(Model.)

4 Sheets—Sheet 1.

J. M. HOYT.

Bottle Washer.

No. 238,289. Patented March 1, 1881.

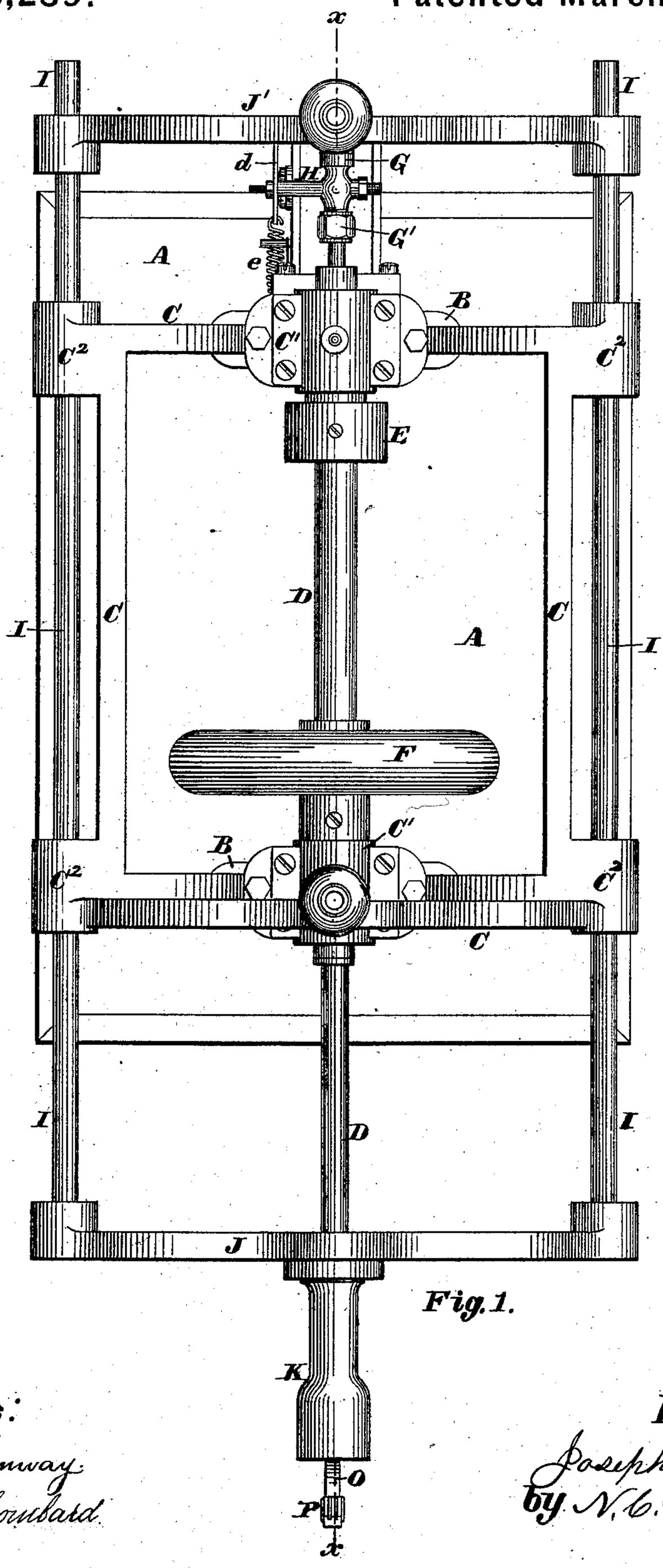

Fig. 1.

Witnesses:

E. A. Hemmenway.

Walter D. Lombard.

Inventor:

Joseph M. Hoyt

by N. C. Lombard

Attorney.

(Model.)

4 Sheets—Sheet 2.

J. M. HOYT.

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No. 238,289. Patented March 1, 1881.

