

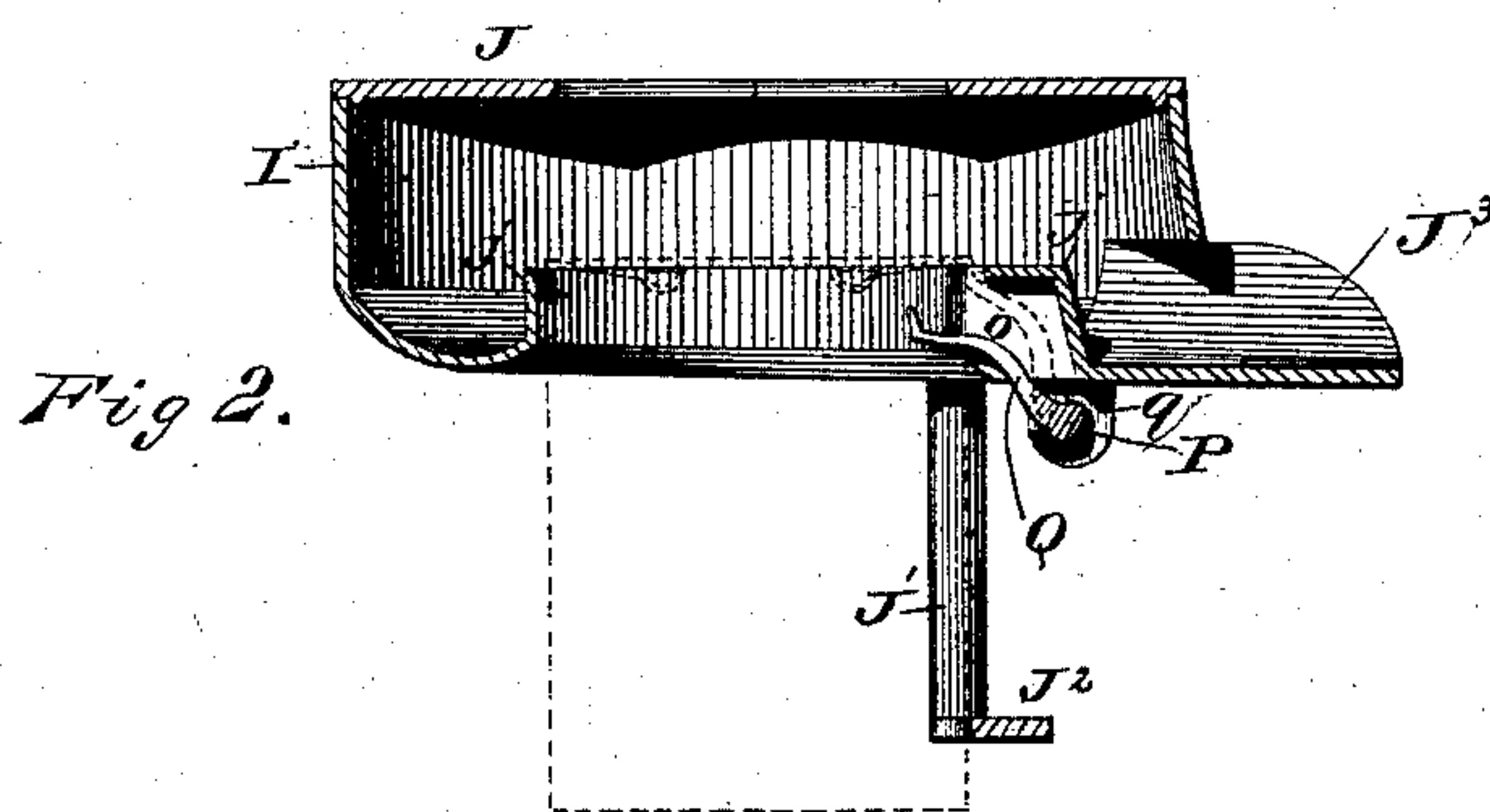
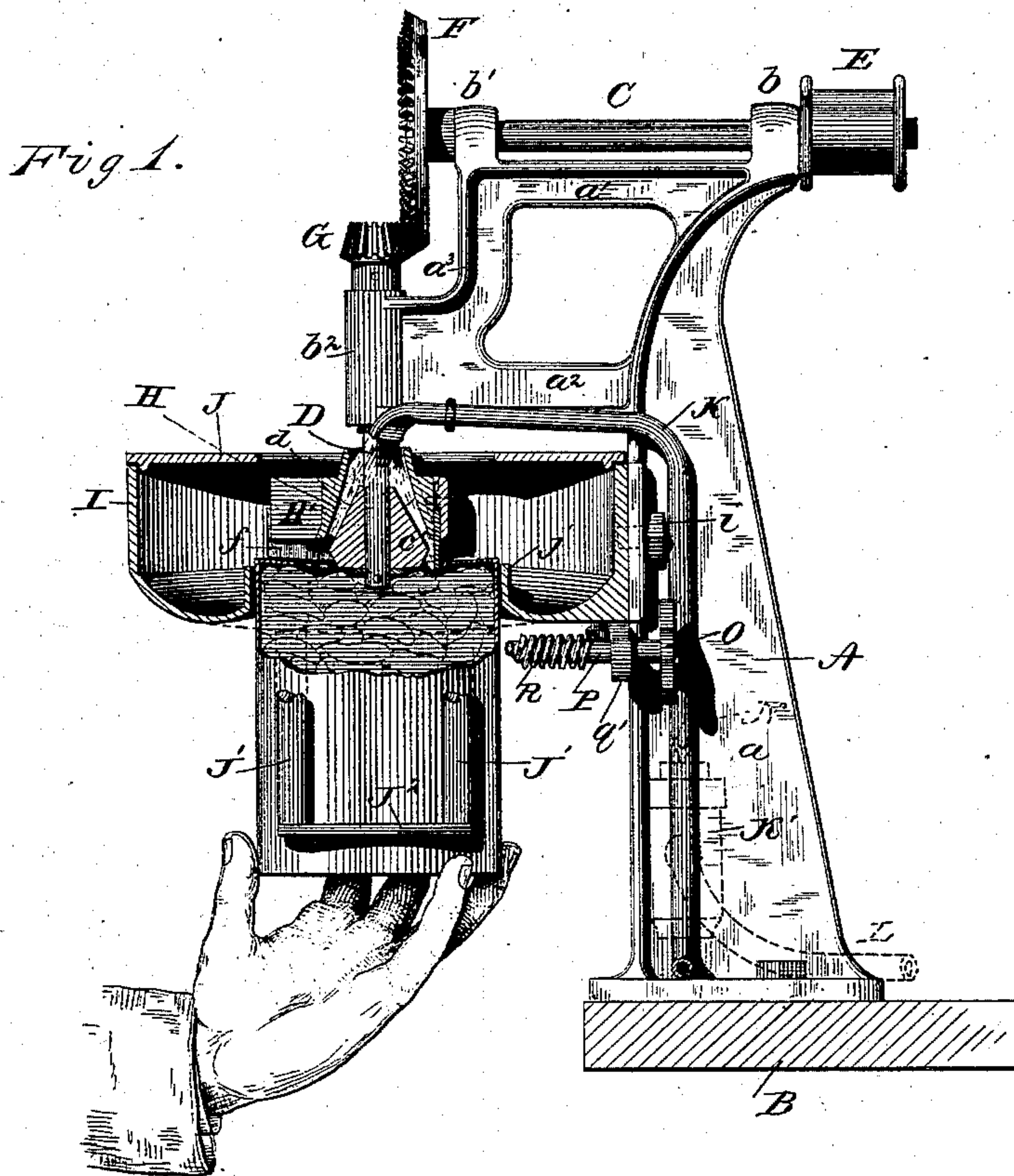
(No Model.)

