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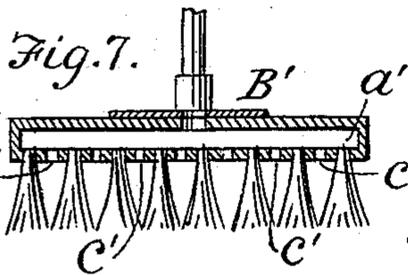
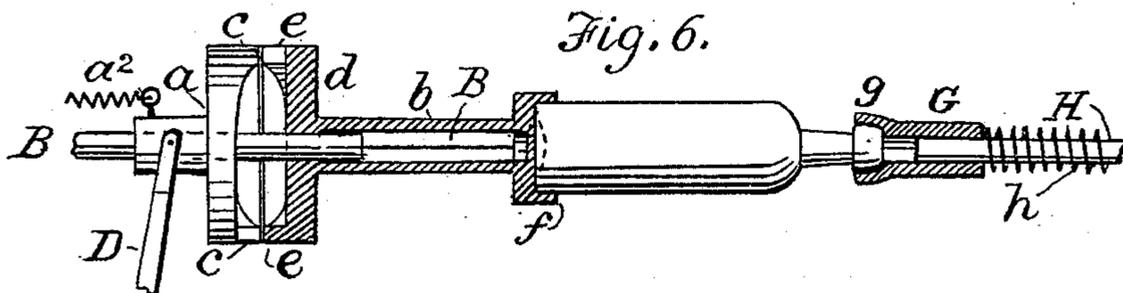
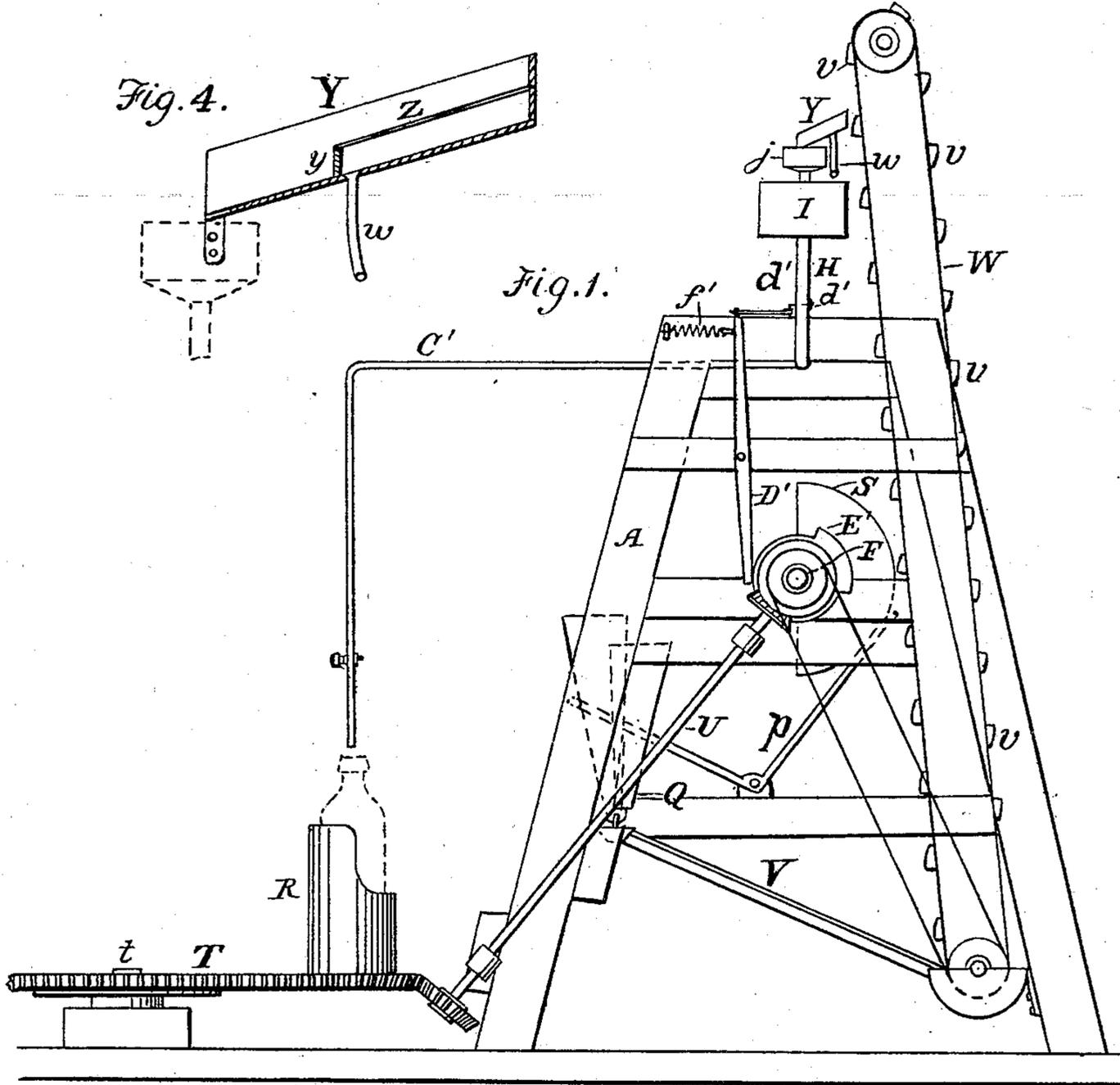
Patented Apr. 11, 1899.