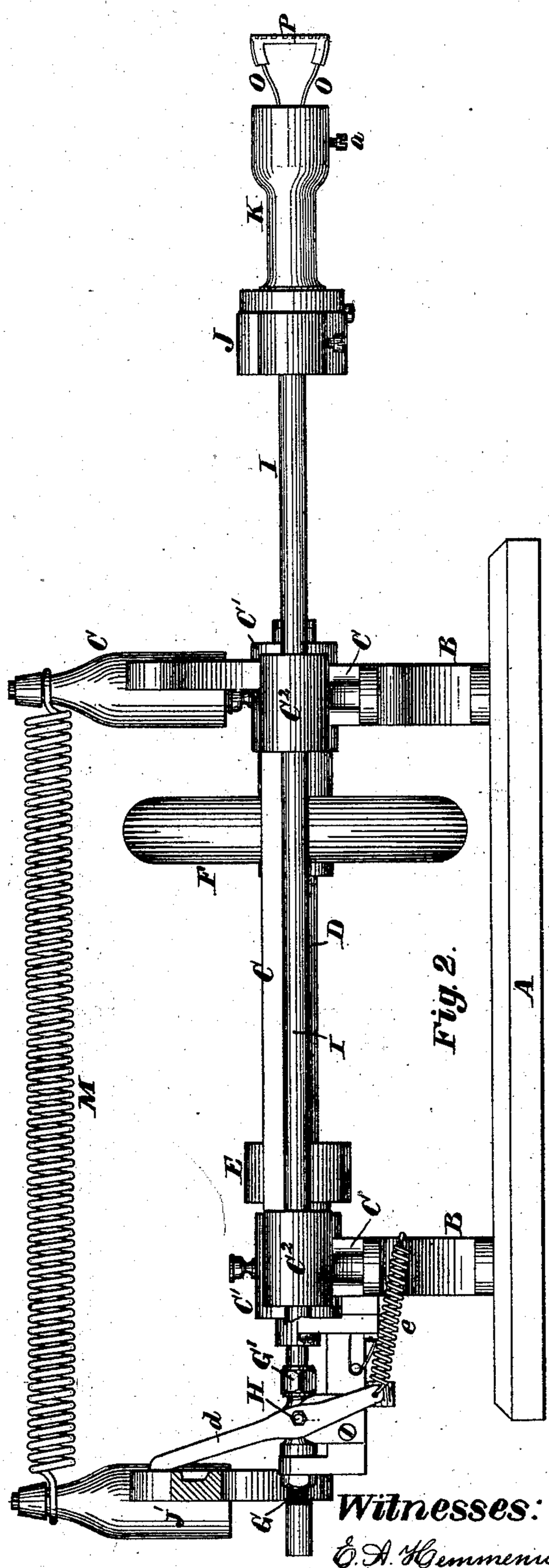

Fig. 2.

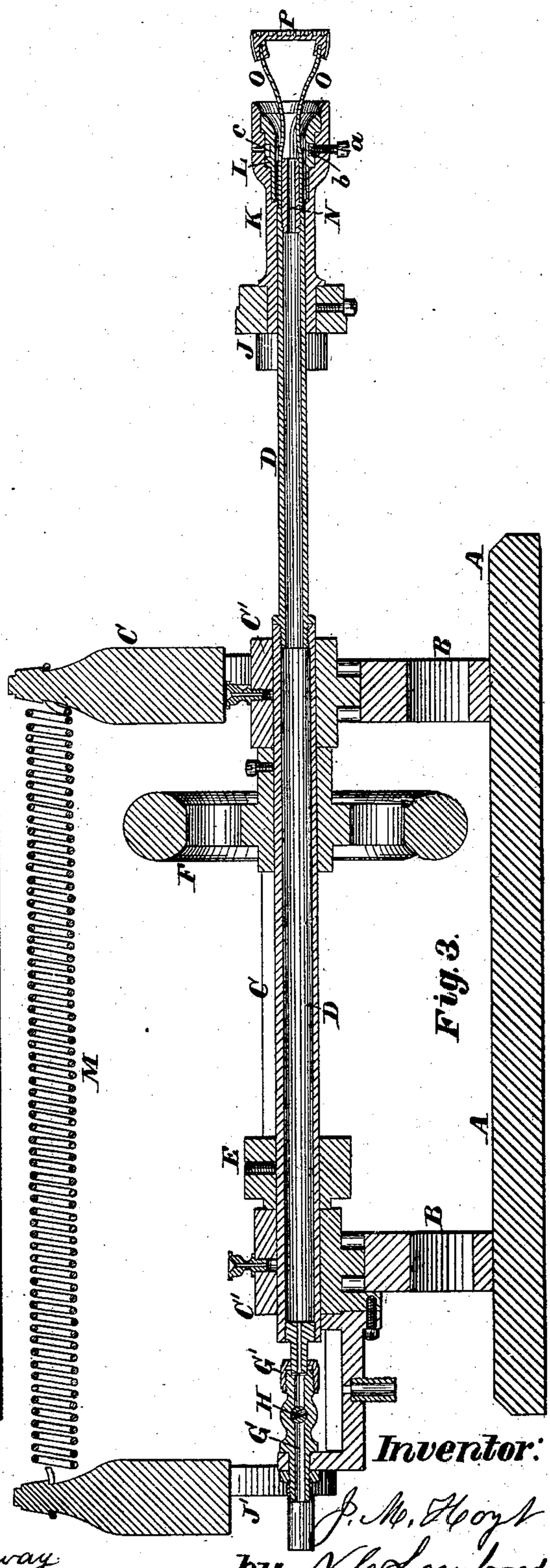

Fig. 3.

