard said entrance-opening as against the water splashing therethrough out upon the floor, as will be readily understood.

15 Intermediately of the various rubbers the interior surface of the receptacle 1 has suitably secured thereto a corrugated metal lining 5, forming rubbing-surfaces to aid the cleansing or washing operation.

20 A suitable wringer-holder comprising a frame 5<sup>x</sup> has the normally lower or inner ends of its lateral bars 5<sup>a</sup> pivoted to and within the fabrics-receptacle-supporting frame 1<sup>b</sup>, later-  
 25 ally of said receptacle. The upper cross-bar 5<sup>b</sup> of the frame 5<sup>x</sup> is pivotally connected to and arranged between said lateral bars 5<sup>a</sup>, preferably a short distance inward from the upper or outer ends of the latter, so as to permit said cross-bar to have axial movement or  
 30 be turned, as is obvious. The purpose of this arrangement, it will be noted, is to permit by suitably manipulating the cross-bar 5<sup>b</sup> by hand the wringer in practice applied there-  
 35 to to stand in its normal position whether said frame be moved into either of its inclined positions, as indicated by full and dotted lines, as in providing for effecting the wringing operation with relation to the machine or from one tub to another suitably dis-  
 40 posed upon the floor or surface, as is apparent. The axially-movable cross-bar 5<sup>b</sup> is provided with suitable sliding bolts 5<sup>c</sup>, ap-

plied to its upper surface and arranged so as to be moved or slid into suitable holes or keepers 5<sup>d</sup>, produced in the opposite sur-  
 45 faces of the lateral bars 5<sup>a</sup> of the frame 5 for effecting the holding of said cross-bar 5<sup>b</sup> in normal position when the wringer is in operative position.

Latitude, it will be understood, is allowed  
 50 as to details herein, which may be changed as circumstances may suggest without departing from the spirit of my invention.

I claim—

1. A washing-machine, having a main rub-  
 55 ber, whose lateral walls are provided with longitudinal corrugations, and a rub-bar having corresponding corrugations remov-  
 ably applied to said rubber.

2. A washing-machine, having arranged  
 60 therein at certain intervals apart a number of tapered rubbers, each having its tapered portion presented toward the center of the fabrics-chamber and having corrugated en-  
 65 gaging surfaces, the relatively centrally ar- ranged rubber having, in continuation of its lateral corrugated surface, a correspondingly-  
 corrugated rub-bar readily removed there- from.

3. A washing-machine having applied to  
 70 its clothes-receptacle support, a frame com- prising lateral bars pivotally connected to said support, a wringer-supporting cross-bar  
 75 pivoted to said lateral bars, and means upon said cross-bar and said lateral bars adapted  
 to hold a wringer substantially vertical.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY A. BIERLEY.

Witnesses:

JOHN M. PRESCOTT, Jr.,  
 MURRAY TUNPON.