A. E. COBB & C. J. DYER.
BOTTLE WASHER.

(No Model.)

(Application filed Feb. 17, 1897.)

3 Sheets—Sheet 1.



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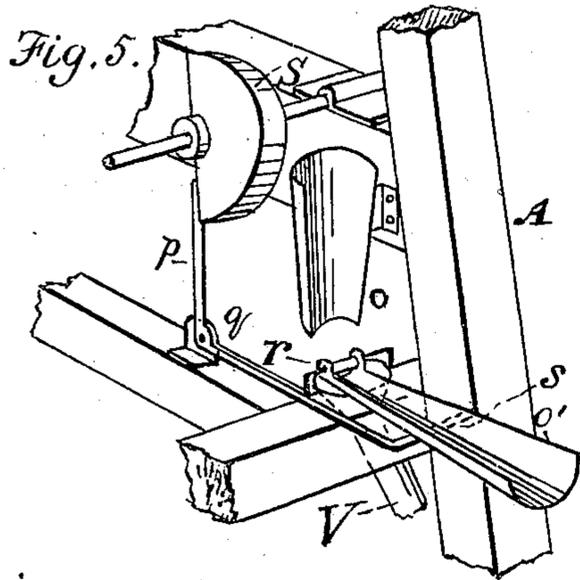
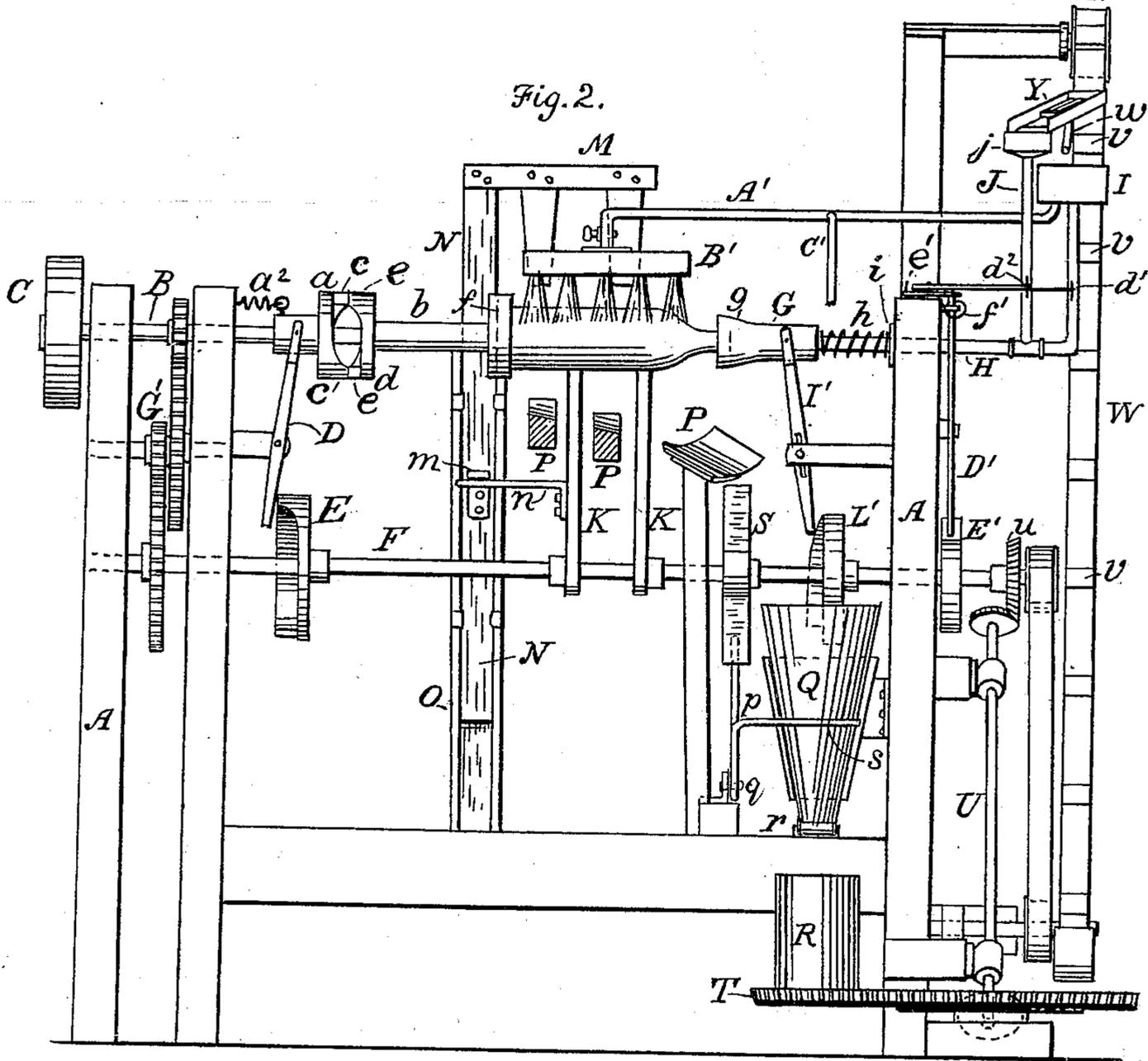
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3 Sheets—Sheet 2.



