W. C. ANDERSON & A. R. THOMPSON.

EXHAUST BOX FOR FRUIT CANNING.

APPLICATION FILED JAN. 16, 1912.

1,033,369.

Patented July 23, 1912.

2 SHEETS—SHEET 1.

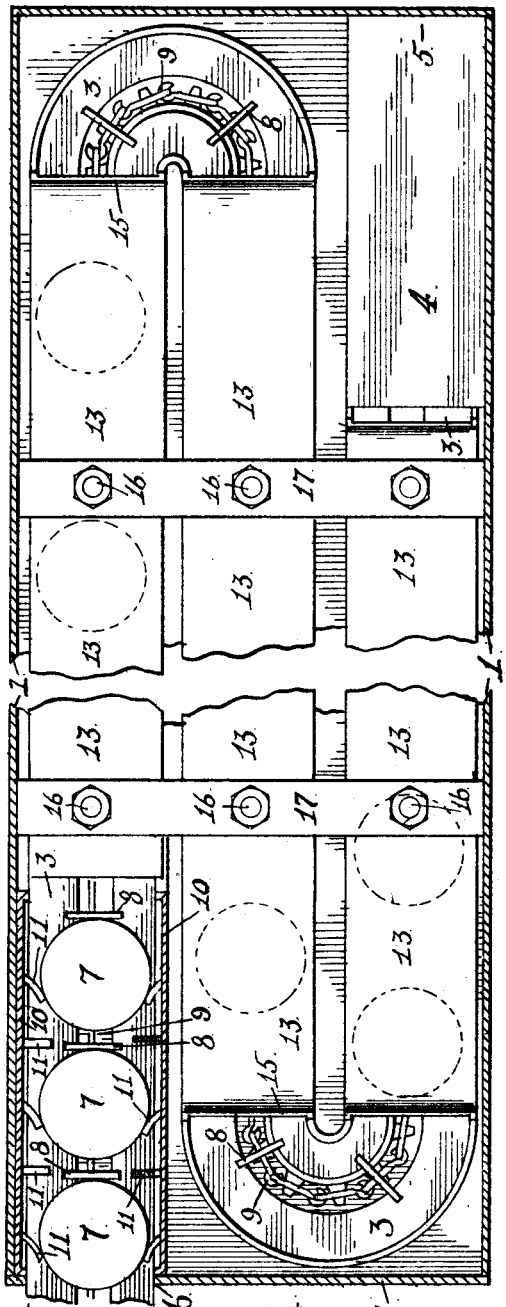

Fig. 1

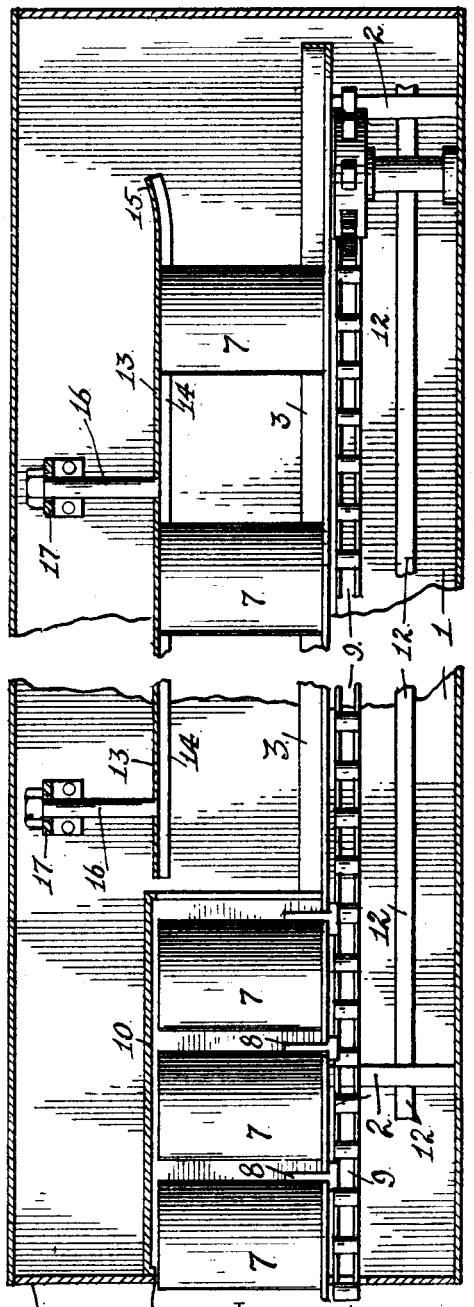

Fig. 2

Witnesses

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Fig. 3.

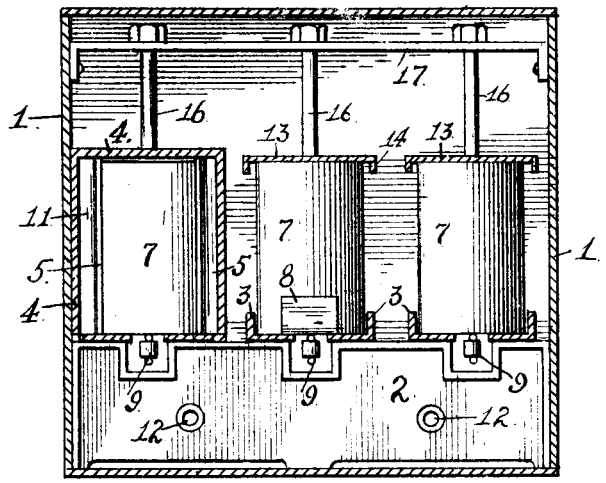


Fig. 4.

