No. 763,174. PATENTED JUNE 21, 1904.

F. GOEBEL.

BOTTLE WASHING APPARATUS.

APPLICATION FILED AUG. 9, 1900.

NO MODEL. 2 SHEETS—SHEET 1.

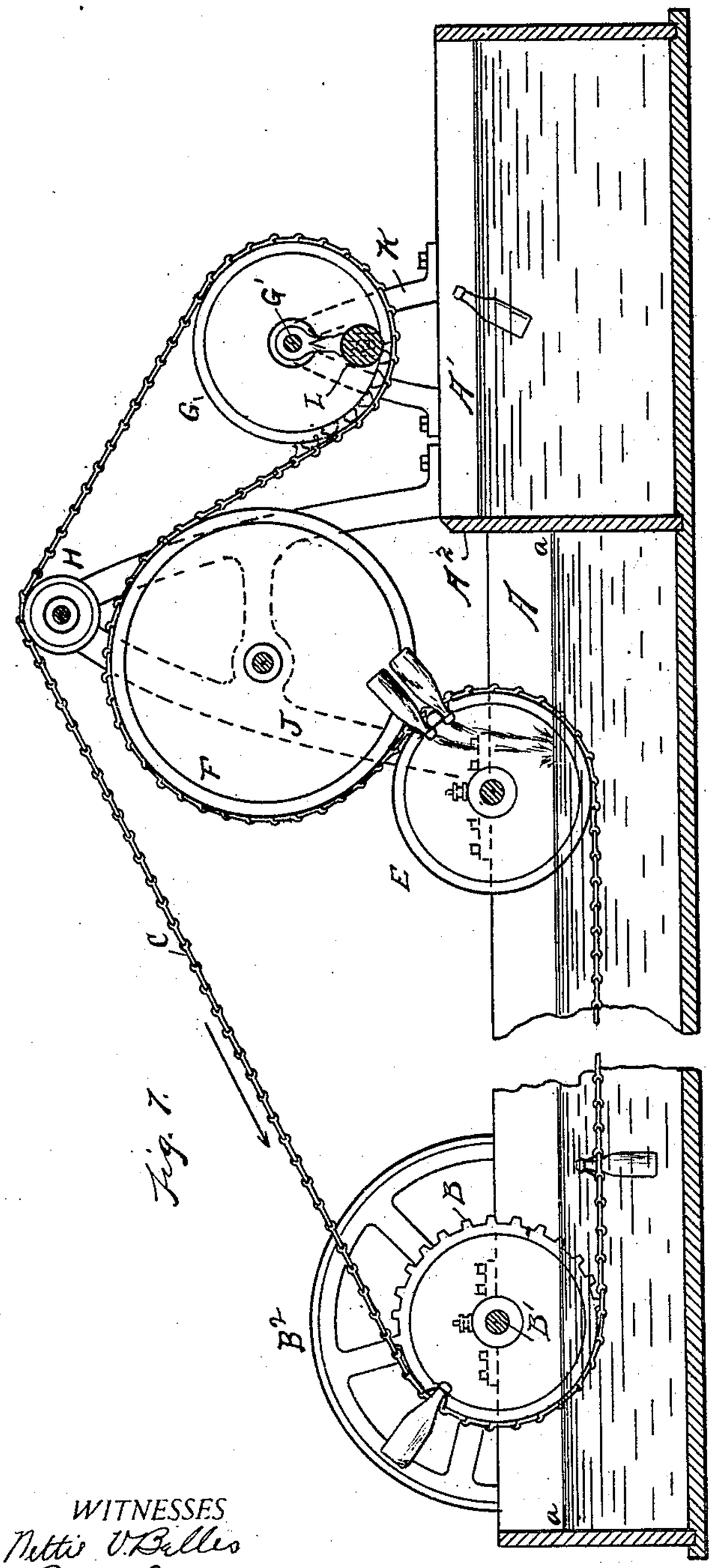

Fig. 1.

