A. A. PINDSTOFTE.

APPARATUS FOR STEAMING BOTTLES.

APPLICATION FILED SEPT. 11, 1912.

1,076,447.

Patented Oct. 21, 1913.

2 SHEETS—SHEET 1.

Fig 1

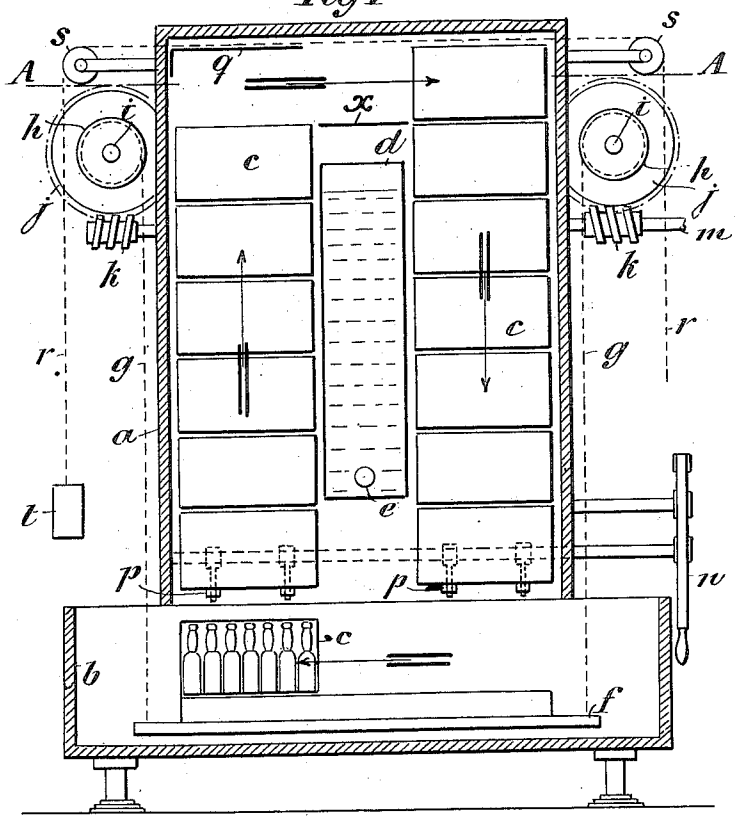
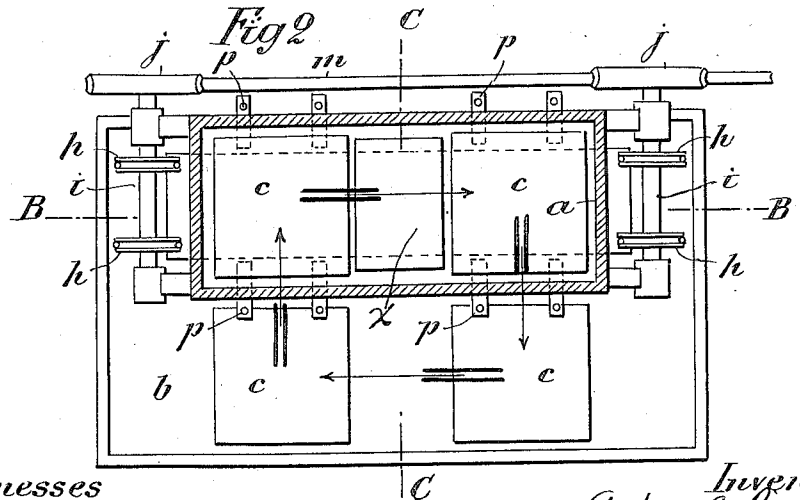


