

No. 690,563.

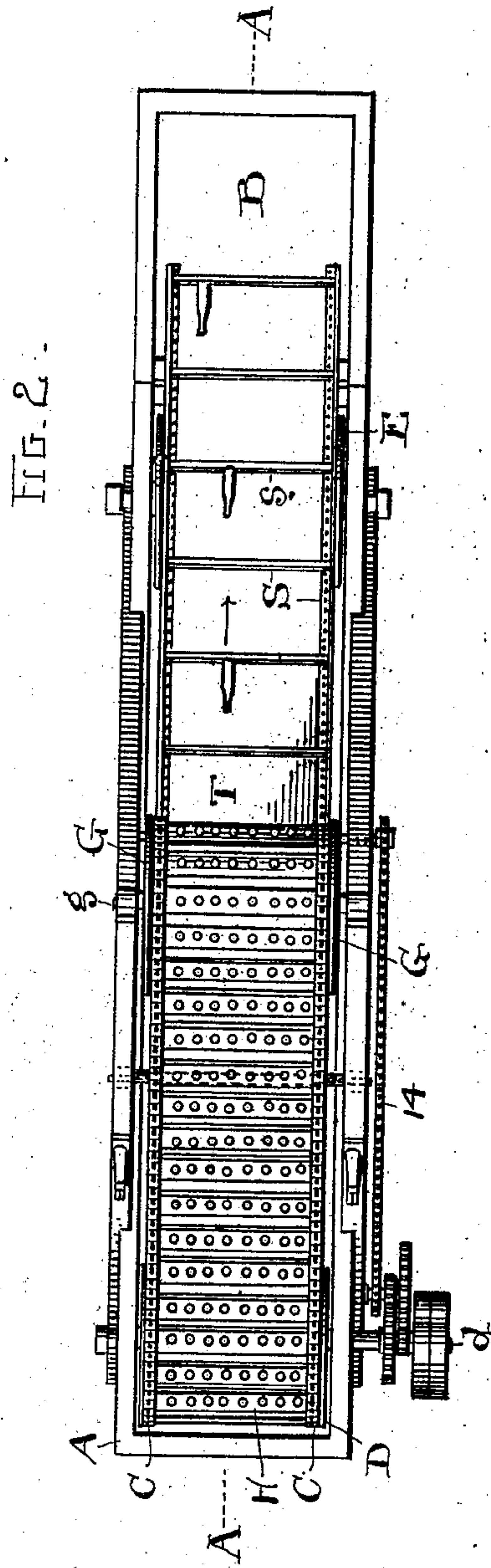
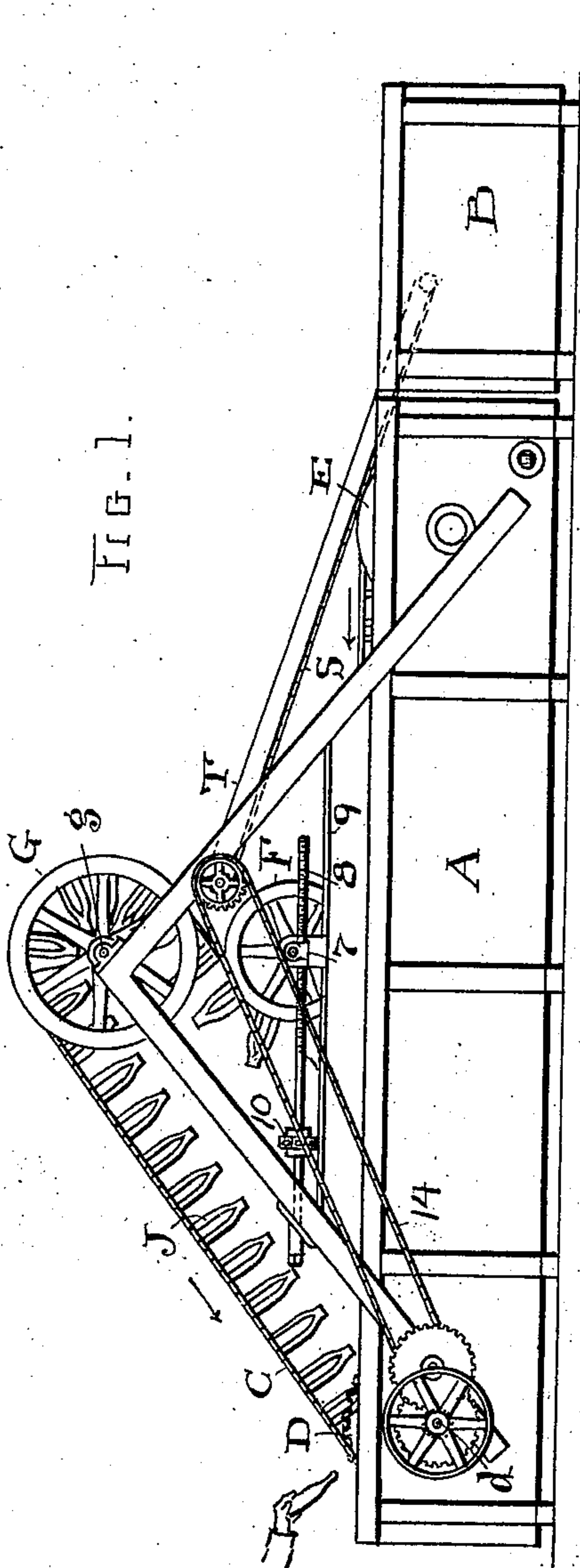
Patented Jan. 7, 1902.

