

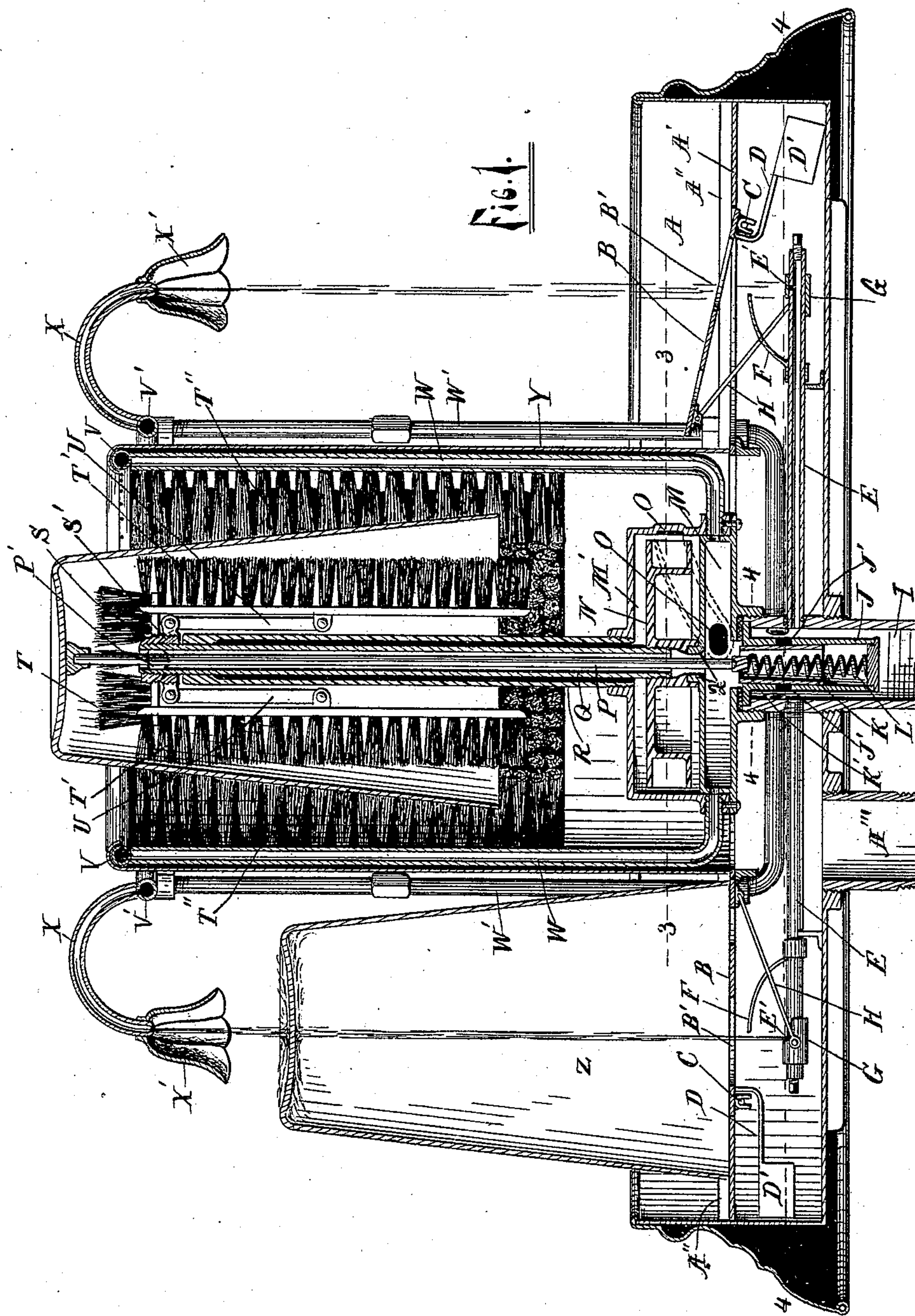
(No Model.)

2 Sheets—Sheet 1

O. H. ROBINSON.  
TUMBLER WASHER.

No. 538,125.

Patented Apr. 23, 1895.



WITNESSES:

*J. A. Saul*  
*Robert Everett*

INVENTOR

*Oston H. Robinson*

BY

*Echuan Taggart*  
ATTORNEY.