4 Sheets—Sheet 1.

V. BARKER.  
CAN WASHING MACHINE.

No. 282,434.

Patented July 31, 1883.



**WITNESSES**

Harry King  
F. R. Harding,

INVENTOR

By his Attorney

Johny Barker.  
J. C. Somes.

(No Model.)

4 Sheets—Sheet 2.

V. BARKER.  
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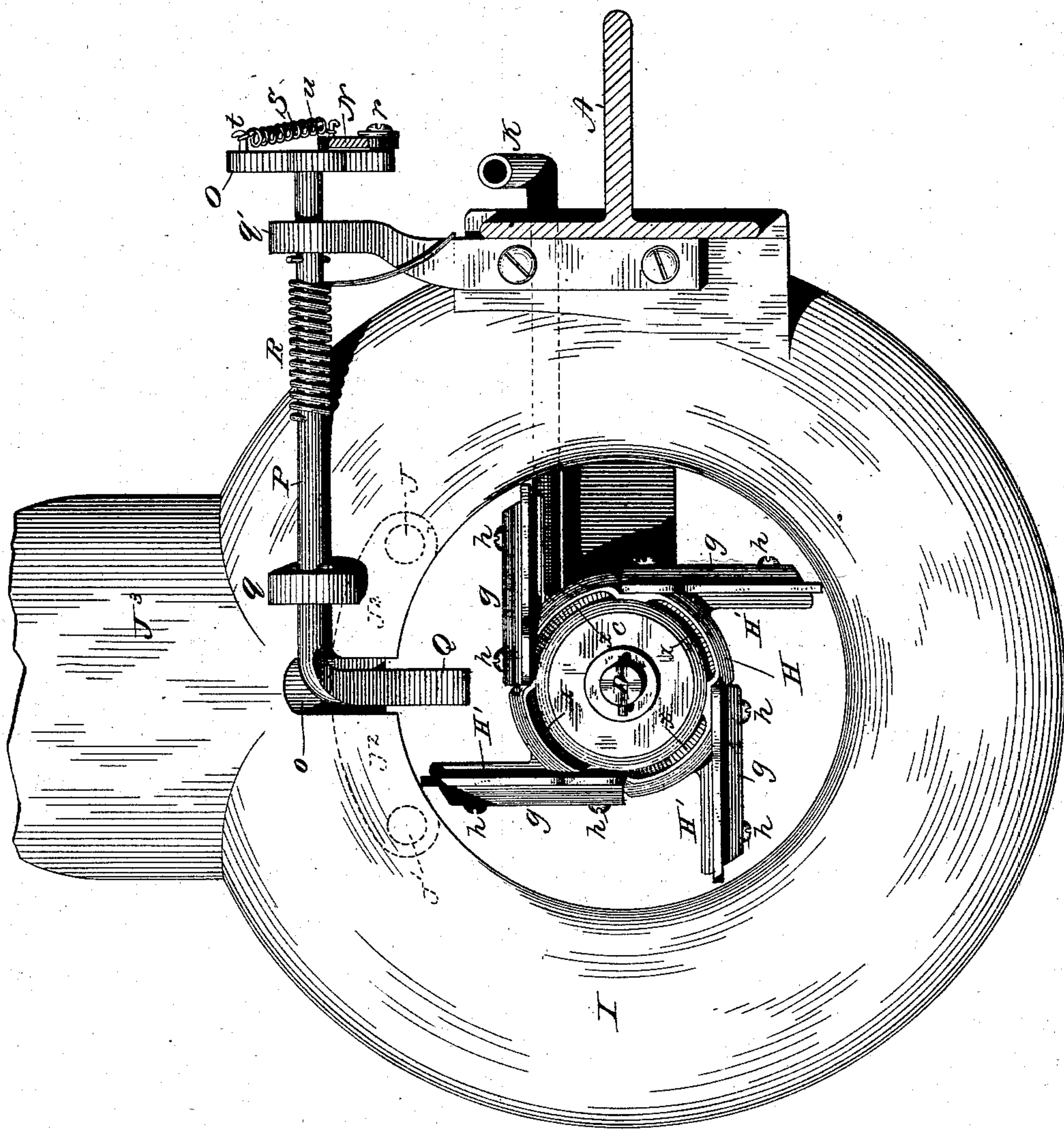


Fig 3.