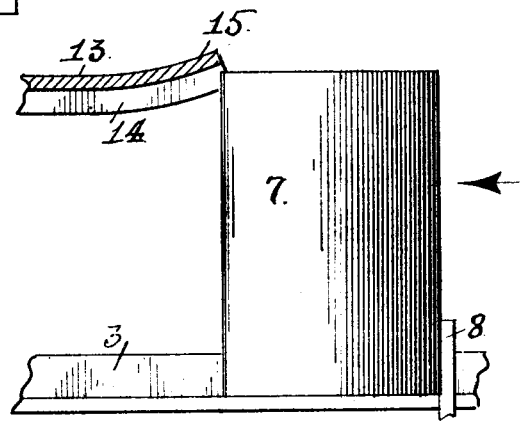
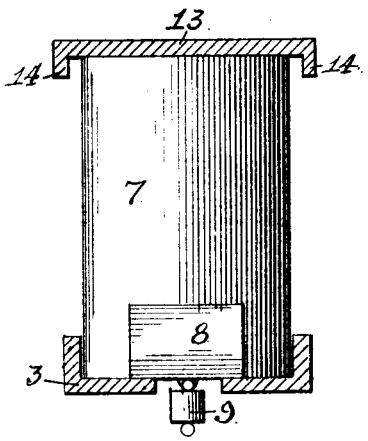


Fig. 5.



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UNITED STATES PATENT OFFICE.

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EXHAUST-BOX FOR FRUIT-CANNING.

1,033,369. Specification of Letters Patent. Patented July 23, 1912.

Application filed January 16, 1912. Serial No. 671,416.

To all whom it may concern:

Be it known that we, WILLIAM C. ANDERSON and ALBERT R. THOMPSON, citizens of the United States, residing at San Jose, in the county of Santa Clara and State of California, have invented certain new and useful Improvements in Exhaust-Boxes for Fruit-Canning, of which the following is a specification.

Our invention relates to that class of exhaust-boxes used in the canning art, the purpose of which is to exhaust the air from filled cans by the application of heat prior to hermetically sealing said cans.

With many commodities it is not well to permit the heating medium to come in direct contact with the can contents through the open topped can. This is the more to be avoided where, as is the present practice, a relatively extensive top surface of the commodity is exposed through the full open top of such cans as are now used.

A single example of the disadvantage of such a direct contact of the heating medium will give a better understanding of the matter. Take the case of salmon. If the heating medium be air, the top surface of the salmon if exposed directly to the air while passing through the exhaust-box will present a fried appearance. Under like circumstances, if the heating medium be steam, the salmon will have a whitish or bleached out appearance on its top. Neither condition is acceptable to the trade, nor is it desirable to suffer the various injurious effects, as far as appearances are concerned, to other commodities which result from the direct contact of the heating medium.

In our present improvement, it is immaterial whether hot air or live steam be employed; it is applicable to a box heated by either medium. Nor is the course of the cans through the box material, as said course may be a direct one from one end to the other, or a to and fro course in a number of runs. But for the sake of illustration, we herein shall show and describe our improvement in connection with a box in which the heating medium is air, heated by steam pipes, and in which the course of the cans is a to and fro one in several runs.

The main object of our invention is to keep the commodity from the direct contact of the heating medium, and to this end our invention consists essentially in a cover plate under and in contact with which the open tops of the cans lie as said cans travel through the box. It also consists in the novel cover which we shall hereinafter describe, which is adapted for various heights of cans.

Another object of our invention is to prevent, in whole or in part, the heating medium from escaping from the box through its entrance and exit, and for this purpose we provide short tunnels, or as they may be termed, vestibules, which project into the box from the entrance and exit openings, a distance sufficient to contain several, say three cans at one time, said vestibules being but little larger than the cans, so that as there will always be several cans in them at one time, the escape of the heating medium is so impeded as to be negligible. This result may be heightened by providing flaps in the vestibules which by contact with the passing cans serve as check valves to confine the heat.

Referring to the accompanying drawings—Figure 1 is a broken horizontal sectional view of our exhaust-box, the cover plates and one of the vestibules being shown in plan, and the other vestibule in section. Fig. 2 is a broken vertical longitudinal sectional view of our exhaust-box. Fig. 3 is a vertical cross sectional view of the same. Fig. 4 is a detail side elevation, enlarged, showing one can about to enter under the upturned end of a cover plate. Fig. 5 is a cross sectional detail, enlarged, showing the can-track, the chain and its flight, and the cover plate lying on the top of the can.

