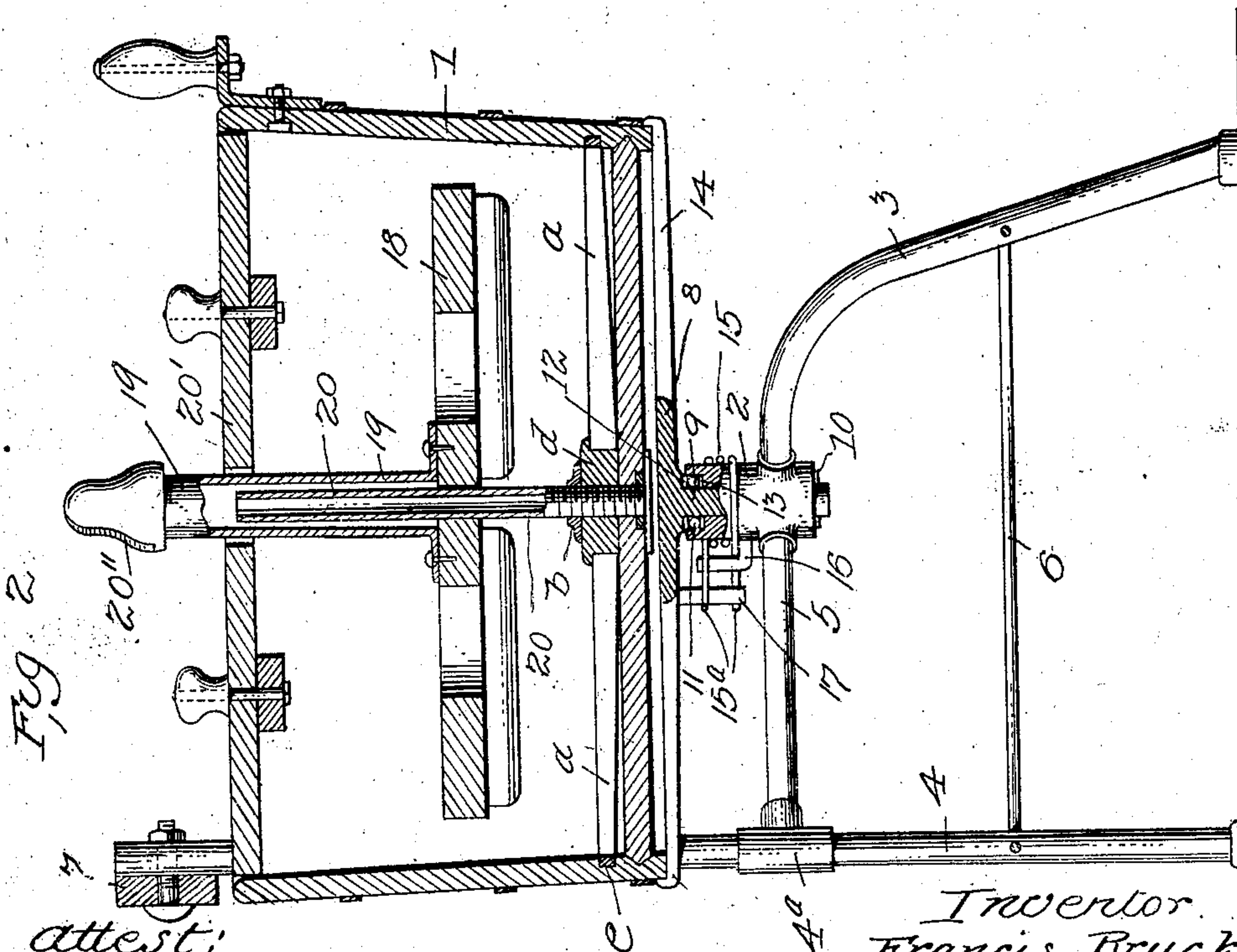
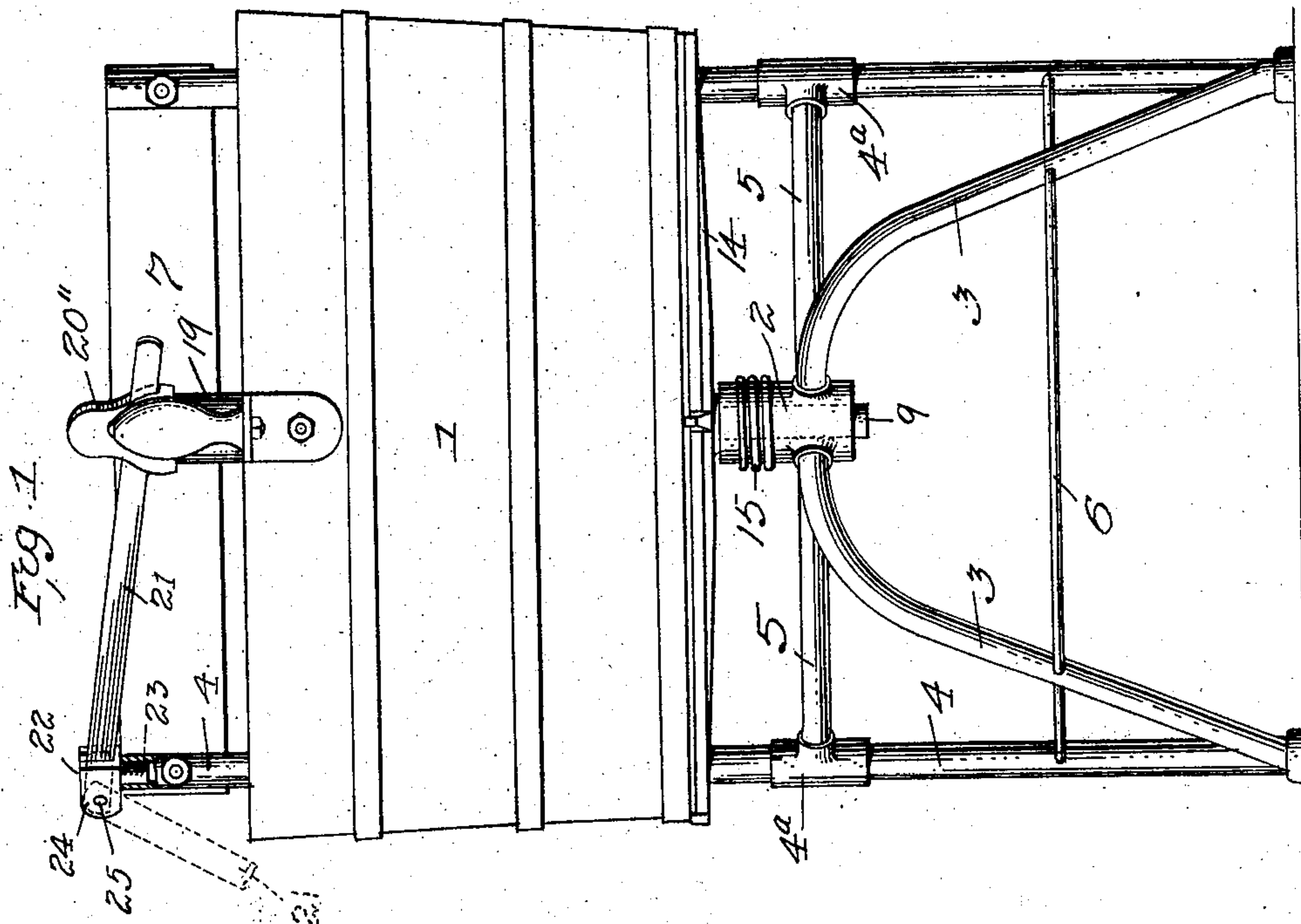