WITNESSES

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*J. C. Lomes.*



(No Model.)

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V. BARKER.  
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Fig 4.

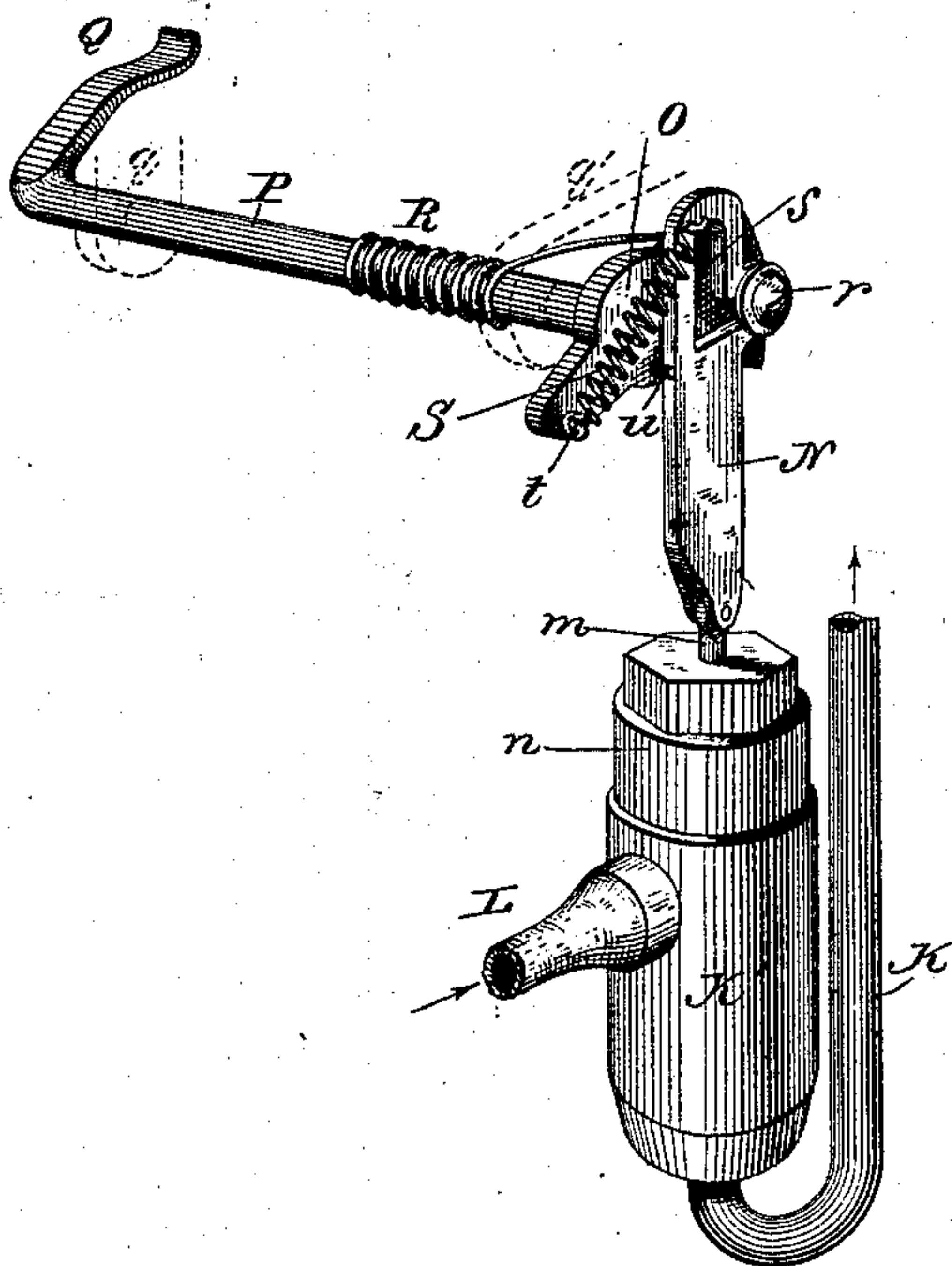
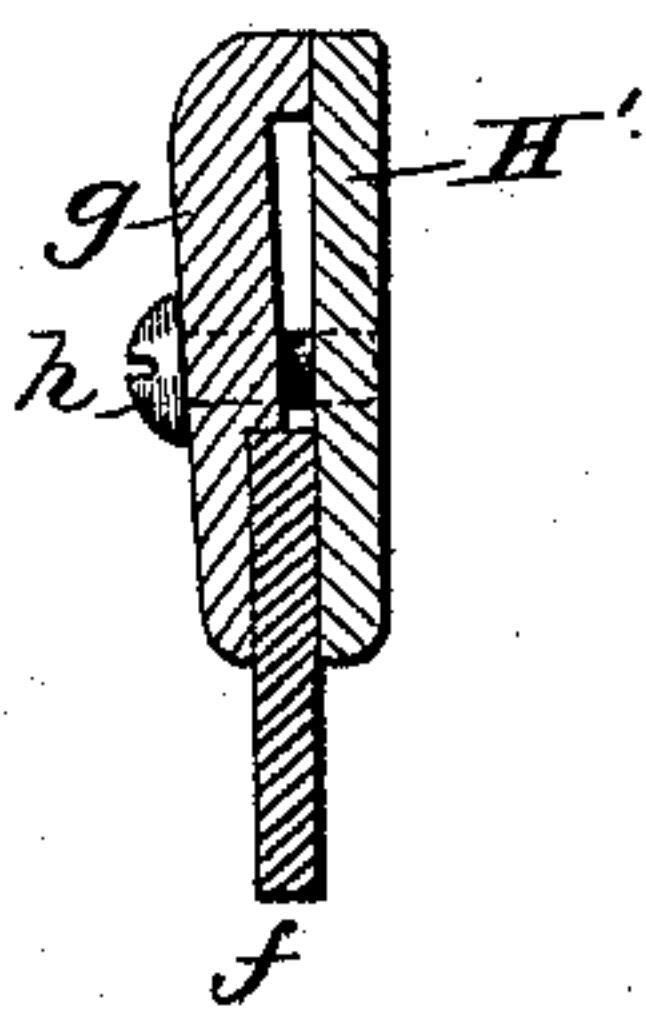


Fig 9.



