

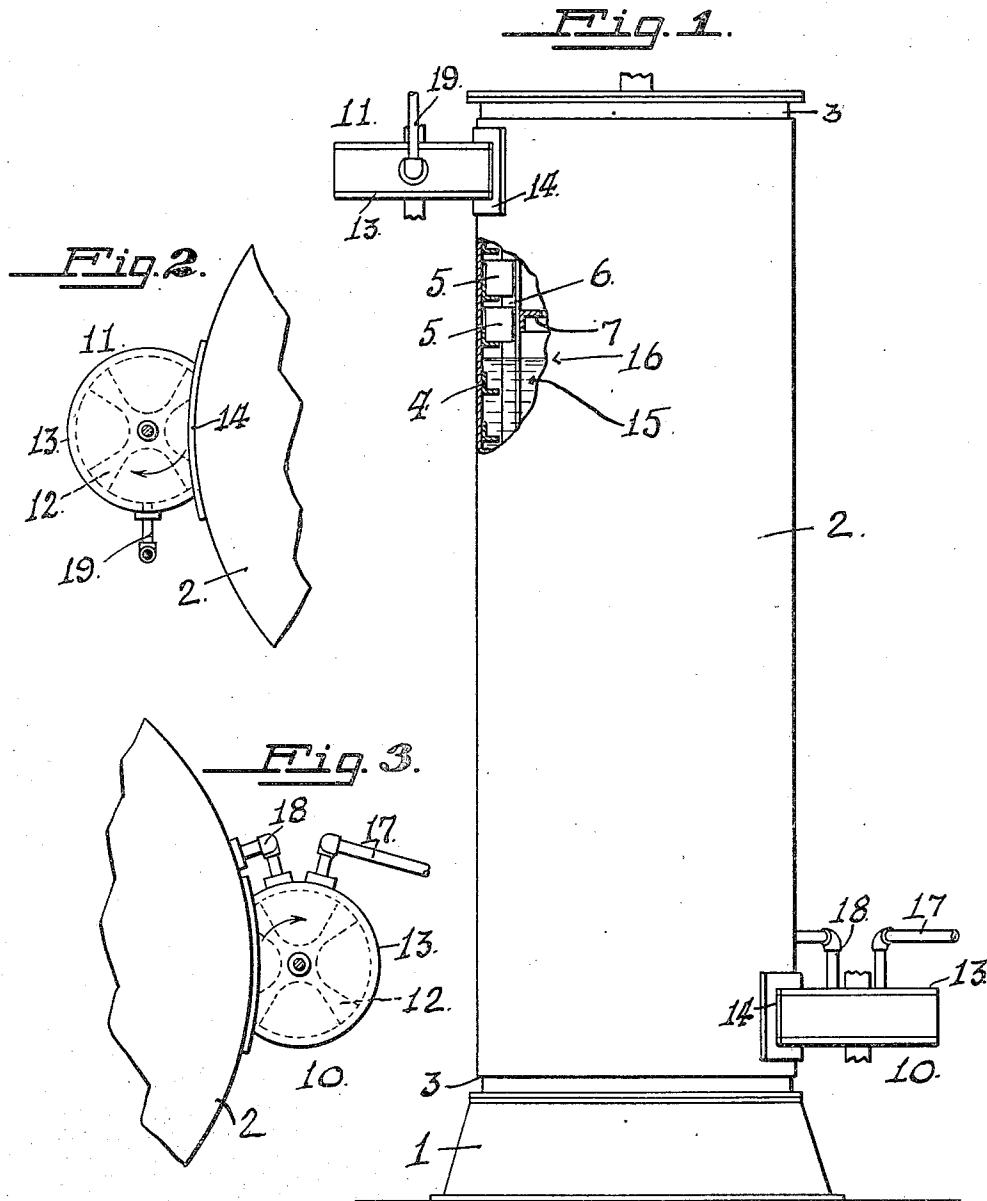
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PRESSURE COOKER, COOLER, AND THE LIKE

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PRESSURE COOKER, COOLER, AND THE
LIKE

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My invention relates to treating apparatus in the canning art and especially to those machines known variously according to the use to which they are put, as coolers or as cookers, the latter comprising both cookers proper, and exhaust boxes, the distinction between all such treating apparatus being well known in the art.

The term pressure is generally applied to these machines, due to the fact that the treating chamber is under internal fluid pressure above atmospheric.

In the case of cookers proper and in coolers the cans are closed and are usually rolled through them on their sides, but in the exhausters the cans being still open are passed through upright; and because of the internal pressure condition in any such treating chamber, there must be fluid tight valves adapted to feed and discharge the cans without release of pressure.

My present invention although applicable to such machines regardless of the position of the treating vessel has special reference to the adaptation of a vertically disposed pressure treating-vessel for the use of water as the immediate heating medium; and in this special application it consists in novel means associated with the can-feed valve for preventing loss of the heating water which would otherwise be carried out from the treating chamber by the outcoming pockets of the rotating turret of said valve; and in novel means associated with the discharge valve for cooling the discharging cans and reducing the pressure gradually to a point at which they can safely be exposed to the outer air.