W. B. COBB.
BOTTLE WASHING MACHINE.

(Application filed Mar. 8, 1901.)

(No Model.)

2 Sheets—Sheet I.



ATTEST

W. B. Cobb
H. E. Mudra

INVENTOR

WILLIAM B. COBB

BY *H. T. Fisher* ATTORNEY

No. 690 563.

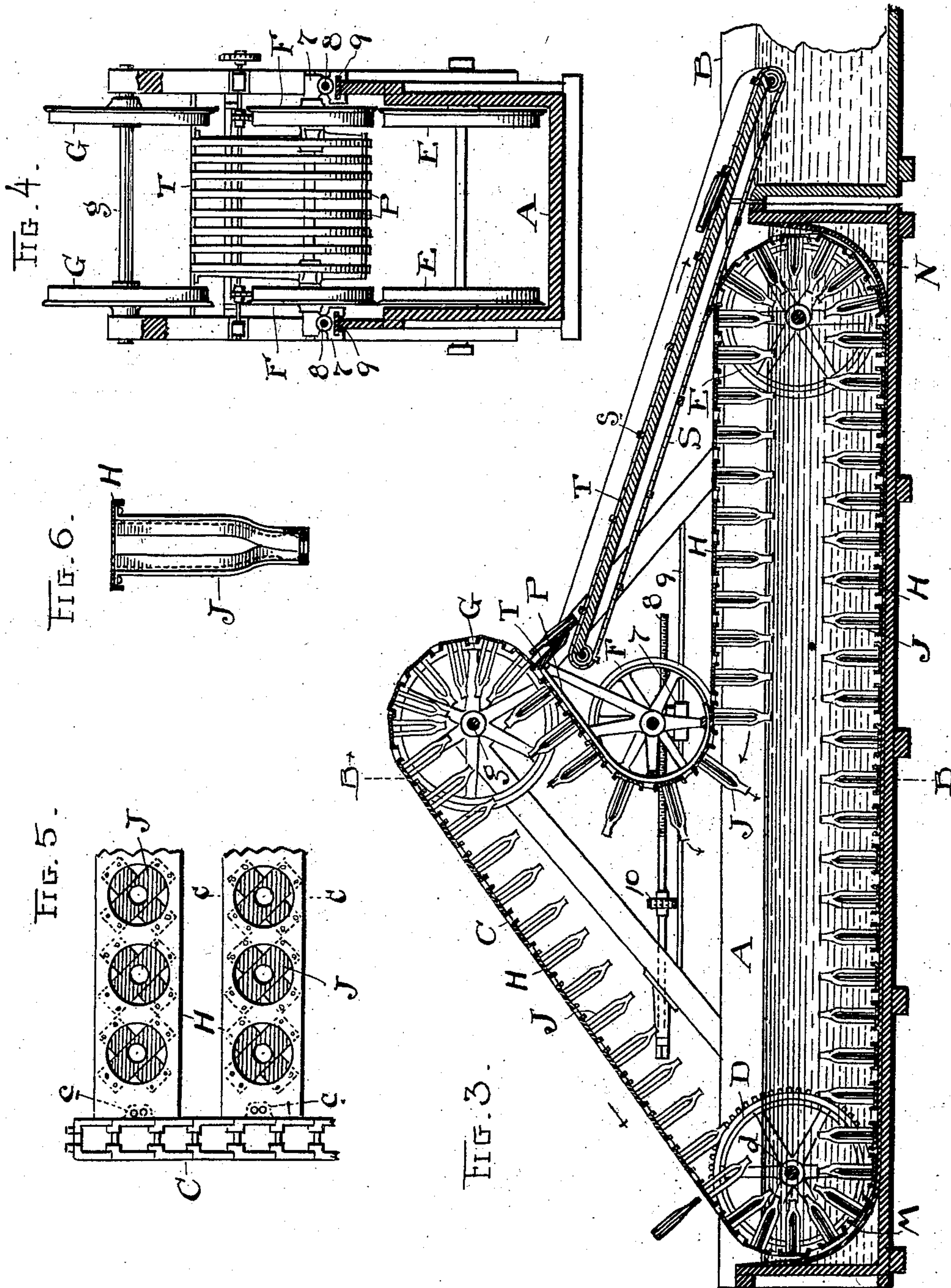
Patented Jan. 7, 1902.