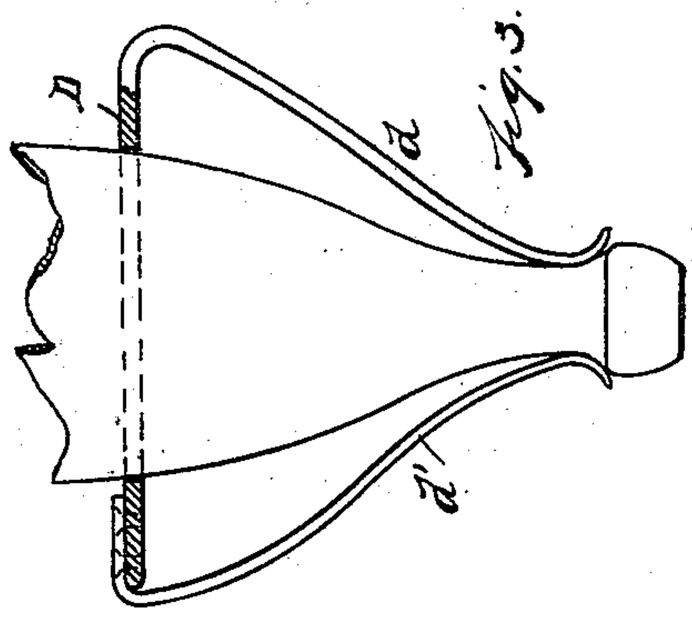

Fig. 3.

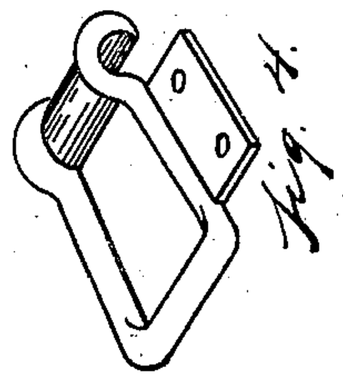

Fig. 4.

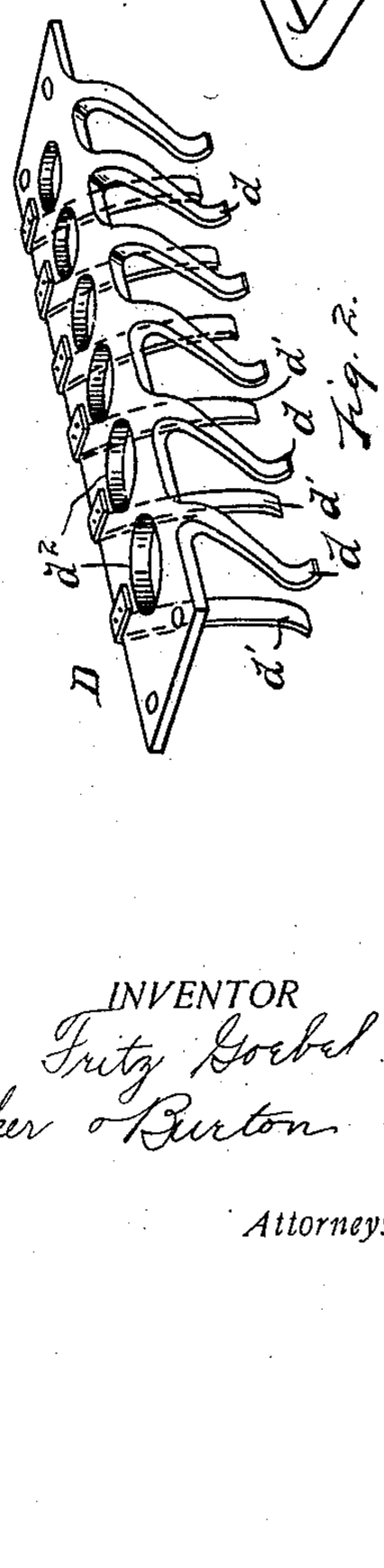

Fig. 2.

WITNESSES

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NO MODEL. 2 SHEETS—SHEET 2.