Witnesses:

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(Model.)

4 Sheets—Sheet 3.

J. M. HOYT.

Bottle Washer.

No. 238,289. Patented March 1, 1881.

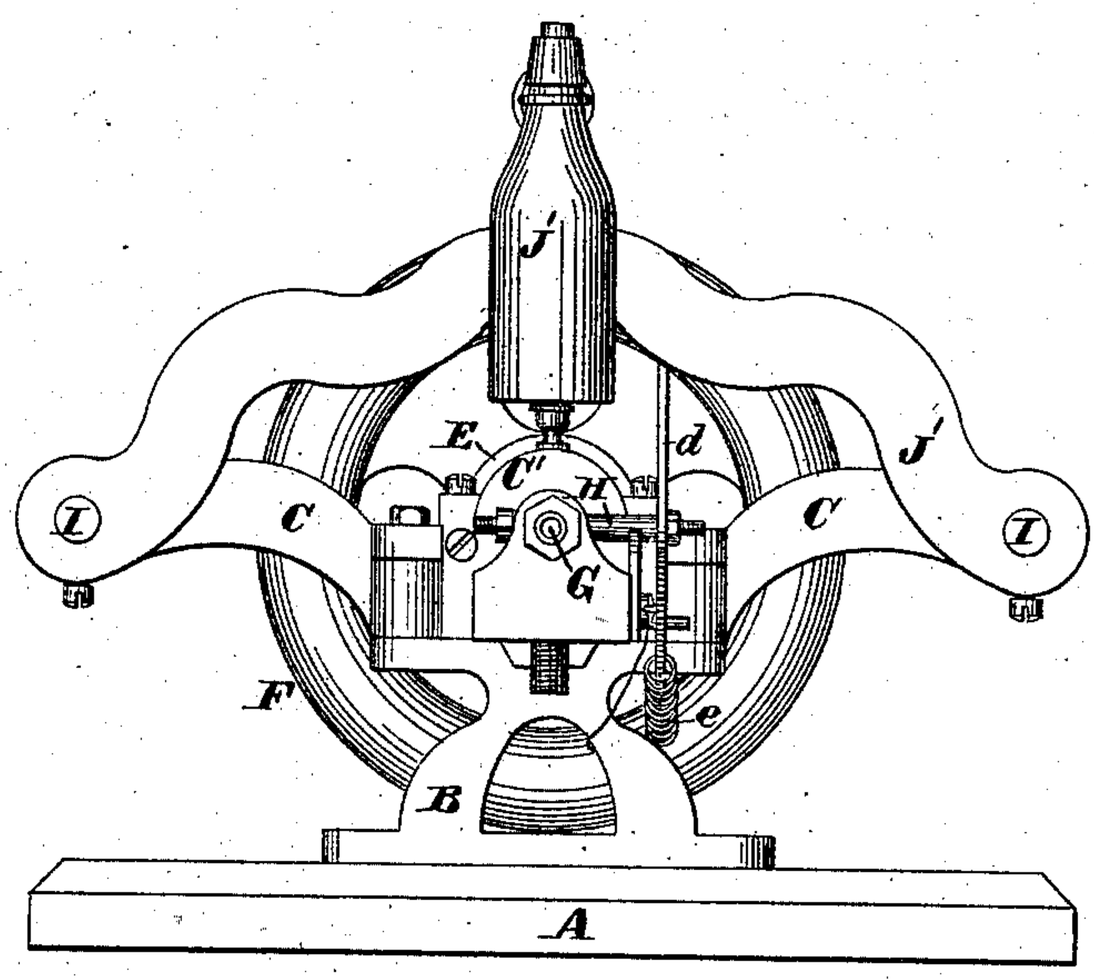

Fig. 4.