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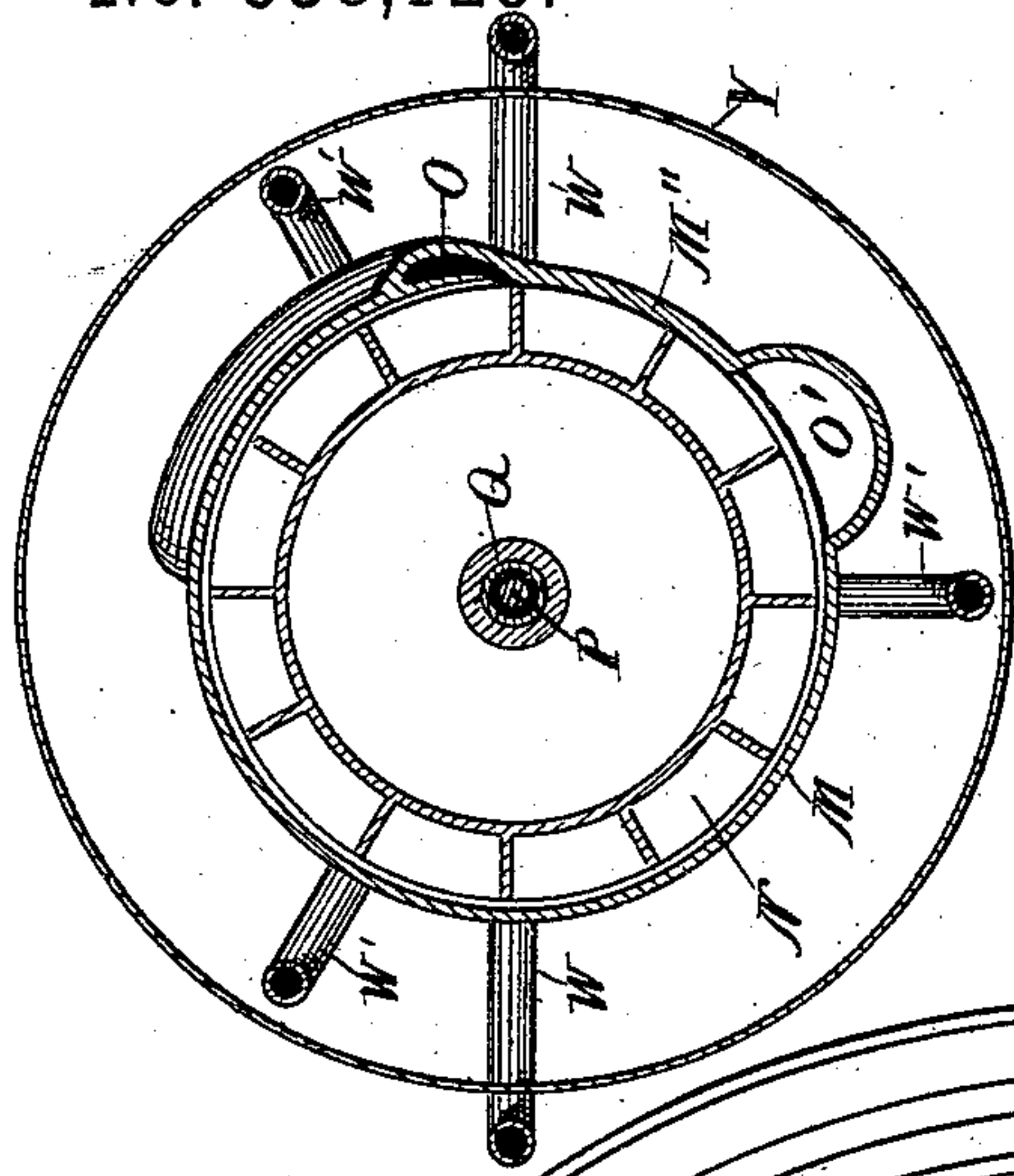


Fig. 3.

