

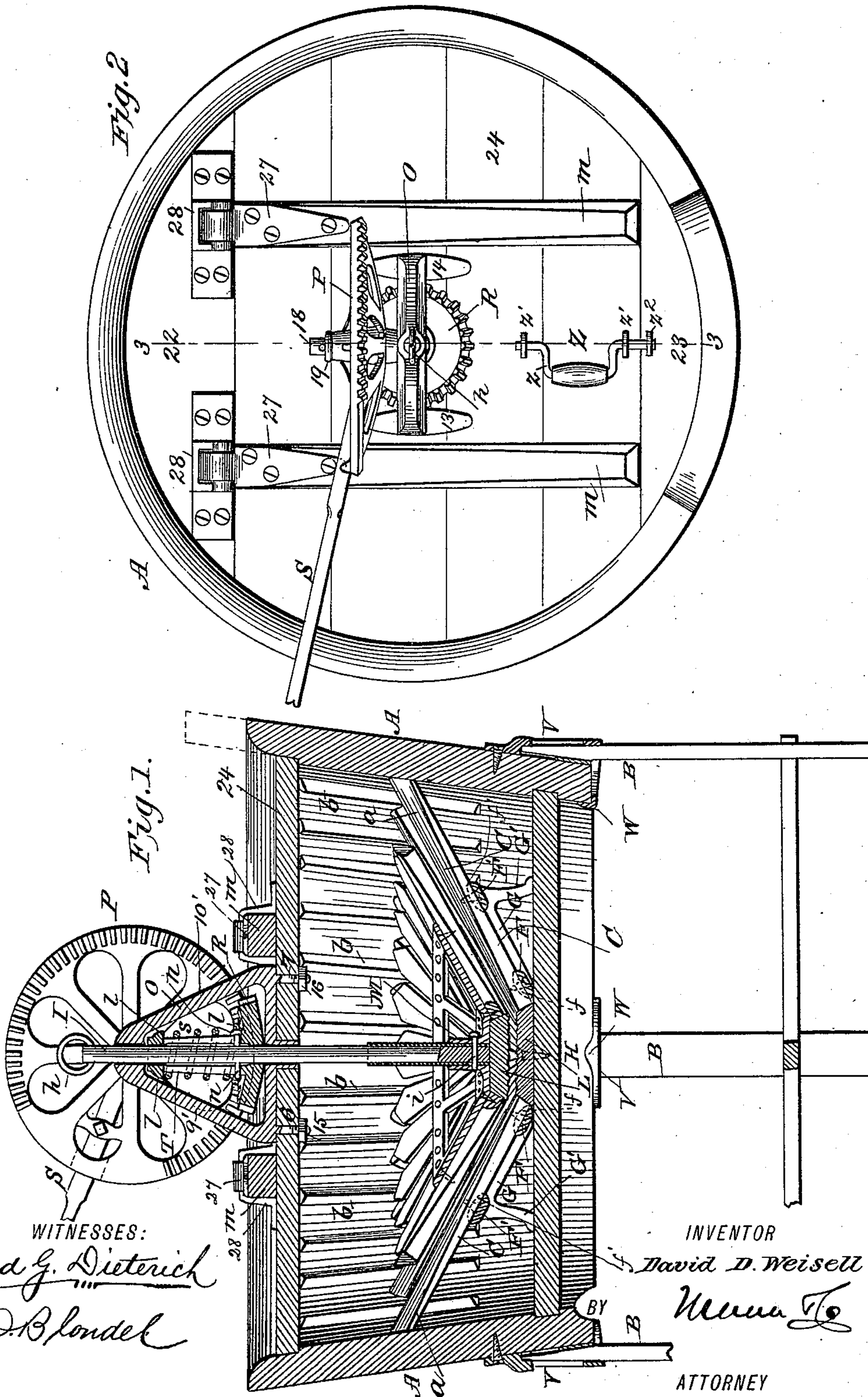
(No Model.)

3 Sheets—Sheet 1.

D. D. WEISELL.
WASHING MACHINE.

No. 441,523.

Patented Nov. 25, 1890.



(No Model.)

3 Sheets—Sheet 2.

D. D. WEISELL.
WASHING MACHINE.

No. 441,523.

Patented Nov. 25, 1890.

