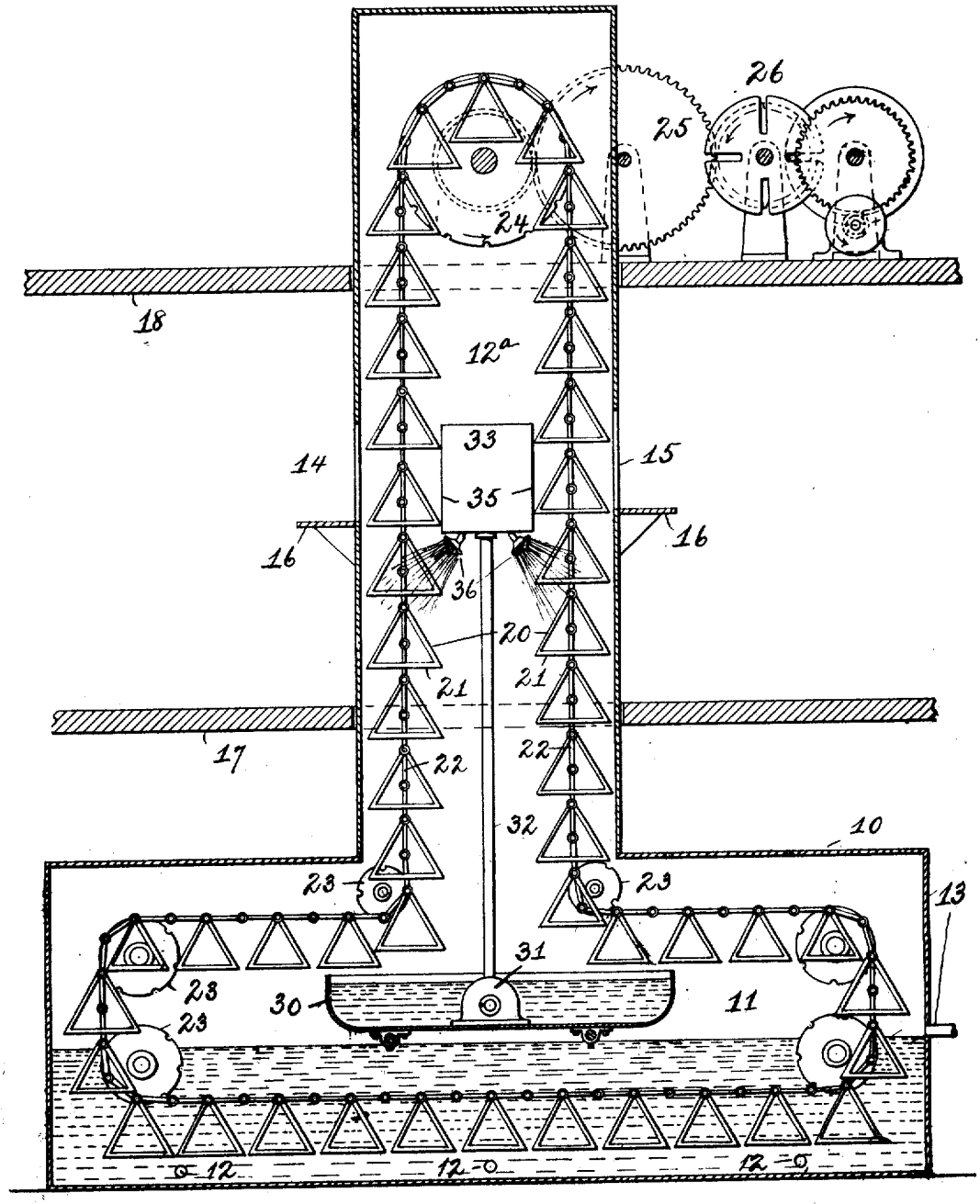
C. H. LOEW.

PASTEURIZING APPARATUS.

APPLICATION FILED JUNE 27, 1907.

902,826. Patented Nov. 3, 1908.



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UNITED STATES PATENT OFFICE.

CHARLES H. LOEW, OF LAKEWOOD, OHIO.

PASTEURIZING APPARATUS.

No. 902,826. Specification of Letters Patent. Patented Nov. 3, 1908.

Application filed June 27, 1907. Serial No. 381,022.

To all whom it may concern:

Be it known that I, CHARLES H. LOEW, a citizen of the United States, residing at Lakewood, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Pasteurizing Apparatus, of which the following is a specification.

My invention relates to a pasteurizing apparatus and more particularly to an apparatus designed to be employed in the pasteurization of beer in bottles, and its novelty consists in the construction and adaptation of the parts as will be more fully hereinafter pointed out.