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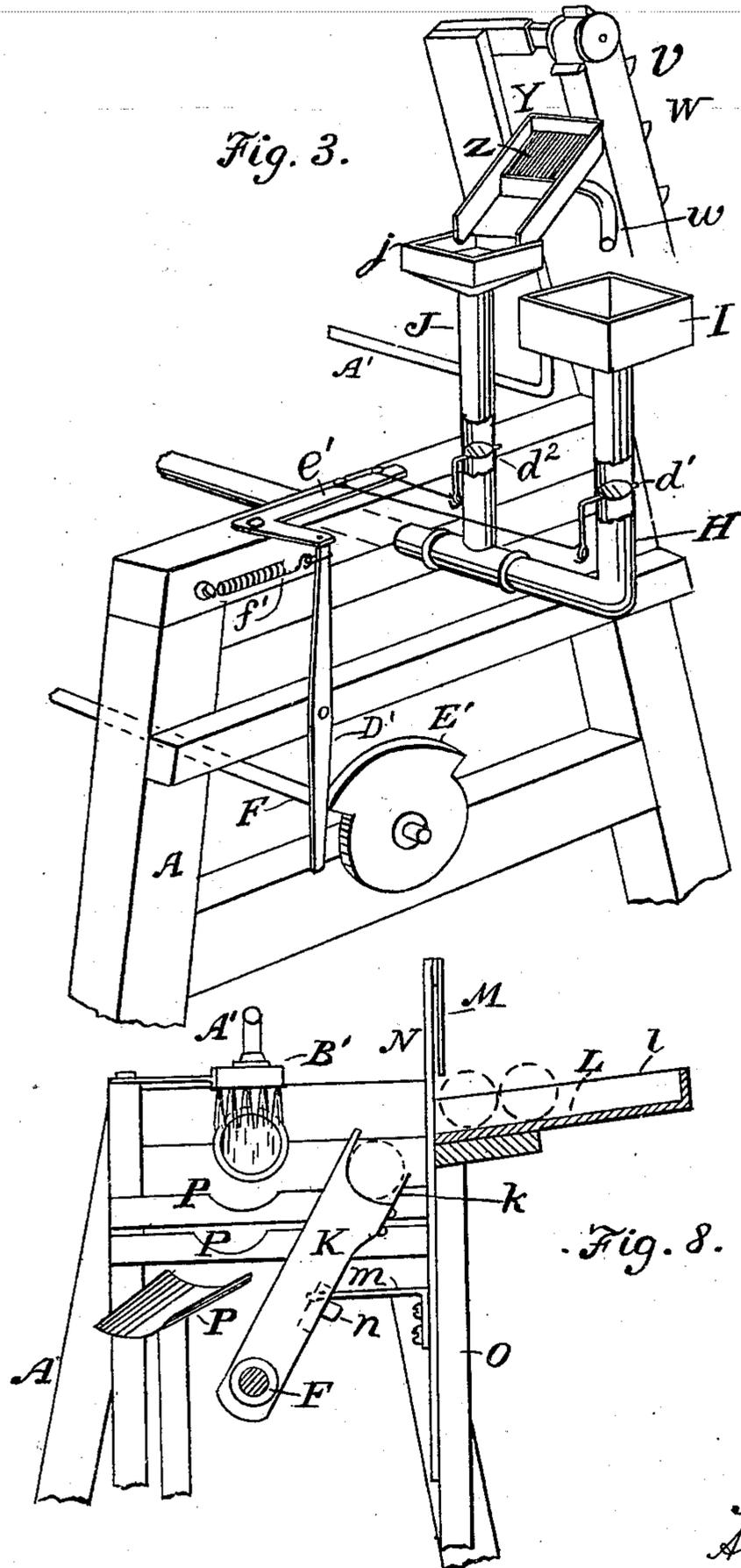
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3 Sheets—Sheet 3.

(No Model.)



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UNITED STATES PATENT OFFICE.

ALTON E. COBB AND CZAR J. DYER, OF PHOENIX, ARIZONA TERRITORY.

BOTTLE-WASHER.

SPECIFICATION forming part of Letters Patent No. 622,883, dated April 11, 1899.

Application filed February 17, 1897. Serial No. 623,913. (No model.)

To all whom it may concern:

Be it known that we, ALTON E. COBB and CZAR J. DYER, citizens of the United States, residing at Phoenix, in the county of Maricopa and Territory of Arizona, have invented certain new and useful Improvements in Bottle-Washing Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to bottle-washing machines; and it consists in certain improvements in the construction of such machines, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a front end view of a bottle-washing machine constructed according to our invention. Fig. 2 is a side view, some parts being removed. Fig. 3 illustrates certain pipes for water and shot, with other details. Fig. 4 shows in section a trough provided with a strainer or sieve. Fig. 5 shows in perspective a trap and other details. Fig. 6 shows a bottle in position for washing and actuating devices. Fig. 7 is a sectional view of a brush employed. Fig. 8 illustrates the arms on a rotative shaft, which receive bottles from a chute, and other details.

