

Dec. 10, 1935.

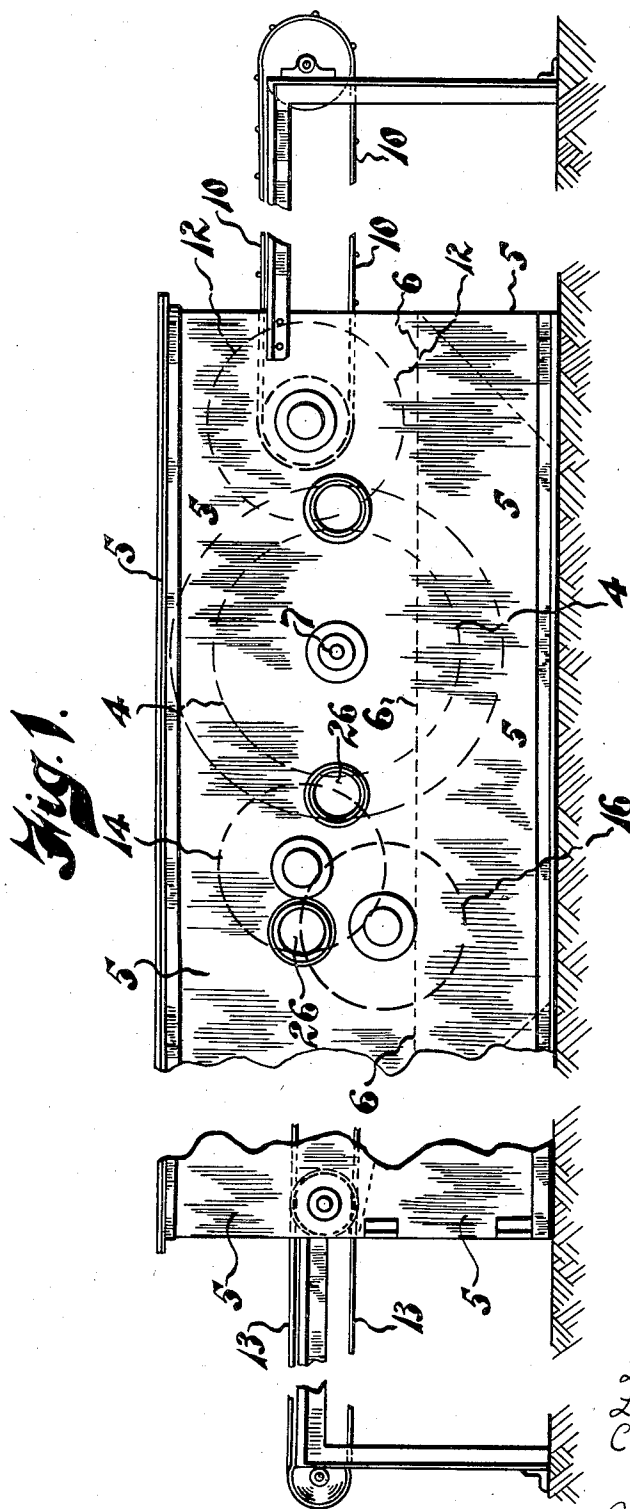
L. R. ARNOTT ET AL

2,023,822

MEANS FOR IMMERSING PACKAGES IN MELTED WAX OR THE LIKE

Filed June 20, 1934

2 Sheets-Sheet 1



L. R. Arnott
L. W. Armfield
C. J. Waddell
INVENTORS

By: Marks & Clerk
Atty's.

Dec. 10, 1935.

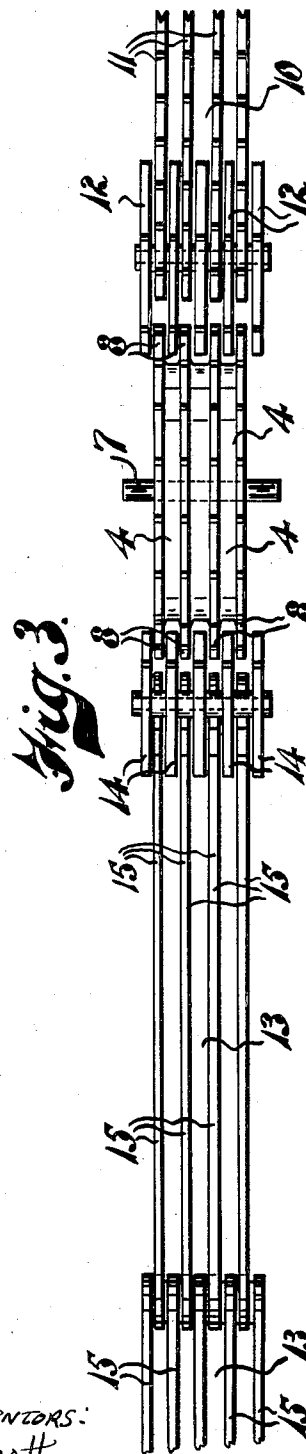
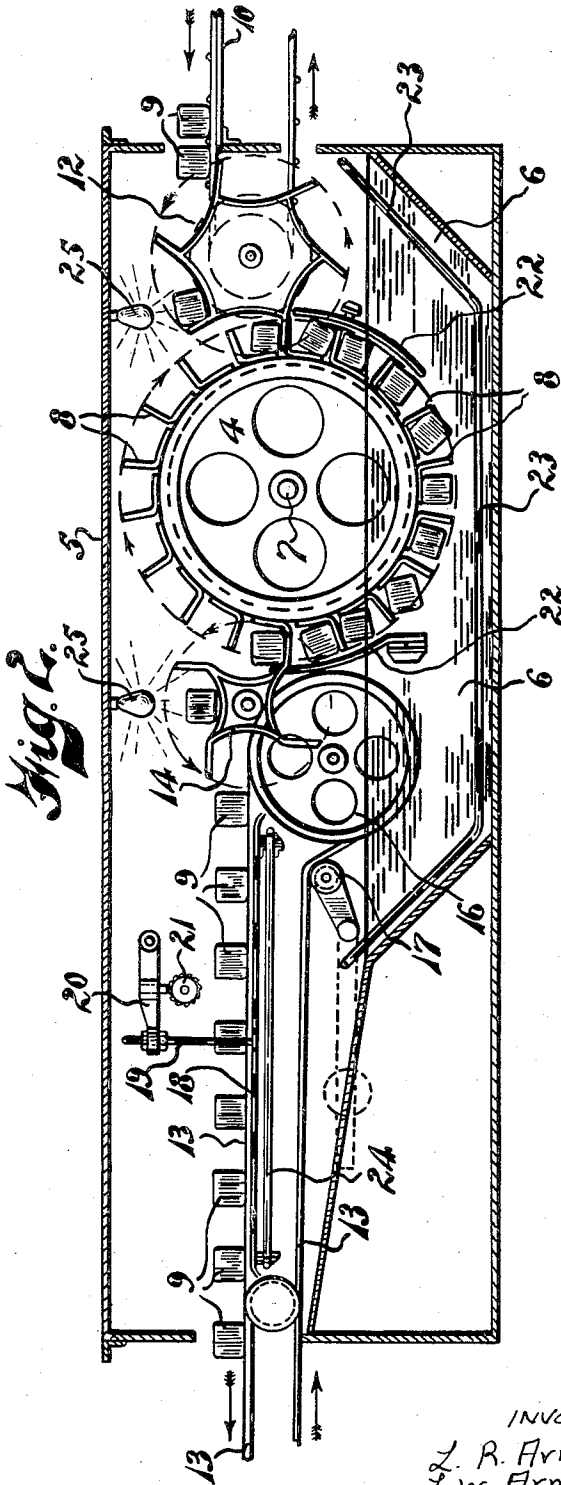
L. R. ARNOTT ET AL

