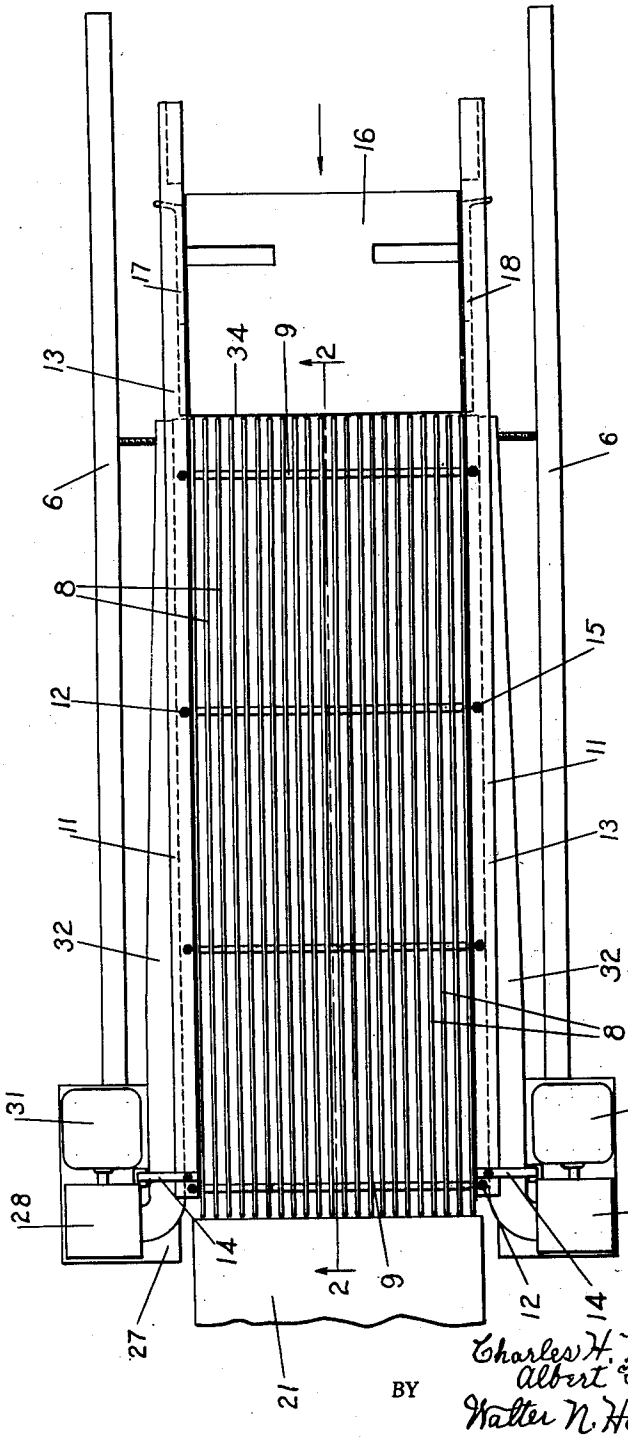
April 25, 1939. C. H. PETSKEYES ET AL 2,155,614