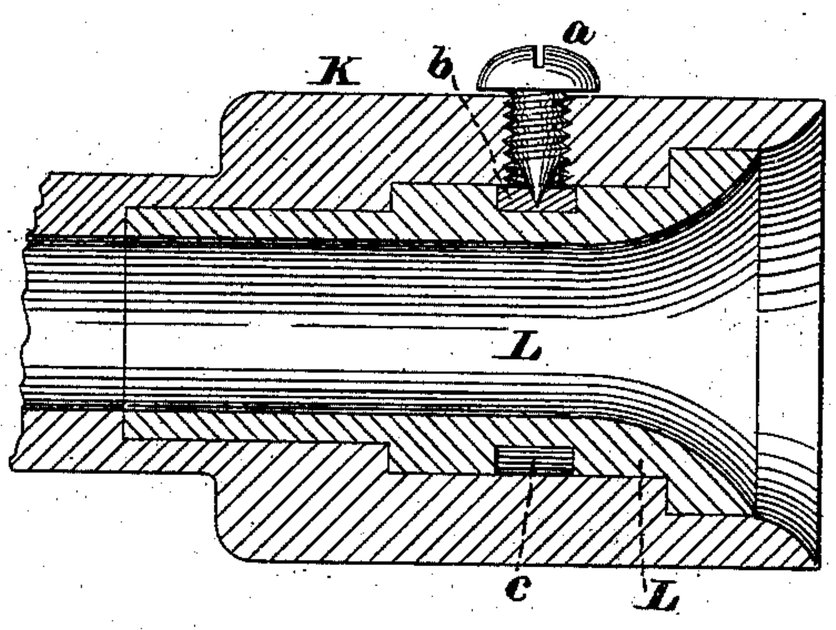

Fig. 5.

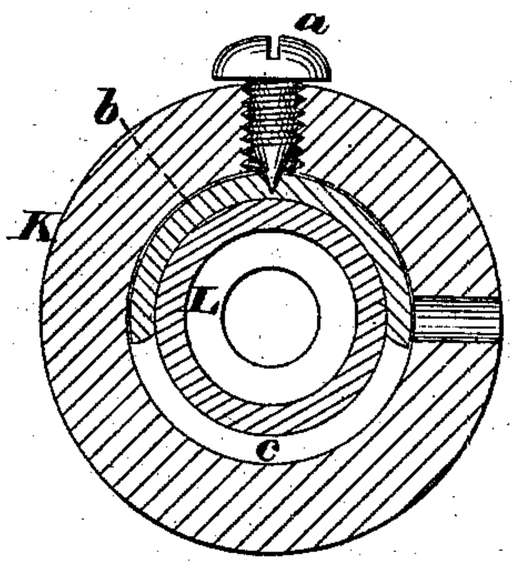

Fig. 6.

Witnesses:

E. A. Hemmenway.

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(Model.)

4 Sheets—Sheet 4.

J. M. HOYT.

Bottle Washer.

No. 238,289. **Patented March 1, 1881.**

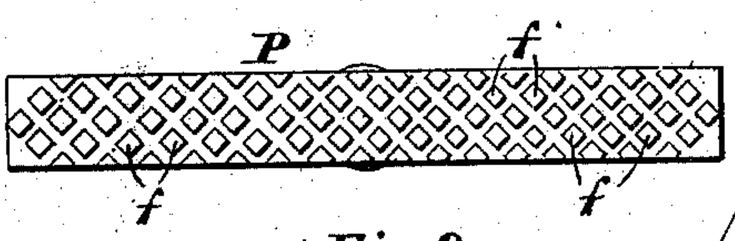

Fig. 9.