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(No Model.)

4 Sheets—Sheet 4.

V. BARKER.  
CAN WASHING MACHINE.

No. 282,434.

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*Fig 5.*

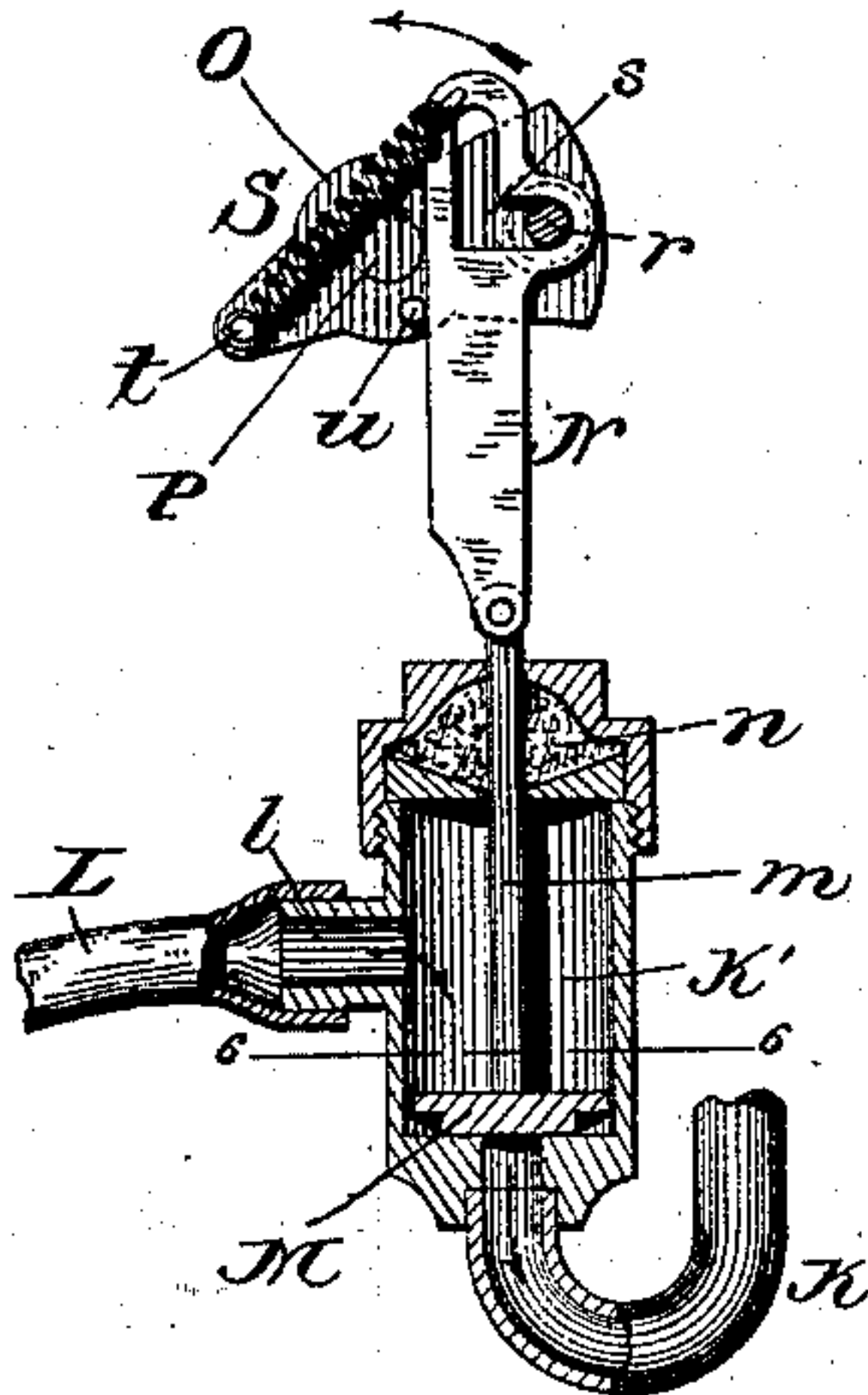


Fig 6.

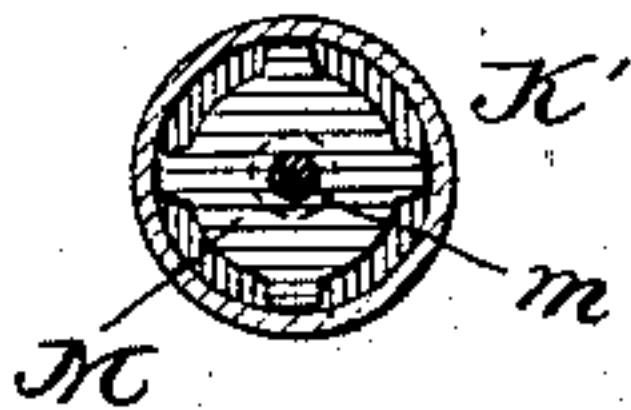


Fig 8.