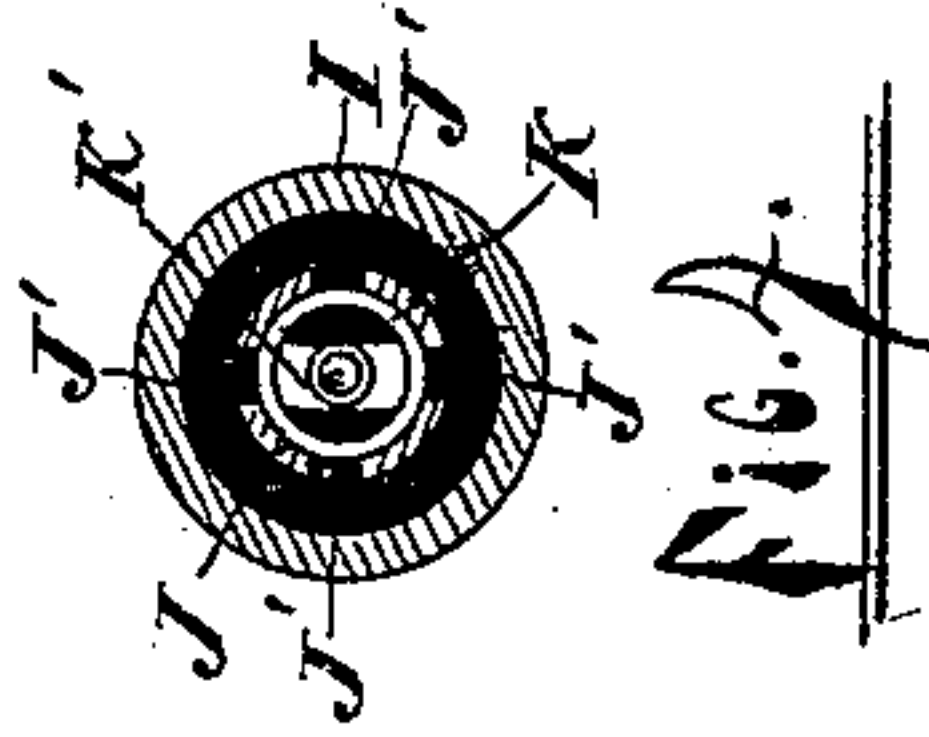


Fig. 7.