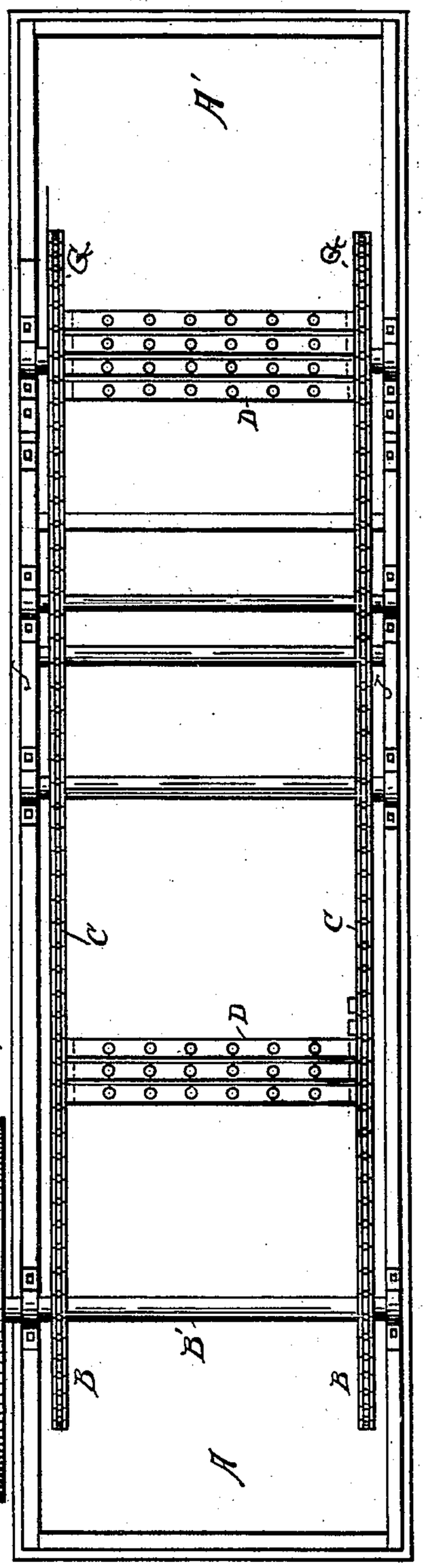

Fig. 5.

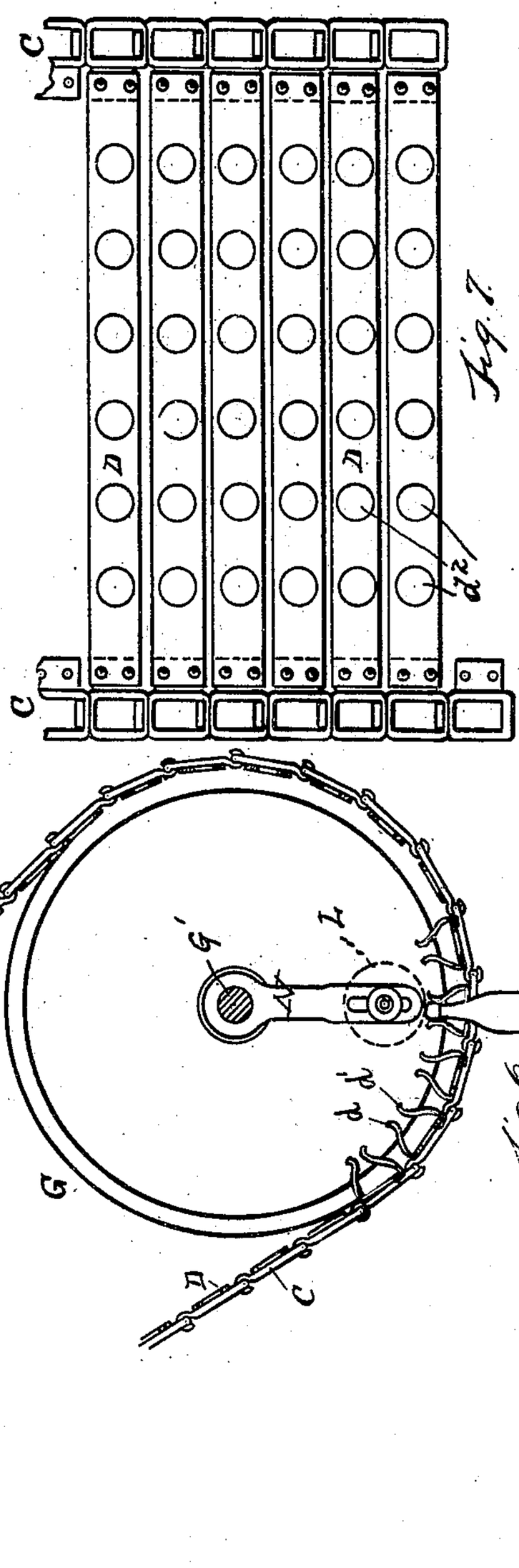

Fig. 7.

