

W. F. SPRING.
CONVEYER FOR COOLING APPARATUS.
APPLICATION FILED AUG. 13, 1912.

1,064,560.

Patented June 10, 1913.

2 SHEETS—SHEET 1.

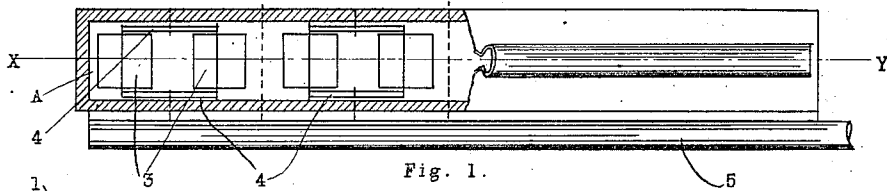


Fig. 1.

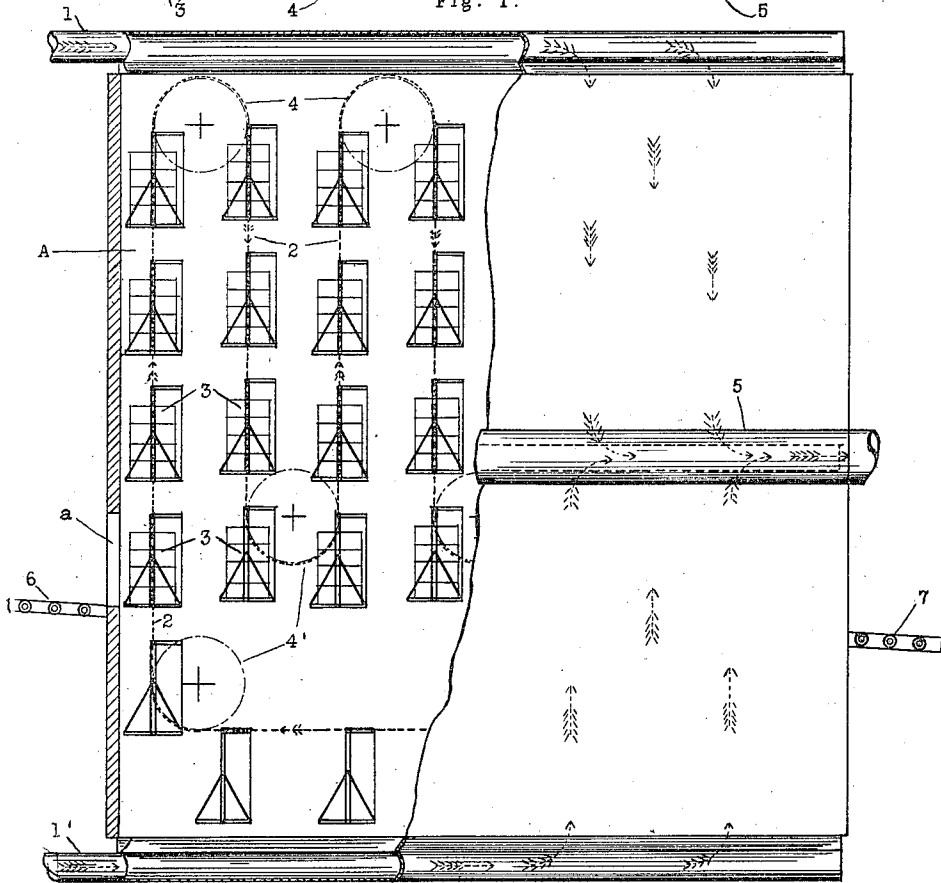


Fig. 2.