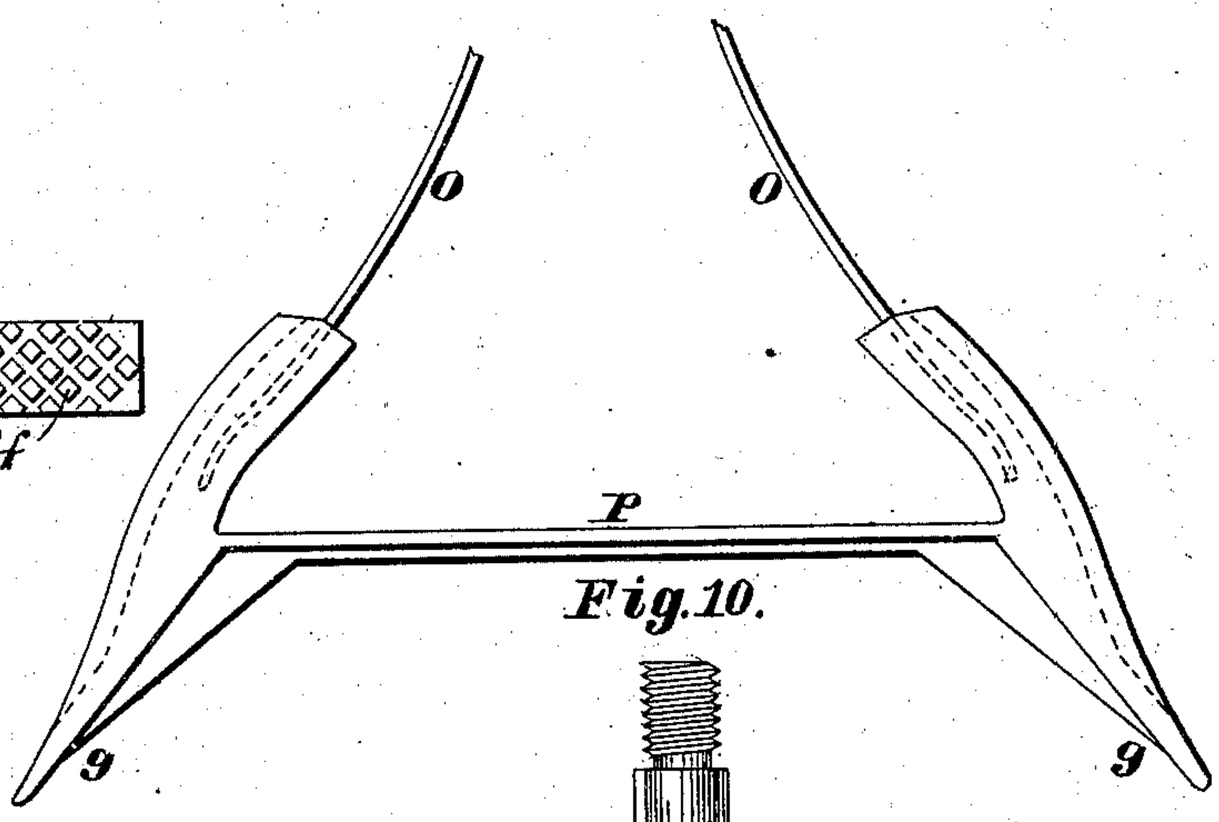

Fig. 10.