COOLING APPARATUS FOR BREAD WRAPPING MACHINES

Filed Dec. 17, 1937 2 Sheets-Sheet 1

FIG-1



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COOLING APPARATUS FOR BREAD WRAPPING MACHINES

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FIG-2

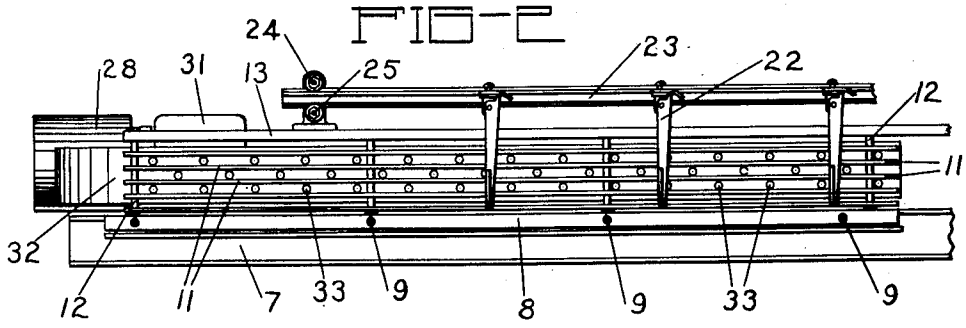


FIG-3

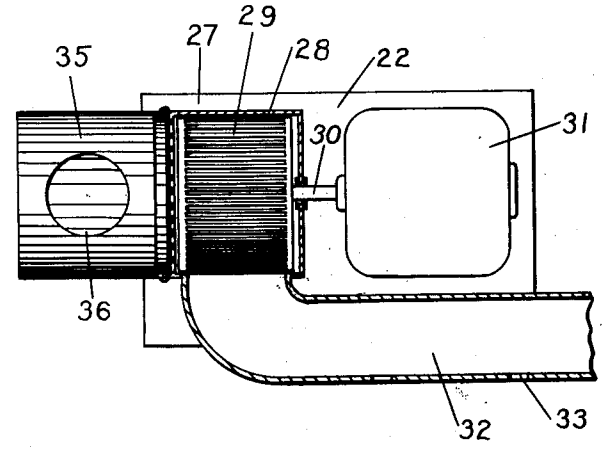
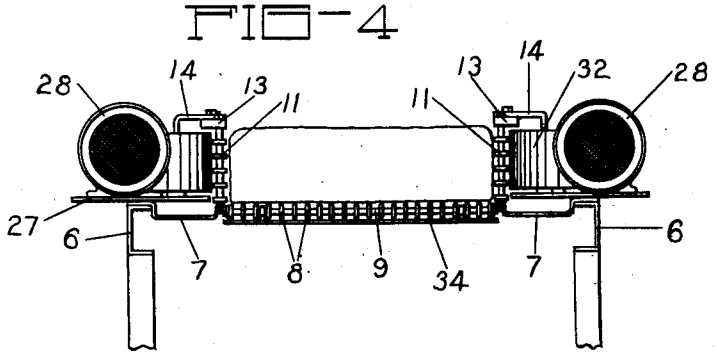


FIG-4



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Patented Apr. 25, 1939 2,155,614

UNITED STATES PATENT OFFICE

2,155,614

COOLING APPARATUS FOR BREAD WRAPPING MACHINES

Charles H. Petskeyes, Bettendorf, and Albert F. Uehlerff, Davenport, Iowa

Application December 17, 1937, Serial No. 180,428

6 Claims. (Cl. 93—2)

Our invention has reference to a bread wrapping machine, and has to do chiefly with a mechanism for effecting a quick cooling of the loaves of bread, after the same have been wrapped. It is of a construction similar to that shown in an application filed by us in the United States Patent Office on the eleventh day of October, 1937, Serial No. 168,442.

It is customary to wrap a quantity of loaves of bread in Cellophane or waxed paper wrappers, and in the wrapping operation heat is applied to the wrappers to melt the wax and cause portions of the wrappers to cohere. This is more specially the case at the ends of the loaves, where the end folds are formed, and on the bottom, where the lengthwise folds are made. As a consequence the loaves and their containers become heated, and under ordinary conditions would require a considerable period of time in which to cool. The chief purpose of the present invention is to provide means for the rapid cooling of the loaves, so that they can be delivered from the machine in a reasonably cool condition ready for packing or storing for sale.

The invention consists broadly of a ventilated run-way for the loaves of bread, after passing through the heating field, and means for causing a circulation of air through such run-way with direct application thereof to the heated portions of the loaves.

Another feature of the invention consists of the provision of additional cooling means, such as dry ice, to the main structure, with a mixture thereof with the cooling streams of air, and direct chilling effects.

The particular construction, arrangement, and operation of the invention will more fully appear from the following specification, taken in connection with the accompanying drawings, in which:

Fig. 1 is a fragmentary plan view of a machine embodying the invention.

Fig. 2 is a longitudinal section on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged detail of a modified form of the invention.

Fig. 4 is an end view of the cooling apparatus, from the blower end thereof.

Similar parts are indicated by corresponding reference characters throughout the several figures.

