

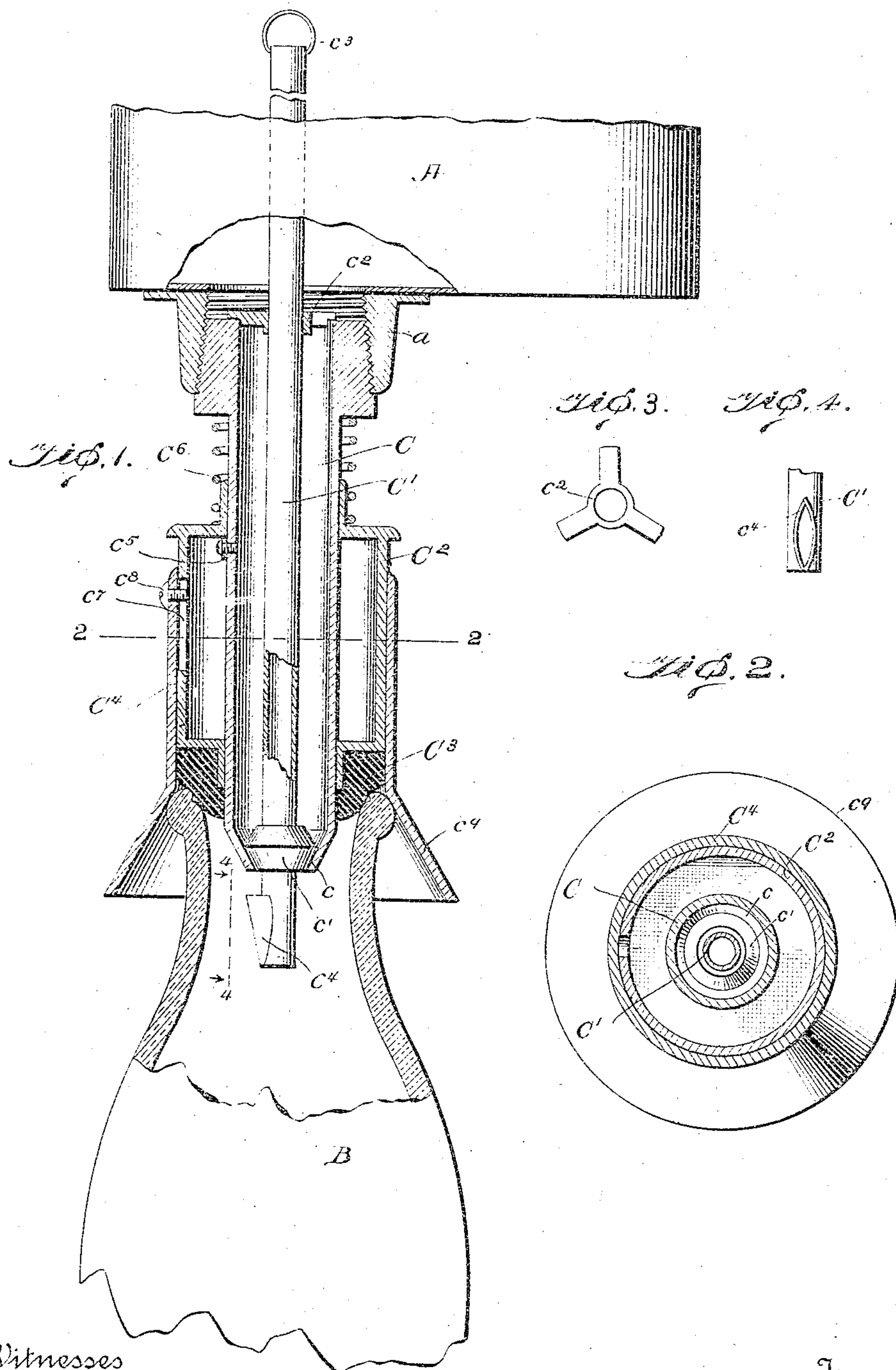
No. 766,046.

PATENTED JULY 26, 1904.

E. H. KREIDER.  
BOTTLE FILLING MACHINE.

APPLICATION FILED NOV. 14, 1903.

NO MODEL.



Witnesses

B. M. Offutt.  
Katie Hurst.

Inventor

Enos H. Kreider

by E. W. Bradford  
Attorney



## UNITED STATES PATENT OFFICE.

ENOS H. KREIDER, OF LANCASTER, PENNSYLVANIA.

## BOTTLE-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 766,046, dated July 26, 1904.

Application filed November 14, 1903. Serial No. 181,163. (No model.)

*To all whom it may concern:*

Be it known that I, ENOS H. KREIDER, a citizen of the United States, residing at Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Bottle-Filling Machines, of which the following is a specification.

My said invention consists in an improved construction and arrangement of parts of bottle-filling devices relating particularly to the valve mechanism by which the bottle is sealed during the operation and the flow of the liquid from the tank into the bottle is controlled, all as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a central vertical section through a bottle-filling device embodying my said invention, the storage-tank and bottle being also shown and the parts being in the position they occupy when ready for the operation to begin; Fig. 2, a cross-section looking downwardly from the dotted line 2 2 in Fig. 1, and Figs. 3 and 4 detail views illustrating details of construction.

