

O. EICK.

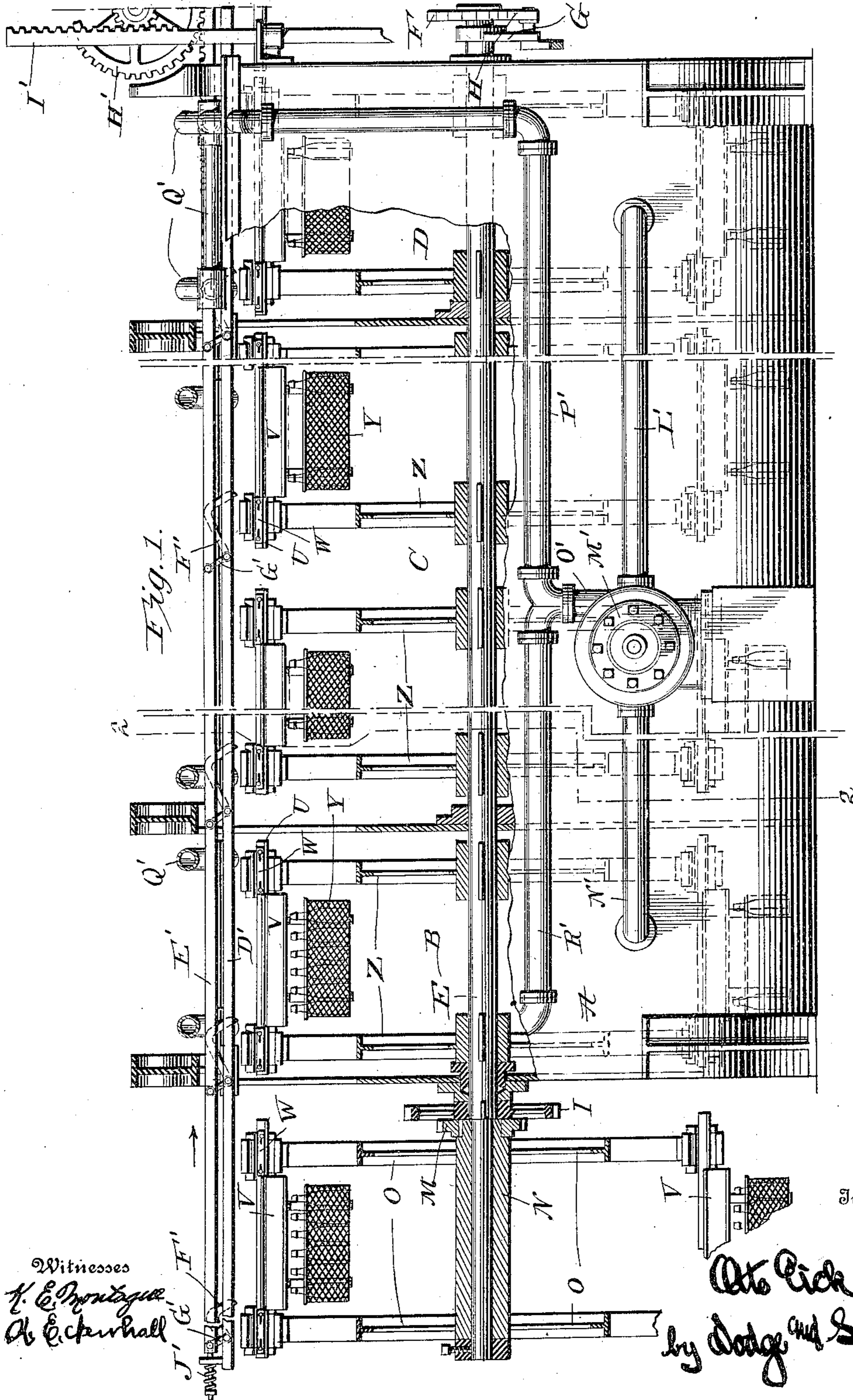
APPARATUS FOR HANDLING BOTTLES OR LIKE CONTAINERS.

APPLICATION FILED DEC. 19, 1907.

999,553.

Patented Aug. 1, 1911.