1 is a box of any suitable construction in which, upon cross supports 2, is carried a can track 3 having a to and fro course, in any desired number of runs, here shown as three. From the entrance 5 for the cans, which is shown in Fig. 3, to the can exit 6, shown in Figs. 1 and 2, the can track extends in continuous course, and the cans 7 are carried upon it continuously by means of the flights 8 of the traveling chain 9. At the entrance end 5 is a short tunnel or vestibule 4 and at the exit end is a similar one 10. These extend into the box 1 and each has a length adapting it to receive, say, three cans, as shown in Figs. 1 and 2, and said vestibules are but little larger than the cans

as is clearly shown in Fig. 3. Flexible or yielding flaps 11 may be secured in the vestibules and form close joints with the passing cans. As there are three cans always in the vestibules, the escape of the heat will be very much impeded and when the flaps 11 are used, they will act as check valves and practically confine the heat.

In Figs. 2 and 3, pipes 12 are shown which may be considered part of a steam coil which may either be a closed one, to heat the air, or one to provide live steam. Lying above each straight course of the can track 3 is a cover plate 13. There are, in this case, three of them. One extends from the inner end of the entrance vestibule 4, as seen in Fig. 1, to the beginning of the curved portion by which the track returns. A second extends over the middle course, between the two curved portions; and a third extends from the second curved portion to the inner end of the exit vestibule. Each of these covers is a plate with flanged downturned edges 14. The covers are all slightly upturned at their ends, as shown at 15, to enable the cans to readily pass under them. These covers lie upon and in contact with the open tops of the cans, and the latter move along under and in contact with the covers. Any suitable provision may be made to effect this contact. Possibly the simplest is that of gravity, and for this effect we here show the cover plates as carried by the lower ends of hanger rods 16 which are suspended from and are slidable up and down in cross brackets 17 secured to the box walls. Thus the covers rest by their own weight upon the cans, and by being yieldingly suspended they give to all inequalities and provide for batches of cans of different sizes. The exposure of the cans at the curves or bends of the runway is for so short a time as to be negligible, so that there need be no unnecessary complications to fit covers at these points. The flanges 14 of the cover plates shed the water of condensation and prevent it from getting into the cans.

Having thus described our invention what we claim as new and desire to secure by Letters Patent is:

1. In an exhaust-box, the combination of means for providing a heating medium for the interior of the box; means for conveying the filled open topped cans through said box; and a cover plate within the box held against movement in the direction of travel of the conveying means under which the cans travel with their upper edges in contact therewith, said cover plate closing the open tops of the cans and excluding the heating medium.

2. In an exhaust-box, the combination of means for providing a heating medium for the interior of the box; means for conveying the filled open topped cans through said box; and a cover plate within the box held against movement in the direction of travel of the conveying means under which the cans travel with their upper edges in contact therewith, said cover plate closing the open tops of the cans and excluding the heating medium, and said plate having downturned side edges to shed the water of condensation.

3. In an exhaust-box, the combination of means for providing a heating medium for the interior of the box; means for conveying the filled open topped cans through said box; a cover plate within the box held against movement in the direction of travel of the conveying means under which the cans travel with their upper edges in contact therewith, said plate closing the open tops of the cans and excluding the heating medium; and means for yieldingly mounting said cover plate to enable it to adjust itself to the cans.

4. In an exhaust-box, the combination of means for providing a heating medium for the interior of the box; means for conveying the filled open topped cans through said box; a cover plate within the box held against movement in the direction of travel of the conveying means under which the cans travel with their upper edges in contact therewith, said plate closing the open tops of the cans and excluding the heating medium; and means for yieldingly mounting said cover plate to enable it to adjust itself to the cans, consisting of hangers secured to the cover plate and brackets secured to the box, in which said brackets the hangers are vertically slidable.

5. In an exhaust-box having an entrance and an exit for the cans, the combination of means for heating the interior of the box; means for conveying the cans into, through and out of the box; and the means for preventing the escape of heat at the entrance and exit of the box consisting of short tunnels extending inwardly from the entrance and from the exit, said tunnels having a length sufficinet to contain at one time a plurality of the traveling cans, and having a cross sectional area but little greater than the width and height of the cans.

6. In an exhaust-box having an entrance and an exit for the cans, the combination of means for heating the interior of the box; means for conveying the cans into, through and out of the box; and the means for preventing the escape of heat at the entrance and exit of the box consisting of short tunnels extending inwardly from the entrance and from the exit, said tunnels having a length sufficient to contain at one time a plurality of the traveling cans, and having a cross sectional area but little greater than the width and height of the cans, and yielding flaps within said tunnels, adapted by

contact with the cans to serve as check valves against the escape of the heat.

7. In a device of the character described, a heater box, means for heating the interior of the box, a conveyer traversing the interior of the box adapted to convey the filled open topped cans therethrough in an upright position, a cover plate within the box held against movement in the direction of travel of the conveyer and adapted to contact with the open tops of the cans during the passage of the cans through said box, the front end of said cover plate being provided with an upwardly flared portion, and means for supporting the cover plate within the box so that it will be permitted a limited vertical movement.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM C. ANDERSON.
ALBERT R. THOMPSON.

Witnesses:
WM. F. BOOTH,
D. B. RICHARDS.