No. 827,140.

PATENTED JULY 31, 1906.

F. BRUCKER.  
WASHING MACHINE.  
APPLICATION FILED DEC. 29, 1904.

2 SHEETS—SHEET 1.



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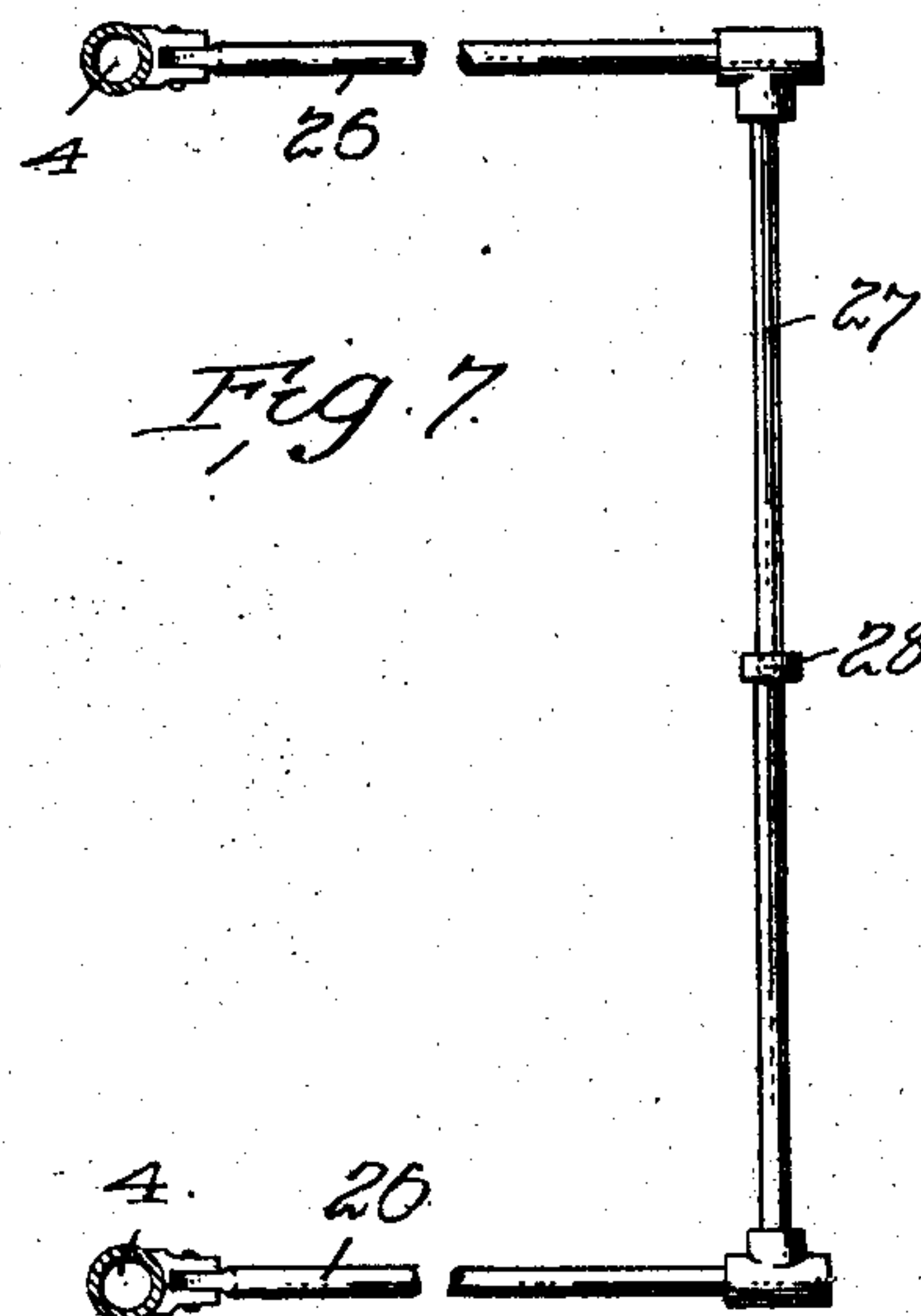
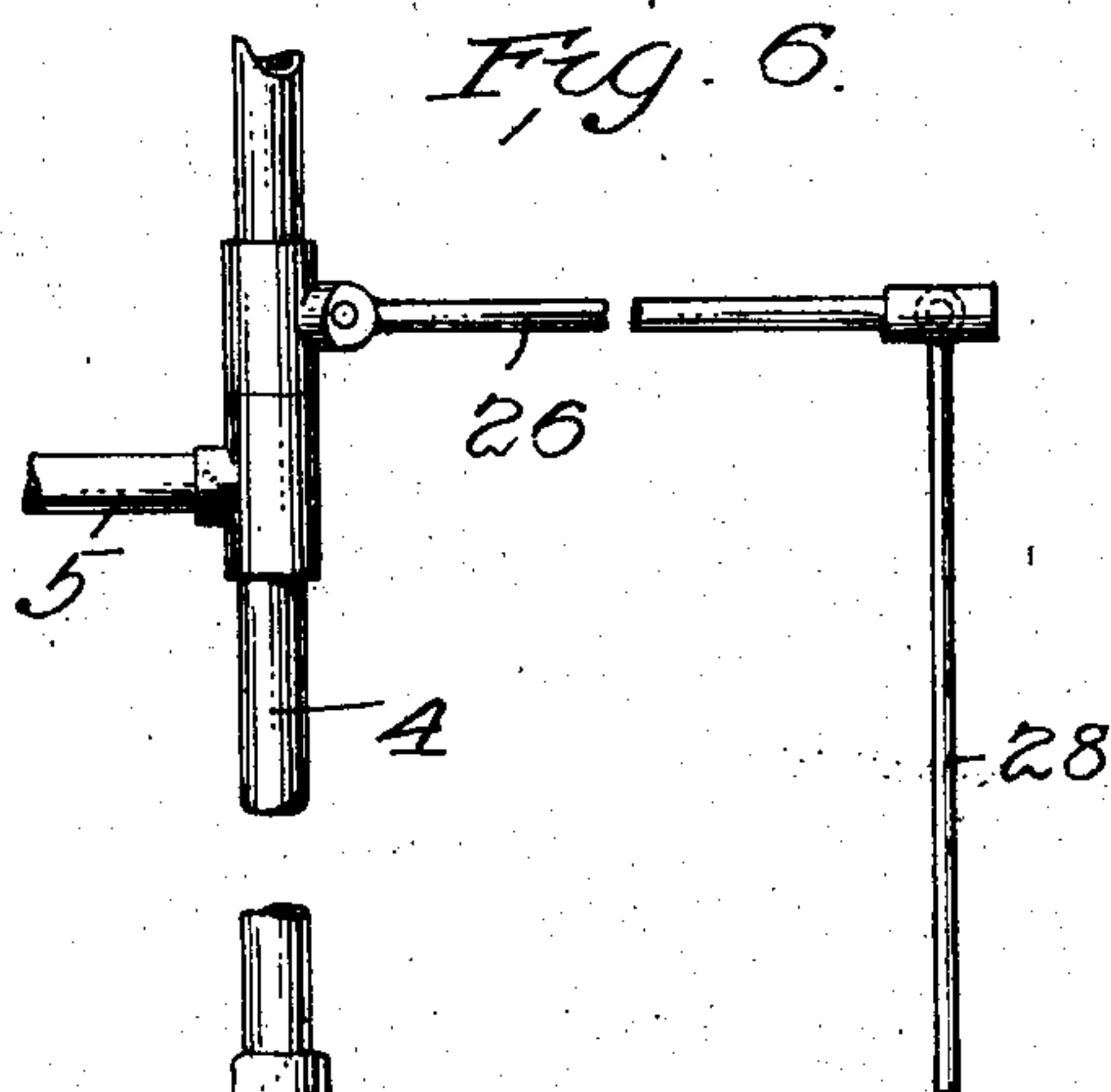