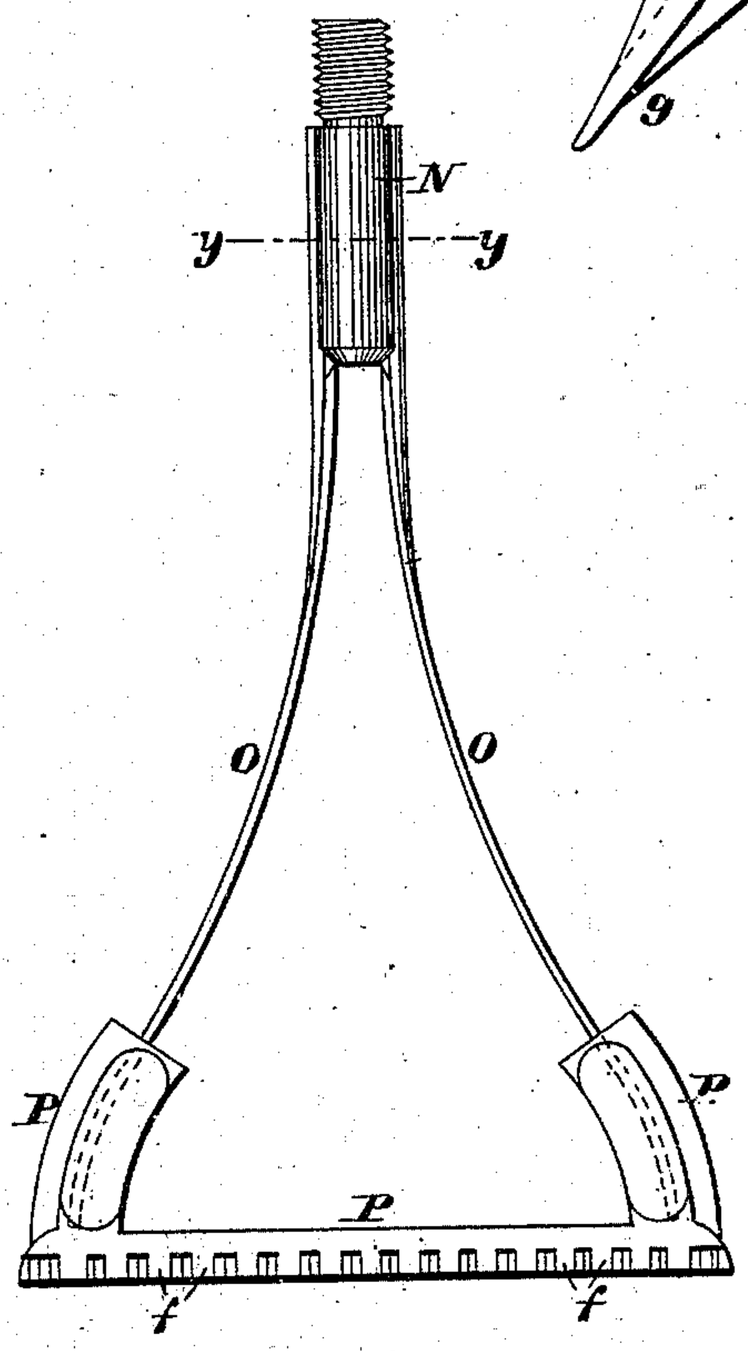

Fig. 7.

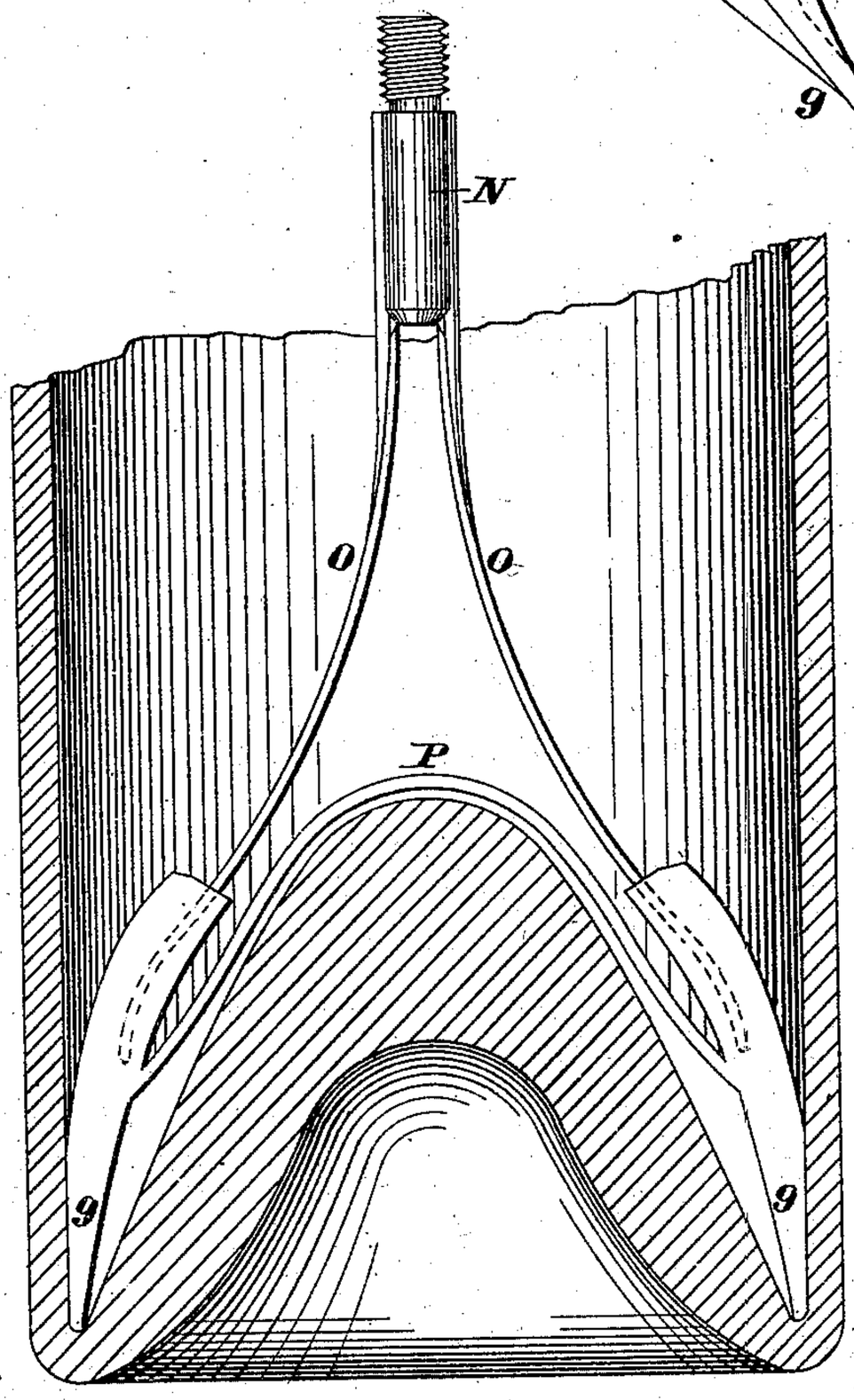

Fig. 11.