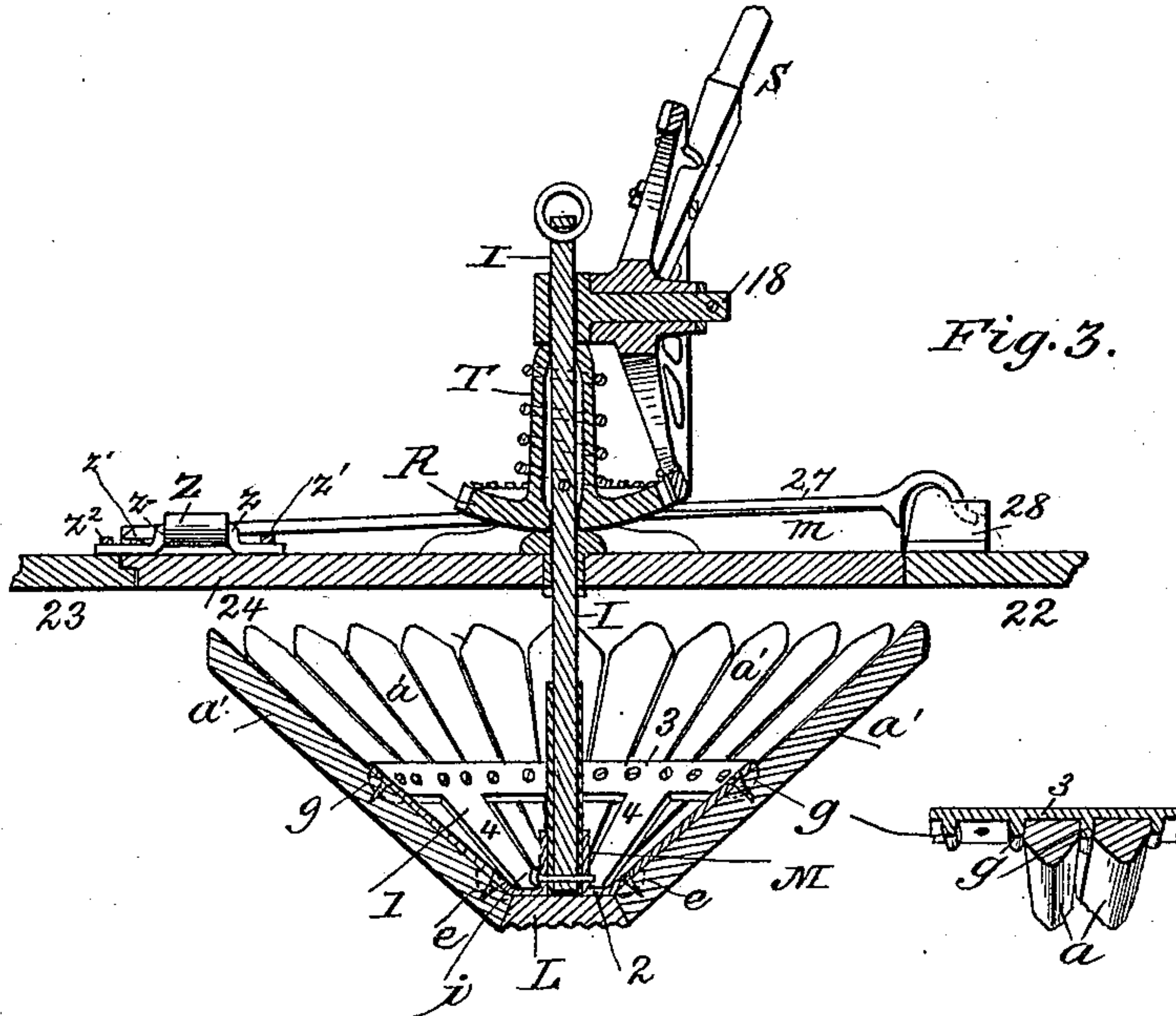


Fig. 3.