The reference numbers 6 indicate portions of the upper side pieces of a main frame, such as was illustrated in said former application, to which pieces are secured inwardly projected channel-plates 7, between which is supported a series of spaced slats 8, by means of rods 9 connected with the plates 7, and provided with suitable spacers between the slats. At the sides of the slats 8 are vertically disposed series of similar slats 11, united by rods 12, secured at their lower ends to the channel plates 7, and at their upper ends to strips 13, supported by brackets 14 mounted on the main frame. The rods 12 are also provided with spacers 15 between the slats.

The slats 8 and 11 form a run-way for loaves of bread coming from the wrapping mechanism, and interposed between the wrapping devices and said run-way is a heating area to which heat is imparted by means of a bottom plate 16, and side plates 17 and 18, all of which plates are electrically charged. In passing through these plates the end folds of the wrappers are sealed by the heat furnished by the plates 17 and 18, and the bottom folds of the wrappers, on the lower sides of the loaves, are sealed by the heat furnished by the plate 16. After leaving this heated area it is desirable that the loaves be cooled as rapidly as possible, and this is accomplished in the passage of the loaves from the heated field to the point of their discharge upon a slide 21 at the end of the runway opposite to the heating plates. The movement of the loaves of bread in succession along the slats 8 is caused by a series of hinged arms 22 carried by bars 23, capable of a reciprocating movement between pairs of rollers 24 and 25 mounted on the strips 13. This is similar to the showing in said former application, and has no part in the cooling operation, except that of conveying the loaves through the cooling area.

Supported on the frame pieces at that end of the run-way from which the loaves are delivered is a pair of plates 27, on which are mounted blower casings 28, containing rotors 29 on the ends of shafts 30, which safts are extensions of the drive-shafts of small motors 31, mounted on the plates 27 near said casings. At their inner sides the casings 28 are connected with conduits 32, extending along the outer faces of the slats 11, and provided with openings 33 between the slats, and forming passages for air therethrough. As shown in Fig. 1, the lateral diameter of the conduits 32 is gradually decreased in the direction of the heating area. When the rotors are in operation currents of air are being directed through the conduits and out of the openings, with a chilling effect upon the loaves, and more specially upon the ends and lower sides thereof. To more effectively cool the lower sides of the loaves a plate 34 is supported beneath the slats 8, which

causes the air currents to pass more directly beneath the loaves, instead of being dissipated downwardly. When the loaves reach the delivery end of the run-way they are practically cooled, and ready for distribution.

In Fig. 3 is shown an auxiliary casing 35, connected with the casing 28, and communicating therewith. In the upper part of the casing 35 is an opening 36, through which cooling materials, such as ice or dry ice can be placed in the casing. Upon the operation of the blower a current of chilled air is drawn into same from the casing 35, and air furnished to the conduit 32 with a temperature less than normal.

What we claim and desire to secure by Letters Patent, is:

1. In a bread wrapping machine, provided with a field in which the wrapped loaves are heated, a runway adjacent to said field for the conveyance and delivery of said loaves consisting of spaced slats, and means for producing a circulation of air between said slats.

2. In a bread wrapping machine, including means for the application of heat to the wrapped loaves, to seal the same, the combination with said means of a cooling apparatus consisting of spaced slats, and means for causing a circulation of air through said spaces.

3. In a bread wrapping machine, a cooling apparatus consisting of a series of spaced slats, and a blower device adjacent to said slats and adapted to cause a circulation of air through said spaces.

4. In a bread wrapping machine, a cooling apparatus consisting of a ventilated member adjacent to the movement of the wrapped loaves, a blower device adjacent to said member, and adapted to cause a circulation of air through said member, and means for chilling such air.

5. In a bread wrapping machine, including means for applying heat to the wrapped loaves, a runway adjacent to said means for the conveyance and delivery of said loaves, consisting of a slide formed of spaced slats, side pieces formed of spaced slats, a plate beneath said slide, blowers at the delivery end of said run-way, and conduits connected with said blowers and provided with means for discharge of air currents through said side pieces.

6. In a bread wrapping machine, including means for applying heat to the wrapped loaves, a run-way adapted to receive a succession of loaves from said first named means, consisting of a slide, side pieces formed of spaced slats, conduits at the sides of said side pieces provided with openings into the spaces between said slats, and tapered in the direction from which the loaves are fed, and blowers at the opposite ends of said conduits to provide currents of air therein.

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