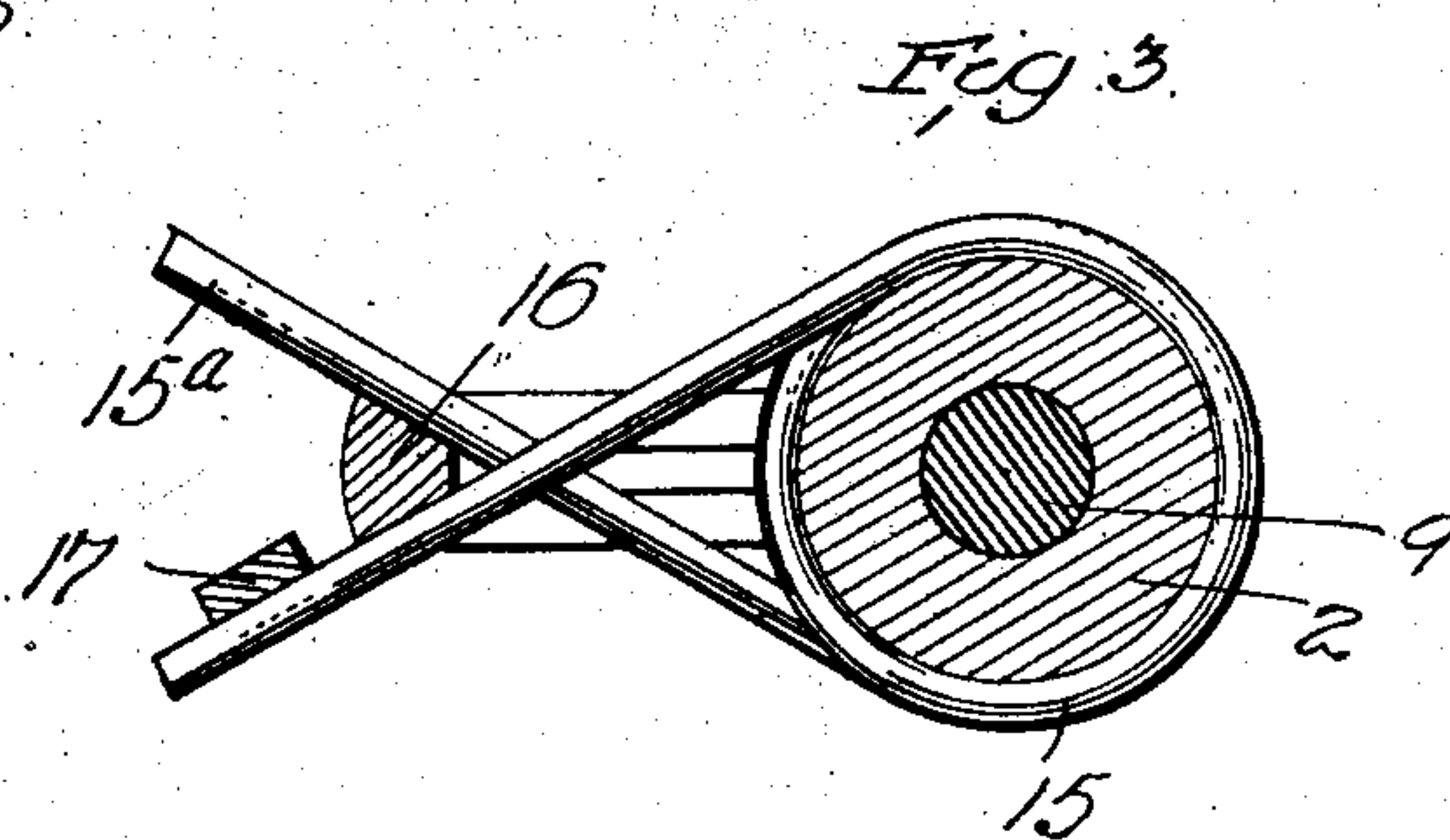
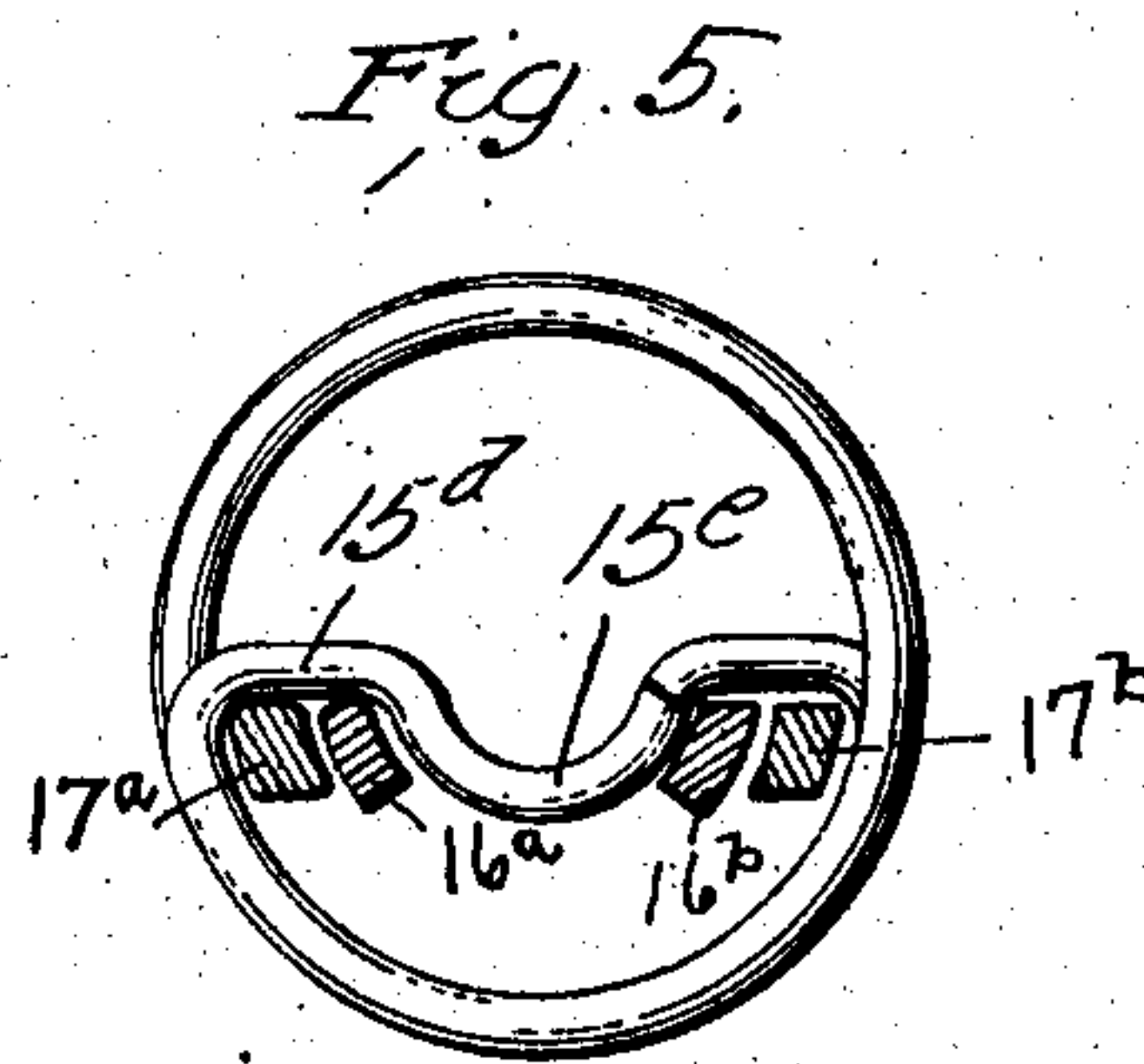