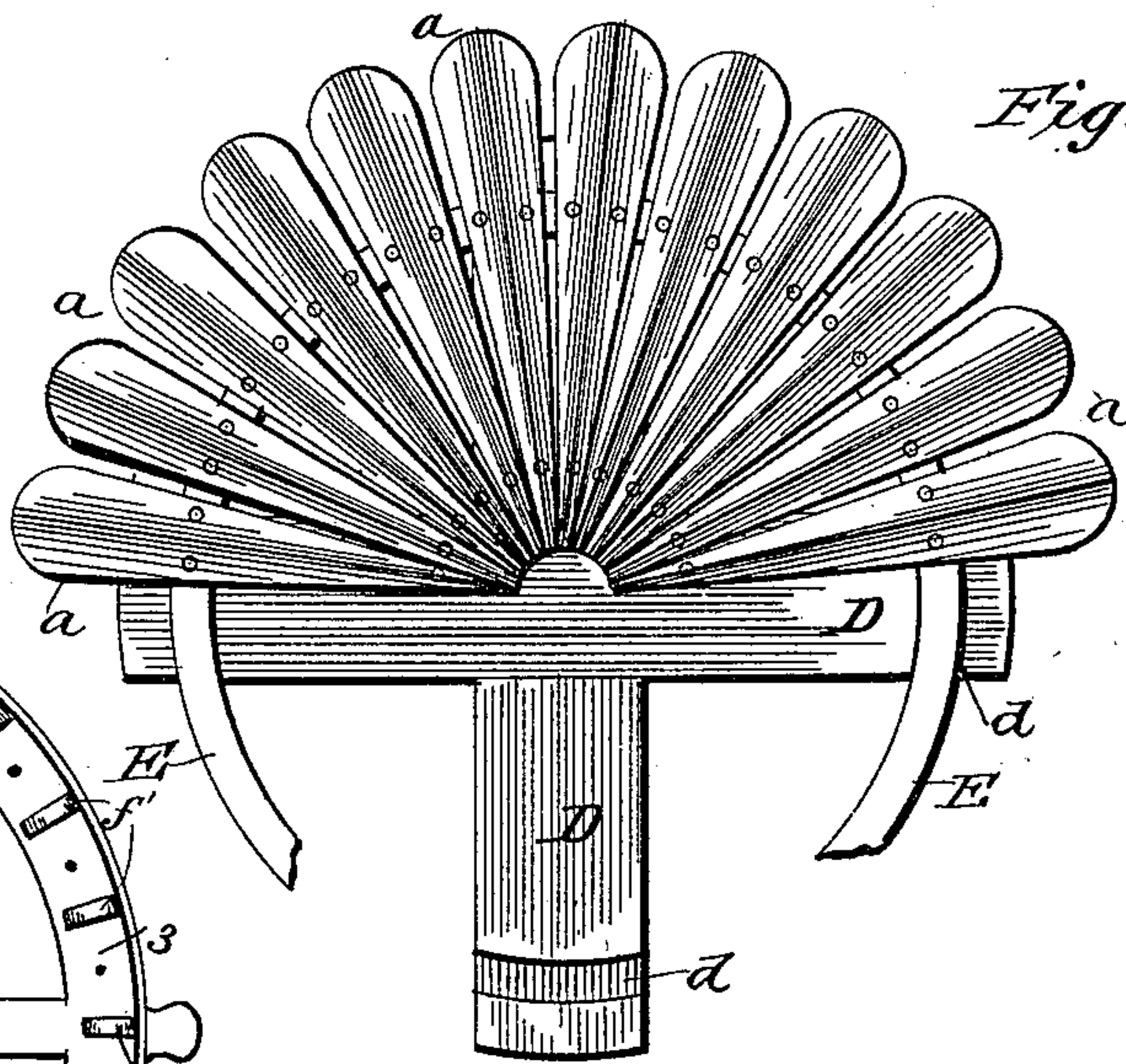


Fig. 4.

Fig. 8.