A designates the main frame, in which is mounted a horizontal rotative shaft B, to which motion may be imparted through a belt-wheel C. On the shaft B is placed a circular disk *a*, which has a sliding movement thereon, such movement being produced by the action of a pivoted lever D, the upper end of which is pivotally connected with a sleeve projecting from the said disk, the lower end being impinged against by a cam-wheel E on a horizontal shaft F below. On the face of the disk *a* are two beveled lugs or projections *c*. A sleeve *b* is placed on the inward end of the shaft B and has on one end a circular disk *d*, which faces the disk *a*, and has two beveled lugs or projections *e*, corresponding with the beveled lugs on the disk *a*. The end of the shaft B which enters the sleeve *b* is squared and fits in said sleeve, so that the latter is rotated with said shaft. On the opposite end of the sleeve *b* is a block or disk *f*, the face of which is recessed to receive the bottom of a bottle. The disk *a* has a return-spring *a*².

G indicates a sleeve which is on the same line with the sleeve *b*, but is a suitable distance therefrom to allow a bottle to be placed lengthwise between the two sleeves. The sleeve G has a head *g* on one end which is recessed to receive and fit the mouth end of the bottle, the opposite end of said sleeve setting against a spring *h*, which bears against a collar *i* on a pipe H, which extends down from a superposed water-tank I, and then turns and extends into said sleeve, so that water passes through said pipe into the bottle in position to be washed.

J indicates a vertical pipe which is connected with the pipe H and is provided with a hopper *j*, the pipe J being intended to receive and conduct shot to said pipe H to be driven by the water into the bottle being washed.

To the shaft F are secured two arms K, the outer ends of which are provided with spring-fingers *k* to adapt them to receive a bottle, as hereinafter set forth.

L indicates an inclined platform on which the bottles to be washed are placed and from which said bottles roll severally to be caught by the arms K as the latter rotate with the shaft F. The platform L has at one edge a cleat or guide *l*, and the bottles to be washed are placed with their bottom ends against the cleat in position to roll from the chute one after another.

M indicates a gate in position over the lower edge of the platform L, said gate being carried by a vertical slide N, which moves between guides on a fixed upright O. An arm *m* extends from the slide N and an arm *n* extends laterally from one of the arms K on shaft F and is adapted to engage with the arm *m* of the slide as the shaft F revolves, and thus raise the slide and the gate M to allow a bottle to pass from the platform L.

P indicates a chute in position to receive a bottle when it falls from its position between the sleeves *b* and G after being washed. This chute P is made in divisions or with transverse openings, so as to allow the rotation of the arms K on the shaft F. (See Fig. 2.) The line of the chute P is inclined downward and diverges somewhat from the vertical plane of the sleeves *b* and G, so that a bottle when released from said sleeves falls into said chute and slides endwise, neck foremost, down

said chute and falls into and is received in an inverted position by a trap Q, suitably supported at one side of the machine. The trap Q is made in two parts, tapering downward, one part *o* being fixed in position and the other part *o'* being pivotally mounted, as seen at *r*. As the bottle falls from the chute P into the trap Q the part *o'* of the trap falls over, and the bottle, also falling over, is discharged and received in an upright position in one of the cups R, which are mounted on a revolving platform or wheel T and arranged along the periphery of said wheel. After the bottle has been discharged from the trap Q the latter is closed by means of a cam-wheel S on the shaft F and a pivoted bent lever *p*, which is pivotally mounted at an elbow *q* of said lever. When the trap is wide open, as seen in Fig. 5, one arm of the lever *p* extends upward in position to be caught by the cam-wheel S as the shaft F is rotated. The other arm of the lever is bent to form an arm *s*, which is adapted to raise the part *o'* of the trap to its vertical position.

The revolving platform T is pivotally supported at *t* and has teeth on its periphery like a beveled gear-wheel. Rotary motion is imparted to said platform from the shaft F through a shaft U and gearing *u* or other suitable mechanism.