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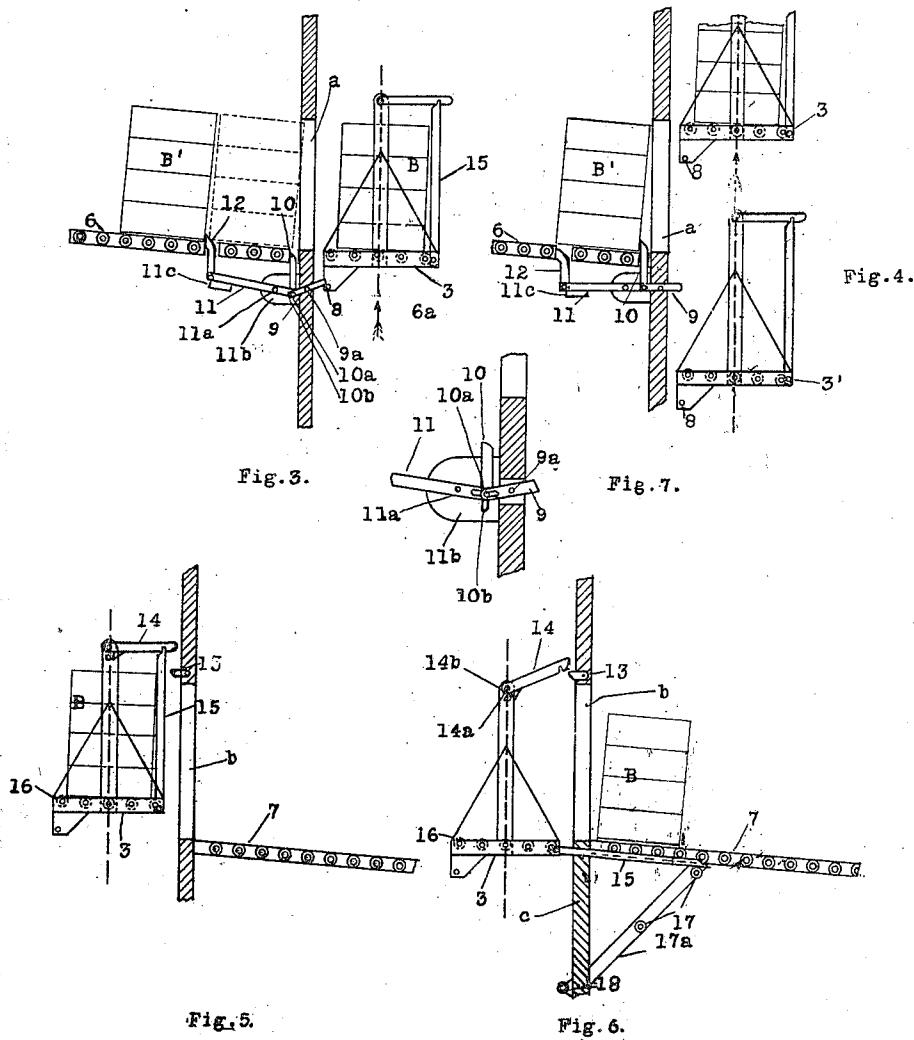
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UNITED STATES PATENT OFFICE.

WILLIAM F. SPRING, OF PORTLAND, OREGON.

CONVEYER FOR COOLING APPARATUS.

1,064,560.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM F. SPRING, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Conveyers for Cooling Apparatus, of which the following is a specification.

This invention relates to an improvement in conveyers for cooling apparatus, and has for its object to provide a device for conveying fruit, farm produce, dairy products and the like through a cooling device preparatory to shipment or storage.

A further object is to provide in a device of the character indicated means for loading and discharging the receptacles containing the produce to be cooled.

These and other objects are accomplished by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the cooling chamber, partly in section. Fig. 2 is a vertical section of Fig. 1 on the line X—Y. Fig. 3 shows an automatic loader from which a cargo of fruit has been discharged into a carrier and another in readiness to be received by the loader. Fig. 4 shows a carriage which has just left the receiving door, with an empty carriage approaching, to receive the load in waiting. Fig. 5 shows the carriage as it arrives at the discharge opening. Fig. 6 shows the cargo leaving the cooling chamber. Fig. 7 is a detail of the load releasing apparatus.

Referring to the drawings in detail, A designates a cooling chamber having front, back and side walls of a height that will accommodate a number of carriages 3, one above another, and wide enough to accommodate a single carriage, though it is obvious that two or more sections may be arranged one after another, side by side.

2 designates a pair of sprocket or similar chains traveling over the sheaves 4 arranged in series of pairs on the side walls of the casing A, at the upper end, and over similar sheaves 4', also arranged in pairs at the lower end, and in intermediate position with reference to the succeeding pairs at the upper end, or in such position that the chains may be mounted thereon in a series of convolutions, from the front to the rear of the chamber.

Intermediate the pair of chains, at suitable intervals, is pivotally mounted a pin-

ality of carriages 3, which are adapted to move between the pairs of sheaves 4 and 4', and they swing on their pivotal supports, to preserve their erect positions, as the chains travel through their convolutions as indicated by the arrows in the drawing, throughout the chamber.