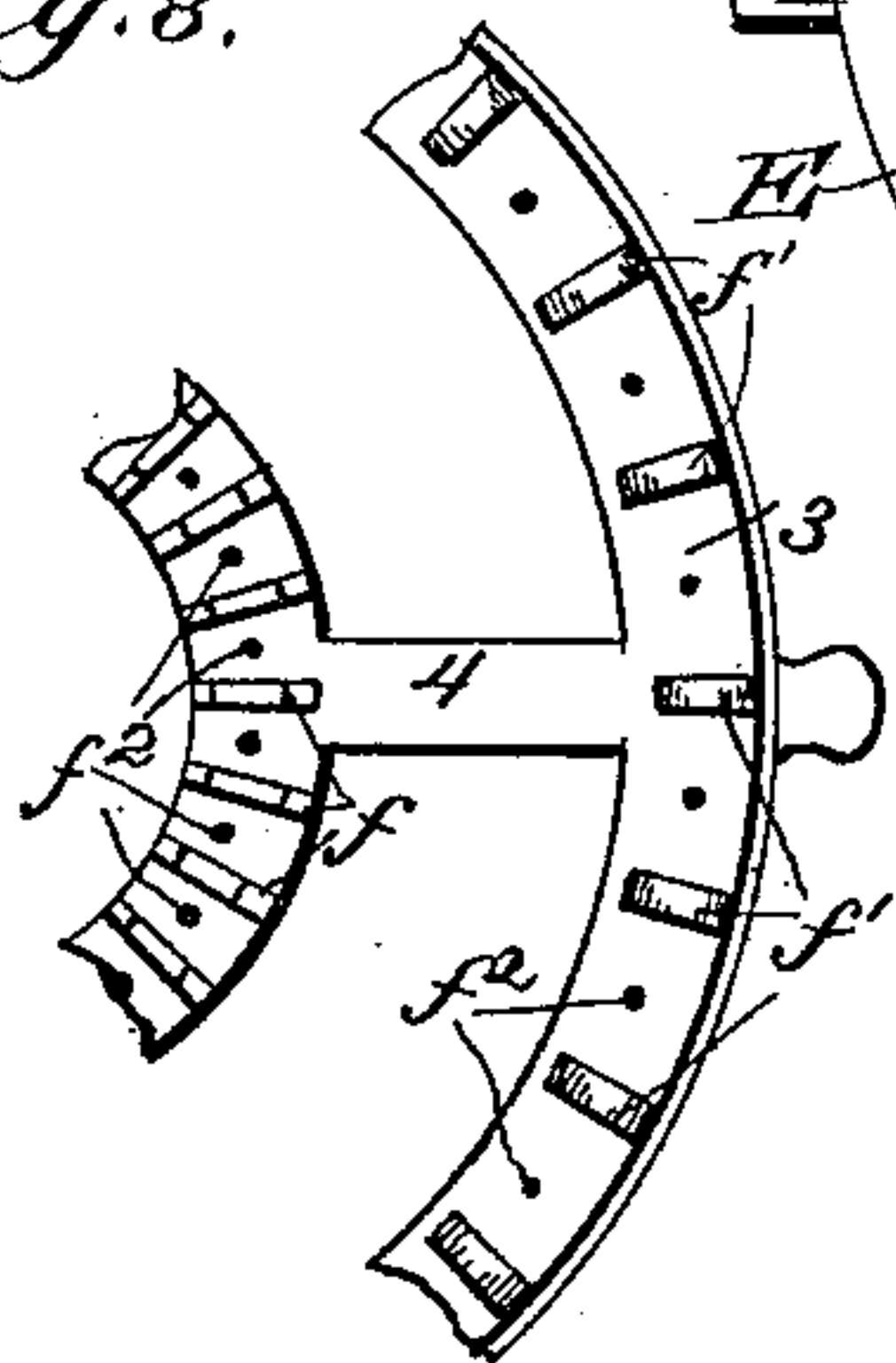
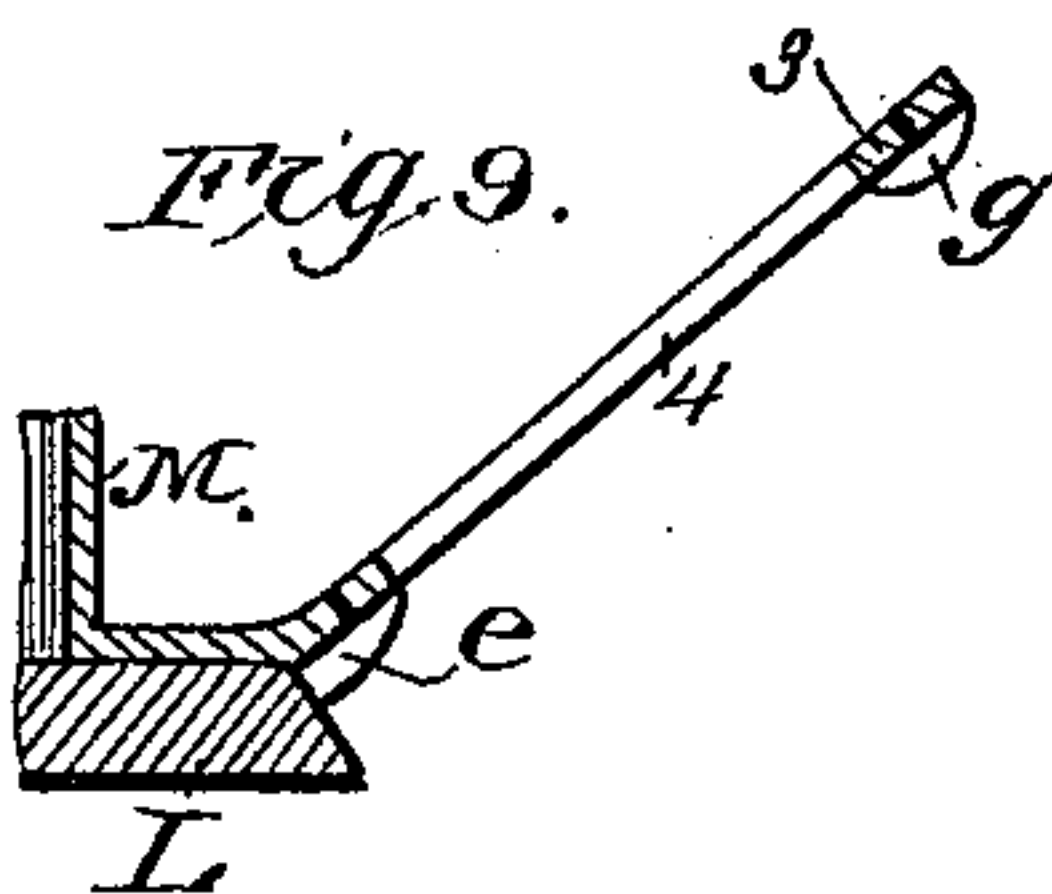