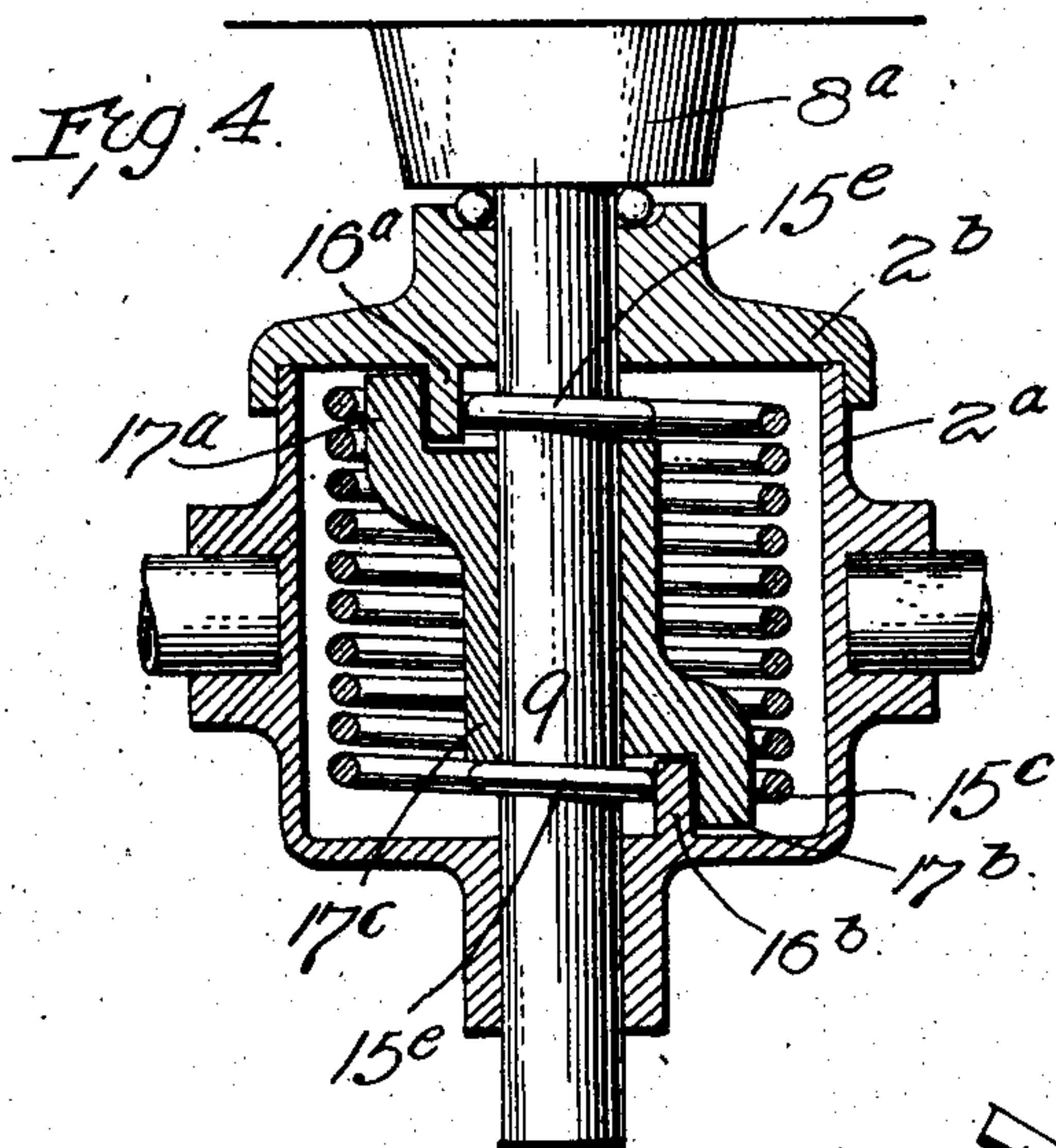
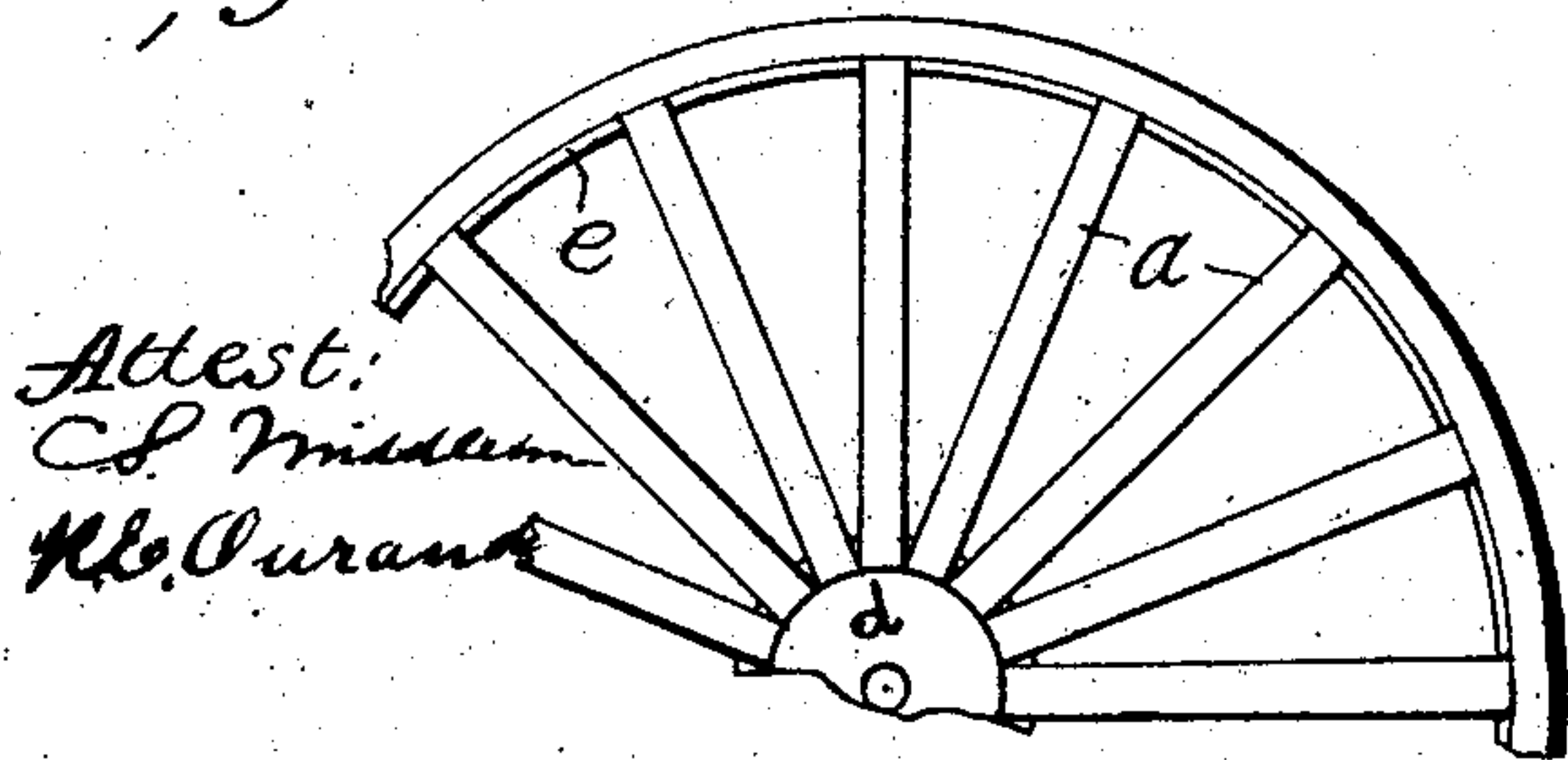


