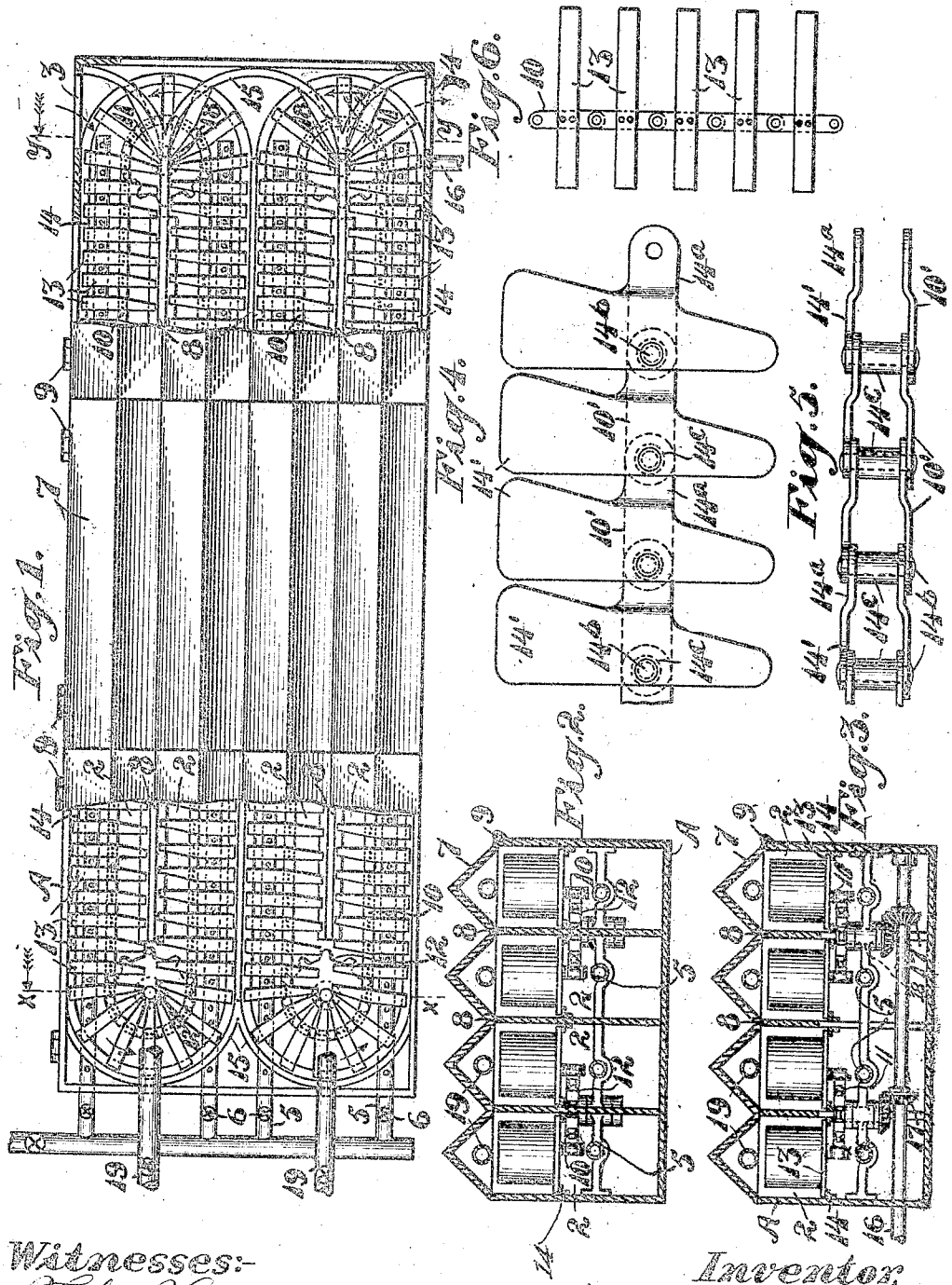
No. 874,330. PATENTED DEC. 17, 1907.

M. W. GROOM.

CONVEYING MEANS FOR CAN COOKERS AND EXHAUSTERS.