Fig. 9.



WITNESSES:

Fred G. Dieterich
W. D. Blondel

INVENTOR

David D. Weisell
Munn & Co

ATTORNEY

(No Model.)

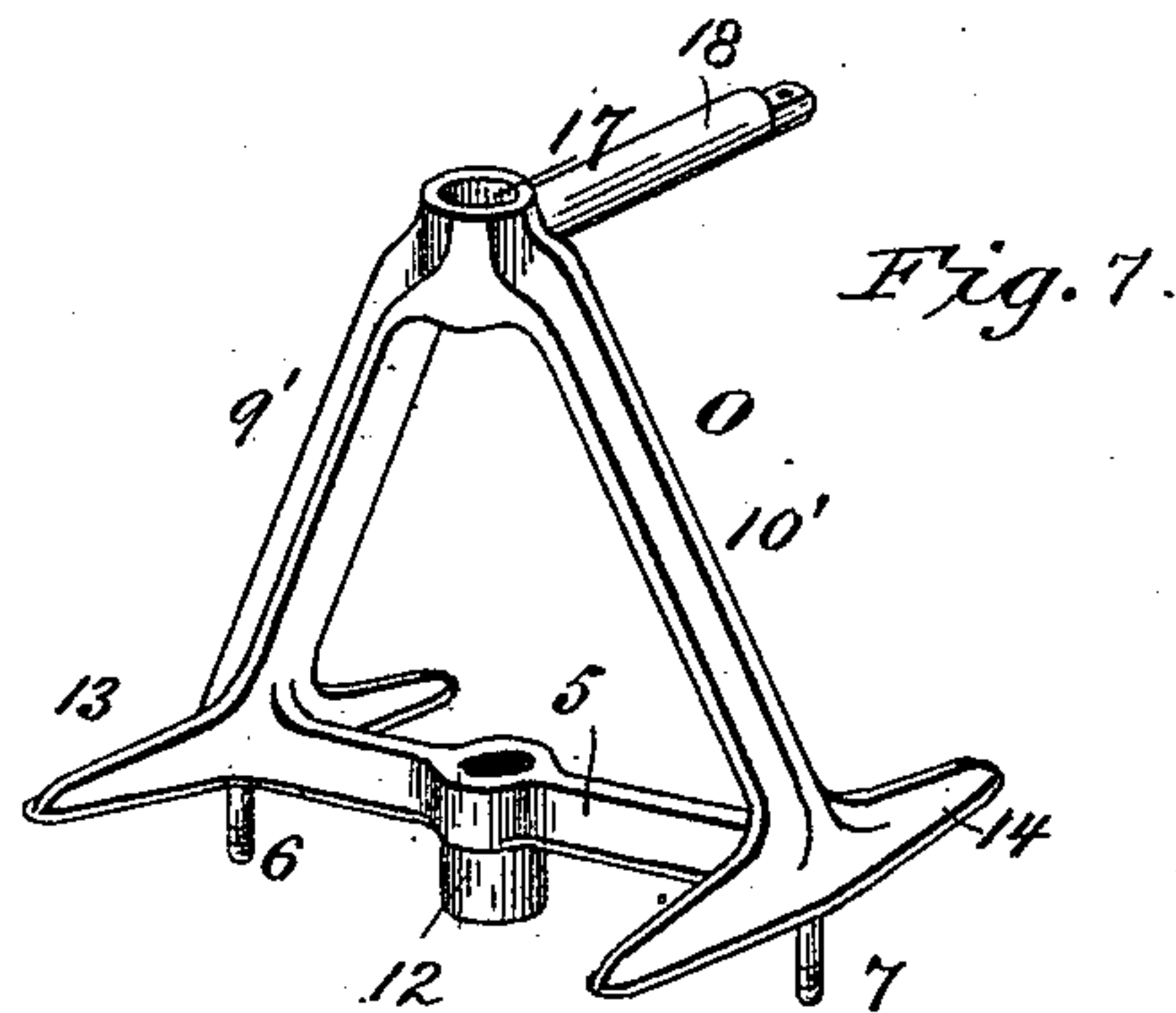
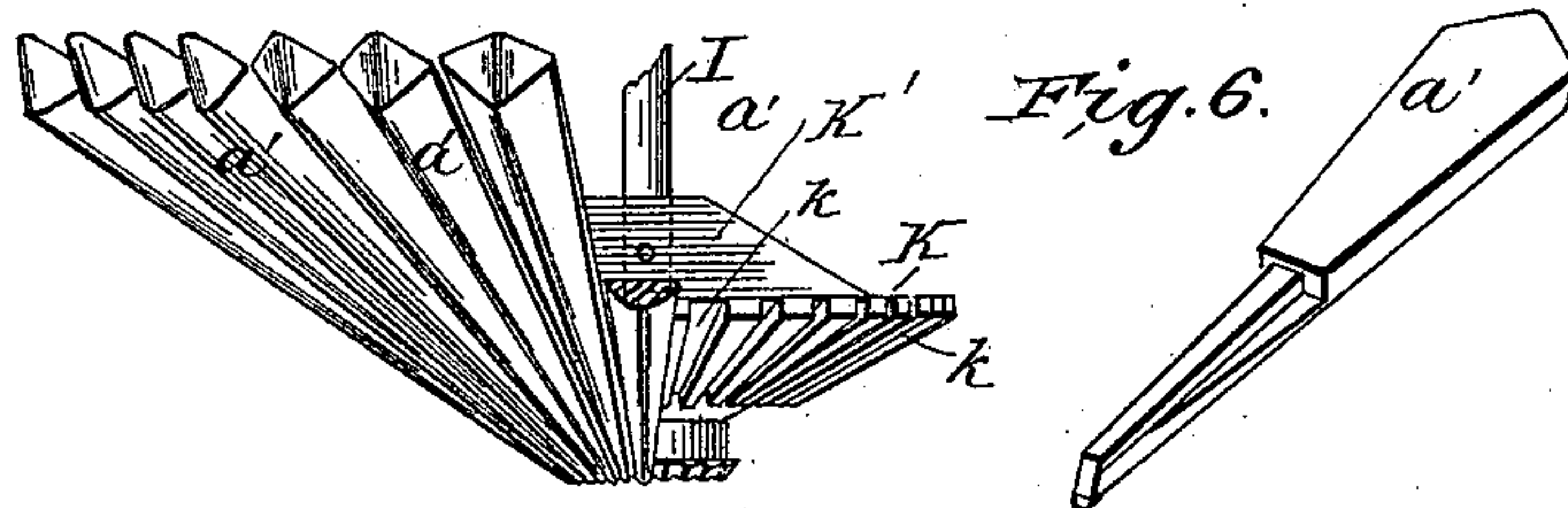
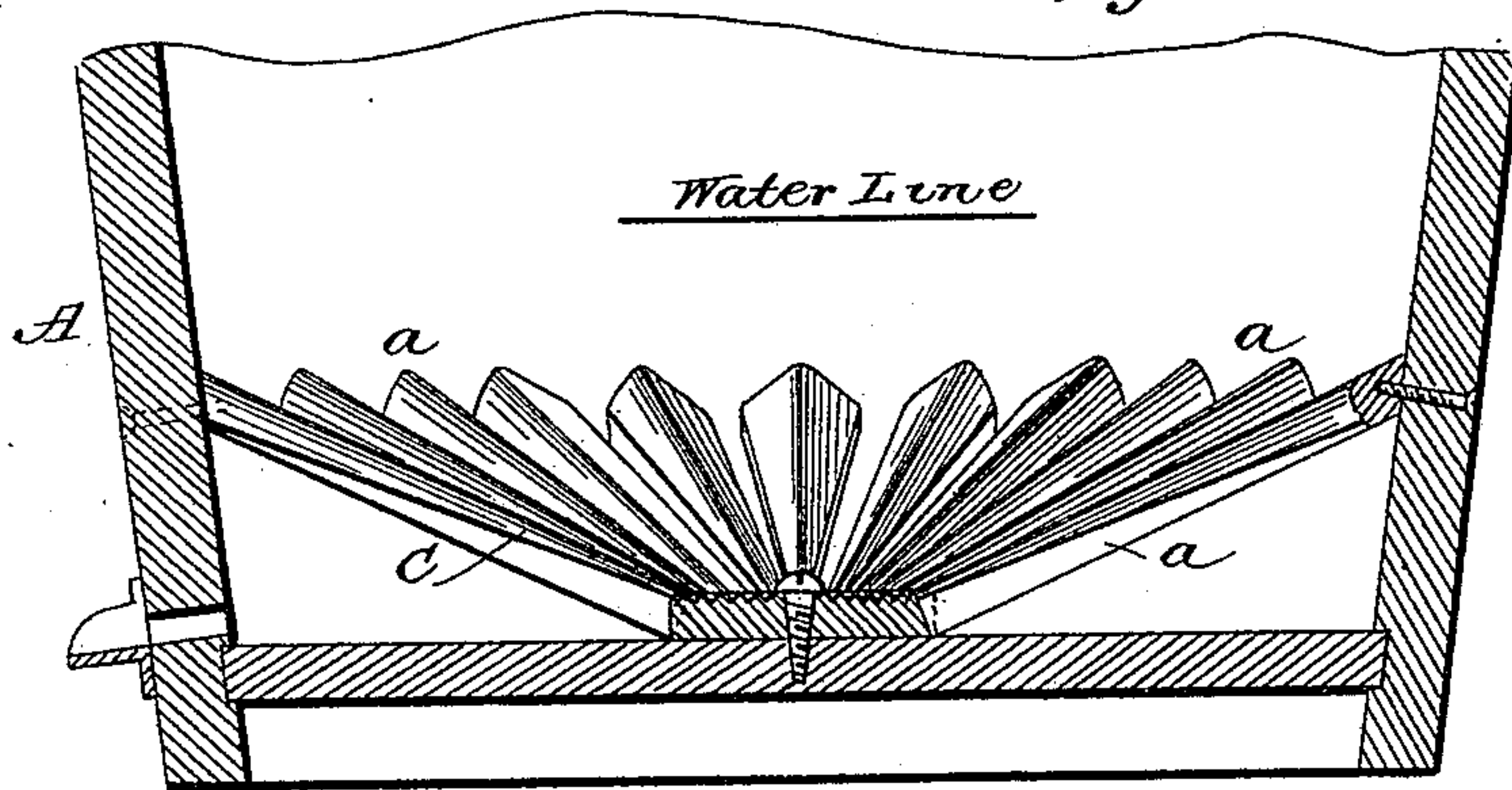
3 Sheets—Sheet 3.

