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CANDY COOLING AND PACKING MACHINE

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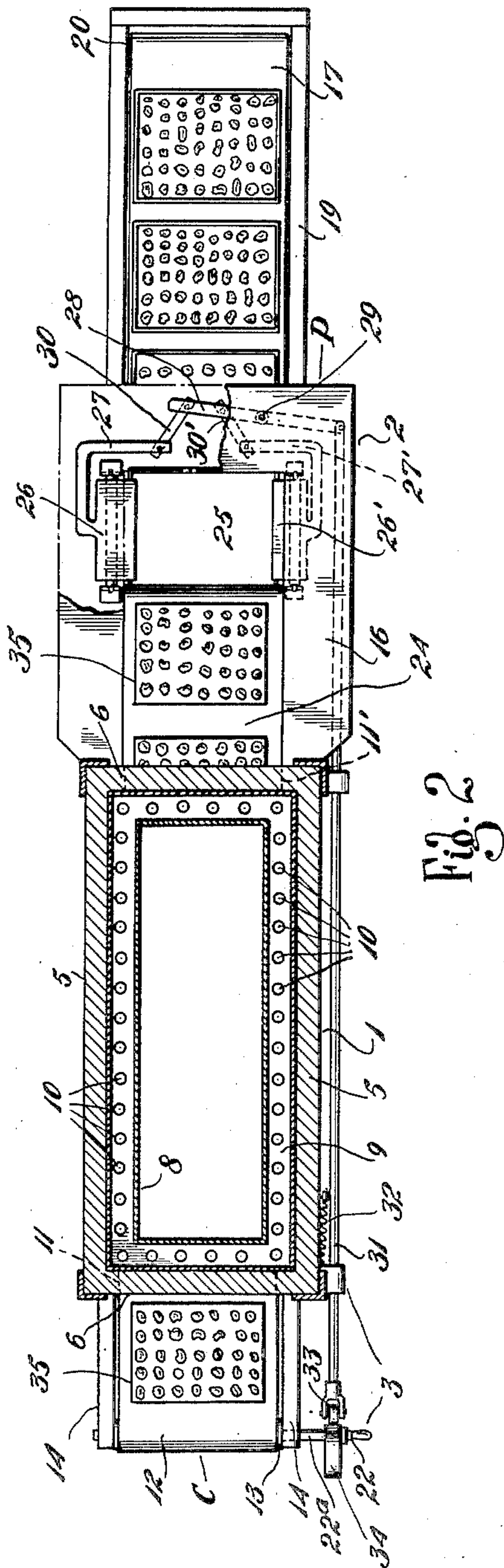


Fig. 2

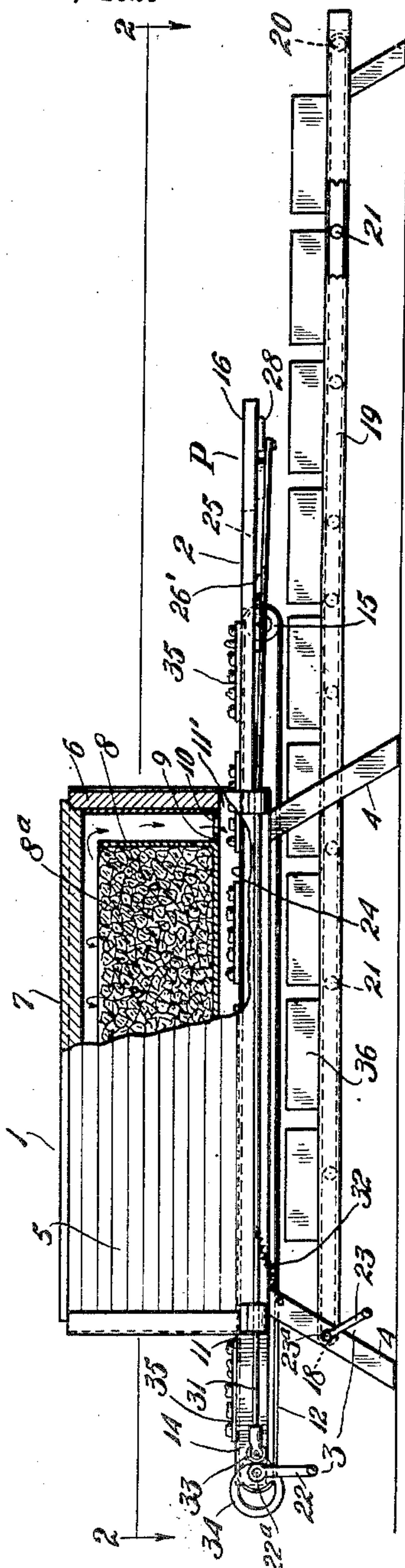


Fig. 1

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## UNITED STATES PATENT OFFICE.

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CANDY COOLING AND PACKING MACHINE.

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The invention relates to apparatus for cooling freshly made candy and packing the same in cartons.

In commercial candy factories, freshly made candies are usually arranged by hand on trays; then the trays are placed in a cooler for a sufficient period of time to satisfactorily harden the candies; and finally the cooled candy is packed in layers in suitable cartons. These operations for large scale production require the services of a number of workers, and are consequently comparatively high in labor costs, and require a comparatively long time for their performance.

The objects of the present improvement are to decrease the time and labor cost required for these operations, by providing mechanism simultaneously carrying out the cooling and packing operations, and having centralized means for control by a single operator.