In the drawing there is represented somewhat in diagrammatic form a vertical medial section and partial side elevation of a pasteurizer embodying my invention.

In the drawings 10 is a tank made of steel, iron, or other suitable material, and divided into two portions, namely, a lower portion 11 comprising a pasteurizing chamber and an upper portion 12^a comprising what I call an interchanging chamber, for the reasons hereinafter set forth. The pasteurizing chamber is supplied with suitable inlet ports indicated at 12 for the admission of steam or hot water thereto and with an overflow port indicated at 13, so that the water introduced into the chamber cannot rise above a certain level. It will be noted that the chamber 11 has no communication with the outer air.

The interchanging chamber 12^a is arranged immediately above the pasteurizing chamber over which it is centrally placed. It is closed at the top and is provided laterally with an opening 14 for the reception of the bottles to be pasteurized and a similar opening 15 on the other side for the discharge of the bottles after they have been pasteurized.

16, 16, indicate shelves projecting from the side walls of the interchanging chamber for the convenience of the workmen in resting the bottle boxes thereon.

17 indicates a flooring and 18 a ceiling for a room in which the bottles are received and discharged from the apparatus, the pasteurizing chamber 11 being placed beneath the floor and the driving mechanism for the conveyer (hereinafter referred to) being placed above the ceiling or on the floor of the story above.

Centrally arranged within the apparatus is an endless conveyer 20 made of any usual construction and comprising holders or receptacles 21 flexibly connected to chains 22 of which the conveyer is in part formed, so that the receptacles 21 maintain by gravity substantially the same relative position in their travel through the apparatus. This conveyer is suitably supported upon roller supports 23 placed at proper intervals throughout the apparatus and is propelled by a sprocket wheel 24, or other suitable device receiving power from a train of gearing 25 and which train of gearing includes a Geneva wheel 26 whereby an intermittent motion is imparted to the conveyer.

Arranged within the pasteurizing chamber and above the water level thereof is a shallow tank or water collector 30 within which is placed a centrifugal pump 31, or other suitable form of water lifting device, and which is connected by a pipe 32 to a reservoir 33 placed within the conveyer 20 and practically opposite the receiving and discharging apertures 14 and 15. The reservoir is provided with substantially vertical walls 35 and the receptacles 21 of the endless conveyer 20 as they pass by such walls may touch the same if they are swung upon the pivots upon which they are hung by the chains 20 so that these walls serve as a guard to prevent any displacement of the receptacles which would render it difficult or inconvenient to place the bottle boxes thereon or take them therefrom. A sprinkling device 36 of usual form is secured to the reservoir 33 and receiving the water therefrom is adapted to spray it downwardly upon the bottle receptacles as they pass by the same.

In using this apparatus the chamber 11 is first filled with water up to the level controlled by the position of the outlet pipe 13 and this water may either be preheated in a separate receptacle or may be heated by the admission of steam through the pipes 12. Whichever method is employed it should be heated to a pasteurizing temperature sufficient to kill the germs in the beer or other liquid in the receptacles intended to be passed through the same. Water is then placed in the collector 30. This water is preferably of a temperature intermediate that of the water in the pasteurizing chamber 11 and the outer air. The conveyer 20 is then started and the pump 31 is similarly started. The workmen then place the boxes containing the bottles of beer to be pasteurized upon the receptacles 21 as they pass the receiving aperture 14 and as such bottles are

gradually brought past the sprinkling device 36 they are subjected to the action of a spray of water derived from the water collector 30 and which water is warmer than the outer air with which they have previously been brought into contact and is cooler than the water in the pasteurizing chamber 11. As the receptacles 20 pass downward the bottles are subjected to a constantly increasing heat derived from the vapors arising from the hot water in the chamber 11 until finally they pass into the water bath at the bottom of that chamber at a temperature substantially identical therewith. As the receptacles 20 emerge from the water bath and pass upward into the interchanging chamber they part with a portion of their heat and finally when they reach a proper location they are subjected to the action of the spraying device 36 which cools them to the temperature of the water contained in the collector 30 or a little below that temperature and they are then in a condition to be removed from the apparatus without danger of breaking when brought into contact with the temperature of the outer air.

It will be noted that my apparatus is simple in construction. It comprises few parts and those made of common standard materials. It involves the use of but one pasteurizing chamber and it employs the heat radiated from the surface of the water in that pasteurizing chamber to raise the temperature of the water in the sprinkling device, so that the modifications of temperature of the bottles may be accomplished slowly and gradually and without danger of their breaking. It will be noted also that there are no valves or trap doors in the apparatus and very little loss of heat from direct radiation by its use, and that by means of the construction described, I subject the liquids to be pasteurized to the action of heating and cooling mediums of different temperatures with respect to such liquids but all of which different temperatures are derived from the same source of heat and without any loss.