Fig 2



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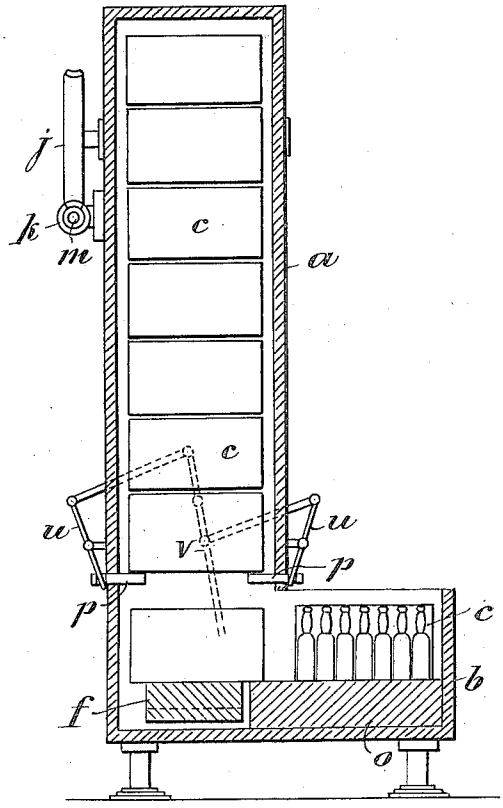
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2 SHEETS—SHEET 2.

Fig 3



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APPARATUS FOR STEAMING BOTTLES.

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To all whom it may concern:

Be it known that I, ANDERS ANDERSEN PINDSTOFTE, director, a subject of the Kingdom of Denmark, residing at the city of Copenhagen, in Denmark, have invented certain new and useful Improvements in Apparatus for Steaming Bottles; and I do hereby 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 appertains to make and use the same.

The invention relates to apparatus for heating and soaking of bottles, vessels or the like by means of steam, which apparatus is provided with a chamber open at its bottom, along one side of which chamber the bottles, etc., placed in bottle baskets, are successively carried upward, then to the other side of said chamber and again downward.

The invention is characterized by a steam generator or a steam supplying device arranged in the middle of said chamber, and by a lift movable up and down and arranged below said chamber, upon which lift the bottle baskets, loosely placed upon each other, for each new insertion of a basket are lifted a distance corresponding to the height of a basket, and by a device arranged in the top of said chamber, which device during each rest of the lift carries the basket, which at the instant is in the uppermost position, to the other side of the chamber, where the baskets again loosely placed upon each other, are carried successively downward.

Further the invention is characterized by means supporting the lower bottle basket of each pile of baskets, which means during the upward movement of the one pile make way for the basket resting on the lift and then catch and support the same, while said means during the downward movement of the lift release the lower bottle basket of the other pile and permit said pile to follow the lift, for then a little before the finish of the downward movement to catch and support the second from bottom of the baskets. During the upward movement in said chamber the bottles, which are placed in the bottle baskets and which do not contain water, and which are not dipped in water, are successively heated by the steam generated in or supplied to said chamber, which steam precipitates on the outer- and inner-sides of the bottles and dissolves the dirt or the like covering the same. During the movement from one side to the other of the chamber the bottles are directly acted on by the steam the temperature of which is near the boiling point, so that all germs, bacilli, etc., present on the bottles are killed. During the downward movement the bottles are successively cooled by the rising air. The cooling can if desired be accelerated by means of water which is injected into the lower part of the steam chamber. The injected water also prevents loosened labels, etc., from re-attachment. After being treated in the apparatus the bottles are brought to the bottle cleaning machines for further treatment.

A constructional form of the apparatus is illustrated on the drawing.

Figure 1 is a vertical section on line B—B Fig. 2. Fig. 2 is a horizontal section on line A—A Fig. 1. Fig. 3 is a vertical section on line C—C Fig. 2.

The apparatus consists of a steam chamber *a* open at its bottom but otherwise completely closed. Said chamber is arranged above a second chamber *b*, which is open at its top and projects beyond the chamber *a*. The bottle baskets *c* are supplied to and again withdrawn from the chamber *a* through the chamber *b*. When the bottles are withdrawn from the last basket *c* which is withdrawn from the chamber *a* (at the right hand side Fig. 1), said basket is again filled with bottles and then carried to the left hand side of the chamber *b* under the supply side of the chamber *a* ready to begin again the circulation through the steam chamber.

A boiler *d* open at its top is arranged in the chamber *a* and provided with a steam supply pipe *e* through which steam is supplied for bringing the water contained in the boiler to its boiling point.

