

(No Model.)

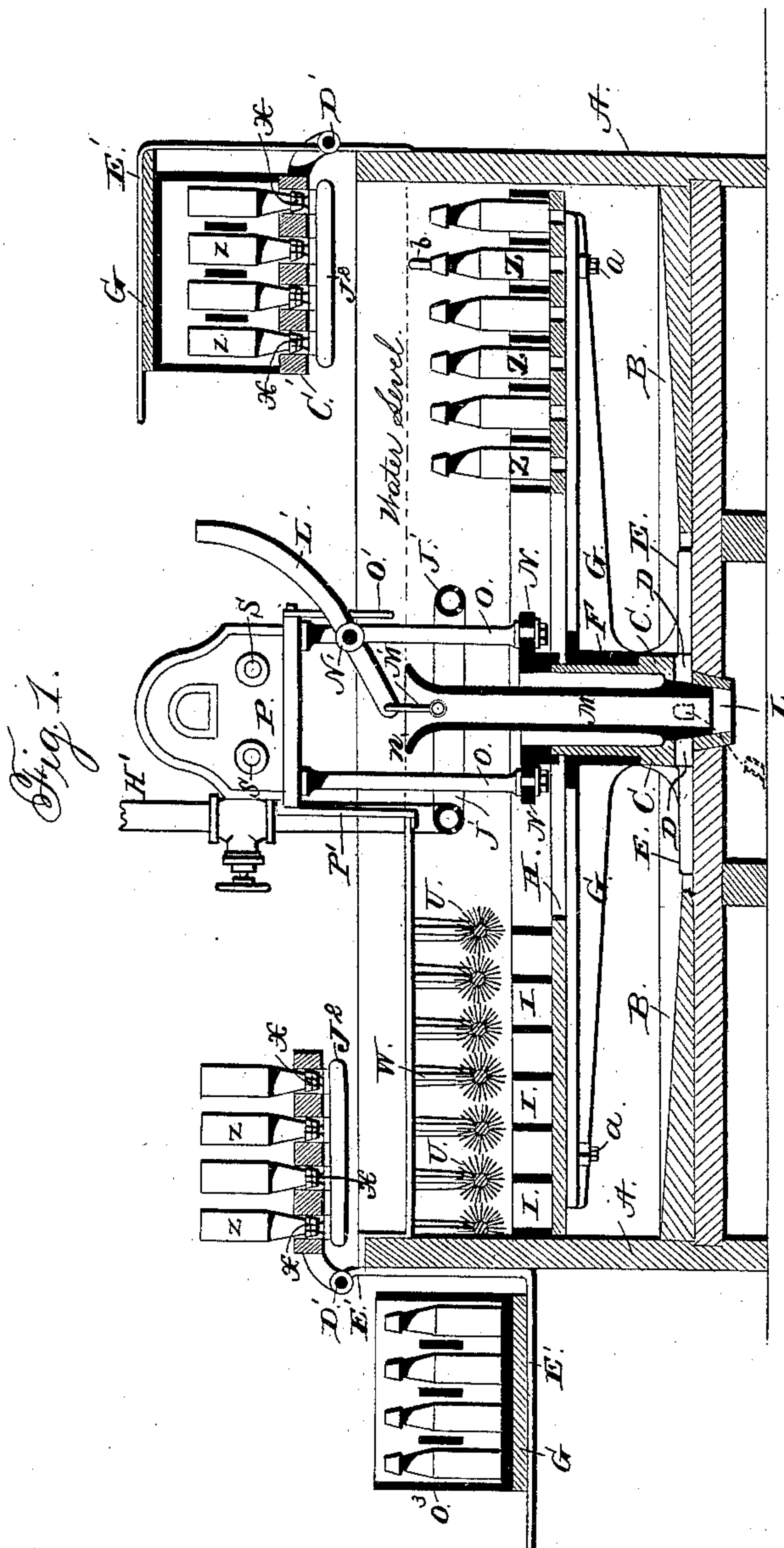
3 Sheets—Sheet 1.