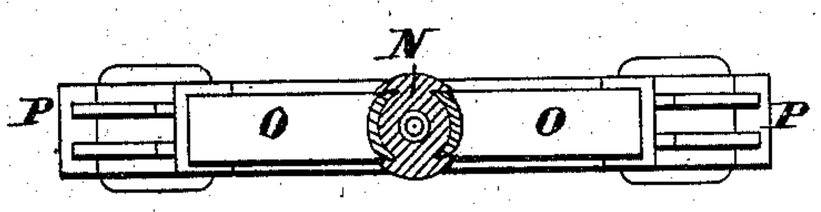

Fig. 8.

Witnesses:

E. A. Hemmenway.

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UNITED STATES PATENT OFFICE.

JOSEPH M. HOYT, OF LYNN, MASSACHUSETTS.

BOTTLE-WASHER.

SPECIFICATION forming part of Letters Patent No. 238,289, dated March 1, 1881.

Application filed May 5, 1880. (Model.)

To all whom it may concern:

Be it known that I, JOSEPH M. HOYT, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Bottle-Washers, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to the construction of bottle-washing machines, and is an improvement upon the machine described in Letters Patent No. 213,583, granted to Orrin A. Miles and Eliphalet R. Lovett, March 25, 1879; and it consists in the employment of brush-carrying springs cut or "died" from sheet-steel of even thickness throughout, and having their ends, which are secured to the tubular hub which carries them, curved transversely for some distance in advance of the forward end of said hub, by which construction the brush-springs may be cut from thin sheet-steel and fitted at a comparatively small cost as compared with forged springs, while they have all the necessary good qualities of such forged springs, chief among which is stiffness at or near their connection to the hub.

It further consists in certain changes in the form of the rubber-brushes, whereby they are made more effective, which changes will be readily understood by reference to the description of the drawings to be hereinafter given.

It further consists in an improved manner of mounting the bell-mouthed sleeve which serves as a rest for the neck of the bottle, which will also be readily understood by reference to the description of the drawings.

It further consists in a novel arrangement of the revolving and reciprocating parts of the mechanism, and the mechanism for supplying water to the interior of the bottle during the operation of washing, and preventing its waste when no work is being done, as will be hereinafter described.

Figure 1 of the drawings is a plan view of my improved bottle-washing machine, with the frame-retracting spring removed. Fig. 2 is a side elevation. Fig. 3 is a vertical longitudinal sectional elevation, the cutting-plane being on line *x x* on Fig. 1. Fig. 4 is an end elevation. Figs. 5 and 6 are, respectively, a longitudinal and transverse section of the revolving and the non-revolving sleeves, drawn full working size. Fig. 7 is a side elevation of one form of brush. Fig. 8 is a transverse sectional elevation, the cutting-plane being on line *y y* on Fig. 7. Fig. 9 is an elevation of the rubber brush. Fig. 10 is a partial elevation of a brush adapted to the washing of champagne-bottles, drawn in an extended position; and Fig. 11 is an elevation of the same brush applied to the interior of a champagne-bottle in the proper position for cleaning the bottom of said bottle.

The drawings represent the machine with the brush in the position it occupies when washing a bottle.

A is the base of the machine, upon which are secured the two stands B B, to which is firmly bolted the frame C, provided at each end with a bearing, C′, in which is mounted the hollow shaft D, having secured thereon the driving-pulley E and the fly-wheel F. The hollow shaft D extends some distance beyond the frame C in one direction, and has screwed thereto the flexible brush-carrier, as shown, and at the other end said shaft makes a junction with the fixed pipe G, which is provided with a stuffing-box, G′, to render the joint between the rotating hollow shaft and the stationary pipe water-tight. The pipe G leads to and is connected with the water-supply, and is provided with a plug, cock, or valve, H, by means of which the flow of water through the hollow shaft D is controlled.