Fig. 2a



Inventor  
Francis Brucker  
By C. S. Middleton Notary Public



# UNITED STATES PATENT OFFICE.

FRANCIS BRUCKER, OF SHELBY, OHIO.

## WASHING-MACHINE.

No. 827,140.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed December 29, 1904. Serial No. 238,783.

*To all whom it may concern:*

Be it known that I, FRANCIS BRUCKER, a citizen of the United States, residing at Shelby, Ohio, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification.

My invention relates to improvements in washing-machines of that type in which a suitably-supported tub is rotated or oscillated by the operator and the clothes are subjected to the action of a rubber held within the tub against rotary movement.

I have aimed to provide a device of this character which shall be simple, strong, and durable, convenient of manipulation, and effective in operation.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation. Fig. 2 is a side elevation, partly in section. Fig. 2<sup>a</sup> is a partial plan view of the bottom of the tub looking downward. Fig. 3 is a detail plan of the spring. Fig. 4 is a sectional detail showing a modified form of spring and hub. Fig. 5 is a detail plan view of the spring of this form; and Figs. 6 and 7 are detail views in plan and side elevation, respectively, showing the attachment for a second tub.

In the drawings, the numeral 1 designates the tub, which is rotatably mounted in the manner hereinafter described upon the hub 2 of a stand or support. This stand or support I prefer to form in the manner shown in the drawings, in which four supporting members are used which are preferably of tubular form. Two of these supporting members or legs 3 are inclined toward the hub and curved inwardly at their upper ends, where they may be secured to the hub by a screw-thread connection or in any other suitable manner. The other two supporting members or standards 4 are located on a line outside of the periphery of the tub and extend vertically to a height somewhat above the top of the tub. They are connected to the hub by radial members 5, also of tubular construction, and are connected together and to the legs 3 by a single continuous rod 6, which is threaded through openings in the legs and standards. The standards, if desired, may be constructed each in two parts connected by a T-coupling 4<sup>a</sup>, to which coupling the corresponding arm 5 will also be connected. The standards at their upper ends are connected by a horizontal bar 7, which serves not only to further brace the

standard or support but also provides means by which the wringer-rolls may be secured in position. By this construction I provide an extremely simple, rigid, and durable frame. The continuous rod 6 serves as an effective brace for the supporting members, and by reason of its being a single rod threaded through the openings in the members no displacement or disconnection is possible.

I prefer to support the tub upon a spider, which consists of a plate or casting 8, having a spindle 9, passing down through the hub and held against being lifted out by a removable key 10. I preferably provide antifriction-balls 11 between a bearing-disk 12 on the under side of the plate and a corresponding bearing-surface 13 on the upper end of the hub. The plate 8 is preferably formed of cast-iron, so that the parts which are liable to break—to wit, the shaft or spindle 9 and the arms 14 of the spider—may be made of steel, and by being placed in the mold at the time of casting the plate 8 may be made practically integral therewith. These spider-arms are radially arranged and provided at their outer ends with retaining-lugs for engaging the outer periphery of the tub. A spring 15 encircles the hub, and I have found it extremely desirable to so arrange this and connect it with the supporting plate or spider that the movement of the tub in either direction from its neutral position will tend to wind up the spring. To provide for this, I cause the two ends 15<sup>a</sup> of the spring to cross each other and extend a lug or projection 16 from the hub between the crossed ends. A corresponding lug or projection 17 extends from the plate 8 between these crossed ends of the springs, but at a distance from the center differing from that of the lug 16, so as not to contact therewith. It will thus be seen that if the tub is rotated to the right, for instance, the lug 17 will bear against the right-hand end of the spring, while the other end will be held against rotation by the lug 16, and the spring will be wound up as the tub rotates in that direction. Conversely, if the tub is rotated to the left, the lug 17 will carry with it the left-hand end 15<sup>a</sup> of the spring, while the other end will be held against rotation by the lug 16, and the spring will again be wound up.