What I claim as new is:—

1. A pasteurizing apparatus, comprising a pasteurizing chamber, an interchanging chamber directly above the same and open to receive heated vapors therefrom, a spraying device located in said interchanging chamber, a water collector located within the pasteurizing chamber above and close to the water line and adapted to receive the water discharged from the spraying device so that it may be heated while in the collector from the heat in the pasteurizing chamber and means for forcing the water from the water collector to the spraying device.

2. A pasteurizing apparatus, comprising a pasteurizing chamber, an interchanging chamber directly above the same and open to receive heated vapors therefrom, a spraying device located in said interchanging chamber, a water collector located within the pasteurizing chamber above and close to the water line and adapted to receive the water discharged from the spraying device so that it may be heated while in the collector from the heat in the pasteurizing chamber and means for forcing the water from the water collector to the spraying device, and an endless conveyer adapted to pass through both chambers and past the spraying device.

3. A pasteurizing apparatus, comprising a pasteurizing chamber, an interchanging chamber, an endless conveyer provided with receptacles moving up one side and down the other side of the interchanging chamber and a spraying reservoir, centrally located in the interchanging chamber, the walls of which serve as guards to prevent the displacement of said receptacles as they pass by the same.

4. A pasteurizing apparatus, comprising a pasteurizing chamber, an interchanging chamber, an endless conveyer provided with receptacles moving up one side and down the other side of the chamber, and a spraying reservoir, centrally located in the chamber, the walls of which serve as a guard to prevent the displacement of said receptacles as they pass by the same, and means for supplying the reservoir with water.

5. A pasteurizing apparatus, comprising a pasteurizing chamber, an interchanging chamber, an endless conveyer provided with receptacles moving up one side and down the other side of the interchanging chamber, a spraying reservoir, the walls of which serve as guards to prevent the displacement of said receptacles as they pass the same, means for supplying the reservoir with water, and means for heating the water to a temperature intermediate that of the pasteurizing and interchanging chambers.

6. A pasteurizing apparatus, comprising a pasteurizing chamber, an interchanging chamber, an endless conveyer provided with receptacles moving up one side and down the other side of the chamber, a spraying reservoir centrally located in the chamber, the walls of which serve as guards to prevent the displacement of said receptacles as they pass the same, means for supplying the reservoir with water and means for heating the water to a temperature intermediate that of the pasteurizing and interchanging chambers, the last mentioned means consisting of a water collector within the pasteurizing chamber adapted to receive heat therefrom.

7. A pasteurizing apparatus, comprising a pasteurizing chamber, an interchanging chamber directly above the same and open to receive heated vapors therefrom, an endless conveyer provided with receptacles moving up one side and down the other side of the interchanging chamber and adapted to pass

through both chambers, receiving and discharging openings at suitable places in the walls of the interchanging chamber, and a spraying reservoir between the upward and downward moving portions of the conveyer near said openings, the walls of said reservoir being adapted to serve as guards to prevent the displacement of the receptacles.

8. A pasteurizing chamber, means for supplying hot water thereto, a water collector placed near the heated water in the pasteurizing chamber to receive the heat radiated therefrom, a reservoir, means for causing water to flow from the said collector to the reservoir, a sprinkling device connected to the reservoir and means for carrying the packages to be pasteurized past one side of said sprinkling device through the pasteurizing chamber and back again past the sprinkling device.

9. A pasteurizing chamber adapted to contain hot water, a water collector placed near the water level within said pasteurizing chamber to receive the radiated heat, a sprinkling mechanism, means for forcing the water heated in the collector to said sprinkling mechanism and means for carrying the packages to be pasteurized from the sprinkling device through the pasteurizing chamber on one side of the sprinkling device and back again on the opposite side thereof.

10. In a pasteurizer, containing a pasteurizing chamber adapted to contain hot water, a water collector placed therein near the water level thereof to receive the heat therefrom, a sprinkling mechanism in the interchanging chamber, means for forcing the water heated in the collector to said mechanism, means for carrying the packages of material to be pasteurized along one side of the sprinkler through the pasteurizer and back along the opposite side of the sprinkler and means for collecting the water falling from the sprinkler and forcing it into the sprinkler again, so that it may be repeatedly used.

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

CHARLES H. LOEW.

Witnesses:

HERMAN MEYER,

ALAN MCDONNELL.