D. D. WEISELL.
WASHING MACHINE.

No. 441,523.

Patented Nov. 25, 1890.

Fig. 5.



WITNESSES:

Fred. G. Dieterich
W. D. Blondel

INVENTOR

David D. Weisell

BY

Munn & Co.

ATTORNEY

UNITED STATES PATENT OFFICE.

DAVID D. WEISELL, OF FORT WAYNE, INDIANA.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 441,523, dated November 25, 1890.

Application filed June 6, 1889. Serial No. 313,408. (No model.)

To all whom it may concern:

Be it known that I, DAVID D. WEISELL, of Fort Wayne, in the county of Allen and State of Indiana, have invented a new and useful
5 Improvement in Washing-Machines, of which the following is a specification.

My invention relates particularly to that class of machines known as "rotary-rubber washing-machines," and has for its object
10 to provide a machine which will quickly and efficiently perform all the various operations of washing by hand—namely, rubbing, pressing, and rinsing; and with these objects in view it consists of a tub or other receptacle
15 having a concaved false bottom, a self-adjusting conical rubber revolving above the concave bottom, and suitable gearing for operating the rotating rubber.

It consists, further, in certain details of construction and combination of parts, as will be more fully hereinafter described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a vertical longitudinal section. Fig. 2 is a top plan
25 view. Fig. 3 is a detail sectional view of the convex rubber and driving mechanism. Fig. 4 is a partial plan view of one form of false bottom. Fig. 5 is a sectional view of another form of false bottom. Fig. 6 is a perspective
30 view of a portion of the convex rubber. Fig. 7 is a detail view of the supporting-casting. Fig. 8 is a detail view of a portion of the false bottom, and Fig. 9 is a detail sectional view of a portion of the convex rubber.

35 In carrying out my invention I employ a tub or other suitable receptacle A, mounted upon legs B, said legs being held rigid at their points of connection to the tub by the sockets V. The lower ends of the legs may be
40 braced in any suitable manner.

Within the tub A is placed a concaved false bottom C, said bottom being preferably removable, and consists of a base supporting a series of radially-extending ribs. This base
45 may consist of cross-bars D D, provided with the band E, as shown in Fig. 4, or it may be a metallic frame-work, both of which are hereinafter described, or it may consist of any other suitable means for supporting the ribs
50 readily upward and outward, so as to form a false concave bottom; but in constructing the

bottom which I prefer to use in my machine I employ a metallic base cast in one piece, and consisting of the flat concentric bands or rings F F', connected to each other by the radial bars or webs G. The outer band or ring
55 F' is slightly elevated above the inner ring, and to support the same in this position the outer ring has formed upon its under side the depending lugs or legs G', said legs being
60 arranged opposite the radial bars or webs G.

Upon the upper faces of the rings F F' are formed a series of upwardly-extending lugs ff', and between these lugs are formed the apertures f². The radial ribs a, which form
65 the concaved bottom, are tapered, as shown, so that they can fit snugly between the lugs ff', and they are secured in these positions by screws or nails passed through the apertures f² from the under side of the rings.
70

The upper faces of the ribs are provided with a double bevel or incline, the purpose of which will appear farther on. The ribs a are secured in such a manner as to leave a circular opening at the center, which is intended to fit
75 over a circular block H, rigidly secured to the bottom of the tub, the upper face of said block being corrugated, as shown. The ribs are sufficiently separated from each other to permit the dirt and sediment to pass between
80 them, and to draw the same off the tub is provided with an opening near its bottom, said opening being normally closed by a plug. Upon the inner side of the tub are secured a series of vertical cleats or ribs b, extending
85 from the top edges nearly to the bottom of the tub, said cleats being doubly beveled or inclined and so arranged as to pass between the outer ends of the radial ribs, thereby preventing the concaved bottom from rotating.
90

Although I prefer to use a false bottom constructed as described, other constructions may be employed, such as shown in Fig. 4, which consists of the flat cross-bars D D, joined at their centers and at right angles to
95 each other. Near the outer ends of these cross-bars are formed curved grooves d d, adapted to receive a circular band E, said band being sufficiently high to raise radial ribs to the desired angle, said ribs being constructed similar to those already described,
100 the inner ends being nailed or screwed to

the cross-bars and their outer edges to the band E.

