Dec. 7, 1926. 1,610,186

F. VERVILLE

BOTTLE STERILIZING DEVICE

Filed Nov. 3, 1923 2 Sheets-Sheet 1

Fig. 1.

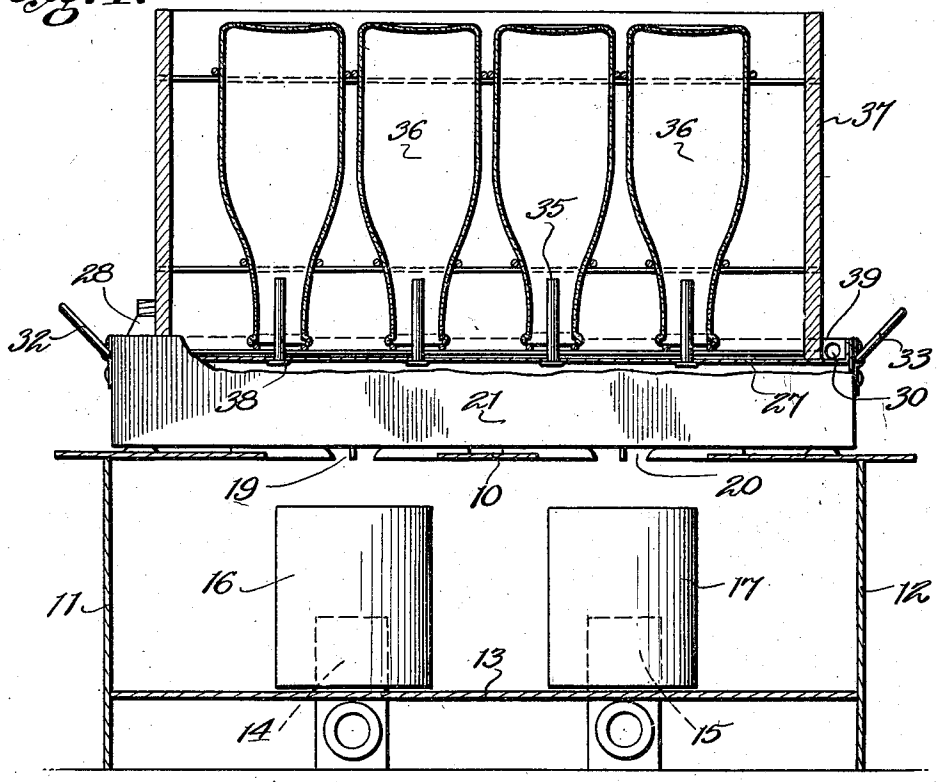

Fig. 2.

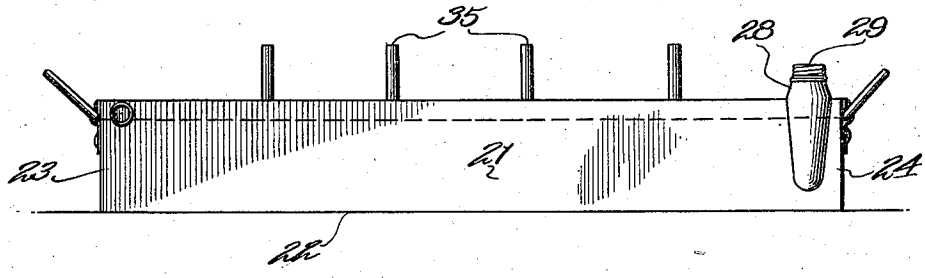

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Fig. 3.