C. B. INMAN.

BOTTLE WASHING AND BRUSHING MACHINE.

No. 401,561.

Patented Apr. 16, 1889.



Witnesses:
Jas. E. Hutchinson.
J. A. Rutherford.

Inventor.
Chas. Bottomley Inman,
By James L. Norris,
Attorney.

(No Model.)

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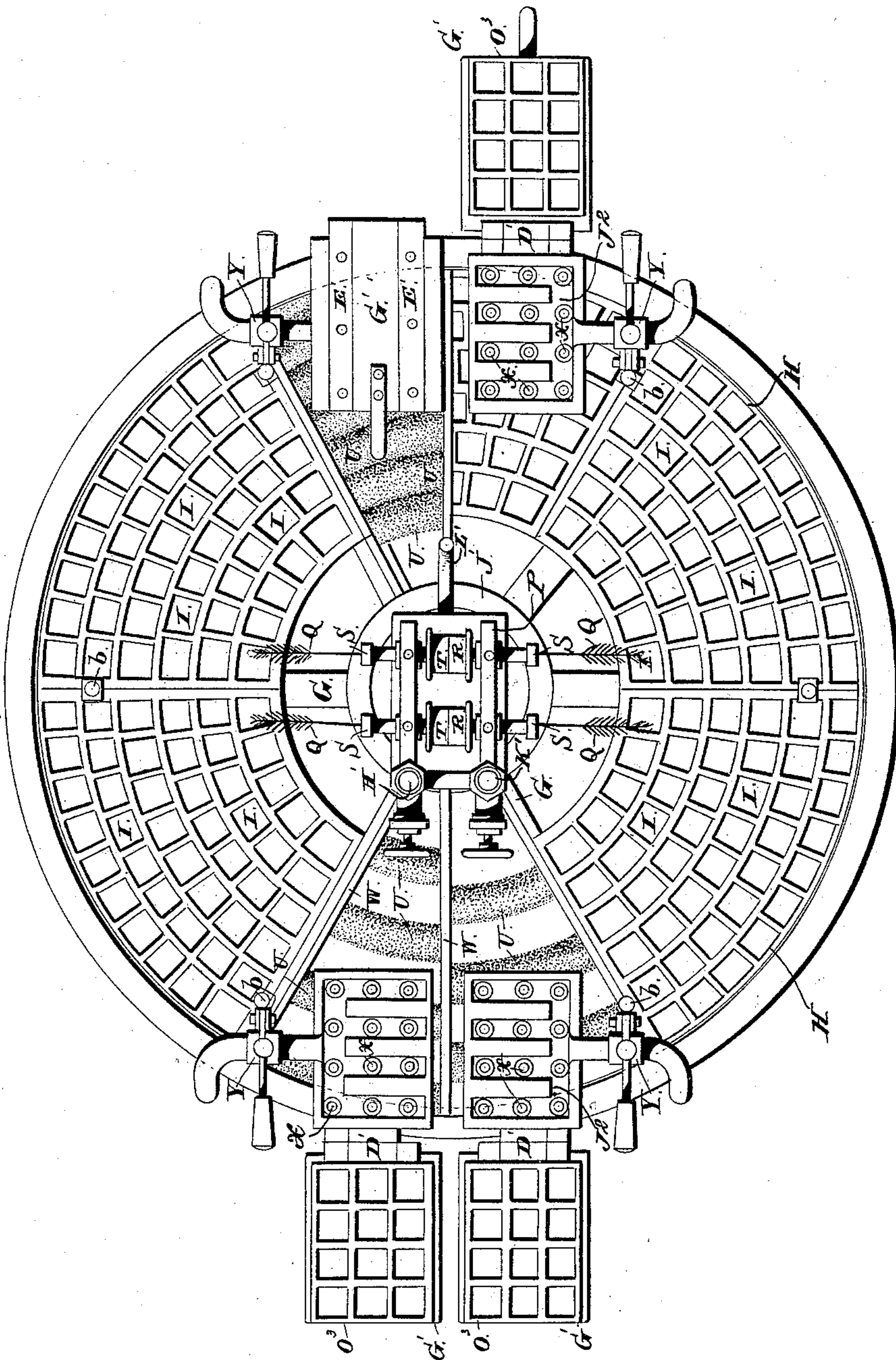
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Fig. 2.