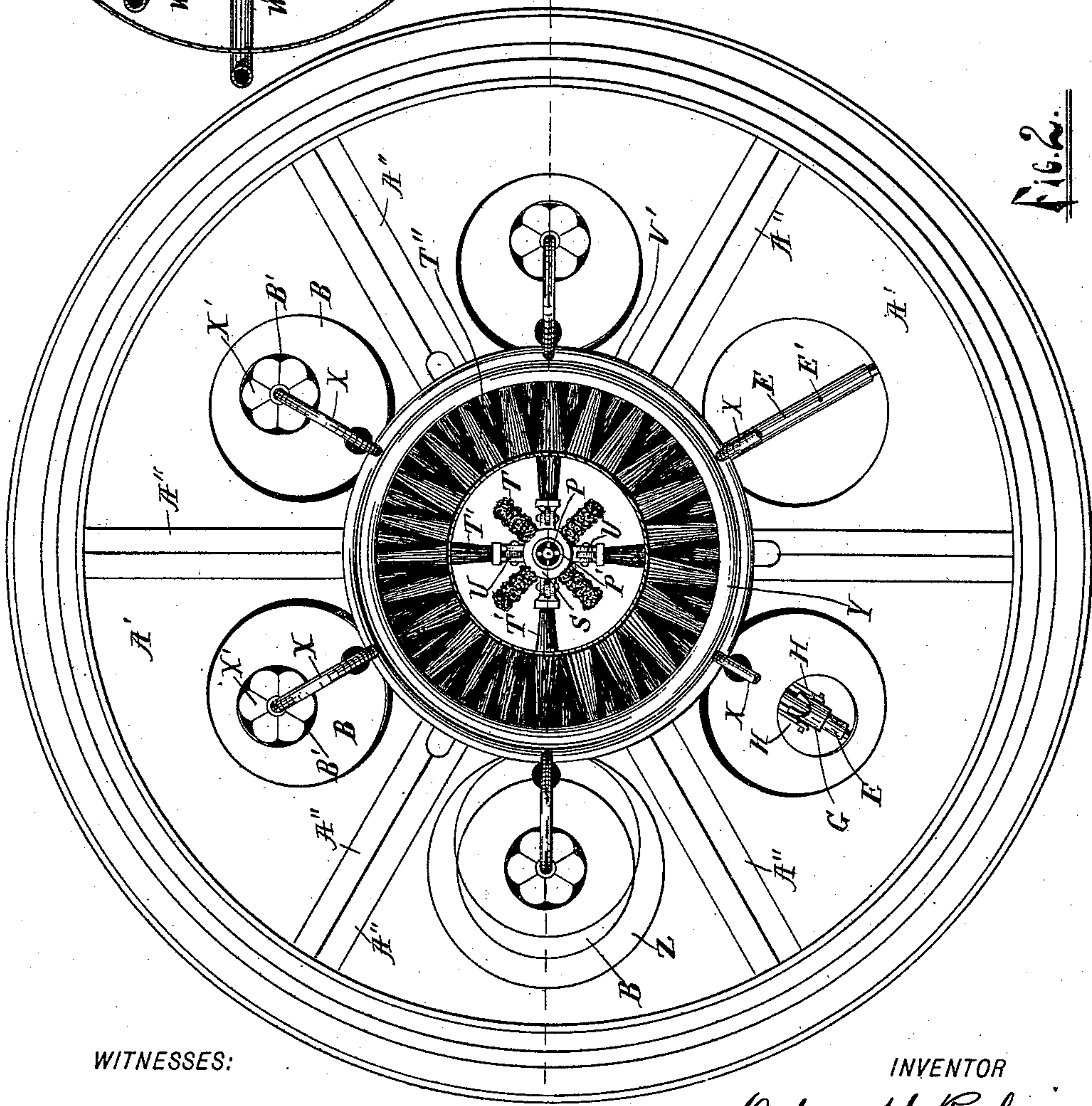


Fig. 2.

WITNESSES:

*John A. Saul*  
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ATTORNEY.



# UNITED STATES PATENT OFFICE.

ORTON H. ROBINSON, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO SHEPHERD P. FROST AND CHARLES E. MERCER, OF SAME PLACE.

## TUMBLER-WASHER.

SPECIFICATION forming part of Letters Patent No. 538,125, dated April 23, 1895.

Application filed March 2, 1893. Renewed February 14, 1896. Serial No. 538,442. (No model.)

*To all whom it may concern:*

Be it known that I, ORTON H. ROBINSON, a citizen of the United States, residing at the city of Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in a Combined Tumbler Washer and Rinser, of which the following is a specification.

This invention has for its object to provide a new and improved tumbler washer and rinser; and it consists in the features of construction and the combination or arrangement of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a vertical sectional view of the washer and rinser, taken on the line 1—1 of Fig. 2. Fig. 2 is a plan view. Fig. 3 is a detail sectional view, taken on the line 3—3 of Fig. 1; and Fig. 4 is a detail sectional view, taken on the line 4—4 of Fig. 1.

Similar letters and figures refer to similar parts throughout the several views.

A is the rinsing pan or tray, which in the example of my invention shown in the drawings, is circular and contains six places for tumblers, but it may be constructed for a greater or less number of tumblers, and may be rectangular, oblong, or of other suitable form to suit the convenience or taste of the user.

A' is a removable shelf or support within the pan A.

A'' are ribs used for separating the tumblers placed in the rinser and serve as guides for directing the user in placing the tumbler upon the rinser. These ribs may be made of any suitable shape or size to accomplish the purpose for which they are designed.

B are platforms or supports which are hinged to the removable partition of platform A', and are adapted to support the tumbler in the rinsing pan, and to operate the valve which admits the water to the inside of the tumbler for the purpose of rinsing. B' are openings, one for each platform B, and which allow the water to flow through into the inside of the tumbler. A tumbler being placed upon a platform or support B directly over the opening B', when the glass is removed,

the openings B' serve for the escape of the water falling from above into the pan. Each support B is connected by hinge or pivot C to the partition A', and is counterbalanced by the weight or other suitable means.