W. B. COBB.
BOTTLE WASHING MACHINE.

(Application filed Mar. 8, 1901.)

(No Model.)

2 Sheets—Sheet 2.



ATTEST
T. B. Moser
H. J. Mudra.

INVENTOR
WILLIAM B. COBB.
BY H. T. Fisher ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM B. COBB, OF CLEVELAND, OHIO, ASSIGNOR TO CHARLES H. LOEW,
OF CLEVELAND, OHIO.

BOTTLE-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 690,563, dated January 7, 1902.

Application filed March 8, 1901. Serial No. 50,325. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. COBB, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Bottle-Washing Machines; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention has reference to bottle-washing machines; and the invention relates to the class of machines in which the bottles are individually engaged in an endless carrier and washed as they are immersed and borne through the cleansing solution, all substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plain side elevation of my new and improved machine, and Fig. 2 is a plan view thereof. Fig. 3 is an enlarged longitudinal sectional elevation on line A A, Fig. 2. Fig. 4 is a cross-section of the machine substantially on line B B, Fig. 3, looking from the left, but omitting the endless carrier and leaving whole the wheels G and guide P. Fig. 5 shows a section of sprocket-chain and of two transverse bottle-carrying plates attached thereto, and Fig. 6 is an enlarged elevation of half of one of the bottle-carrying baskets or pockets.

A represents the cleansing-tank, made of wood or sheet-steel, and B the rinsing-tank. The tank A is kept supplied with a caustic cleansing liquid of any suitable kind which will cut the dirt or filth upon or within the bottles, and from this tank the bottles are automatically delivered to the rinsing-tank, from which they are removed by hand. To effect these ends, I provide a set of endless chains C, which run over a series of wheels arranged for each chain and alike at both sides of the machine, the said wheels being indicated by D, E, F, and G successively in the order of their operation. Wheels D are sprocket-wheels through which power is applied to the machine from their shaft *d* and occupy one end of tank A, while wheels E occupy the other end.