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3 Sheets—Sheet 3.

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Fig. 3.

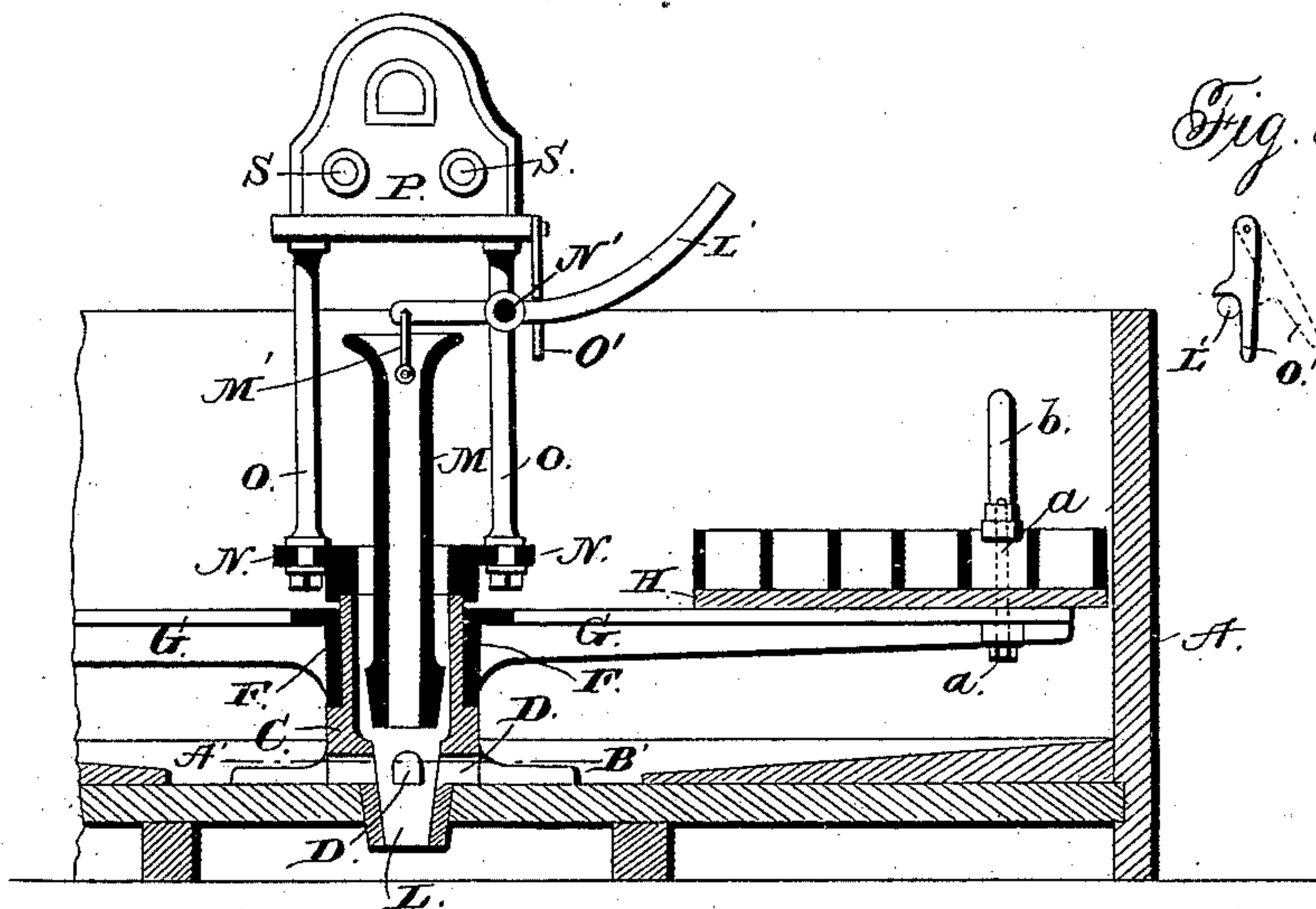


Fig. 5.