Instead of forming the hub in the manner just described and placing the spring upon the outer side of the same I may form the hub hollow, as shown at 2<sup>a</sup> in Fig. 4, and place the



spring 15<sup>c</sup> within the hub. In this event I place upon the upper end of the hub a cap 2<sup>b</sup>, upon which the spider part 8<sup>a</sup> rotates, this part 2<sup>b</sup> being secured to the hub 2<sup>a</sup>, so as to be non-rotatable. Lugs 16<sup>a</sup> and 16<sup>b</sup> project, respectively, from the cap 2<sup>b</sup> and the lower part of the hub or casing, while corresponding lugs 17<sup>a</sup> and 17<sup>b</sup>, carried by a sleeve 17<sup>c</sup> on the spindle 9, project, respectively, upward and downward into the same horizontal plane as the lugs 16<sup>a</sup> and 16<sup>b</sup>. The spring 15<sup>c</sup> at each end is provided with a portion 15<sup>d</sup>, which is brought inwardly across the faces of the pairs of lugs thus described and has a curved portion 15<sup>e</sup> partly encircling the spindle. From the arrangement described and illustrated it will be seen that the operation is precisely the same as in the form previously described. The rubber 18 is preferably provided with a tubular portion 19, extending up through the cover 20' of the tub, and this tubular portion may conveniently be guided or held in a central position by a vertical spindle 20, secured to the bottom of the tub. The upper end of the tubular portion 19 is provided with a bifurcation 20'', which is designed to be engaged by a pivoted arm 21. The opposite end of this arm 21 is pivoted in a forked bracket 22, which has a shank 23, secured in the upper end of one of the tubular standards. The fork portion is extended rearwardly of the standard, as shown at 24, and the pivot 25 of the arm is located in this laterally-extended portion, so that the arm may be swung over and dropped down out of the way in the position shown in dotted lines when the rubber and clothes are to be removed from the tub.

I deem it advisable to provide a stand for an auxiliary tub, and this is conveniently done by pivoting two members or bars 26 to the vertical standards at a suitable height, connecting their outer ends by a bar 27, to the center of which a leg 28 is pivotally connected, and thus the arms 26 may be swung up into a vertical position, the pivoted leg at the same time folding down, so that the supplemental stand may be folded in out of the way when not in use.

A very simple and effective manner of securing the ribs *a* in the tub is shown in Figs. 2 and 2<sup>a</sup>, which obviates nailing through the bottom of the tub or putting a false bottom in the tub with ribs fastened to it.

It will be noticed that an annular groove or recess is made in the staves of the tub on the inside near the bottom. This can be made so that the rubbing-ribs will be level on top, or they can be inclined, if it is desired, by placing the groove nearer or farther away from the bottom of the tub. It is of great

advantage to have a space between the ribs and the bottom of the tub to allow a free passage of water to assist in removing the dirt from the clothes during the rubbing process.

The rubbing-ribs *a* are placed in the proper position in the tub, with their outer ends in the groove, as shown, and spacing-pieces *c* are placed in the groove from one rib to the next to hold them the proper distance apart. At the center I provide a piece *d*, rabbeted out, as shown, lapping over the ends of the ribs secured to the bottom of the tub by the clamping-collar *b*, threaded on the rod 20, as shown, which holds all the inner ends of the ribs in their proper place and secures them to the bottom of the tub. Another advantage is the easy way of replacing the ribs should they become in any way defective. Nails in the bottom of the tub are objectionable, as they soon cause the wood to decay and in many cases cause the wood to split, causing a leak.

Having thus described my invention, what I claim is—

1. In a washing-machine, a rotary tub, a stand supporting the same and composed of tubular members, one of said members extending vertically to above the tub, a fork having its shank fitted in the end of said upwardly-extended member, said fork having its arms extended to the rear of the supporting member, an arm pivoted to said rearwardly-extended parts of the arms, and a rubber within the tub having a part adapted to be detachably engaged by said arm, substantially as described.

2. In a washing-machine, a stand having a hub, a tub-support rotatably carried thereby, a lug or projection extending upwardly at one side of the hub, a projection on the tub-support, and a helical spring encircling the hub and having its ends crossed and extending on opposite sides of said projections, substantially as described.

3. In a washing-machine, the combination with the stand and tub rotatably mounted thereon, said stand having a vertical member extending above the top of the tub, of a cover for said tub, having a central opening, a rubber having a tubular spindle projecting through said opening, a guide-rod extending from the bottom of the tub up within said spindle, and an arm pivotally connected to said vertical member and detachably engaging said spindle, substantially as described.

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

FRANCIS BRUCKER.

Witnesses:

JOHN A. BUSHEY,  
ABRAHAM L. STUMF.