3 SHEETS—SHEET 1.



Witnesses
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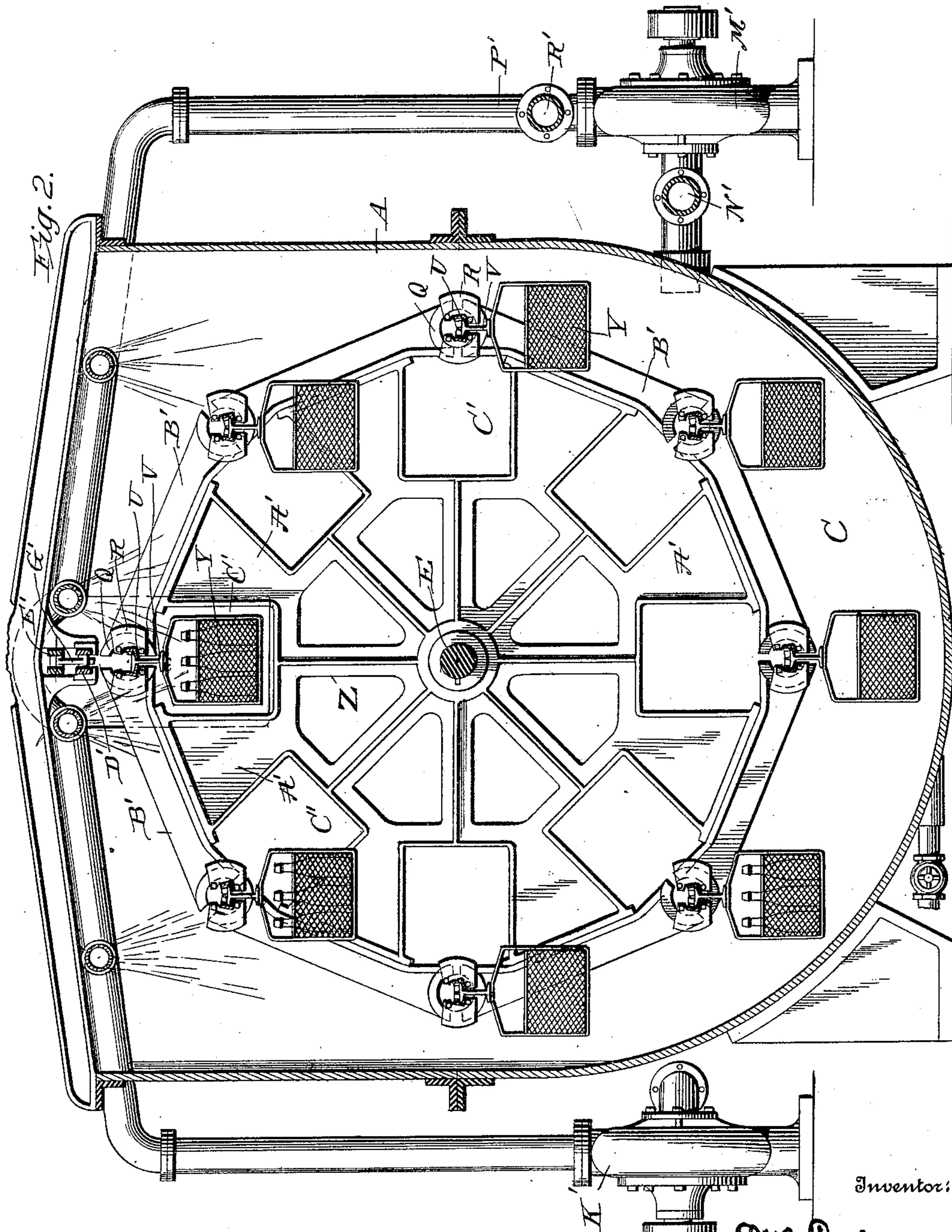
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3 SHEETS—SHEET 2.