Fig. 4.

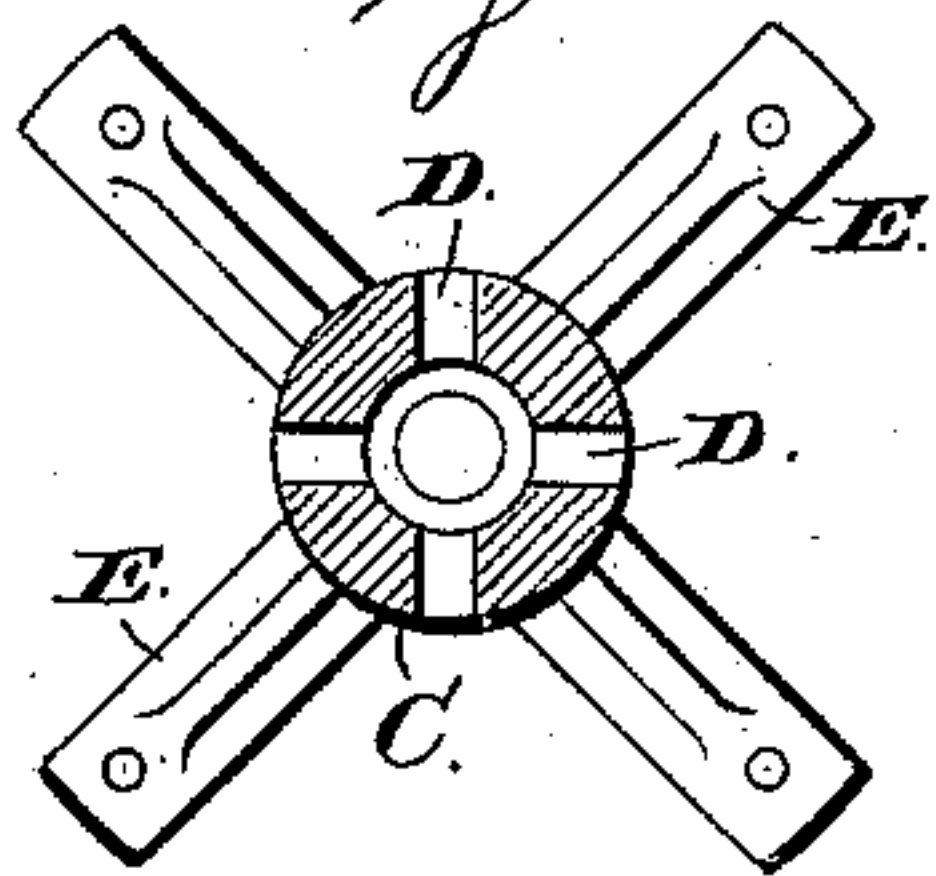


Fig. 7.