Fig. 6.

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UNITED STATES PATENT OFFICE.

FRITZ GOEBEL, OF DETROIT, MICHIGAN.

BOTTLE-WASHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 763,174, dated June 21, 1904.

Application filed August 9, 1900. Serial No. 26,329. (No model.)

To all whom it may concern:

Be it known that I, FRITZ GOEBEL, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Bottle-Washing Apparatus; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to bottle-cleaning apparatus; and it consists of certain improvements upon that form of apparatus shown in Letters Patent to Bernhard Fischer, Richard H. Borowski, and Theodore P. Goebel, dated June 27, 1899, No. 627,612, as hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of the operative parts of the machine omitting the means for driving the same. Fig. 2 is a perspective view of one of the bottle-holders. Fig. 3 is a transverse section of the same, showing the bottle in place. Fig. 4 shows the construction of the link to which the bottle-holding plate is attached. Fig. 5 is a plan view of the machine. Fig. 6 is a vertical elevation, partly in section, of the means used for ejecting the bottles from the holders. Fig. 7 shows the bottle-holding bars attached to the sprocket-chains.

Similar letters refer to similar parts.

In the drawings, A A′ are two tanks placed adjacent to each other and divided by the partition A^2.

B B are sprocket-wheels attached to a common shaft B′ and driven by any appropriate means, as a band-wheel B^2, attached to the same shaft.

C C are sprocket-chains, one upon each side of the machine, driven by sprocket-wheels B B and to which are attached at convenient distances transverse bottle-holding plates D D. These plates are fashioned somewhat differently from those shown in Patent No. 627,612 in that they are flat and have fixed projections *d d* depending from one edge and spring projections *d′ d′* attached to the upper sides of the plates D. Perforations d^2 d^2 are made in the plates D of the proper size to fairly fit the size of bottle to be washed, the neck of the bottle being held between the rigid projection *d* and the spring projection *d′* in the manner shown in Fig. 3.

E, F, G, and H are idlers or carrying-wheels over which the band, constructed of the two sprocket-chains and the transverse bottle-holding plates, travels, and they may or may not have sprocket projections to engage with the links of the sprocket-chains.

It will be noted that the shaft for the wheels E is journaled upon the upper edge of the tank A, as is also the driving-shaft for the sprocket-wheels B. The wheels E and B being substantially of the same size, that portion of the endless band running underneath these two wheels is substantially in a horizontal line. The tank A being filled up to the line *a a* with any desired liquid, it results that the bottles held in that portion of the endless band which extends from wheels E to wheel B will be submerged in the liquid in the tank A.

The wheels F F and H H are journaled upon shafts having bearings in a gallows-frame J. The wheels G G are also journaled upon a shaft which is carried in bearings upon a gallows-frame K, the frames being supported upon the top of the tanks A A′.

It is obvious that tank A may be made of any reasonable length, as can the endless band C, and also that the speed may be varied so as to submerge the bottles in the liquid in tank A any reasonable or assignable length of time.

Between the wheels G G and journaled to the axle G′ are two similar arms N N, one of which is shown in Figs. 1 and 6, and adjustably hung between the two arms is a heavy roller L, underneath which the band passes. The periphery of this roller is so adjusted that as it rotates over the mouths of the bottles it forces them down in between the spring *d′* and abutment *d*, so as to prevent their being further held, and thereby they drop out of engagement into the second tank A′. This mode of operation is illustrated in Fig. 6 and the discharge of the bottle into the liquid in the tank in Fig. 1.

The pair of wheels F F, carrying the sprocket-chains and bottle-holding plates, are so adjusted with relation to the wheels E E that the bottles are nearly or quite turned mouth downward before passing over the wheel F. The effect of this is a gradual turning of the bottles upside down by the joint action of the wheels F and E, and thus gradually discharging their contents before they are delivered to the tank A′.

In practice the liquid inclosed in tank A is so compounded as to be a sterilizing and cleansing element. The liquid in the tank A′ is for the purpose of receiving the bottles as discharged and also, if desired, for washing the bottles finally, and thus cleansing them from the sterilizing liquid. The liquid in tank A′ becomes a means of delivering the bottles without danger of breaking, as they may be immediately picked out of the tank as fast as they are dropped into it by the roller L.