The frame C is provided with four hubs, C^2, two upon each side, which are bored out to form bearings for the two rods, I I, which are connected together at their front ends by the cross-head J, and at their rear ends by the arched cross-tail J′, so as to form a rigid frame, which may be reciprocated in the bearings C^2, as will be more fully described. The cross-head J has secured to the middle of its length the sleeve K, which incloses another sleeve, L, which has a bell-shaped or flaring mouth, and is retained in its proper position in the non-rotating sleeve K by means of the set-screw *a* and the segmental collar *b*, fitted to a circumferential groove, *c*, formed around the sleeve L, as clearly shown in Figs. 5 and 6. This construction and method of applying the sleeve L is adopted in order that it may be free to revolve with the brush when the brush is drawn into it, and so that said sleeve may be readily removed for cleaning, when desired.

The sleeves K and L are maintained in a

position to inclose the brush by the tension of the spring M, connected at one end to the center of the arched cross-tail J′, and at its other end to a correspondingly-shaped tie bolted to or forming a part of the frame C, in which position the cross-tail J′, bearing against the upper end of the lever *d*, secured to the stem of the cock or valve H, holds said cock or valve in a closed position and prevents the flow of water through the pipe D, said valve being opened by the tension of the spring *e* when the cross-tail J′ is moved to the rear by presenting a bottle to the bell-mouth of the sleeve L and pressing backward to overcome the tension of the spring M.

The brush-carrier is composed of the tubular hub N, provided with a screw-thread, by which it is coupled to the hollow shaft D, and having in its surface two dovetailed grooves, extending longitudinally thereof, upon opposite sides, said grooves being formed with their bottoms concentric, or nearly so, with the axis of the hub.

O O are two curved spring-arms cut from a thin flat steel bar or thin sheet-steel, and of even thickness throughout, but rendered stiffer at one end by curving them transversely, the edges of said curved ends being beveled to fit said dovetailed grooves, into which they are driven endwise, as shown.

P is the rubber-brush, secured to the outer or free ends of the spring-arms O O in the same manner as described in the patent of Miles and Lovett, before referred to, but differing from the brush there described in the construction of its rubbing-surface. The rubbing-face of the brush, which acts upon the bottom of the bottle, is composed of a large series of outwardly-projecting bosses or lugs, *f*, detached and separate from each other, but each forming an integral part of the same structure, and each adapted to act independently upon the surface of the bottle-bottom to clean it.

For cleansing champagne-bottles, or bottles which have bottoms that project upward into the bottle in the form of the frustum of a cone, I construct the brush of the shape in outline shown in Fig. 10, with the long projecting and flaring points *g g*, which extend down into the acute angle between said cone and the inner surface of the cylindrical body of the bottle, as shown in Fig. 11, whereby the whole surface of the conical bottom and the interior walls of the bottle are successively acted upon by the brush to thoroughly cleanse the same, the rubbing-surfaces of said brush being preferably provided with the series of projecting bosses or lugs *f f*. (Shown in Fig. 7.)

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a bottle-washing machine, a brush-carrier composed of the tubular hub N, provided with two dovetailed grooves extending longitudinally thereof, the bottoms of which grooves are substantially concentric with the axis of said hub, and the two leaf-springs O O, made of even thickness throughout, and having the ends thereof, which are secured to the tubular hub N, beveled to fit said dovetailed grooves, and also curved transversely from said end to a point some distance in advance of the front end of said hub, substantially as and for the purposes described.

2. The combination, in a bottle-washer, of the non-revolving sleeve K, provided with the set-screw *a*, the inner sleeve, L, provided with the circumferential groove *c*, and segmental collar *b*, all arranged and adapted to operate substantially as and for the purposes described.

3. In a bottle-washing machine, the fixed frame C, provided with bearings C′ C², the hollow shaft D, provided with the pulley E, and carrying at one end the brush-carrier N O O, and connected at its other end with the fixed pipe G by means of a stuffing-box, G′, the valve H, upright lever *d*, spring *e*, the reciprocating frame I I, J, and J′, the spring M, and the sleeves K and L, all constructed and arranged relative to each other substantially as described, for the purposes specified.

4. In a bottle-washer, a rubber-brush provided with means of attaching it to the spring-carrier, and with the long flaring projecting points *g g*, substantially as herein set forth, and illustrated in Fig. 10 of the drawings.

Executed at Boston, Massachusetts, this 26th day of April, A. D. 1880.

JOS. M. HOYT.

Witnesses:
E. A. HEMMENWAY,
WALTER E. LOMBARD.