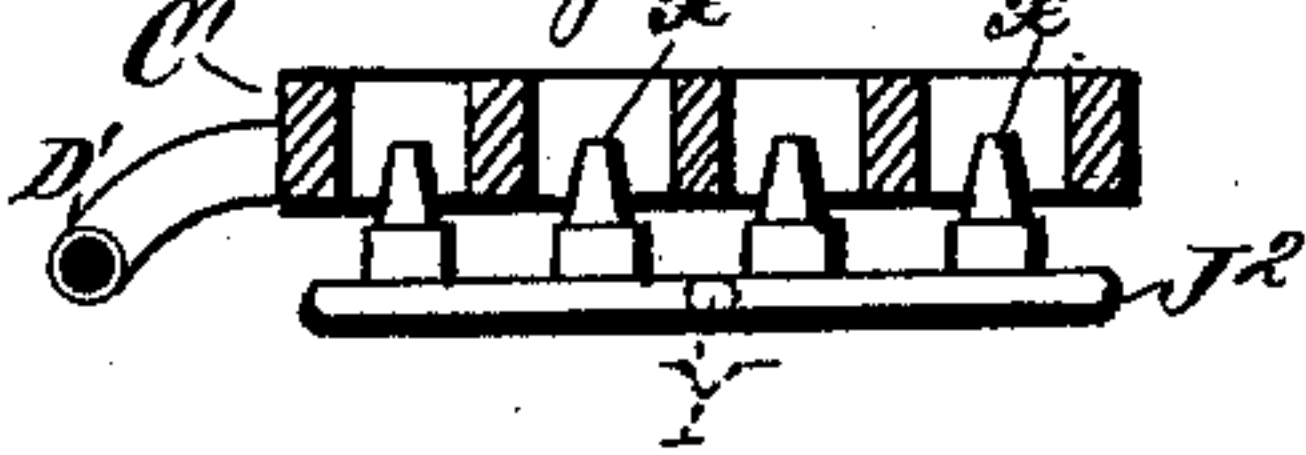
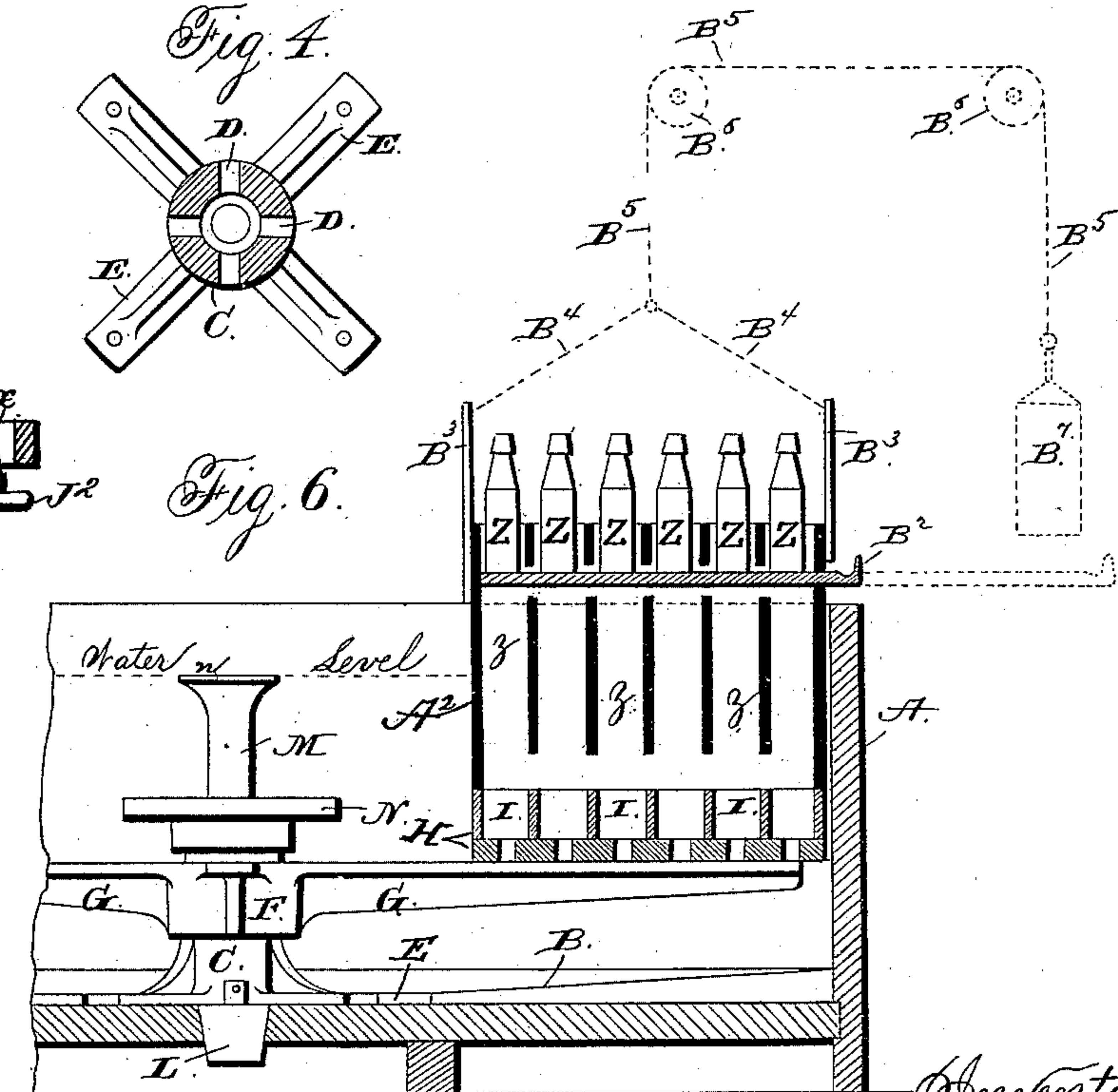