Wheels G are supported on a shaft *g* at a considerable elevation midway centrally over

or above tank A, and between said wheels and wheels E are the pair of smaller reversing-wheels F. In point of exact location wheels F are directly beneath wheels G; but this relation may be varied or changed more or less and their relative sizes changed, also, without departing from the invention.

Wheels E, F, and G are preferably smooth-surfaced and flanged at their outer edges rather than sprocketed, and the two chains C are united and converted into an endless carrier by connecting carrier-plates H, fastened at their ends to lugs *c* on the links of chains C or in any other suitable way. The said plates H have a series of holes through them of a size large enough to receive the bodies of the bottles, and about said holes or openings, on the inside of the plates, are the baskets or open-work carriers J for the bottles. These, as here shown, are formed of two strips of flat sheet metal, bent to the shape substantially of the bottles they are to carry and secured through their flanged ends to the inside of the transverse carrying and connecting plates H. The said baskets J have holes in their inner or neck extremities, so that as they support the neck and mouth of the bottle the bottle can quickly fill when it becomes immersed in its entrance to the cleansing liquid.

The bottle-carrying baskets have no springs or like means for gripping the bottle at any point, but are receptacles in which the bottle is practically free, so that they are easily placed in said baskets and are free to drop out at the place of discharge. How this occurs will now be seen. Thus, having filled the carrier-plates and their baskets with bottles, as they successively arrive at the feeding place of the machine, which is at the left end as here shown, the bottles are carried down into tank A and are inverted as they turn around sprocket-wheels D. A curved guard M confines the bottles at this point till they reach the bottom of the tank, when they are confined in this instance by an extension of said guard running the entire length of the solution-tank; but the bottles can as well ride directly on the bottom of the tank. Reaching the other end of the tank, they are held in by guard N, like unto plate M, till they pass

the slipping-out or horizontal position. The carrier travels back over tank A to wheel or wheels F, around which it passes from beneath to the top and thence around wheel or wheels G in a reverse direction to sprocket-wheels D.

In the return of the carrier over the top of wheels F means to confine the bottles to their baskets is necessary, because they are in discharging position. Hence I provide a slatted guide P, which fills the traveling space between wheels F and terminates at the discharge to inclined table T. As each lot of bottles travels past the slats P the bottles automatically slide out onto said table and the traveling and endless apron S thereon. Cross-strips s on said apron are frequent enough to intercept rows of bottles discharged thereon from carrier C and prevent their sliding down and breaking as they enter rinsing-tank B.

Wheels F are supported in bearings 7, adjustable upon their base-supports 9 by screw-rods 8, and said rods may be jointly or separately adjusted and serve to take up or let out carrier C. If jointly rotated, each rod will have a sprocket-wheel 10, and a sprocket-chain will connect them; but any other means of operation for said rods may be used.

Power is applied by sprocket-chain 14 to the upper shaft carrying belt. The bottles are removed by hand from tank B, where they are inclined to float.

It will be noticed that when the bottles are in their receptacles their bottoms are substantially flush with the outside of the carrier or carrier plates through which they are inserted.

I have been somewhat specific in my description of the several parts of the invention as shown in the drawings; but obviously many of the said parts and details of the construction may be more or less varied and changed in shape and style and remain within the scope and spirit of the invention, so that all equivalents of said parts and features are understood to be within the invention herein set forth and claimed.

What I claim is—

1. In bottle-washing machines, a solution-tank, an endless flexible carrier and a series of rolling supports over which said carrier travels and is reversed in relation to the tank, said carrier having openings through which the bottles are inserted from the outside, and receptacles inside the carrier about said openings to receive the bottles bodily, substantially as described.

2. A bottle-washing machine comprising a solution-tank, an endless flexible bottle-carrier arranged to slide over the bottom of said tank and having openings through which the bottles are bodily inserted, and receptacles for the bottles fixed to the inside of said carrier over said openings, said openings and receptacles being constructed to leave the

bottles free to drop out by gravity, substantially as described.