In the example of my invention shown in the drawings D represents an arm connected to B, and D' represents a counter-weight. The counter-weight D' should have sufficient heft to raise the tumbler support B to the position shown at the right of Fig. (1), thereby cutting off the flow of water through the opening B', as hereinafter described.

E, is a tube conveying the water from the water-chamber I, to the opening E', through which opening E' the water is discharged upward through B' to the inner surface of the glass which rests upon platform B.

G is a sleeve on the tube E, which acts as a slide valve, and is operated from the platform B. By placing the glass upon platform B, the platform is turned upon the hinge C, until it reaches the horizontal position shown on the left of Fig. (1). As it descends the arm H moves the sliding valve G, uncovering the opening E', and allowing the water to be forced upwardly through E', and B' into the inside of the glass Z placed upon the platform B.

A guard F is used which simply prevents the water from striking the under side of the platform B, provided any water should escape before the stream should be directly perpendicular through the opening B'. It will be noticed that this part of my invention consists in the automatic operation of the valve G through the weight of the glass or tumbler upon the platform B, in opening the valve, and the automatic closing of the said valve by the weights D' when the said glass is removed.

I represents a water chamber which is attached to the rinser and washer, which attachment may be made by any suitable means; but in the drawings I have shown that it is attached by a screw thread to the opening of the rinser, and extends upward to the water chamber beneath the water-wheel of the washer.

J represents a water chamber within the chamber I, and provided with ports or open-



ings J'—J'. Within the water-chamber J is a cylindrical sliding valve K, which, as it descends, uncovers the ports J'—J'. Said sliding valve is depressed through the piston or rod P, as hereinafter described, for the purpose of allowing the water to flow upwardly through the said slide valve K.

K' is a shoulder against which the upper end of the expansion spring L abuts, the lower end of this said spring L abutting against the bottom of the water chamber J, the function of the spring L being to raise the sliding valve K so as to cut off the flow of water when the tumbler in the washer is removed.

M is a water-chamber below the water-wheel chamber, and it receives the water through the sliding valve K.

M' is the water-wheel chamber, and M'' is an enlargement or thickening of the inner wall of the water-wheel chamber from the point of the water-inlet to the water-outlet. The object of this thickening is, to bring the inner surface of this chamber in very close proximity to the outer ends of the paddles of the water-wheel from the point of the water-inlet to the point of the water discharge, in order to have the water act more efficiently upon the water-wheel, and to allow a sufficient space for the discharge of the water which may be carried beyond the outlet point.

O represents a point or inlet for the water into the water-wheel chamber, and O' represents the discharge opening from the water-wheel chamber. It will be noticed that the water is conveyed from M through a tube, and discharged into the chamber M', within which chamber M' is placed the water-wheel N.

P is a rod which acts as a valve-stem for the valve K; the lower end of said rod resting upon the valve K, and the upper end supported in a bearing box P', as shown in Fig. (1). Said bearing box P' has openings which allow the water to be thrown against the inner surface of the bottom of the tumbler. The valve-stem P passes through the water tube Q, which tube Q conveys water, as hereinafter described, to the bottom of the tumbler or glass to be washed. This tube Q is also attached to the water wheel and revolves therewith, but inside of the outer tube R; said tube R acting as the support for the inner tube Q, and having suitable bearings at its upper end for supporting and retaining in position the said tube Q as it revolves in such bearings.

At the upper end of tube Q is a collar attached thereto, shown by S, and a plurality of arms, shown by U are hinged to said collar, as shown by S'—S'. Connected to said revolving collar and extending upwardly therefrom are the brushes T, which brushes are designed to just reach the bottom of the glass placed upon the valve-stem P. The arms U—U are pivoted to the swinging brushes shown by T'—T', which are adapted to swing outwardly and in contact with the inner side of the tumbler, while T'' are brushes coming in contact with the outside of the tumbler.

V is a circular tube having small openings directed toward the tumbler placed within the washer, and which directs small streams of water against the outer side of the tumbler.

V' is a tube conveying water, as hereinafter described, to discharge pipes X—X.

X'—X' are guides of any suitable form which prevent the water from spreading when thrown upward from beneath.

W' is a tube conveying the water from the water chamber I, to the water tube V', and W is a water tube conveying water from the chamber M, to the water tube V, from whence it is discharged through discharge pipes so as to flow upon the outer side of the tumbler when placed in position shown by Z.