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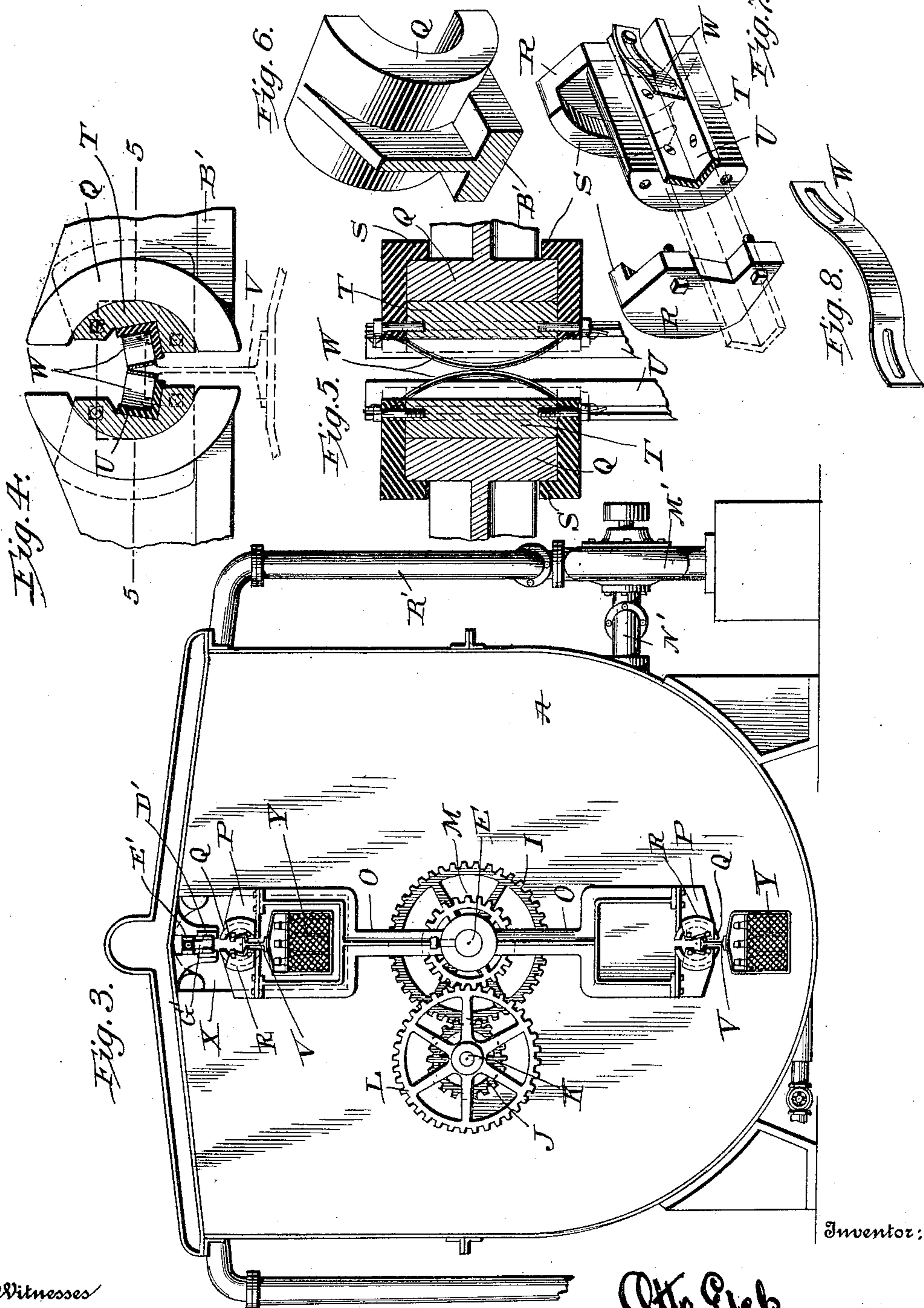
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3 SHEETS—SHEET 3.

999,553.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR HANDLING BOTTLES OR LIKE CONTAINERS.

999,553.

Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed December 19, 1907. Serial No. 407,212.

To all whom it may concern:

Be it known that I, OTTO EICK, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Apparatus for Handling Bottles or Like Containers, of which the following is a specification.