A preferred form of the invention is illustrated in the accompanying drawings, forming part hereof, in which—

Figure 1 is a side elevation of the improved machine, a portion of the cooler being shown in longitudinal cross-section; and

Fig. 2, a plan section of the same as on line 2—2, Fig. 1, portions being broken away to show the packing mechanism.

Similar numerals refer to similar parts through the drawings.

The improved machine includes the cooler mechanism indicated at 1 and the packing mechanism indicated at 2 and the centralized control means indicated at 3 in operative combination with each other and mounted on a suitable base frame indicated at 4.

The cooler 1 includes members forming external heat insulated side walls 5, and end walls 6, and is provided with a removable top 7.

Refrigerating means, as an ice box 8, filled with an ice and brine solution indicated at 8<sup>a</sup>, and spaced from the walls and top of the cooler, is supported therein, as by means of a web 9 having a plurality of apertures 10 for permitting free circulation of air through the apertures and about the ice box.

Openings 11 and 11' below the web 9, are provided in each end wall 6 for permitting entrance into and exit from the interior of the cooler.

An endless belt tray conveyor 12 passes,

at the control end of the apparatus indicated by C, over the pulley roll 13 trunnioned in brackets 14 secured to the frame 4, and at the packing end indicated by P, over the pulley roll 15 trunnioned on the packing table 16.

An endless belt carton conveyor 17 passes over the pulley roll 18 trunnioned in the frame 4 at the control end beneath the conveyor 12. A secondary frame 19 extending beyond the packing table carries the pulley roll 20 at the packing end of the apparatus and the supporting rolls 21 at spaced intervals between the rolls 18 and 20, about which the carton conveyor 17 passes.

Centrally located, within arm's length of each other, cranks 22 and 23 are suitably mounted upon axial extensions 22<sup>a</sup> and 23<sup>a</sup> of the rolls 13 and 18 respectively for operating the tray and carton conveyors 12 and 17. The top 24 of the conveyor 12 passes into and out of the cooler through the openings 11 below the apertured web 9 of the cooler.

The packing table 16 is provided with a rectangular aperture 25, immediately beyond the pulley roll 15. Suitably mounted in guides, retractable tray supports 26 and 26' are provided at each side of the aperture 25.

Angular arms 27 and 27' extend from the tray supports and terminate at substantially equal distances from the longitudinal axis of the machine. A lever 28 is pivotally fulcrumed at 29 on the packing table, and is connected at its inner side by links 30 and 30' to the terminals of the arms 27 and 27'.

At the outer side of the fulcrum the lever 28 is connected by means of the slidably mounted rod 31 to the tension spring 32 secured to the frame as shown. Rod 31 carries at its control end terminus, a cam follower roll 33 which is maintained by the spring 32 in contact with a cam 34 mounted on the axial extension 22<sup>a</sup> of the roll 12.

The machine is operated as follows:

The ice box 8 having been filled with an ice and brine solution, cold air constantly circulates down through the apertures 10 upon the top 24 of the conveyor 12. The operator, standing within reach of both cranks 22 and 23, successively places trays 35 carrying freshly made candy upon the tray conveyor 12, turning crank 22 after placing each tray. At the same time the operator



successively places cartons 36 upon the lower carton conveyor 17, turning crank 23 so that a carton 36 shall be directly beneath the aperture 25 in the packing table 16.

5 One revolution of the crank 22, advances the conveyor 12 a distance equal to the distance between like edges of successive trays. The trays are thus passed through the cooler, where the candy is sufficiently hardened, and issues from the cooler opening 11' 10 to the packing table 16, and onto the extended tray supports 26 and 26'.

Each revolution of the crank 22, causes the cam 34, operating on the follower roll 33, to 15 translate motion to rod 31, and oscillate lever 28 about its fulcrum, thus causing an instantaneous retraction of tray supports 26 and 26', which are link connected to the lever 28, as described.

20 This instantaneous retraction permits the tray being sustained by the supports to drop down into the waiting carton beneath the packing table aperture.

When enough trays have been dropped 25 into one carton, the operator advances another carton to a position beneath the packing table aperture by turning crank 23.

It is obvious that any desired degree of coldness may be maintained over the conveyor top 24 as it passes through the cooler, 30 and the capacity of the machine is only limited by the speed at which freshly made candy arranged on trays may be delivered

to the operator, or arranged on the trays by the operator. 35

I claim:—

1. Apparatus for handling freshly made candy and the like, including a packing mechanism having an upper belt conveyor for transporting trays and a lower belt conveyor for transporting cartons, retractable 40 tray supports between the upper conveyor and the rear conveyor and adapted for successively receiving the trays from the upper conveyor and for successively dropping the 45 trays on the lower conveyor, and means operated by single control means for simultaneously advancing the upper belt conveyor and retracting the tray supports.

2. Apparatus for handling candy and the 50 like including a tray conveyor operable by a rotatable roll, and delivering to a table, a tray delivery aperture in the table, and retractable tray supports slidably mounted in the aperture, and operative means for ad- 55 vancing the conveyor and instantaneously retracting the supports including a cam mounted on the conveyor operating roll, a push rod spring pressed against the cam and connected to one end of a pivotally 60 mounted lever, the other end of the lever being linked to the supports.

In testimony that I claim the above, I have hereunto subscribed my name.

GEORGE TRIFELOS.