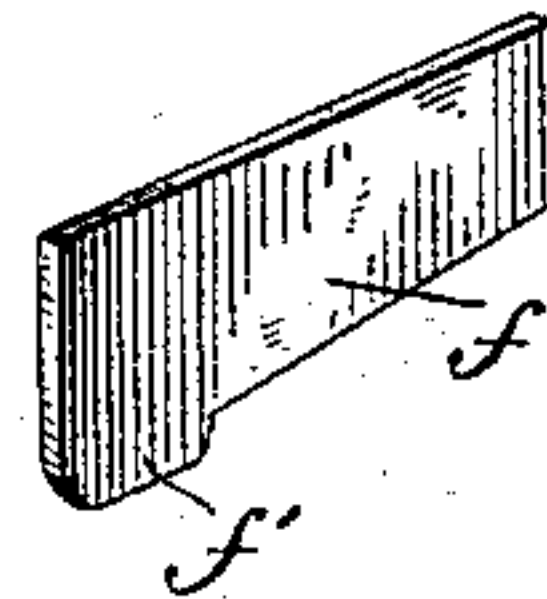
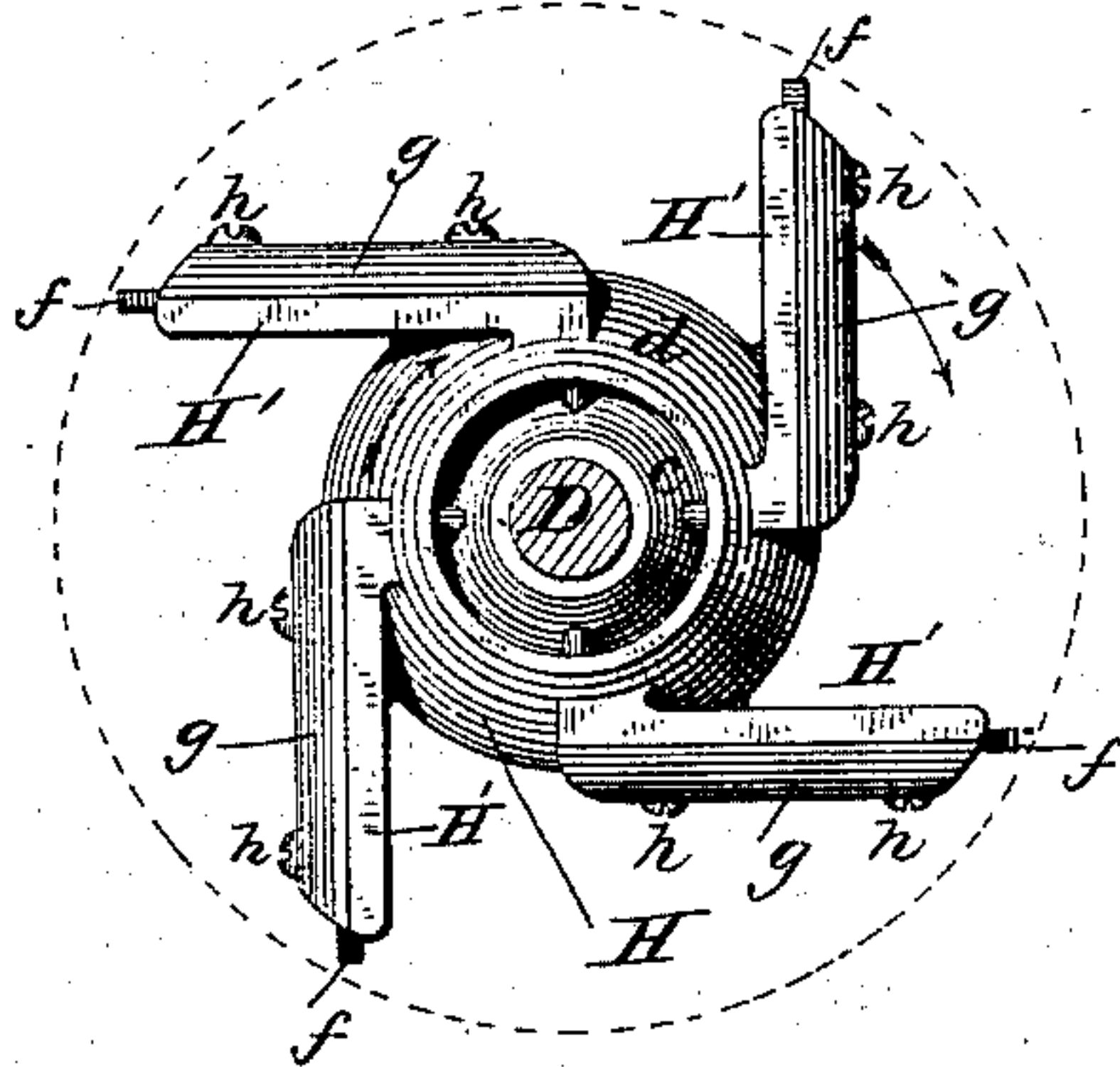


Fig 7.



**WITNESSES**

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 By his Attorney *J. E. Somes.*



# UNITED STATES PATENT OFFICE.

VOLNEY BARKER, OF PORTLAND, MAINE.

## CAN-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 282,434, dated July 31, 1883.

Application filed May 14, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, VOLNEY BARKER, a citizen of the United States of America, residing at Portland, in the county of Cumberland and State of Maine, have invented a certain new and useful Improvement in Can-Washing Machines, of which the following is a description sufficiently full, clear, and exact, to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings forming a part of this specification.

This invention relates to machines for washing the tops of cans after being filled, and before capping and sealing.

In canning fruits and vegetables, the cans are usually filled with the substance to be preserved through a circular opening or mouth in the top of the can, which top is provided with an annular groove surrounding said mouth. A vented disk or cap of such character that its edge or rim will rest in said groove is then placed over the mouth and soldered to the top of the can. It is necessary that the can-tops be thoroughly cleaned, especially as regards the groove, before the caps are applied, as otherwise it is difficult to seal the cans air-tight.

The method of cleaning the can-tops, as now generally practiced, consists in washing them by hand with a wet cloth or sponge, and then rinsing the cloth in clean water and wiping the can-tops therewith. This is a slow, laborious, and expensive process, requiring a large number of hands, and is otherwise objectionable as the cloths absorb dirt and become more or less foul, even though the water be frequently changed.

The object of this invention is to provide a machine which, avoiding the objections above specified, will rapidly, thoroughly, and economically cleanse the heads or tops of the cans, preparatory to sealing, as aforesaid.

The invention consists, principally, in the combination of a rotary head of peculiar construction, carrying flexible scrapers adapted to move over the can-top, and means for operating the same in contact with the can-top.

The invention consists, further, in the combination of a rotary head of peculiar construction,

carrying flexible scrapers adapted to move over the can-top, and means for supplying water to said top in connection with the movement of the scrapers.

