Dec. 11, 1928. 1,695,212

T. F. SEITZ

BOTTLE STERILIZING AND CLEANSING APPARATUS

Filed March 23, 1927

Fig. 1.

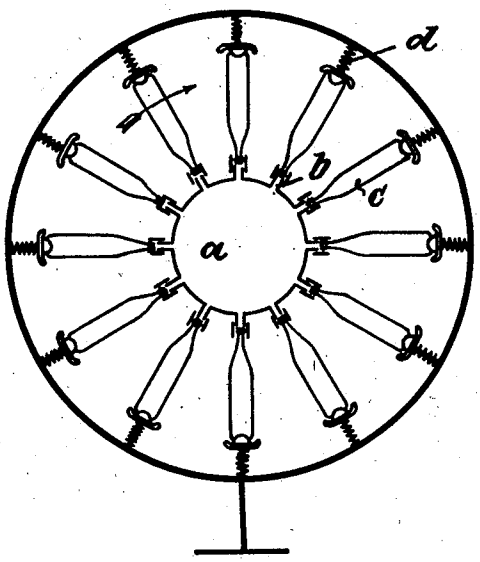



Fig. 2.

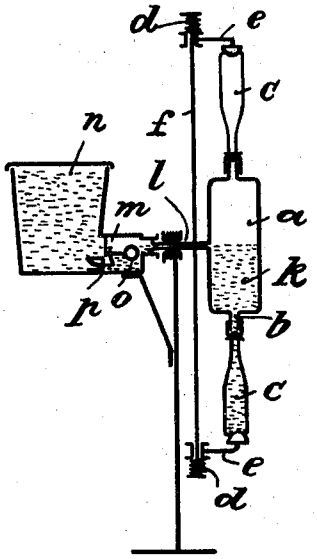



Fig. 3.

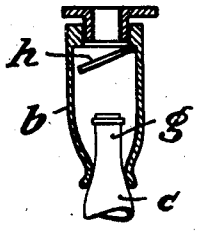



Fig. 4.

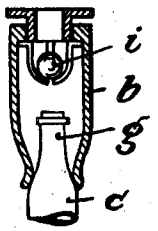
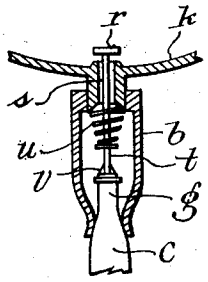



Fig. 5




Inventor
Theobald F. Seitz,
By Kenyon & Kenyon
Atty.

Patented Dec. 11, 1928. 1,695,212

# UNITED STATES PATENT OFFICE.

THEOBALD FRIEDRICH SEITZ, OF KREUZNACH, GERMANY, ASSIGNOR TO THE CORPORATION OF SEITZ-WERKE G. M. B. H., OF KREUZNACH, GERMANY.

## BOTTLE STERILIZING AND CLEANSING APPARATUS.

Application filed March 23, 1927, Serial No. 177,767, and in Germany March 15, 1926.

This invention concerns an improved device for cleansing bottles. Some known devices for this purpose are provided with radially disposed pipe connections over which the mouths of the bottles are placed and secured. The whole device is then rotated and the cleansing liquid enters the vessels through the connections. Such devices can, however, be employed only for the internal or external cleansing but not for the sterilization of the interior and the upper portion of the vessel, as is particularly important for wine bottles.

The object of the present invention is to provide a device which allows of this cleansing and sterilization. For this purpose the connections accommodating the individual vessels are of such construction that the neck of the vessel can enter the same so that the liquid or gases also flow over the outer surface of the neck of the vessel, for example a bottle, and thus sterilize said surface. A valve which automatically closes on the removal of the bottle is provided in each connection for the purpose of preventing the emergence of liquid or gases, the valve being mounted as close as possible to the neck of the bottle, so that the closure shall be complete and the operator is not affected by the strong sterilization liquid or by the gases.

According to a further feature of the invention, a device may be provided which effects automatically refilling of the supply vessel in accordance with the amount of liquid or gases used.

An example of such device is illustrated in the accompanying drawings, in which:

Figure 1 is a front elevation,

Figure 2 a longitudinal section,

Figures 3 and 4 two examples on a larger scale of connections containing valves, and

Fig. 5 is a central section through a bottle holding connection showing a spring closing valve.

The device consists of a container or reservoir *a* carrying a plurality of radially disposed connections *b* on or in which the vessels to be sterilized, for example the bottles, *c*, are mounted. Holding devices *e* furnished with springs *d* are arranged to bear on the bottoms of the bottles and thus to hold the same in position. The said holding devices are adjustably mounted on a disc *f* or on a suitable framework.