In Fig. 5 I have shown the radial ribs secured directly to the bottom and sides of the tub, the inner and lower ends of the ribs being secured near the center of the bottom of the tub, and the upper and outer ends being secured to the sides of the same at a point sufficiently high to permit the water to circulate freely thereunder, and it will readily be seen that when the water is thrown outward by centrifugal force it will have sufficient space to acquire considerable force, whereby the tendency will be to pass entirely through the mass of clothing held upon the bottom, thus assisting in cleansing the same. The outer ends of the ribs being secured above the bottom, the sediment can be easily removed by simply filling the tub and operating the agitator-rubber.

In connection with my improved concaved bottom I employ an inverted conical rubber made to conform to the angle of the concave bottom, said rubber being formed of a series of upwardly-extending radial ribs a' , secured to a suitable casting 1, said casting consisting of the central circular portion 2 and flat concentric ring 3, said ring and central portion being connected by suitable braces or webbing 4. Upon the under side of the flat ring 3 are cast a series of depending lugs g , and on the under side of the central portion 2 are cast a similar number of depending lugs e . Within the circular space left between the lugs e is secured a circular blade L, corrugated on its under surface and having its periphery beveled or outwardly inclined. The radial ribs a' , constructed similar to the ribs a , are secured to the casting 1 between the lugs e and g , their inner ends lying in close contact with the beveled sides of the corrugated block L.

In Fig. 6 is shown a modified form of rubber, consisting of a circular conical block K, beveled outward and upward from its lower surface, said beveled surface being preferably provided with a series of radial grooves $k k$, in which fit tongues formed upon the upper faces of the radial ribs a' . The grooves may be omitted from the block K and the tongues from the ribs, and the ribs nailed directly to the block.

Upon the upper face of the central portion 2 of the casting 1 is formed a short vertical sleeve M, and within this sleeve is held the shaft I, which supports and operates the rubber, the lower end of said shaft being covered with elastic tubing and held within the sleeve M by a pin i passing through them. The rubber tubing is placed around the end of the shaft I for the purpose of making a flexible connection between the shaft and rubber and to relieve the sudden jar occasioned by the reciprocation, which in time greatly impairs machines having rigid connections at this point.

In the rubber illustrated in Fig. 6 the shaft I is inserted in a cross-block K', secured to

the upper face of the circular block K. The upper rim of the tub is rabbeted to receive the cover of the machine, said cover being usually formed of three portions, the fixed side portions 22 and 23 and the central portion 24, said central portion being strengthened by transverse bars $m m$ in order to sustain the weight of the gearing which is attached to this portion of the cover. The cover 24 is hinged to the stationary part and locked when closed in any suitable manner.

At the center of the detachable cover is secured the driving mechanism, said mechanism consisting of the vertical standard O, the bevel-gear R, and mutilated bevel-gear P, connected with the hand-lever S. The standard O consists of the base-piece 5, having the threaded bolts 6 and 7 depending from its lower face near each end of the same, and at the center of the base-piece is formed thimble or sleeve 12, contiguous to a circular aperture made in the base-piece, said sleeve depending a sufficient distance to pass through the cover and serve as a bearing for the vertical shaft I, which passes through the same and carries the rotary rubber at its lower end. The bolts 6 and 7 also extend through the cover and at the lower ends are threaded to receive the nuts 15 and 16, which bind the standard to the cover 24.

Connected to the base-piece 5 at each end are the laterally-projecting bracing lugs or feet 13 and 14, and extending upwardly from the base are the converging arms 9 10, said arms meeting a short distance above the base, and at their juncture is formed a circular aperture 17, said aperture being in alignment with the aperture made in the base and adapted to serve as a bearing for the upper portion of the shaft I. At the juncture of the upright arms is cast the laterally-projecting spindle 18, said spindle being arranged at one side in a plane at right angles to the plane of the standard O.

Between the base-piece 5 and the arms 9 and 10 is arranged the bevel gear-wheel R, said gear having formed on its upper face a vertical sleeve or tube T, extending to the juncture of the arms 9 and 10 and slotted vertically on both sides, the slots extending from the bottom of the tube to a point near the top of the same, and at the ends of these slots are formed the horizontal lugs $l l$. The bevel-gear is held between the arms of the standard by the vertical shaft I passing up through the same, and to hold the shaft within the tube and support the same a pin or key n is passed through the shaft, said pin working in the slots cut in the sleeve T.

Mounted upon the spindle 18 and meshing with the bevel-gear R is the mutilated gear-wheel P, said wheel being constructed of a concavo-convex form, as shown, the teeth being arranged upon the convex face, and to the concave face is secured the hand-lever S, the lower end of said lever being fitted in a socket formed between two of the spokes near

the hub of the wheel, and on the rim of the wheel are formed two parallel lateral ears, between which the central portion of hand-lever rests, the lever being secured to the wheel by a bolt passing through a spoke or webbed portion of the wheel. The outer end of the spindle 18 is flattened upon one side, and over this flattened end is passed a washer 19, having an aperture shaped to correspond with the flattened end, said washer being held upon the spindle by a linchpin passing through the same. In this way the wheel P is secured to the spindle. If the weights of the vertical shaft and attached rubber are not sufficient to press the clothes as desired, I aid such pressure by using a spiral spring encircling the vertical sleeve, one end opposed to the lugs on the upper part of the sleeve and the other against the pin attached to the vertical shaft, adapted to press the pin with its attachments downward. I also show the base-piece 5 cast integrally with the arch-frame. This is a preferable construction, but not a necessary one, for the base-piece may be separate and attached suitably to either the arch or lid, or to both, as may be desired. The upper end of the shaft I is provided with a ring or handle *h* for raising the conical rubber when closing the cover, so as to prevent the rubber from dragging the clothes to one side of the tub. At one side of the tub a few staves are extended beyond the rim of the tub to form a stand for a wringer. (Not shown.) Upon the interior of the tub, at any desired height, is branded or otherwise marked a horizontal line and designated "water-line," the purpose of which will appear at once.