APPLICATION FILED FEB. 23, 1906.

2 SHEETS—SHEET 1.



Witnesses:-
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2 SHEETS—SHEET 2.

Fig. 7.

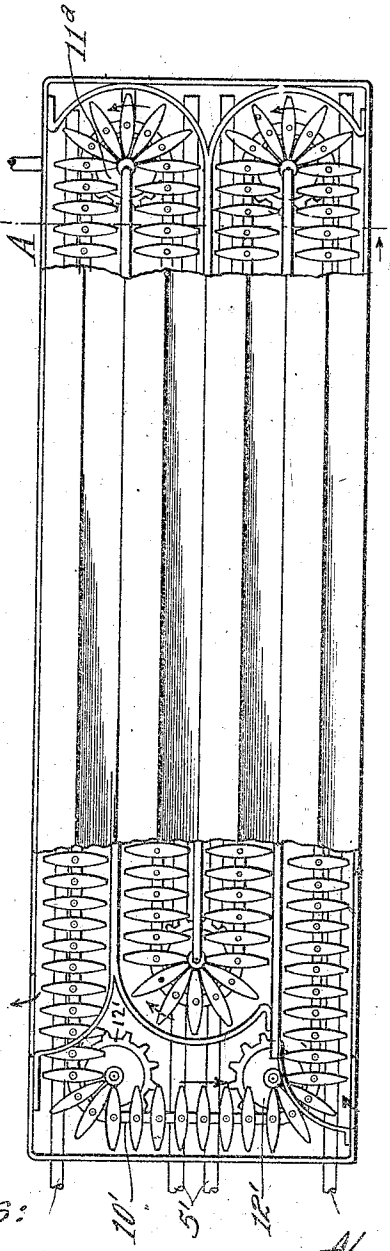
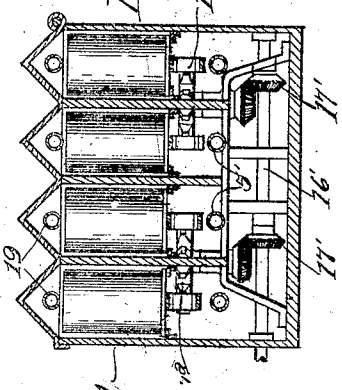


Fig. 9.



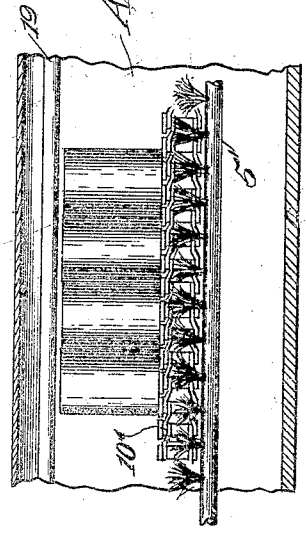


Fig. 8.

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[illegible]

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UNITED STATES PATENT OFFICE.

MARSHALL W. GROOM, OF SAN JOSE, CALIFORNIA.

CONVEYING MEANS FOR CAN COOKERS AND EXHAUSTERS.

No. 874,330. Specification of Letters Patent. Patented Dec. 17, 1907.

Application filed February 23, 1906. Serial No. 302,521.

To all whom it may concern:

Be it known that I, MARSHALL W. GROOM, citizen of the United States, residing at San Jose, in the county of Santa Clara and State of California, have invented new and useful Improvements in Can Cookers and Exhausters, of which the following is a specification.

My invention relates to can cookers and exhausters and particularly to the conveying means therefor.

The invention consists of the parts and the construction and the combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a plan view of a machine with the cover partly broken away, showing the invention. Fig. 2 is a section on line X—X, Fig. 1. Fig. 3 is a section on line Y—Y, Fig. 1. Fig. 4 is a plan view of a preferred form of carrier. Fig. 5 is a side elevation of same. Fig. 6 is a plan view of a modified form of carrier. Fig. 7 shows a modification of my apparatus. Fig. 8 is a detail of a conveyer and steam pipe. Fig. 9 is a transverse section on line Z—Z of Fig. 7.