When a bottle falls in an inverted position into the trap Q, the water and shot remaining in said bottle fall therefrom into a conductor V, by which such water and shot are conducted to a receptacle at the lower end of an elevator W, which is provided with buckets *v* and is adapted to carry the water and shot up and discharge them into an inclined trough Y, supported in position above the tank I.

The trough Y is divided by a partition *y*, one part of said trough being covered by fine slats *z* or open-work which is fine enough to prevent the shot passing through it, but allows the water to pass through. The water passes from the trough through a pipe *w* into the tank I, and the shot, rolling down from the open-work *z*, are discharged into the shot-pipe J, from which the shot may again pass into the pipe H.

From the tank I extends a branch pipe A', which is turned downward and connected with a brush B', which is in position for washing a bottle held between the sleeves *b* and G. The brush B' is provided with a water-chamber *a'*, as seen in Fig. 7, water being received therein from the pipe A', and the water passes from said chamber through holes *c'* to the brush material.

C' indicates a pipe which is connected with the pipe A' and extends downward, as shown, said pipe C' being adapted to conduct water down and discharge it into bottles in the cups R, carried by the platform T, as said bottles successively pass under the discharge end of the pipe. These bottles may then be rinsed out.

The water-pipe H and shot-pipe J are pro-

vided with valves *d'* *d''*, which are connected by rods respectively with a bell-crank lever *e'*, one arm of which is connected with the upper end of pivoted lever D', which is actuated by a cam-wheel E' on the shaft F on each revolution of said shaft. By these means water and shot may be conducted simultaneously into the bottle in position to be washed. The movement of the lever D' for closing said valves is produced by a spring *f'*.

Rotary motion is imparted from the shaft B to the shaft F through gearing G', which is so constructed and arranged that the shaft F is driven at a rate of speed which is much less than that at which the shaft B is driven.

I' indicates a pivoted lever the upper end of which is pivotally connected with the sleeve G, the lower end of said lever being adapted to be impinged against by a cam-wheel L' on the shaft F. By the action of said cam-wheel and lever the sleeve G is moved outward, the spring *h* being thus compressed to release a bottle after being washed.

The bottles being placed in the chute L and rotary motion being imparted from the shaft B to the shaft F, the latter is rotated and with it the arms K. When the free ends of said arms are raised nearly to the plane of the discharge end of the chute L, the gate M is raised by the arm *n*, projecting from one of the arms K, engaging the arm *m* on the slide N, which carries the gate. One of the bottles then rolls from the chute L, and the gate is then closed by gravity, the slide N having been released. The bottle falling from the chute is received in the concave outer ends of the arms K, being caught by the spring-fingers on said arms, and is raised to the brush B', said bottle being thus brought between and in line with the sleeves *b* and G. At this point the sleeve G is pressed to the bottle by the spring *h*, so that said bottle is caught between the sleeves *b* and G, the arms K continuing in their rotation and the spring-fingers yielding and slipping from the bottle. The disk *a*, actuated by the lever D, is pressed into engagement with the disk *d* on the sleeve *b*, and the bottle being rotated with the shaft B is also shaken endwise by the disk *d* engaging the disk *a*. When the bottle is secured between the sleeves *b* and G, the valves of the water-pipe H and the shot-pipe J are opened by the action of the pivoted lever D' and the cam-wheel E' on the shaft F and water and shot are driven into the bottle. Water is also conducted through branch pipe A' to the brush B', filling the chamber *a'*, and passing from thence through the holes *c'* to the brush material and to the outside of the bottle as the latter is shaken endwise and rotated. As the arms K move around slowly the bottle is released, this being effected by the action of the pivoted lever I' and the cam-wheel L' on the shaft F, the sleeve G being moved against the spring *h*. The released bottle falls into the chute P and sliding down the chute falls neck fore-

most into the trap Q, and the pivoted part of the trap falling over the bottle is discharged therefrom and received in an upright position in one of the cups R on the rotative platform T. Water for rinsing the bottles while they are carried by the platform T may be let into them severally from the pipe C', which is connected with the pipe A'.