In the accompanying drawing I have shown the treater in its preferred form as an upright one, though it is to be understood that changes may be made without departing from the spirit of the invention as defined by the claims hereunto appended.

In the drawing:—

Fig. 1 is an elevation, partly broken away, of my improved pressure treating apparatus.

Fig. 2 is a fragmentary plan view of discharge valve 11 and its association with the treating vessel 2.

Fig. 3 is a similar plan view of the feed valve 10.

Upon a base 1 is mounted upright a shell 2 with closed ends 3.

On the inner surface of the shell is a helical can track 4, preferably of angle section, upon which the cans 5 are supported and advanced throughout the length of the track from bottom to top.

Concentrically mounted within the shell and adapted for rotation therein about a vertical axis is a reel comprising a peripheral series of spaced pusher bars 6, and rings 7 carrying said bars.

To the side of the shell near its lower end is fitted the feed valve 10, and to the side of the shell near its upper end is similarly fitted the discharge valve 11. Each of these valves is fluid tight, and is similar in construction comprising a horizontally rotating pocket turret 12 fitted and suitably packed fluid tight in a housing 13 and having communication at 14 with the shell 2.

The shell 2 contains water 15, for example to the level 16, and this water is heated to the required temperature by means of steam introduced from a suitable connection and source, not shown. As a means for taking care of the water which normally would be carried out by the outcoming pockets of the turret of the feed valve 10, steam, for example a portion of that used for heating the apparatus, is introduced through a pipe 17 tapped through the wall of the turret housing 13 of said feed valve at the upper edge or level of the turret pocket. Another pipe connection 18 is tapped at one end into the housing of said valve near the lower edge or level of the turret pocket, and at its other end said pipe 18 enters the treating shell 2 above the level of the feed valve.

The pressure of the steam from the inlet pipe 17 overcomes the pressure within the shell 2 and will force the water from the turret pocket after the latter is sealed off from the treating chamber and before it has established communication with the outer air, back through the pipe 18 into the shell 2; and so, too, with each succeeding pocket.

As the cans from the treating chamber reach the discharge valve 11 they are very hot and are under high pressure as they enter the turret pockets. They should, therefore, be cooled gradually. In order to do this, there is tapped into the housing of the discharge valve 11, a pipe 19 in position to direct a jet of cold water into the outgoing turret pockets after said pockets have been blocked off by the packing from the treating shell and before communication is established with the outer air. This will have the effect of condensing the steam within the turret pocket, and thereby gradually reduce the pressure surrounding the can so that its contents, if the can be open, will not blow out; and will have the further effect with closed cans of considerably reducing the temperature before the can is discharged to the atmosphere and thereby prevent deformation and possibly developing leaks. The

cooling effect will take place largely on account of the fact that the volatile gases produced in cooking will be collected in the top of the can in the head space, and will be quickly cooled
5 down by the cold spray hitting the can.

These combined effects of reducing the pressure on the can gradually by condensing the steam in the turret pockets, and at the same time cooling down the can to some extent, will relieve
10 the strain upon the can sufficiently to make it safe to discharge it to the outer air, and it can then be further cooled down gradually in an open cooler to the temperature required by the product.

15 Since the improvements herein are fully disclosed both in structure and function, it is not deemed necessary to needlessly add such well known constructive features as driving connections, feeders, sources of treating media and the like.
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Finally, as far as the operation of the device herein is concerned, it need only be epitomized by stating that such a vertical treating vessel with its valves and their novel appurtenances
25 may be selectively used for the treatment under pressure of closed or open cans when the heating medium is steam, or for closed cans where water is employed as such medium, thus reducing the number and complications of a multiplicity of
30 separate machines and operations as commonly used.

I claim:—

1. In an apparatus for the purpose described having a vessel under internal fluid pressure above atmospheric, said vessel containing water as the heating medium, a fluid tight rotatable pocket turret valve controlling a communication
80 with said vessel, the pockets of said valve being exposed to the water in the vessel; and means for positively forcing water out of the pockets back into the vessel prior to their exposure to the outer air comprising a pipe connection to
85 impose fluid pressure upon said pockets, greater than the internal fluid pressure of the vessel, and a second pipe connection leading from the pockets back into the vessel.

2. In an apparatus for heat treating canned
90 goods, a treating vessel defining a treating chamber through which the cans are passed for treatment, said vessel containing a liquid heating medium, a fluid tight rotatable pocketed turret valve
95 controlling a communication with the interior of said vessel below the surface of the liquid therein, the pockets of said valve being exposed to the liquid in said vessel; and means for positively forcing liquid out of the valve pockets back into
100 the vessel, prior to the exposure of said pockets to the outer air, comprising a pipe connection leading from the pockets into the vessel, and means for introducing steam into said pockets
105 under sufficient pressure to force liquid therefrom into the vessel through said pipe connection.

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