The invention consists, further, in the combination of a rotary head of peculiar construction, carrying flexible scrapers adapted to move over the can-top, a pipe for supplying water to said top, a valve in said pipe, and means whereby said valve is opened by the application of a can to the machine.

The invention consists, further, in the combination of a rotary head of peculiar construction, having flexible scrapers adapted to rotate in contact with the can-top, means for supplying water to said top, and an annular chamber surrounding the rotary head for receiving the water discharged from the can-top.

The invention consists, further, in certain novel constructions, combinations, and arrangements of parts, as hereinafter set forth and claimed.

In the accompanying drawings, which show a convenient arrangement of parts for carrying out the objects of this invention, Figure 1 is a side elevation, partly in section, of this improved can-washing machine. Fig. 2 is a transverse section of the annular chamber or casing surrounding the rotary head. Fig. 3 is a bottom view of this improved machine, the end of the spout for conducting the water from the annular chamber being shown as broken off. Fig. 4 is a perspective view of the mechanism for regulating the supply of water. Fig. 5 is a side view of the same, showing the valve and pipes in vertical section. Fig. 6 is a horizontal section of the valve-cylinder on line 6 6, Fig. 5. Fig. 7 is a top view of the rotary head. Fig. 8 is a perspective view of one of the flexible scrapers. Fig. 9 is a transverse section of one of the tangential arms of the rotary head.

Similar letters of reference indicate corresponding parts in the different figures.

The frame of this machine, designated in the drawings by the letter A, may be of any suitable form or material, and is here shown as consisting of the upright iron standard *a*, bolted to the bench or table B, ordinarily used for filling cans, and the horizontal arms *a'* *a'*, extending



ing from said standard, and connected at their outer ends by the angular or bent arm  $a^3$ . This frame is provided with horizontal bearings  $b b'$ , in which the driving-shaft C rotates, and with a vertical bearing,  $b^2$ , for the vertical shaft D. The driving-shaft C is provided at one end with a pulley, E, and at the opposite end with the beveled gear F. The pulley E is designed to be connected by a belt with a pulley on a counter-shaft above, or to be connected with a driving-wheel beneath the bench, operated by a treadle. The beveled gear F meshes with a beveled pinion, G, at the upper end of the vertical shaft D.

To the lower end of the vertical shaft D is fixed a rotary head, H, which carries the scrapers for operating in contact with the can-top. This rotary head is shown as composed of a conical body,  $c$ , and a truncated conical shell,  $d$ , which surrounds the upper part of and extends above the conical body. The lower end of the conical body  $c$  is preferably beveled or tapered inward and adapted to fit the opening or mouth in the top of the can. The outer shell,  $d$ , is provided with a series of arms,  $H'$ , preferably arranged tangentially, and flexible scrapers  $f$ , composed of india-rubber or other suitable elastic or flexible material, are adjustably attached to these arms by means of clamps  $g$  and screws  $h$ . The inner lower edge of each clamp is preferably serrated to more firmly hold the rubber scrapers. These scrapers are provided at their inner ends with a downwardly-projecting lip,  $f'$ , which serves to wipe the groove of the can-top. As the scrapers become worn they may be readily removed and replaced by new scrapers. The space or spaces between the body and shell constitute a water passage or passages through which water is discharged onto the can-top. These water-passages have their discharge-orifices at a point or points of the head which are opposite to or near the inner edge of the open-mouthed can-top, and preferably on a plane with the scrapers.

An annular casing or chamber, I, surrounds the rotary head and serves as a holder for the cans, and also to confine and conduct off the water used in washing the tops of the cans. This chamber is designed to be supported by any suitable means, being here shown as attached to the standard  $a$  by screws, or bolts and nuts  $i$ . The bottom of the annular chamber is preferably convex, and is provided with an upturned flange,  $j$ , around its inner circumference, which constitutes the inner wall of the chamber, said chamber being open on its inner side above said lip to permit the spray to enter it from off the can-top. The object in making this chamber in annular form is to facilitate the application and removal of the cans, the central opening formed by the chamber and surrounded by said lip being slightly larger in diameter than the diameter of the cans to be operated upon. A removable annular plate, J, composed of two sections or

parts, serves as a cover for the chamber and leaves a central opening above the rotary head, through which the shaft carrying said head passes. The rotary head is so adjusted relatively to the chamber that when a can is applied to the machine in contact with the scrapers of the head, the mouth thereof will be closed by the solid portion of the head, and the can-top will be on a level with or above the top of the lip  $j$ , so that the water driven off the latter at a tangent will pass over said lip. The chamber is provided with a spout or pipe, which discharges the water, containing more or less of the vegetable or fruit juices, into a suitable receptacle. The dependent vertical rods  $J'$ , attached to the annular chamber near its inner circumference, and connected at their lower ends by the arc-shaped strip  $J^2$ , serve as guides in adjusting a can to the machine.

A pipe, K, is arranged to discharge water into the head H, between the shell and body thereof, said pipe being provided with a suitable valve for regulating the supply of water. The valve shown consists of a valve-chamber,  $K'$ , and a vertically-reciprocating valve, M, therein, said chamber being connected at its lower end to the up-turned end of pipe K, and provided with a lateral inlet,  $l$ . A flexible or other pipe, L, connects the inlet  $l$  with an elevated reservoir or other source of water-supply.