My present invention pertains to improvements in apparatus for handling bottles or like containers, the construction and advantages of which will be hereinafter set forth, reference being had to the annexed drawings, wherein:

Figure 1 is a side elevation of the apparatus, the upper portion thereof being shown in section; Fig. 2 a transverse vertical sectional view, on the line 2—2 of Fig. 1; Fig. 3 an end elevation of the forward or in-feeding end of the apparatus; Fig. 4 a sectional elevation of the track and track-supporting means; Fig. 5 a horizontal sectional view, taken on the line 5—5 of Fig. 4; Fig. 6 a perspective view of the end of one of the supporting arms or brackets; Fig. 7 a similar view of one of the rotary track-supports, portions thereof being shown as separated; and Fig. 8 a perspective view of one of the springs employed to maintain the tracks and track-supporting members in their proper relations so as to always be in position to receive the basket or carrier.

The main object of my invention is to provide a simple and efficient machine, in which baskets or the like holding bottles or other containers may be passed successively through the apparatus from one end to the other and subjected to fluids for the purpose of cleaning the bottles, or fluids at different temperatures for the purpose of pasteurizing the contents of the bottles or containers.

A further object of the invention is to provide means whereby the heat absorbed by the bottles as they pass from the compartment wherein they are subjected to the hot fluid may be utilized to heat the water or other fluid which is sprayed initially upon the bottles as they enter the machine.

With these and other objects in view, which will appear from the specification, a description of the invention will be given.

The apparatus comprises a tank divided into a series of compartments, primarily that into which the bottles are introduced and given their initial heating; a middle compartment (or series of compartments)

wherein the bottles are subjected to a fluid having a higher temperature; and a discharge compartment wherein the bottles or other containers are treated by a spray which cools the bottles before they leave the machine. The water which is sprayed upon the bottles in the discharge compartment is heated by the bottles and utilized to secure the initial heating thereof in the first compartment.

Mounted within the various compartments is a series of frames carrying swiveled supports, each adapted and designed to hold a basket, in which are placed a series of bottles, the frames being mounted upon a common shaft and rotated therewith, so that the baskets are moved around in the tank and subjected to the fluid contained in the lower portion thereof. The shaft is brought to rest periodically, and means are provided for shifting the baskets from one compartment to another, and finally discharging the same from the tank.

Where the apparatus is not employed to pasteurize the material contained within the bottles, the bottles may be subjected to various cleansing fluids, either hot or cold, and as they are lowered into the first compartment of the tank they will become filled with liquid and so remain until they pass out of the tank.

In the drawings A denotes the tank, which is divided into three compartments, B, C and D. A shaft E passes through the end walls of the tank and the partitions between the compartments, the shaft at the discharge end of the machine being provided with a ratchet-wheel F. A pawl-carrier G is swiveled upon the shaft and a pawl H operates in conjunction with the ratchet-wheel, and by reciprocating the pawl-carrier a step-by-step rotation may be imparted to the shaft. Any means may be employed for effecting this action.

A gear I is splined to the shaft at the intake or feeding end of the machine, said gear meshing with a smaller gear J mounted upon a stub-axle K, said axle also carrying a large gear L which in turn meshes with a smaller gear M, secured to a sleeve N journaled upon the outer reduced end of the shaft E. Said sleeve carries two frames or castings both being alike in form. Each frame comprises two oppositely-disposed arms O, forked at their outer ends and carrying brackets P, the inner ends of which

are of the form shown in Fig. 6; that is to say, each extremity is provided with a semi-cylindrical hub or bearing Q, the outer portions of which project beyond the wall of the bracket, as clearly indicated in Figs. 5 and 6. The bearing members of the brackets stand directly opposite each other and the edges thereof are separated to a slight extent to permit the passage of the basket-supporting member, hereinafter referred to, between them.

Mounted upon each of the half-hubs or bearings Q is a track-supporting member, comprising end plates R, having inwardly-projecting ribs S which latter pass in rear of and engage the back faces of the bearings Q, see Fig. 5. The end plates are connected by a track-sustaining member or block T, one face of which is curved and fits closely against the inner curved face of the half-hub or bearing. The track-supporting member T upon the opposite face is so formed as to receive an L-shaped track U which is bolted thereto. The tracks and the supporting members to which they are attached are duplicated and arranged in pairs, and the tracks extend from one pair, carried by one of the arms O, to the opposite pair, mounted upon the second arm O.