When the bottle to be washed is brought in line with the shaft B and the pipe H, the lever I' slips from the cam on the wheel L', allowing the spring h on the pipe H to press forward the sleeve G, so as to catch the mouth end of the bottle, the latter being pressed by the movement to the recessed head f of the sleeve b, which receives the bottom end of the bottle. At the same time the cam-wheel E commences to actuate the lever D to move the cam-wheel a into connection with cam-wheel d and produce the shaking of the bottle, and the bottle is held in place between the two sleeves by the spring h until the lever D has slipped from the cam on the wheel E, and the lever I' at the same time is moved back by the cam-wheel L', thus releasing the bottle.

We claim —

1. In a bottle-washing machine, the combination with a frame, of a rotative shaft B, one end of which is squared, a non-revoluble disk with projections on its face and having a sliding movement on said shaft, a sleeve fitting loosely on the squared portion of said shaft and having on one end a disk with projections on its face, to engage with said non-revoluble disk, and on the opposite end a recessed block adapted to receive one end of a bottle, another sleeve, one end of which is formed to receive the mouth end of a bottle, a water-pipe extending into the last-mentioned sleeve, which is movable on said pipe and is provided with a spring, substantially as and for the purposes described.

2. The combination, with a rotative shaft, of two arms secured thereto and rotating therewith, the outer ends of said arms being formed to receive a bottle and provided with spring-fingers, an inclined platform in position to deliver bottles to said arms and a vertically-movable gate, adapted to be raised by one of said arms, substantially as set forth and described.

3. The combination, with bottle holding and releasing devices, of a trap made in two parts, one of which is fixed in position and the other is pivotally supported, a pivoted, bent lever, one arm of which is constructed to connect with the pivoted part of said trap, a rotative shaft and a cam-wheel thereon, said cam-wheel being adapted to engage said pivoted lever, substantially as and for the purposes described.

4. The combination, with the frame of a bot-

tle-washing machine, of a trap adapted to receive a bottle in an inverted position and discharge said bottle, a rotative platform, a series of cups mounted on said platform and adapted to receive bottles as they are severally discharged from said trap, and a water-supply pipe adapted to discharge water into said bottles severally as said platform is rotated, substantially as set forth and described.

5. The combination, in a bottle-washing machine, of a water-tank and a pipe connected therewith, a shot-pipe, a superposed trough provided with a partition and a sieve, so constructed that the water passes from said trough into the water-tank, and shot, mingled with the water, is separated from it and passes into the shot-pipe, substantially as set forth and described.

6. In a bottle-washing machine, the combination with a frame, of a sleeve G, a water-pipe extending into said sleeve, the latter having movement on said pipe, a spring adapted to press forward said sleeve, a pivoted lever one end of which is connected with said sleeve, a rotative shaft and a cam-wheel on said shaft, adapted to impinge against said pivoted lever so as to compress said spring, substantially as set forth and described.

7. The combination, with a main frame, of a water-pipe and a shot-pipe connected therewith, each of said pipes being provided with a valve, a bell-crank lever one arm of which is connected by rods with said valves, a pivoted lever connected with said bell-crank lever, a rotative shaft, a cam-wheel on said shaft, adapted to impinge against the lower end of said lever, and a spring connected with the upper end of said lever, substantially as and for the purposes described.

8. The combination with a frame, of a rotative shaft, one end of which is squared, a non-revoluble disk having projections on its face and having a sliding movement on said shaft, a sleeve loosely fitting on the squared portion of said shaft and rotative therewith, said sleeve having on one end a disk with projections on its face to engage with said non-revoluble disk, a retracting-spring and a pivoted lever connected with said non-revoluble disk, a rotative shaft and a cam-wheel thereon, said cam-wheel being adapted to engage said lever and produce a sliding movement of said non-revoluble disk, substantially as and for the purposes described.

In testimony whereof we have affixed our signatures in presence of two witnesses.

ALTON E. COBB.
CZAR J. DYER.

Witnesses:

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SEVERIN P. HOEFER.