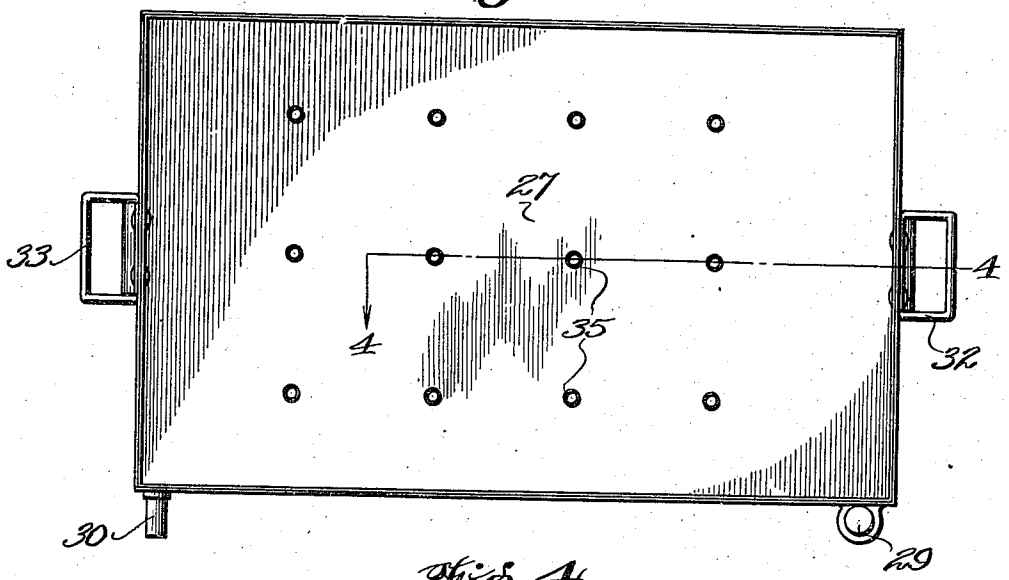


Fig. 4.

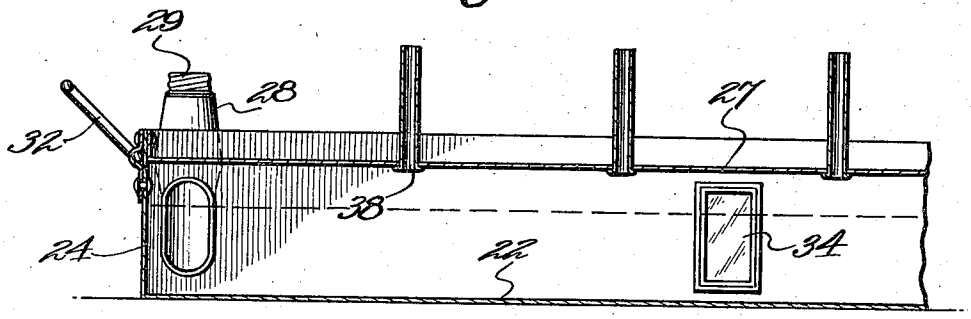
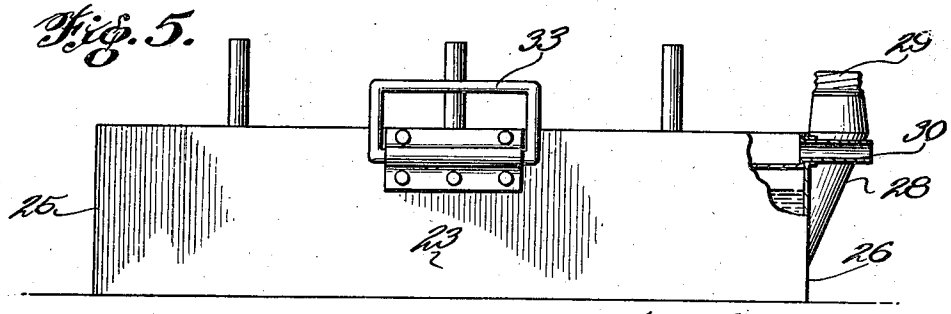


Fig. 5.



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UNITED STATES PATENT OFFICE.

FRED VERVILLE, OF IRON RIVER, MICHIGAN.

BOTTLE-STERILIZING DEVICE.

Application filed November 3, 1923. Serial No. 672,627.

The object of this invention is to provide for sterilizing milk bottles, in crates, without the use of extensive apparatus, and by employing a heating element of commercial type, and other elements of special construction described below.