The mechanism for actuating the valve is preferably of such a character and so arranged in connection with the machine that the valve is opened by the adjustment of a can into position to be washed, and then suddenly closed automatically, whereby the quantity of water required to cleanse a can-top, and no more, is discharged into the rotary head, and this without special manipulation on the part of the operator. The mechanism for this purpose, as shown herein, will now be described. The stem  $m$  of the valve M projects through a stuffing-box,  $n$ , at the top of the valve-chamber  $K'$ , and an oscillating link, N, provided at its upper end with an L-shaped angular slot,  $s$ , is pivoted at its lower end to said valve-stem. A rod, P, adapted to turn axially in bearings in the ear  $q$  and arm  $q'$ , attached to the bottom of the annular chamber, is provided at its outer end with a plate, O, against the outer face of which the link N is held by means of a screw-stud,  $r$ , or equivalent device, which passes through the angular slot of the link into the plate. The opposite end of the rod is provided with an inwardly-bent arm, Q, which extends beyond the inner circumference of the annular chamber, and serves as a trigger for actuating the mechanism to open the valve. The annular chamber is provided with a recess,  $o$ , opposite the trigger to admit of the vertical oscillation of the latter. A spring, S, connected at one end to the stud  $t$  on the plate O and at the other end to the link N, acts contractively to draw said link downwardly and



laterally against the stop *u* on said plate, in which position of the link the valve *M* is closed. A coiled spring, *R*, around the rod *P*, having one end fixed to said rod and the other end projecting under the arm *q'*, tends to hold the rod and its plate in the position shown in Figs. 4 and 5, the trigger *Q* being then, as shown in Figs. 2 and 3, in position to be struck by a can when the latter is applied to the machine. The can so applied comes in contact with the trigger and raises the latter into the position shown in dotted lines in Fig. 2, causing the rod and plate to make a quarter-rotation in the direction of the arrow, Fig. 5, and the stud *r*, fixed to said plate, to move upward through an arc-shaped path equal to the quarter of a circle. In this movement the stud lifts the link *N*, and consequently the valve-stem and valve, and passes from the outer end of the horizontal portion of the L-shaped slot in said link to the inner end thereof, where it reaches the vertical portion of said slot, which permits the link to be drawn down by the action of the spring *S* to close the valve. Thus during the quarter-rotation of the rod the valve *M* is both opened and closed, causing the ejection of a small quantity of water into the rotary head. The spring *R* restores the parts to their normal position as soon as the can is removed from the machine.

The machine is preferably arranged so that the actuating mechanism is at the right of the main standard of the frame (though it is not so shown in the drawings) and the cans are pushed along the top of the bench by the operator with his left hand and brought beneath the annular chamber. The can is then raised into the central opening into contact with the rotary head, being guided into position by the dependent rods and the inner circumferential lip of the chamber. The downwardly-tapered portion of the head projects into the mouth of the can and closes the same, and the groove in the top of the can is opposite the openings between the shell and body of the head. When raised into position the can strikes against the trigger *Q* and the valve is opened for an instant so that water is discharged into the head, which rotates at a high speed—say six hundred to seven hundred turns a minute. The centrifugal force of the head causes the water to be discharged forcibly in the form of spray into the groove and onto the can-top, and the rapid movement of the rubber scrapers throws outward instantly all the water, vegetable or fruit juice on the can-top, leaving it clean and dry. The water and juice which is thrown off from the can-top is caught in the covered annular chamber surrounding the head and the upper portion of the can, and thence flows out into a suitable receptacle. The machine will clean thirty or more cans a minute more effectively than they can be cleaned by hand.

What is claimed as the invention is—

1. The combination, substantially as set

forth, of a vertical shaft and a rotary head attached thereto for cleaning the tops of filled and uncapped cans, said head being provided with a laterally-extending horizontal flexible scraper or scrapers adapted to fit the top of a can beyond the mouth thereof, and with a water passage or passages within the head which discharges laterally onto the can-top.

2. The combination, substantially as set forth, of a vertical shaft, a rotary head attached thereto for cleaning the tops of filled and uncapped cans, said head being provided with a laterally-extending horizontal flexible scraper or scrapers adapted to fit the top of a can beyond the mouth thereof, and means for guiding a can in its application to the machine.

3. The combination, substantially as set forth, of a rotary head for cleaning can-tops provided with flexible material and with a water passage or passages, a water-supply pipe provided with a valve, a lever or trigger that actuates the valve mechanism for opening the valve when a can is applied to the head, and means for automatically closing said valve instantaneously while the can is in contact with the head.

4. A rotary head for cleaning can-tops, provided with a water passage or passages and a laterally-extending flexible scraper or scrapers arranged tangentially, substantially as described.

5. The combination, substantially as set forth, of a rotary head provided with a water passage or passages, and a laterally-extending flexible scraper or scrapers arranged tangentially, and means for supplying water to said head.

6. The combination, substantially as set forth, of a rotary head provided with a water passage or passages, and with a laterally-extending flexible scraper or scrapers arranged tangentially, means for rotating said head, and means for guiding a can in its application to the machine.

7. The combination, substantially as set forth, of a rotary head provided with a water passage or passages, and with a laterally-extending flexible scraper or scrapers arranged tangentially, and means for supplying a determinate quantity of water to said head on the application of a can to the machine.

8. The combination, substantially as set forth, of a vertical shaft, and a rotary head attached to the lower end of said shaft for cleaning the tops of filled and uncapped cans, said head being provided with a laterally-extending horizontal flexible scraper or scrapers and with a water passage or passages, the discharge opening or openings of which are located at a point or points opposite the inner edge of the open-mouthed can-top.

9. The combination, substantially as set forth, of a vertical shaft, a rotary head secured to the lower end of said shaft for cleaning the tops of filled and uncapped cans, said head be-



ing provided with a laterally-extending horizontal flexible scraper or scrapers and with a water passage or passages, the discharge opening or openings of which are located at a point or points opposite the inner edge of the open-mouthed can-top, and means for supplying water to said head.

10. The combination, substantially as set forth, of a vertical shaft, a rotary head secured to the lower end of said shaft for cleaning the tops of filled and uncapped cans, said head being provided with a laterally-extending flexible scraper or scrapers and with a water passage or passages, the discharge opening or openings of which are located at a point or points opposite the inner edge of the open-mouthed can-top, and means for supplying a determinate quantity of water to said head on the application of a can to the machine.

11. A rotary head, the lower part of which is in the form of a stopper adapted to fit the mouth of a can, said head being provided with a laterally-extending flexible scraper or scrapers, substantially as set forth.

12. A rotary head for cleaning can-tops, the lower part of which is in the form of a stopper adapted to fit the mouth of a can, said head being provided with laterally-extending flexible scraper or scrapers, arranged tangentially, substantially as described.