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES BOTTOMLEY INMAN, OF LEEDS, COUNTY OF YORK, ENGLAND.

BOTTLE WASHING AND BRUSHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 401,561, dated April 16, 1889.

Application filed March 10, 1888. Serial No. 266,842. (No model.) Patented in England June 28, 1887, No. 9,137.

To all whom it may concern:

Be it known that I, CHARLES BOTTOMLEY INMAN, a subject of the Queen of Great Britain, residing at Leeds, York county, England, have
5 invented certain new and useful Improvements in Machines for Washing Bottles, (for which I have obtained Letters Patent, No. 9,137, in Great Britain, dated June 28, 1887,) of which the following is a specification.

10 This invention has for its object to provide novel mechanism for washing the interior and exterior surfaces of bottles; and to such end the invention consists in the features of construction and combination of devices herein-
15 after described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a vertical central sectional view of a machine embodying my invention. Fig.
20 2 is a top plan view of the same. Fig. 3 is a broken vertical detail view to show the foot of the stand-pipe with the center tube raised; Fig. 4, a detail sectional view on the line A' B', Fig. 3; Fig. 5, a detail view of the catch
25 for holding the center-tube-operating lever; Fig. 6, a broken vertical sectional view showing the manner of supplying the bottles to the bottle-carrying boxes from an elevated position, and Fig. 7 a detail view of the rins-
30 ing-nozzles shown in Fig. 1.

In the said drawings, the letter A indicates a circular vat or tub, of wood or other suitable material, having a bottom, B, the upper surface of which inclines downward toward
35 the center from the outer portion to insure the complete emptying of the vat at the center when required. A stand-pipe, C, is located at the center of the vat bottom B, and is provided with lateral ports or passages D,
40 and with feet E, by which to bolt the stand-pipe to said vat bottom. A sleeve, F, fitted to rotate on the stand-pipe, is provided with radial arms G to support and carry the bottle-holding boxes H, which are each furnished
45 with a series of cells, I, each adapted to receive a bottle, as in Fig. 1. The lower end of the stand-pipe opens through the vat bottom, and is provided with an internal tapering bore, L, to receive the lower end of the ver-
50 tically-movable overflow center tube, M. The upper end of the center tube, M, when closed

down, as in Fig. 1, is at the working water-level, so that the water as it rises in the vat will overflow into the center tube and pass down the same through the bottom of the vat. 55 By arranging this overflow-tube in the stand-pipe at or near the center of the vat all refuse is drawn to the center and carried off. A flanged ring, N, fitted to the upper end of the stand-pipe, carries standards O, on which is
60 mounted a frame, P, that carries the shafts S of oppositely-projecting horizontal brushes Q, said shafts having fast and loose pulleys R T, by which to rotate the brushes through the medium of suitable belts, which latter, how- 65 ever, I do not deem it necessary to illustrate, as any suitable means may be provided to revolve the brushes. An annular distributing-pipe, J', having perforations, encircles the standards O, and is connected with two pipes, 70 H' K', having cocks or valves for supplying the annular distributing-pipe with water and steam.