From the above description it will be seen that a machine is constructed which is simple, durable, and efficient, and one that is not at all likely to get out of order. The gearing being supported by a single standard O, it is not liable to be thrown out of engagement by the warping of the cover, as is frequently the case with machines having two or more supporting-standards. The operating mechanism of the machine being held by the single standard, I am enabled by removing the lever and cone-rubber to pack the entire driving mechanism, together with the lever and legs, within the tub, thus securing it from breakage in transportation or storage.

The driving-wheel is constructed with a concave face, so that the end of the operating-lever S is thrown outward toward the edge of the tub and brought within easy reach of the operator.

Having fully described the construction of the various parts of my machine, I will now proceed to describe the manner in which they are operated. The bottom C having been placed within the tub A, the clothes are put in and the tub sufficiently filled with water to reach the water-line. The cover carrying the rotating rubber and driving mechanism is then closed and suitably secured in its closed position, the conical rubber be-

ing held up by the ring *h* to prevent the clothes being dragged to one side of the tub. The moment the ring *h* is released the spring forces the conical rubber down upon the clothes and keeps it there during the operation. The hand lever is then oscillated, each oscillation of the lever making about one and a half revolution for the rotary rubber, and the direction that the water is thrown by the centrifugal force of the rapidly-revolving rubber is deflected by the beveled or double-inclined ribs to a direction directly through the mass of clothing and between the ribs of the concave bottom, carrying with it the loosened dirt to the bottom of the tub, and when the washing process is completed it is drawn off through the opening. The resistance offered by the corrugated concave bottom to the free movement of the clothes tends to bunch them in the center of the tub at the end of each revolution of the rubber, and the action of the spiral spring presses or squeezes the water partially out of them at this point. The reverse motion relieves the bunching and admits the water again, to be pressed out at the end of this revolution.

Having thus described my invention, what I claim as new is—

1. The combination, with the tub, of the concave false bottom arranged within the same and resting loosely on the bottom, and consisting of a base-piece and a series of independent radiating ribs secured upon the base and projected upward and outward therefrom, and the convex rotary rubber moving over said false bottom, as set forth.

2. In a washing-machine, the combination, with a tub or box, of a concave false bottom consisting of a series of independent ribs radiating from the central part of the bottom of the tub to the sides of the said tub, suitably secured and arranged with spaces between them, and placed at such an angle that the ribs touch only the bottom with their inner ends and the sides with their outer ends at a point above the bottom of the tub, substantially as and for the purpose described.

3. The combination, with the tub, of the false bottom resting loosely within the same, and consisting of a series of independent ribs *a*, radiating outward and upward from the center, the rubber rotating over said false bottom, and the vertical ribs secured to the inner side of the tub and fitting between the ends of the ribs *a* to prevent the bottom rubber from rotating, substantially as set forth.

4. In a washing-machine, the combination, with a tub or receptacle, of a concaved false bottom arranged within the same, and consisting of a suitable base supporting a series of radially-extending ribs secured upon the base and projecting outward and upward from the central part thereof to the inner sides of the tub, as and for the purposes set forth.

5. In a washing-machine, a false bottom comprising the flat concentric rings F F', provided, respectively, with the upwardly-pro-

jecting lugs *ff'* and radial braces or webs *G*, connecting said rings, the supporting-legs *G'*, depending from the outer ring, and the radial ribs *a*, secured to the rings between the
5 lugs, substantially as shown and described.

6. In a washing-machine, the combination, with the tub or box, of an inverted conical rubber consisting of a series of independent radiating ribs arranged with spaces between
10 them and attached at their inner and lower ends to a suitable support, a vertical shaft attached to said support, and means for rotating the same, substantially as shown and described.

15 7. A convex rotary rubber for washing-machines, consisting of a casting having lugs *e g* on its bottom side, the circular block secured to the apex of said casting and having a series of transverse ribs on its bottom side, and
20 a series of upwardly-radiating ribs secured between the lugs *e g* and having their inner ends resting against the periphery of the circular block, as set forth.

8. The combination, with the lid of a washing-machine, of a standard consisting of an
25 arch-frame with a horizontal journal cast integrally with it and a base-piece and provided with journal-bearings in the base-piece and apex of the arch, the concave gear-wheel mounted loosely on the horizontal journal and
30 provided with a hand-lever, the bevel gear-wheel with a vertical slotted sleeve cast integrally therewith, mounted loosely on the vertical shaft, the vertical shaft passing through
35 the journal-bearings of the standard loosely and provided with a pin extending through the slot of the sleeve, adapted to move vertically therein and to rotate the shaft with the
40 sleeve, and a rubber or agitator secured to the lower end of the vertical shaft, substantially as described.

DAVID D. WEISELL.

Witnesses:

WM. ELLIS WEISELL,
EDWIN T. JACKSON.