A load B sufficient for a single carriage is brought by gravity upon the roller conveyor 6 to the receiving door *a* in the front end of the cooler, and as a carriage reaches the position shown in Fig. 3, a lug 8 arranged at the front edge of the base thereof, engages the front end of the bar 9, which is pivoted at an intermediate point upon the pin 9^a fixed in the casing A. The rear end of this bar is slidably connected with the front end of bar 11, which is pivoted upon the pin 11^a supported by the bracket 11^b fixed upon the casing A. The upward movement of the car flexes the two members 9 and 11, downwardly at their united ends, thereby withdrawing the stop 10 which has fixed upon it the pin 10^a connecting the bars 9 and 11, and allowing the load to pass upon the conveyor through the door *a* upon the rollers 6^a of the carriage, against the bar 15 pivoted at the rear side of the car. The rear end of the bar 11 will at the same time carry the pivoted stop 12 upwardly at the rear of the cargo being loaded to form a stop for the on-coming load B', which will detain it there until the next car 3' is ready to receive it. As the car 3 rises and releases the bar 9, the weighted end 11^a of the bar 11 will cause the stop 12 to be retracted releasing the load B', which will be arrested at the threshold of the opening *a*, by the stop 10 which will rise in the slot 10^b to intercept it, until released as above described by the approaching car 3'. It will be understood that the bars 9 and 11 are engaged upon the pin 10^a by means of elongated bearings, so as to permit them to swing on their respective points of support.

The chain 2 constitutes a continuous conveyor mounted in a series of convolutions upon the alternately disposed upper and lower sheaves 4 and 4' respectively, from the front to the rear side of the chamber, the first and last of the series being mounted upon sheaves directly beneath the first and last of the upper series of sheaves, and also on a plane below the intervening portion of the conveyor so as to provide means for the rear portion to return to the front side of

the chamber. As the car descends in the final coil of the conveyer, to the exit opening *b*, the lug 13 on the casing above the door will contact with the latch 14, pivoted upon the pin 14^b in the upper portion of the car frame, releasing the bar 15 allowing it to swing through the opening *b* onto the roller 17, erected on the frame of the conveyer 7. In the further descent of the car the bar 15 will be drawn through the slot *c* of the casing, and descending upon the rollers 17 and 18, is brought to upright position where it is engaged with the latch 14, which is held substantially in horizontal position by the catch 14^b. At this point the conveyer will traverse the chamber to the entrance opening. Upon the release of the bar 15 the cargo B will be moved onto the conveyer 7, where it will be conducted to the freight car, or storage room.

Along the top and bottom members of the chamber are provided tubes 1 and 1' respectively, each of which opens into the chamber. Connected with these tubes are pipes leading from a cold air supply and by means of them the cold air is delivered from above and below, as indicated by the arrows, upon the moving crates. The air is thus thoroughly distributed throughout the chamber and each carriage has all sides similarly presented to the cool currents. Upon one side of the chamber, at the median point is an outlet tube 5, by which the cool air is exhausted. In this manner the produce may be thoroughly cooled before loading for shipment, thereby reducing the amount of ice required in transit. Or, if it be desired to store said fruit, the same having been thoroughly and uniformly cooled throughout the boxes or crates in which it is packed, the keeping qualities of said fruit will be greatly enhanced, and said fruit will not require as large an amount of circulation of air in the storage as would be necessary otherwise.

The rate of speed for moving the device will obviously be determined by the kind

and quality of the fruit or produce to be cooled and the time required for cooling same, and also by the time needed in making transfers through the intake and exit openings.

Having described my invention, what I claim, is—

1. In a cooling device, a casing having an opening in the side thereof, a runway leading to the opening, a bracket having a vertical slot, secured to the casing beneath said opening, a lever, having a slotted end, pivoted to the casing, a lever having a slotted end, pivoted to the outer portion of said bracket, a stop pivoted to the front end thereof and rising through the runway, a rear stop having a transverse pivot bar, adapted to operate in the slot of said bracket and forming a bearing for the slotted ends of said levers, and means for operating said levers to engage and disengage the stops.

2. The combination in a cooling device, of a casing having an opening in the side thereof, a car movable vertically in the casing, a runway leading to said opening, a bracket having a vertical slot therein, secured to the casing beneath said opening, a lever having a slotted end pivoted to the casing and extending within the casing wall, a lever having a slotted end, pivoted to the outer portion of said bracket, a stop member pivoted to the front end thereof and rising through the runway, a rear stop having a transverse pivot bar adapted to reciprocate in the slot of said bracket and forming a bearing for the slotted ends of said levers, means upon the car adapted to engage the first mentioned lever for operating said stops, and means for automatically restoring the stops to initial position.

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

WILLIAM F. SPRING.

Witnesses:

WM. A. McALLISTER,
KARL S. BROWN.