The frame P is provided with depending hangers P', one of which is shown in Fig. 1, 75 for supporting the inner ends of horizontal bars W, the outer ends of which rest on the upper edge of the vat. These bars carry hangers, in which are located the shafts of brushes U, arranged in curved paths, as rep- 80 resented in Fig. 2, for cleaning the external surfaces of the bottles as the latter are carried between the brushes by rotating the bottle-boxes H through the medium of the arms G, which are furnished with suitable means— 85 such as handles b—for causing them to traverse the vat in a circular path. By brushing the external surfaces of the bottles all adhering matter—such as labels—is removed and will float on the surface of the water in the 90 vat, to pass off through the overflow center tube. As the lower end of the center tube fits the bore L as a valve, the lateral ports D are closed by the tube when the latter is down in normal position, as in Fig. 1. By lifting the 95 tube, as in Fig. 3, the ports D will be opened and the water in the vat will pass off through the stand-pipe C. To raise and lower the center tube, I provide a lever, L', mounted on a pivot, N', and connected at one end to the 100 center tube by a link, M'. If the outer end of the lever be depressed, the center tube will be

raised, as in Fig. 3, in which position it may be held by a catch, O', of suitable construction, pivoted to the frame P.

The bottle-holding boxes H are preferably secured to the arms G by bolts a , so that said boxes can be detached when desired.

To rinse the interiors of the bottles Z, I provide pipes J², from which rise nozzles X, said pipes connecting, respectively, with water-supply pipes Y, having suitable valves or cocks for controlling the passage of water therethrough. The bottles are supported in inverted positions over the rinsing-nozzles X by means of plates C', having a number of orifices, in which the mouths of the bottles are placed, so as to receive the rinsing-nozzles. The plates C' have arms pivoted by hinge-pins D' to the upper edge of the vat, so that the plates are thereby supported over the nozzles, and to the hinge-pins D' are pivoted angular brackets or arms E', carrying the base-plate G', for supporting the box O³ to contain the cleansed bottles.

In Fig. 2 I have omitted the plates C' for the purpose of more clearly showing the rinsing-nozzles and their supply-pipes J² and Y.

In Fig. 6 I have shown devices for supplying the bottles to the cells I of the bottle-holding boxes H. A case, A², having cells z , is provided with upwardly-projecting arms B³, supported by branches B⁴ of a cable, B⁵, which passes over pulleys B⁶, and is weighted, as at B⁷, so that the cell-case can be conveniently raised and lowered. The cell-case A² has near its top a horizontally-sliding plate, B², movable in a transverse slot formed through the cell-case and its cells for supporting the bottles Z, Fig. 6. By lowering the cell-case to rest on one of the bottle-holding boxes H and then drawing the plate B² outward to the position shown by dotted lines, Fig. 6, the bottle will fall down through the cells z in the case A² into the cells I of the box H. The case A is then lifted, the filled box H moved around to bring another box H into position, the case A² again lowered, and the operation repeated, as will be obvious. In this way the bottles to be cleansed can be supplied to the cell-boxes H with facility and without placing the hands in the water in the vat. The vat is supplied with cold water through pipe H' and annular distributing-pipe J', and when a sufficient quantity has been furnished to raise the water-level to the top of the center tube, M, as shown in Fig. 1, the cold-water supply is closed through the pipe H' and steam then admitted through the pipes K' and J' to heat the water to the desired temperature.