A further object is to provide for discharging steam into the bottles when in inverted position, the steam on emerging cleansing the exterior of the bottles before being condensed.

A still further object is to provide a boiler proportioned to rest on the top of an oil stove of the type used for cooking purposes, the boiler having an extensive heating surface and having a depressed top serving as a drip pan, and said top mounting a plurality of nozzles for discharging steam to the interior of the inverted bottles when the crate is supported by the pan.

A still further object is to provide for draining off the condensed steam upon the completion of the operation of cleansing the exterior of the bottles.

With the foregoing and other objects in view, the invention consists in the novel construction and arrangement of elements described, illustrated and claimed, it being understood that such modification may be made as fall within the scope of the claims without departing from the spirit of the invention.

In the drawings forming part of this application,

Figure 1 is a view in vertical section showing the crate with the bottles therein, in position for the sterilizing operation,—the boiler mounted on the heater being broken away to show a depressed top.

Figure 2 shows the boiler in side elevation, detached.

Figure 3 is a top plan view of the boiler.

Figure 4 is a fragmentary section on an enlarged scale, the section being on line 4—4 of Figure 3.

Figure 5 shows the boiler in end elevation, a portion being broken away to show a water inlet connection, the view also illustrating a drain pipe having communication with the space above the depressed top.

While various forms of heating elements may be employed, I have illustrated more or less conventionally a commercial type of oil cooking stove, the frame of which includes top 10, standards 11, 12, and lower longitudinal element 13. The burners are designated 14 and 15, and the chimneys or air pipes are shown at 16 and 17, the latter being in alinement with stove holes 19, 20.

The boiler 21 comprises a long flat bottom 22, end members 23, 24, side walls 25, 26, and a depressed top 27, this element last named constituting a drip pan, and being perhaps one-half of an inch below the upper edge of the vertical walls of the boiler. A water inlet connection 28 is provided with a cap 29 and a drain pipe 30 for condensed steam is located as shown.

The boiler may be conveniently lifted by handles 32 and 33, and the water level is ascertained through glass 34.

Steam may be raised in this boiler, and discharge nozzles 35, extending vertically through the depressed top of the boiler, convey the steam to the interior of the inverted bottles designated 36—the bottles being still in the crate 37 of the type shown. Crates of this type are open at the top and at the bottom, and the bottles are supported therein by transverse metallic or other retaining devices.

The nozzles each include a lower flanged end 38 having steam-tight connection with the under side of the depressed top 27. One nozzle is provided for each bottle of a crate of unit size, the nozzles being correctly spaced to conform with the spacing of the bottles. The boiler will be made in various standard sizes, with the required number of nozzles for each size of crate. The drip pan, or depressed top 27, is larger than the crate to be handled, and provides an exterior space 39 in communication with the drain pipe 30.

The crate having been placed in position and the water heated to the required degree, steam passes through the nozzles into the inverted bottles, and emerges through the neck portions thereof, around the nozzles, and passes thence in an upward direction around the sides of the bottles, and water of condensation flows to the drip pan and out through pipe 30.

The boiler may be made of heavy galvanized sheet metal, and the efficiency and low cost of the apparatus,—as compared with the elaborate bottle cleaning devices frequently used,—are features of special importance.

What I claim is:

In a device of the kind described, a boiler proportioned to support in inverted position

a crate of bottles of the type wherein the bottles are secured within the crate with their neck portions terminating below the edge portion of the crate, the top of the boiler being depressed to form a peripheral wall, a drain pipe extending from the depressed top, a plurality of vertically disposed nozzles mounted on the depressed portion of the top and arranged to enter the bottles carried by said crate for supplying steam to the interior thereof, the nozzles being adapted to project into the necks of the bottles when the crate is applied with its edge wall resting on said depressed top, the nozzles being smaller than the bottle necks, permitting the steam to emerge from the bottles around the nozzles and pass thence to the exterior walls of the bottles.

In testimony whereof I affix my signature.

FRED VERVILLE.