A represents a box of suitable length and width and built of any suitable material. It is divided into a plurality of runways 2, and there may be as many of these runways as desired or necessary, depending on the time required for exhausting or cooking any class of goods; or any number of boxes may be coupled up in series.

For convenience of illustration I have shown a box with only four runs. The box is inclosed, except for an ingress opening 3 for the cans at one side adjacent to one end and an egress opening 4 on the opposite side. A can entering at 3 is taken by suitable conveying means successively through each run until finally discharged at 4.

While in the runs the cans are subjected to heat admitted through the perforated steam pipes 5 which extend lengthwise of the runs and beneath the conveyers. Admission of steam to each pipe 5 is controlled separately from beneath by suitable valves 6, whereby the heat for any run may be cut off or regulated to permit a variation in the duration of the exhaust period or the cooking period, without varying the speed of travel of the cans.

The several runways are provided each with an arched or peaked roof, so that the condensed moisture in the top of the runs will flow down the sides of the partitions to the bottom of the box and not drip into the open cans where the device is used as an exhauster. This drip from the condensation where boxes with flat tops are used, is both annoying and uneconomical since it causes a dilution of the syrup and results frequently in the overflow of a can and a consequent waste of syrup and sugar; besides it causes a fouling of the exhauster and conveyers and interferes seriously with the soldering of the cans, since they must be cleaned of all sugar deposits around the cap opening before the application of the flux and solder.

I prefer to provide a hinged cover as 7 for the box which is corrugated lengthwise as shown, with the lowest portion of each corrugation resting on a respective partition 8 between two adjacent runways. By hinging the cover along one edge as at 9, access is easily had to the interior of the box at any time. Where the box is of considerable length, the cover may be made in a plurality of succeeding sections for convenience in case it is desired to get into any particular part of the box.

The essential feature of this present application is the particular conveying means by which the cans are propelled through the several runs.

Instead of using a separate endless chain or belt for each runway, running over sprockets on horizontal axes as has been done heretofore, I employ one endless chain 10 for two runways by running the chain around sprockets 11—12 on vertical axes and providing the links of the chain with suitable lateral projections or slats 13 to travel on appropriate endless tracks or guides 14 on the sides of the runways, and on which projections or slats, the cans are supported.

In Figs. 1—4 & 6 I have shown various constructions of a conveyer adapted to the same work.

Since the runways generally lie side by side, separated by only a thin partition 8, it is essential that the cans be capable of turning a sharp corner at each end of a run. So whatever support in the nature of a slatted carrier traveling about vertical axes is provided for the cans, this support must adapt itself to pass around a sprocket whose radius is less than the width of a runway. My construction of carrier permits the use of a sprocket whose radius is less than half the width of a runway.

In Fig. 6 is shown a link chain having the narrow slats or plates 13 secured crosswise to certain of the links of the chain. The ends of these slats travel always in a horizontal plane on the guides 14, which latter extend down opposite sides of one runway, back along the succeeding runway and around the ends of the dividing partition after the fashion of an endless trackway. These slats 13 may be made separate from the chain and riveted or otherwise secured thereto, or they may be made integral with a link as shown in Figs. 4—5. The slats are arranged at suitable intervals so as to properly support the can at all times in its travel, whether through the runway, or around the end of a partition 8. Where cans of small diameter, of 4 inches more or less, are used, the slats must be arranged relative to each other and to the chain in such manner so that they will not open out too much when passing around a sprocket and so allow a can to drop through.

The perfectly straight slats of Fig. 6 are more particularly adapted for use in conveying large cans or packages, and in such a case the slats would be secured close to their inner ends to the chain to enable the latter to make the proper bend in going around the sprocket.

It is to be understood that this construction of conveyer is particularly designed for use where only two supporting sprockets for the chain are to be used and where the two lines of travel of the objects conveyed lie close to each other.

In Fig. 1, I have shown another form of conveyer in which the rear inner corner of each slat is beveled to allow the inner ends of the slats to come close together and prevent the outer ends opening out too wide in going around a curve. This construction permits the use of slats an inch or more in width, separated not to exceed a quarter of an inch, and to travel around a sprocket not over six or eight inches in diameter.