13. A rotary head, the lower part of which is in the form of a stopper adapted to fit the mouth of a can, said head being provided above the plane of its lower face with a water passage or passages and with a laterally-extending flexible scraper or scrapers, substantially as described.

14. The combination, substantially as set forth, of a rotary head, the lower part of which is in the form of a stopper adapted to fit the mouth of a can, said head being provided above the plane of its lower face with a water passage or passages and a laterally-extending flexible scraper or scrapers, means for rotating said head, and means for supplying water thereto.

15. The combination, substantially as set forth, of a rotary head, the lower part of which is in the form of a stopper adapted to fit the mouth of a can, said head being provided above the plane of its lower face with a water passage or passages and with a laterally-extending flexible scraper or scrapers, arranged tangentially, means for rotating said head, and means for supplying water thereto.

16. The combination, substantially as set forth, of a rotary head, the lower part of which is in the form of a stopper adapted to fit the mouth of a can, said head being provided with a laterally-extending flexible scraper or scrapers, means for rotating said head, and means for guiding a can in its application to the machine, whereby the mouth of the can is directed into contact with the stopper formation of the head.

17. The combination, substantially as set forth, of a rotary head, the lower part of which

is in the form of a stopper adapted to fit the mouth of a can, said head being provided with a laterally-extending flexible scraper or scrapers, means for rotating said head, and a casing surrounding the head.

18. The combination, substantially as set forth, of a rotary head, the lower part of which is in the form of a stopper adapted to fit the mouth of a can, said head being provided above the plane of its lower face with a water passage or passages and a laterally-extending flexible scraper or scrapers, means for supplying water to said head, means for rotating said head, and a casing surrounding said head.

19. The combination, substantially as set forth, of a vertical shaft, a rotary head attached thereto provided with a laterally-extending horizontal flexible scraper or scrapers, means for supplying water to said head, and a chamber or casing surrounding said head, the bottom of which below said head is provided with an opening slightly larger in diameter than the diameter of a can, whereby the upper portion of the can may project through said opening and be steadied by the casing while the can-top is being cleaned by the head.

20. The combination, substantially as set forth, of a rotary head, the lower part of which is in the form of a stopper adapted to fit the mouth of a can, said head being provided above the plane of its lower face with a water passage or passages and with a laterally-extending flexible scraper or scrapers, means for supplying water to said head, and a chamber or casing surrounding said head, having a bottom provided with a central opening slightly larger in diameter than the diameter of a can, whereby the upper portion of the can may project through said opening and be steadied by the casing while the can-top is being cleaned by the head.

21. The combination, substantially as set forth, of a rotary head or arms provided with flexible material, means for supplying water, and an annular chamber having a central opening below said head, and a lip surrounding said opening for guiding a can.

22. The combination, substantially as set forth, of a rotary head, the lower part of which is in the form of a stopper adapted to fit the mouth of a can, said head being provided above the plane of its lower face with a water passage or passages and with a laterally-extending flexible scraper or scrapers, a water-supply pipe, and a water-supply-regulating mechanism actuated by the application of a can to the machine.

23. The combination, substantially as set forth, of a rotary head, the lower part of which is in the form of a stopper adapted to fit the mouth of a can, said head being provided above the plane of its lower face with a water passage or passages and with a laterally-extending flexible scraper or scrapers, a water-supply pipe provided with a valve, a le-



ver or trigger that actuates the valve mechanism for opening the valve when a can is applied to the head, and a spring that closes the valve.

5 24. The combination, substantially as set forth, of a rotary head, the lower part of which is in the form of a stopper adapted to fit the mouth of a can, said head being provided above the plane of its lower face with a water passage or passages and with a laterally-extending flexible scraper or scrapers, guides for centering a can, a water-supply pipe, and a water-supply-regulating mechanism actuated by the application of the can to the machine.

15 25. A rotary head for cleaning the tops of cans, the lower part of which is in the form of a stopper adapted to fit the mouth of a can, said head being provided with a laterally-extending flexible scraper or scrapers provided near their inner ends, with downwardly-projecting lips adapted to wipe the groove of a can, substantially as described.

26. A rotary head for cleaning can-tops, the lower part of which is in the form of a stopper adapted to fit the mouth of a can, said head being provided with horizontal arms to which flexible scrapers are detachably fastened by means of clamping-plates, substantially as described.

30 27. A rotary head consisting of a conical body and a conical shell, with a space between them for the discharge of water, said shell being provided with tangential arms having flexible scrapers, substantially as described.

35 28. The combination of a water-supply pipe and a rotary head for cleaning the tops of cans, consisting of a conical body and a tapered shell, with water-passages between said body and shell, said rotary head being provided with scrapers or rubbers of flexible material, substantially as described.

29. The combination of a rotary head or

arms provided with flexible scrapers or rubbers, a water-supply pipe, a valve-chamber, K', connected to said pipe, a valve, N, in said chamber, a rod, P, supported in bearings, the plate O, attached to said rod and provided with a stud, r, a link, N, having an angular slot, s, and connecting said stud with the stem of said valve, and the trigger Q, actuated by the can for turning said rod to open the valve, and the spring S for closing the same, substantially as described.

30. The valve-actuating mechanism herein described, consisting of the rod P, provided with the plate O and trigger Q, the stud r on said plate, the link N, provided with an angular slot, s, the spring S, connecting said plate and link, and the spring R around said rod for restoring the parts to their normal position after the removal of the can from the machine, substantially as described.

31. The combination of a rotary head having tangential arms provided with rubbers or scrapers, a circular chamber or opening below the scrapers, rods for centering the can and guiding it to the scrapers, a casing surrounding the opening and provided with an annular channel for catching the water as it flies from the scrapers, a spout for conducting the water from the channel, a pipe and valve for supplying water for the scrapers, and mechanism for opening and closing the valve when the can is placed in position, substantially as described.

32. The combination, substantially as set forth, of a rotary head having tangential arms provided with flexible scrapers, and means for supplying water.

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Witnesses:

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