In order to maintain the tracks in their separated position and thus hold them so that the basket-sustaining angle-bar V may freely pass between the same, I provide a pair of oppositely-disposed springs W, the springs being forced back against the tracks, thus permitting the ready entrance of the head of the basket-sustaining member. As the head passes out of contact with the springs, they will resume the positions shown in Fig. 5 and thus hold the parts in the positions indicated in Fig. 4.

With the gears arranged as shown in Fig. 3, the arms O will be alternately brought into line with an opening X in one end of the tank, in order that the sustaining member V and the basket Y carried thereby may be passed into the tank and onto the tracks U carried by the frames Z mounted upon the shaft within the first compartment B. These tracks are arranged in the same manner as those just described. The frames, however, are slightly different and are shown in detail in Fig. 2. Each frame is provided with a series of outwardly-extending arms A', to which are secured bracket-pieces or arms B' which are, to all intents and purposes, the mechanical equivalent of the brackets P, except that they are elongated and a hub or bearing member is formed at each end thereof. The construction of the hubs or bearing members is exactly similar to that shown in Fig. 6. Openings C' are formed between the arms A', so that the baskets and their sustaining members may be moved along from one pair of frames to the next succeed-

ing pair, and from one compartment to the other when the shaft E is at rest and the parts are in the positions shown in the drawings.

To advance the baskets from the present-ing devices (comprising the arms O) into the tank and onto the tracks within the first compartment, and to thereafter advance them successively from one compartment to another, and finally from the machine, I may employ any structure which will periodically engage the basket-sustaining members and move the same forwardly one step, or between one pair of supporting arms or frames to the track carried by the next pair of supporting arms or frames.

In the drawings I have shown a pair of bars D' and E', the upper bar having an initial endwise movement independent of the bar D', after which both bars move forwardly together. Hooks F' are pivotally connected to the lower bar, and arms G' connected to the hooks are likewise pivotally connected at their upper ends to the bar E'. It will thus be seen that when the bar E' is moved in the direction of the arrow, Fig. 1, independently of the bar D', the hooks will be rocked upon their pivots and thrown downwardly into position to engage the rear end of the basket-sustaining members V. Further movement of the sector gear H' by the rack I' will advance both of the bars together and move the baskets forwardly one step. A reverse movement of the rack I' will cause the disengagement of the hooks, the upper bar E' being moved rearward independently of the bar D' through the action of a spring J', after which both bars will move backwardly together, with the hooks in an elevated position, until they come to the point shown in Fig. 1. It is conceivable, of course, that any means may be employed for advancing the bottle-sustaining baskets. If the machine be used as a pasteurizer, a pump K' (Fig. 2) will be employed to spray water of the required temperature upon the bottles as they pass into and through the central compartment or compartments C.

In order to abstract the heat from the bottles as they pass through the compartment D, I connect a pipe L' with the lower portion of said compartment, the pipe leading to a pump M', which is also in communication with the lower portion of the compartment B through a pipe N'. The pump M' is provided with a single outlet O', from which a branch P' extends to a pipe, or series of pipes, Q', located in the upper portion of the compartment D, so that the water passing from the pump is sprayed over the bottles as they pass into and out of said compartment D. A pipe R' also leads from the outlet O', said pipe connecting with a spray pipe, or series of pipes, located in

the upper portion of the compartment B. It will thus be seen that the water which is drawn from the lower portions of the compartments B and D is commingled or mixed in the pump M' and water relatively warmer than that drawn from the compartment B will be sprayed upon the bottles passing into said compartment, while water relatively colder than that drawn from the compartment D will be sprayed onto the bottles passing into said compartment. Thus the latent heat of the bottles passing from compartment C into compartment D is utilized to heat the water which is sprayed upon the bottles passing into the compartment B, and the bottles are initially heated before passing into the compartment or compartments C where they are subjected to the highest temperature. This arrangement will also be utilized when the bottles are being merely washed or cleaned, as it will gradually bring the bottles up to the temperature of the hottest water or cleaning solution, and likewise temper the bottles before they pass out of the tank.