3. A bottle-washing tank and wheels in the ends thereof, in combination with an endless carrier passing over said wheels and over a flat surface between them, said carrier having transverse bottle-supports, means on the inside of said supports to hold the bottles with their bottoms downward as they pass through the bottom of the tank, and guides for the bottles at the turns for the carrier about said wheels, substantially as described.

4. A bottle-carrier for a bottle-washing machine comprising a pair of endless chains, straight cross-pieces at intervals connecting said chains and constructed each with holes to accommodate a row of bottles, and bottle-receiving baskets on the inside of said cross-pieces about said holes of a size to receive substantially the entire bottle, substantially as described.

5. A bottle-washing machine comprising a suitable tank, a set of wheels at opposite ends in said tank, and two sets of wheels arranged substantially one above the other between the wheels in the tank and on a plane above the same, an endless carrier arranged to travel over all of said wheels and bottle-receptacles on the inside of said carrier in transverse rows, substantially as described.

6. In a bottle-washing machine, a tank and an endless carrier for bottles and four several sets of wheels supporting said carrier, two of said sets of wheels being arranged oppositely in said tank and two midway above the tank and one of these above the other, and an inclined discharge for the bottles between the two upper sets of wheels, substantially as described.

7. The cleansing-tank and the wheels in the ends thereof, and two sets of wheels above said tank arranged one above the other, in combination with an endless carrier stretched over said several sets of wheels, bottle-receptacles on the inside of said carrier, and an endless traveling apron to receive the bottles when discharged from the said carrier, substantially as described.

8. The bottle-cleansing tank and the several sets of wheels and the endless carrier having receptacles to carry the bottles on its inside and adapted to free the bottles by their own gravity, in combination with an endless apron to receive the bottles as they are discharged and a fresh-water tank into which the bottles are dropped by said apron, substantially as described.

9. In bottle-washing machines, an endless carrier having a series of cross-plates with holes of a size to pass the bottles through to the inside of the carrier, and holders for the bottles on the inside of said cross-plates about said holes, of a size to receive the entire bottle within the carrier, said holders having their inner free ends constructed to expose the

mouth of the bottle to the solution and to hold the bottle from dropping out into the tank when inverted, substantially as described.

10. In bottle-washing machines, an endless
5 flexible carrier constructed of a set of chains, cross-plates with holes for bottles fixed to said chains and an open-work bottle-holder fixed about each hole in said plates on the inside thereof, said holes and holders being of a size
10 to allow the bottle to drop out through the carrier by gravity, and a series of wheels over which said carrier travels, one of said wheels being arranged to reverse the position of the bottles on the carrier and thereby bringing
15 them to place of free discharge, substantially as described.

11. The tank and the endless carrier having holders on its inside for the bottles and wheels supporting said carrier, one of said
20 wheels being arranged to reverse the position of the bottles in respect to the carrier and a support for the bottles outside the carrier and terminating at the point of their discharge from the carrier, substantially as described.

25 12. The machine substantially as described having an endless carrier constructed with holes to pass the bottles to its inside and holders on its inside for the bottles, in combination with wheels over which said carrier trav-

els, one of said wheels being arranged to carry 30 the bottle-holders around its outside with their extremities projecting away from its axis and another of said wheels arranged to carry the bottle-holders with their extremities projecting toward its axis, and a slide- 35 way from one of said wheels to the other to support the bottom of the bottles to their place of discharge from the carrier, substantially as described.

13. In bottle-washing machines, a solution- 40 tank and an endless bottle-carrier provided with receptacles having openings at their top out of which the bottles are adapted to drop by gravity when said openings are downward, and supports over which the said carrier trav- 45 els in a circuit, in combination with guards independent of the carrier to confine the bottles along portions of the line of their travel, whereby when the bottles are inverted they ride on said guards and are kept in their re- 50 ceptacles, substantially as described.

Witness my hand to the foregoing specification this 14th day of February, 1901.

WILLIAM B. COBB.

Witnesses:

H. E. MUDRA,
R. B. MOSER.