A lift *f* is arranged below the chamber *a* and suspended in four chains *g* fixed to disks *h* mounted on two shafts *i*, on which also are mounted pinions *j* engaging screws *k* on a shaft *m*. According to the direction in which the shaft *m* is rotated the lift *f* is raised or lowered. The shaft *m* is driven by known means. From the platform *o* arranged in the chamber *b* the baskets *c* containing the bottles are successively transferred to the lift *f* when the latter is in its lowermost position. The basket is placed

on the lift in such a manner that it is situated below that part of the chamber which is at the left hand side (Fig. 1) of the boiler *d*. When then the lift is raised the bottle basket is introduced into the steam chamber. The latter is provided with latches *p* or the like, which are withdrawn to permit the baskets to be introduced into the steam chamber and as soon as the basket is introduced, engage said latches *p* beneath the basket thereby supporting the basket. When the basket is supported by the latches *p* the lift can again be lowered. In this manner a new basket is introduced into the chamber *a* by each upward movement of the lift and the pile of baskets is raised a distance corresponding to the height of a basket for each new basket introduced.

At the beginning of the work the apparatus is filled with empty bottle baskets.

After each introduction of a new basket the uppermost basket of the left hand pile is carried across the shelf *x* to the right hand side of the chamber *a* by means of a device arranged in the top of said chamber. For instance said device consists of an angular slide *q*, carried by chains *r* passing over disks *s*.

By means of the arrangement illustrated in Fig. 1 the slide *q* will be carried from the left hand side to the right hand side of the chamber *a* whenever a basket is moved from the right hand side to the left hand side of the chamber *b*. The lengths of the two distances are exactly the same. A weight *t* or the like is connected to the chains *r* and is adapted to return the slide *q* to initial position.

When the slide *q* is carried to the right, it carries the upper basket of the left hand pipe across the shelf *x* to the right hand side of the chamber *a* through which the baskets are again successively carried downward. The baskets are also at this side of the chamber supported by latches *p*, engaging with the lowermost basket, and which when the lift is lowered release the lower basket, thereby permitting the pile to follow the lift. A little before the finish of the downward movement the latches are operated to catch the second from bottom of the baskets and support the same. In this manner the baskets, which have finished the travel through the chamber, can be withdrawn.

The latches *p* are operated by means of a handle *v* and levers *u*.

The details illustrated and described may of course be varied without departing from the principle of the invention.

Claims.

1. In apparatus for steaming of bottles, or the like, the combination of a chamber open at its bottom, baskets in which the bottles are carried through said chamber, a steam supplying device arranged in the middle of said chamber, means for holding said baskets in stack formation in said chamber; a lift arranged below said chamber and adapted to successively lift and lower said baskets to and from said stack; means for moving said lift up and down and means arranged in the top of said chamber adapted to carry the baskets from one side of said chamber to the other; substantially as described and for the purpose set forth.

2. In apparatus for heating and soaking of bottles, vessels or the like by means of steam the combination of a chamber open at its bottom, baskets in which the bottles, vessels or the like are carried through said chamber, an open steam generator arranged in the middle of said chamber, means for holding said baskets in separate stacks in said chamber; a lift arranged below said chamber and adapted to successively lift and lower said baskets to and from said stacks; means for moving said lift up and down and means arranged in the top of said chamber adapted to carry the baskets from one of said stacks to the other, substantially as described and for the purpose set forth.

3. In apparatus for heating and soaking of bottles, vessels or the like by means of steam, the combination of a chamber open at its bottom, baskets in which the bottles or the like are carried through said chamber, a steam supplying device arranged in the middle of said chamber, means for supporting the baskets in stacks on either side of said steam supplying device; said supporting means constructed for allowing a basket to be introduced into one of said stacks and to be withdrawn from the other of said stacks, respectively when the lift is raised and lowered; a lift arranged below said chamber and adapted to successively lift and lower said baskets to and from said stacks; means for moving said lift up and down and means arranged in the top of said chamber and adapted to carry the baskets from one side of said chamber to the other; substantially as described and for the purpose set forth.

In testimony whereof, I affix my signature, in presence of two witnesses.

ANDERS ANDERSEN PINDSTOFTE.

Witnesses:

MARCUS MÖLLER,

CHR. HORTENSE.

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