In said drawings the portions marked A represent the tank, B the bottle, and C the filling-tube.

The tank A and bottle B are or may be of any ordinary or approved form and construction, the bottle shown being of a form such as is usually used for milk-bottles and adapted to be sealed with a thin disk. The device may be used, however, with any form of bottle, as will be readily understood. On the under side of tank A is secured a flanged collar  $\alpha$ , which is internally screw-threaded and surrounds a perforation in the bottom of said tank.

The filling-tube C is formed with an enlarged upper end which is externally screw-threaded and is adapted to engage within said collar  $\alpha$ . It is of sufficient length to depend from said tank the proper distance and has a contracted lower end  $c$ , the inner surface of which forms a tapered valve-seat. A tapered valve  $c'$  is mounted upon a smaller tube  $C'$ ,

which is mounted within said tube C, the valve  $c'$  being rigidly secured thereon and adapted to seat snugly upon said valve-seat in the lower end of said tube C. The upper portion of said tube  $C'$  is mounted to slide through an aperture in a spider  $c^2$  on the upper end of tube C. On its extreme upper end, which preferably projects above the storage-tank A, is provided means for operating said tube, which may be mechanical or merely a handle, such as  $c^3$ , by which it may be lifted by hand. Its lower end projects below the valve  $c'$  to a point which will be within the neck of the bottle when in use and on one side is provided with an opening which is surrounded by a fin  $c^4$  for a purpose to be presently described. A cylinder  $C^2$  is mounted to slide upon the tube C, a stop  $c^5$  being provided on the side of said tube to limit its downward movement. On the under side of said cylinder and secured to its lower end by cement or any suitable means is a rubber packing-ring  $C^3$ , adapted to rest in the mouth of the bottle when the device is in use and securely seal said bottle. Between the upper end of said cylinder  $C^2$  and the shoulder formed by the enlarged end of the tube C is mounted a coiled spring  $c^6$ , which operates to normally force said cylinder  $C^2$  downward and the packing-ring  $C^3$  on its lower end firmly into the mouth of the bottle to maintain a perfect seal during operation. A sliding sleeve  $C^4$  is mounted upon the outside of said cylinder  $C^2$ , being secured to slide a limited distance thereon by means of a slot  $c^7$  in the side of said cylinder and a lug or screw  $c^8$  in the side of said sleeve  $C^4$ , which engages therewith. Said sleeve is formed with a flared or funnel-shaped lower end  $c^9$ , adapted to surround the neck of the bottle and bring the mouth thereof in position for the packing-ring  $C^3$  to properly seat therein, said sleeve thus serving as a centering device.

In operation, the parts being in position shown in Fig. 1, the tank A containing the liquid which it is desired to bottle, the bottles are placed beneath the tank and under the flange  $c^9$ , the cylinder  $C^2$  and sleeve  $C^4$  being raised on the tube C sufficient for the purpose. The spring  $c^6$  will operate to snugly seat the packing-ring and seal the mouth of



the bottle. The valve  $c'$  is then raised by lifting the tube  $C'$ , upon which it is mounted, as before described, which will permit the liquid to flow down the tube  $C$  and into the bottle. Tube  $C'$  acts as an air-vent and permits the air to flow out of the bottle as the liquid flows in.

The fin  $c^4$ , as shown in Figs. 1 and 4, extends outwardly from the side of said tube  $C'$  around a vent-hole in one side thereof near its lower end, being of considerable width at its upper side, so that it will serve to divide the volume of liquid on this side of the tube as it flows into the bottle, and thus prevent the liquid from covering the vent and interfering with the escape of the air therethrough during the operation of filling the bottle. By reason of having the valve for controlling the flow of liquid from the tank in the lower end of the tube  $C$ , which in operation is within the mouth of the bottle, no interference with the flow of the liquid by reason of air in said tube will be encountered and a much freer and more rapid operation is secured.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a bottle-filling device, the combination of the filling-tube communicating with the tank containing the liquid and formed with a fixed valve-seat, a movable valve mounted within said tube on a hollow valve-stem which serves as an air-vent, a packing-ring mounted

upon a sliding part on the outside of said tube, and a sliding sleeve with a funnel-shaped lower end on the outside of said sliding part, substantially as set forth.

2. In a bottle-filling device, the combination of a storage-tank, the filling-tube fixed thereto and communicating therewith, a valve-seat being formed in the lower end of said tube, a sliding valve therein, a sliding sleeve or cylinder mounted on the outside of said tube and having a packing-ring secured to its lower end, a spring for holding said sliding part to seat said packing-ring in the mouth of the bottle, and a centering device mounted on said cylinder consisting of a sliding sleeve with a funnel-shaped lower end, substantially as set forth.

3. In a bottle-filling device, the combination of the liquid-containing tank, the filling-tube leading therefrom having a valve-seat at its lower end, a sliding valve therein the stem of which is formed hollow and provided with an opening in one side near its lower end surrounded by a flange or fin, a sliding part on said tube containing a packing-ring and a sliding centering device on said sliding part, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Lancaster, Pennsylvania, this 9th day of November, A. D. 1903.

ENOS H. KREIDER. [L. s.]

Witnesses:

CHAS. E. LONG,

JEANETTE R. LONG.