Each connection *b* is, as is clear in particular from Figures 3 and 4, so constructed that the neck *g* of the vessel *c* can enter therein while the walls of the mouth of the connection bear on the throat of the bottle and fit tightly thereon. For this purpose the whole connection is preferably made of an elastic material, such as, for example, rubber or the like. In this manner it is ensured that the entire top of the bottle comes in contact with the liquid and is therefore sterilized.

A valve, either in the form of a flap valve *h* (Fig. 3) or a ball valve *i* (Fig. 4) or any other suitable valve may also be arranged in each connection, the object being to close the outlet from the connection when no bottle is mounted thereon. These valves close by gravity, and the bottles are removed from the upper side of the reservoir *a*, and as the reservoir rotates the valves close. If desired positive operation of these valves may be provided for. The above operating means may be controlled by the insertion of the bottles in such a manner that the valve Fig. 5, is opened when the bottle is inserted and closes again when the bottle is removed. In this instance, as shown in Fig. 5, the valves *r* are provided with guide wings *s*, a stem *t*, a closing spring *u* surrounding the stem, and a winged member *v* on the end of the stem for engaging the mouth of the bottle, so that when the bottle is withdrawn the valve *r* closes under the action of the spring *u*. The valve shown in Fig. 5 operates positively as soon as a bottle is removed.

The container *a* is filled to a definite level with liquid *k* appropriate for the sterilization or cleansing and is connected by a pipe *l* and an intermediate chamber *m* with a supply vessel *n*, the communication between the intermediate chamber *m* and the vessel *n* being controlled by a valve *p* actuated by a float *o*.

The device operates as follows:

Depending upon the adjustment of the float *o* the vessel *a* half fills with liquid from the supply vessel *n*, the bottles or other vessels to be cleansed having been previously inserted in the connections *b*. The apparatus is then set in rotation, whereupon the sterilization liquid or the gases pass into the bottles and also flow over the tops thereof. When the bottles so treated are in the uppermost position, they are removed successively and replaced by fresh bottles. As the liquid is used up, fresh liquid flows from the supply vessel

$n$ into the intermediate chamber $m$ and through the pipe $l$ into the vessel $a$ due to the fall of the float $o$ and the corresponding opening of the valve $p$. Thus the level of the liquid always remains the same.

When the sterilization is effected by means of gases, the bottles are removed at the top or bottom depending upon the density of the gases used. The gases may also be introduced under pressure, this being regulated by appropriate valves.

What I claim is:—

1. In a bottle sterilizing and cleansing apparatus, a rotatable fluid container, sockets thereon, each socket forming a fluid-tight chamber around the neck of a bottle for the passage of fluid from the container into the bottle and around the exterior of the neck thereof, a valve between the container and each socket, and means for engaging the bottom of each bottle to hold it in its socket.

2. In a bottle sterilizing and cleansing apparatus, a circular tank mounted for rotation on its horizontal axis, radially disposed bottle sockets thereon, valves controlling the passage of fluid from the tank to the sockets, said sockets enclosing the bottle neck fluid-tightly, and means engaging the bottom of each bottle to hold it in its socket.

3. In a bottle sterilizing and cleansing apparatus, a fluid container, sockets thereon, each socket forming a fluid-tight chamber around the neck of a bottle for the passage of fluid into the bottle and around the exterior of the neck, a valve between the container and socket held open by a bottle in the neck, and means to engage the bottom of each bottle and hold it in its socket.

4. In a bottle sterilizing and cleansing apparatus, a cylindrical fluid container mounted for rotation on its axis disposed horizontally, radial sockets on the container and communicating therewith, a valve controlling the passage of fluid between the container and each socket, a reservoir and a float-controlled valve between the reservoir and container to maintain the liquid level in the container.

5. In a bottle sterilizing and cleansing apparatus, a cylindrical fluid container mounted for rotation on its axis disposed horizontally, a disc rotatable with said container, spring-urged means disposed about the periphery of the disc for engaging the bottom of each bottle, radial sockets on the container enclosing the bottle necks and forming therewith a closed chamber communicating with the container and the interior of the bottle, a valve in each socket held open by the mouth of a bottle inserted in a socket, a reservoir communicating with the container and a float valve controlling the liquid level in the container and the passage of fluid thereto.

In testimony whereof I hereunto affix my signature this 9th day of March, 1927.

THEOBALD FR. SEITZ.