Y is the outer cylindrical case inclosing the washer and supporting the brushes T''.

A''' is an outlet for the water from the pan A. The water which passes upward through the tube Q is discharged near the center of the inside of the bottom of the tumbler. The brushes revolving with considerable rapidity throw water outwardly. The brushes T serve to thoroughly cleanse the bottom of the tumbler, and the water carried, as above stated, by centrifugal force, reaches the sides of the tumbler, and runs down amid the revolving brushes T' thoroughly cleansing the inside of the dish. The lower wall of the water chamber M' is provided with a circular flange (2) upon which the hub of the water wheel turns, forming the journal, as shown in Fig. (1).

The operation of my invention, when used complete, is substantially as follows: The water is admitted into the water chamber I from any suitable supply. The glass or tumbler is placed in position upon the rod P, as shown in Fig. (1), and its weight depressing the rod P, which acts as a valve-stem for K, thereby depressing the valve K, admitting the water into the water-chamber M. From the water-chamber M the water passes through O into the chamber M', thereby setting the water-wheel N in motion rapidly revolving the tube Q, and with it the collar S, the brush arms U—U, the brushes T', and the upward extending brushes T. The water is at the same time admitted to the tube Q and passes upward and is discharged against the inner surface of the central portion of the tumbler. The water striking the inner surface of the central portion of the tumbler is distributed laterally by the brushes T, and flows down upon the brushes T'. The water also ascends through the water tubes W into the circular water tube V, and is thrown through the small apertures on the inner surface of said circular tube V against the outer side of the glass. The water is also conveyed through the tube W' into the water tube V', and from V' outwardly through the discharge tubes X—X from which discharge tubes it is discharged upon the outer surface of the tumbler which is placed upon the rinser, as shown at the left of Fig. (1). In order to operate the rinser so as to rinse the inside of the glass, a glass as



Z is placed upon the platform B, which, by its weight depresses the platform into the position shown at the left of Fig. (1), thereby opening the valve B by means of the connection H, allowing the water to escape through apertures E', from whence it is thrown upwardly through the opening B' against the inner surface of the bottom of the tumbler from whence it spreads and runs down the inner surface of the tumbler, thereby thoroughly rinsing the same.

While I have described the rinser as used in connection with a tumbler washer of my construction, it is evident that this rinser might be used in connection with any other form of tumbler washer.

Having thus described my invention, what I claim to have invented, and desire to secure by Letters Patent, is—

1. In a tumbler washer, the combination of pivoted swinging brushes or scrubbers, arms supporting said brushes, a collar to which said arms are pivoted, brushes extending vertically from said collar, a revolving tube connected to said collar, and openings from said tube directing water upward against the central portion of the inner side of the bottom of the tumbler to be operated upon, and a water wheel or motor connected to said revolving tube, which supports the brushes and collar, substantially as described.

2. The combination of a water wheel, a chamber in which said water-wheel revolves, a circular flange integral with the bottom part of said chamber, a hub upon the water-wheel engaging with said circular flange as a journal, a water tube attached to and revolving

with said water-wheel, a collar upon the upper end of said tube, brushes extending from said collar upwardly toward the bottom of the tumbler, a valve-stem adapted to receive the weight of the tumbler and to operate a valve for letting water into the said revolving tube which supports the collar, openings from said tube directing the water upwardly against the bottom of said tumbler, substantially as described.

3. In a tumbler rinser, the combination of a pan or tray, a removable partition therein, a plurality of tumbler supports hinged to the removable partition, a connection between each of said supports and a valve, a valve operated by said connection, a water pipe connected to any suitable source, and a counter-acting force adapted to close said valve when the tumbler to be rinsed has been removed, substantially as described.

4. The combination of a pan, a partition, a plurality of hinged platforms as B having openings as B', a valve for each support as G, a connection for each support, as H, an opening E', and a water tube as E, said platforms being adapted when lowered by the weight of the tumbler to automatically open the valve G, and also adapted to close said valve when said weight is removed, substantially as described.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

ORTON H. ROBINSON. [L. S.]

Witnesses:

EDWARD TAGGART,  
ARTHUR C. DENISON.