In Fig. 4 is shown a preferred construction of carrier in which the links of the chain consists of the underneath plates 10′ and a combined upper plate and cross-slat member 14′; the top plate having a rear projection 14^a and the two plates perforated to receive bolts or rivets 14^b; said bolts or rivets being surrounded by the spacing and anti-friction rollers 14^c. The top plate is preferably made substantially in the shape of a right angle triangle with the intermediate side of the triangle constituting the outer edge of the plate. The links of the chain are assembled and the parts proportioned so that when in operation the wider outer ends of the plate will lie contiguous to each other, while the inner narrower ends of the plates permit the necessary pivotal movement of one top plate relative to another in passing around a sprocket at the end of either run. Pivoting the links together nearer to the inner ends of the slat-members permits the use of smaller direction sprockets. The endless travel of a chain down one runway and up another operates to carry the cans from the point where they are received into the first runway to the point of discharge at the adjacent end of the other runway; the cans being shifted from one conveyer to the other through the medium of suitable means including the curved guides 15.

The advantages of a conveyer of the foregoing construction is that it reduces the usual number of conveyers by half, since each one of my conveyers operate through two runways, and every part of the conveyer is capable of being in active operation. Ordinarily with a conveyer mounted on sprockets turning on horizontal axes, one-half of the conveyer is necessarily idle.

Any suitable means may be employed to drive the conveyer in unison. As here shown, 16 represents a drive-shaft carrying the miter gears 17, which operate corresponding gears on the shafts 18 of the sprockets 11. A box of this construction is adapted for use both as an exhauster and as a cooker; the only difference is that exhaust takes place before the caps are put on the cans, and the cooking is done after the cans are capped and sealed.

By cutting off the steam from one or more of the runways, the period of cooking can be varied without alternating the speed of the conveyers. If the cooking is to be a short one, it may be desired to chill the cans before leaving the cooker, and for that reason I may employ the perforated pipes 19 arranged lengthwise in the runways and above the tops of the cans and connecting the pipes with a suitable source of cooling fluid supply, such as water or air. With the steam cut off in any of the runways, the checking of any further cooking in the cans may be effectually done by turning cold water, or admitting a blast of cold air, into the pipes 19 in those runways in which the steam has been cut out.

It is often very desirable that the cooking be checked immediately, since the cans retain their heat for sometime after, and if the cans were allowed to go on cooking through the remainder of their travel, their contents would be over cooked.

In Fig. 7 is shown a modification of my apparatus in which I employ a single chain 10 to traverse all the runs. The chain may be of any of the aforedescribed slatted constructions; it is supported on an endless trackway and travels around the sprockets 11^a—12′ which are mounted on vertical axes at the ends of the runs. Sprockets 11^a are drive-sprockets and sprockets 12′ are idlers. The ends of the chain are brought

together as shown around either set of sprockets.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. The combination with sprockets mounted on vertical axes, of an endless chain passing around said sprockets and composed of pivoted links having integral transversely extending slat-members, said members being narrower at one side of their pivots than at the other side thereof, and a track-way for supporting said slat-members.

2. A conveyer comprising sprockets mounted on vertical axes, a chain passing around said sprockets, said chain comprising links pivoted together and having integral transversely-extending slats, an endless trackway supporting said slats, said slats lying in substantially the same horizontal plane and being narrower at one side of their pivots than at the opposite side thereof to permit the slats to be placed close together and to turn around the sprockets.

3. A conveyer chain having links consisting of upper and lower spaced plates, said upper plates having integral laterally extending slat-member projections, said slat-members being narrower on one side of the pivots of the links than on the other.

4. The combination of sprockets mounted on vertical axes, a chain passing around said sprockets, the links of said chain comprising upper and lower spaced plates, said upper plates having laterally extending integral slat-projections, and an endless trackway supporting said slat-projections.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

MARSHALL W. GROOM.

Witnesses:

J. LOGAN,

WM. MOCHODO.