It will be observed by referring to Patent No. 627,612, heretofore mentioned, that there are no means provided for taking care of the bottles as they are forced out from the spring-clamps and that in order to prevent breakage they must be at once handled by an operator, while the gist of my invention consists in providing means for automatic delivery into an additional tank in conjunction with the bottle-washing apparatus of the previous patent and also of making the holding-plates and so attaching them to the sprocket-chain C C as to afford a larger holding capacity thereof within the same linear distance. There are also some minor features of invention as improvements over the former structure, which will be apparent from the description and claims.

The operation of this device is substantially as follows: On setting the apparatus in motion the chain travels in the direction of the arrows. An operator at the left of the machine inserts the bottles in the bottle-holding plates in the position shown in the drawings. The bottles are therein carried downward and submerged at an angle to the face of the liquid, so that they are completely filled, the air therein entirely escaping. Owing to the travel of the chain, they are continuously carried through the liquid until they reach the wheels E E and are carried up due to the action of the wheel upon the chain, so that their contents are gradually discharged as the bottles are gradually inverted, being carried over the wheel F, brought underneath the wheel G to the ejecting-roller L, forcing the neck of the bottle from between the curved spring-support, and they are thereby dropped into the liquid in the tank A′, and, if desired, a second operator removes them from this tank.

What I claim is—

1. In a bottle-cleansing apparatus, a traveling bottle-holding band consisting of two sprocket-chains, flat transverse perforated strips attached to a chain at each end respectively to the links thereof, said strips having fashioned upon one side curved clips or fingers and attached to the other side spring clips or fingers operating pairwise in conjunction with the fixed clips or fingers, said pairs of fixed and spring fingers being arranged with reference to the perforations so as to hold a bottle inserted through the perforation and between the finger and spring-clip, substantially as described and specified.

2. In combination with an endless band, means thereon for holding bottles substantially as described, traveling wheels over which said band travels and carries the bottles, a roller operated on the interior of said band and so adjusted in relation thereto as to eject the bottles from the holders, substantially as described.

3. In a bottle-washing machine, the combination with two tanks, of an endless carrying-band provided with means for holding the bottles to be washed, means for maintaining a portion of said band submerged in one of said tanks with the mouths of the carried bottles uppermost, means for guiding said carrier over and in close proximity to said other tank, an idler-wheel over which said band passes so positioned as to cause the carrying-band to turn the bottles with their mouths downward over the first-mentioned tank and to direct the carrying-band from the first tank over the second-mentioned tank, and means for ejecting the bottles mouth uppermost directly into the second tank, substantially as described.

4. In a bottle-cleaning apparatus, a liquid-tank and an endless bottle-carrier supported in said tank, and a roller over which said carrier passes constructed to press on the heads of the bottles and forcibly release them from the carrier, substantially as described.

5. In a bottle-cleansing apparatus, the primary and the secondary tanks, the endless bottle-carrier and the wheels supporting said carrier in said tanks, and an intermediate wheel around which the carrier passes and the bottles are inverted, and means on said carrier to grip and suspend the bottles by their necks, substantially as described.

6. In a bottle-cleansing apparatus, the primary and secondary cleansing-tanks, the endless chains having bottle-carrying sections thereon supported to travel within and over said tanks, and a discharge-roller above said secondary tank to eject the bottles from their carrying-sections, substantially as described.

7. In a bottle-cleansing apparatus, the liquid-tanks and the endless chains having bottle-carrying sections thereon supported to travel within and over said tanks, sprocket-wheels for said chains arranged to carry the sections and bottles thereon through one tank and back over the same in inverted position and thence to the other tank, and a discharge-roller over said last tank to eject the bottles from said carrier, substantially as described.

8. In a bottle-cleansing apparatus, a primary cleansing-tank and a bottle-carrier supported to travel within and above said tank, and a discharge-roller for said carrier constructed to eject the bottles and discharge them outside said tank, substantially as described.

In testimony whereof I have signed this specification in the presence of two witnesses.

FRITZ GOEBEL.

Witnesses:
R. A. PARKER,
ELLIOTT STODDARD.