Having thus described my invention, what I claim is:

1. In an apparatus for the purpose described, the combination of a tank, a rotatable shaft extending through the tank; fixed bearings for the shaft; a frame mounted on the shaft; a series of rotary track-supports carried by the frame and rotatable with reference thereto; and tracks mounted upon said supports and adapted to receive and sustain a receptacle for bottles or the like.

2. In combination with a rotary frame; a pair of oppositely-disposed track-supports journaled therein; and tracks extending from one support to the other and adapted to receive and sustain a receptacle for bottles or the like.

3. In combination with a rotary frame; a pair of oppositely-disposed track-supports journaled therein; means for holding said supports against endwise movement; and a pair of oppositely-disposed tracks secured to said supports.

4. In combination with a tank; a shaft extending therethrough; a series of frames mounted upon the shaft and rotatable therewith; a series of track-supports journaled in each of said frames; and tracks carried by the supports and adapted to move therewith.

5. In an apparatus of the character specified, the combination of a shaft; a pair of frames carried thereby; a pair of bearing members swiveled upon each frame; and oppositely-disposed tracks carried by said bearing members, the edges of the tracks being separated and adapted to receive a sustaining device for a basket or the like.

6. In an apparatus of the character specified, the combination of a shaft; a pair of

frames carried thereby, said frames being separated from each other; a series of swiveled bearings mounted in each of said frames, the bearings being arranged in line with pockets formed in the frames; and a pair of tracks extending from each pair of bearings carried by one frame to the oppositely-disposed bearings carried by the other frame, the lower edges of the tracks being separated and adapted and designed to receive a sustaining member for a basket or like receptacle.

7. In combination with a shaft; a pair of frames secured thereto; brackets carried by the outer portions of the frames, the adjacent ends of the brackets being separated and formed with a semi-cylindrical hub or bearing; a pair of retaining members provided with shoulders engaging the outer faces of the hubs; a filling block formed with a rounded face adapted to fit against the inner face of each bearing, said block being connected to the retaining members; an L-shaped track secured to said bearing member, said track extending from said member to the like member carried by the connecting block or member upon the opposite bearing; and means for maintaining the tracks in their proper relation to each other.

8. In combination with a shaft; a pair of frames mounted thereon, each of said frames being provided with pockets adjacent to its outer portion; brackets secured to the outer portion of said frame, the ends of the brackets extending out from the pockets and being separated from each other; a semi-cylindrical hub or bearing formed upon the end of each bracket; retaining members mounted upon the ends of the hub and provided with inwardly-projecting flanges which engage the outer face of the hub; a block provided with a rounding face fitting the inner surface of the hub and connected to the retaining members; L-shaped tracks connected to said block and to the corresponding block upon the oppositely-disposed frame; and springs secured to the opposite tracks, said springs normally contacting with each other and serving to keep the lower, inwardly-projecting portions of the track in a separated position.

9. In combination with a tank provided with a series of compartments; means for sustaining bottles in said compartments; means for advancing the bottles from one compartment to the next and finally from the tank; a pump; pipe connections leading from the lower portion of the first and last compartments in the tank to said pump; and connections leading from the pump and serving to force water into the upper portion of the first and last compartments of the tank.

10. In an apparatus of the character speci-

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 fied, the combination of a tank provided with a series of compartments; means contained in said tank for sustaining a series of bottles therein; a pump serving to withdraw
 5 the water from the first and last compartments; and a single outlet passing from the pump and serving to distribute the water into the upper portion of said first and last compartments.

10 11. In combination with a tank having a series of compartments; means for sustaining a series of bottles therein; means for subjecting the bottles in the intermediate compartment to fluid having a relatively

high temperature; a pump serving to draw 15 the fluid from the lower portion of the first and last compartments; and pipes leading from the outlet of the pump and serving to spray the fluid withdrawn from the first and last compartments into the upper por- 20 tion of said compartments.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

OTTO EICK.

Witnesses:

HOWARD E. CRUSE,
 JACOB F. MURBACH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