In operation the vat is filled with water to the height of the top N of the overflow-pipe M. The water is then heated to the desired temperature by means of steam from the perforated pipe J'. The cell-boxes H are filled with bottles in a vertical position, either by hand or from the frame A², as before described. As the bottles fill with water flies

and other light substances float to the top of the water in the vat and are carried away down the center tube, M. After the boxes H are filled with bottles they are propelled by the attendant taking hold of the handles b on the arms G until the next empty section takes the place of the one just filled, when the operation is repeated until all the boxes H are full of bottles. The bottles in the boxes H are by the revolving action of the arms G passed between the brushes U, which clean the outside of the bottles above the cells of the boxes H. The attendants at the brushes Q take the bottles out of the boxes H and place them in the usual manner on said brushes Q for brushing the inside of the bottles, and then place them in the holes in the hinged plate C' over the rinsing-nozzles X, for the purpose of injecting clean cold water into them before transferring them to the cases O³. When the rinsers are filled with bottles and have been drained of the rinsing-water, the attendant places the ordinary bottle case or box O³ over them, after which the hinged bracket E' is turned over until the latter rests on the bottom of the box or case O³, as shown in the right-hand upper corner of Fig. 1, when the whole are turned over bodily, as shown in the left-hand corner of Fig. 1, which places the washed bottles in the case or box O³ without handling them, after which said box is removed, the hinged plate C' being turned back over the rinsing-nozzles, and the operation repeated. As the cell-boxes H are emptied they are revolved by the attendant to a suitable position to be filled either by hand or by the frame A², by which time is saved, one box being filled and the bottles allowed to soak to keep up a constant supply of bottles for the attendants at the brushes Q.

Having thus described my invention, what I claim is—

1. The combination of a vat, pipes for supplying the same with water, a stand-pipe opening through the vat-bottom, an overflow-tube in the stand-pipe having its upper end opening at the water-level, radial arms journaled on the stand-pipe, bottle-carrying boxes supported by and moving around with the radial arms, and suspended brushes between which the bottles are carried by the bottle-boxes, substantially as described.

2. The combination of a vat, pipes for supplying the same with water, a stand-pipe having lateral water-passages and opening through the vat-bottom, a vertically-movable overflow-tube having a valve at its lower end to open and close the lateral water-passage in the stand-pipe, radial arms journaled on the stand-pipe to travel in a circular path, bottle-carrying boxes on the radial arms, and cleaning-brushes between which the bottles are carried by the bottle-boxes, substantially as described.

3. The combination, with a vat for washing bottles having an orifice in its bottom, of a

stand-pipe, C, opening through the vat-bottom, having lateral orifices D and provided with the bore L, the rising-and-falling overflow-tube M, having its lower end adapted to said bore, and a pivoted swinging lever, L', connected with the tube for raising and lowering it in a vertical plane, substantially as described.

4. The combination, with a vat, of a central stand-pipe, C, a flanged ring, N, on the pipe, standards O, carried by the ring or frame P on the uprights, the rotary brushes Q on the frame, the supports W, connected with said frame, the brushes U, suspended from the supports, and traveling bottle-boxes for moving the bottles between the suspended brushes, substantially as described.

5. The combination, with a vat, of a stand-pipe C, rotary arms journaled on the pipe and having bottle-boxes moving therewith, and the overflow-tube M, located in the stand-pipe and having its upper end arranged to carry off the matter floating on the surface of the water in the vat, substantially as described.

6. The combination, with the vat, of the covers C', hinged thereto, the rinsing-nozzles X, the hinged brackets E', for supporting the bottle-boxes O³, and pipes Y, for supplying the rinsing-nozzles with water, substantially as described.

7. The combination, with a vat and traveling bottle-carrying boxes therein, of the cell-case A², the horizontally-sliding plate B² in the said case, and means for raising and lowering the cell-case, substantially as described.

8. The combination, with the vat, of the stand-pipe C, the rotary sleeve F, carrying the box-supporting arms G, the flanged ring N on the upper end of the stand-pipe, the standards O, secured to the flanged ring, and the frame P, mounted on the standards and carrying the revolving brushes Q, substantially as described.

9. The combination, with the vat, of the stand-pipe C, the traveling arms G, carrying the bottle-holding boxes H, the flanged ring on the stand-pipe above the traveling arms, the standards O, secured to the flanged ring and provided with the hangers P', the bars W, supported at their inner ends by the hangers, and the suspended brushes U, hung from the bars, substantially as described.

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

CHARLES BOTTOMLEY INMAN.

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