2,023,822

MEANS FOR IMMERSING PACKAGES IN MELTED WAX OR THE LIKE

Filed June 20, 1934

2 Sheets-Sheet 2



INVENTORS:
L. R. Arnott
L. W. Armfield
C. J. Waddell
By: *Marks & Clark*
Att'ys.

UNITED STATES PATENT OFFICE

2,023,822

MEANS FOR IMMERSING PACKAGES IN
MELTED WAX OR THE LIKE

Leslie Ross Arnott and Leonard White Armfield,
Homebush, near Sydney, New South Wales, and
Carlyle Jackson Waddell, Newtown, near Sydney,
New South Wales, Australia

Application June 20, 1934, Serial No. 731,546
In Australia September 13, 1933

3 Claims. (Cl. 91—46)

This invention relates to improvements in means for immersing packages such as packages of biscuits in melted wax or the like for the purpose of rendering the packages airtight.

Biscuits, cakes, and the like when wrapped in paper do not remain crisp and palatable owing to the absorption of moisture or humidity from the atmosphere.

An object of the present invention is to provide a reliable and effective machine whereby biscuits or the like when wrapped in absorbent paper and, if desired, protected by an inner grease-proof wrapper, are coated with wax or the like to seal hermetically the package against the ingress of moisture.

According to the present invention a bath of wax or the like is contained in a chamber or tank which is heated by steam pipes and contains means whereby the packets are conveyed through the tank, the latter being also provided with feeding and delivery means above the normal level of the said bath.

In one form of the invention the packets are fed to the immersing means by a conveyor having projections thereon at spaced intervals to receive the packets between them.

The said conveyor is mounted upon suitable shafts and feeds the packets to a device which transfers them to a rotatable immersing or dipping wheel, the packets being conveyed by the latter beneath the surface of the melted wax. The immersing wheel, which is slotted to allow the fingers of the said transfer device to pass therethrough, is driven by suitable means, which may be connected to a shaft passing through a stuffing box in the wall of the tank.

To prevent the packages floating upwardly during their immersion in the wax, curved guide rails following the contour of the immersing wheel may be provided.

As the packages are raised above the melted wax after their immersion, superfluous wax is drained partially therefrom and they are removed from the immersing wheel, for instance by a forked wheel, which transfers them to a delivery conveyor subject to a shaking device which further removes any excess of wax from the packages. The shaking device may be incorporated in the means provided for conveying the waxed packages from the machine.

A thermometer for indicating the temperature of the melted wax, and a gauge for indicating the level of the wax in the tank are also provided.

A compartment may be placed above the tank

to receive wax for the purpose of replenishing the wax bath.

But in order that the invention may be understood clearly and readily carried into practical effect reference is now made to the drawings accompanying and forming part of this complete specification, wherein:—

Figure 1 is a front elevation of means constructed in accordance with a preferred form of the invention.

Figure 2 is a longitudinal section of the immersing chamber represented in Figure 1; and

Figure 3 is a somewhat diagrammatic plan view of the conveying and immersing means illustrated in Figure 2.

According to the application of the invention illustrated, an immersing wheel 4 is mounted in a chamber or tank 5 wherein is a bath 6 of melted wax or the like.

The said wheel 4 is fast on a shaft 7 supported by the side walls of the chamber 5, and it may be driven by any appropriate means. It has a plurality of radially disposed teeth adapted to receive the packages 9 and immerse them in the bath 6.

Leading into one end of the chamber 5 is an endless conveyor 10 comprising a number of narrow belts or chains 11 as seen in Figure 3. This conveyor is hereinafter referred to as the feeding conveyor 10: It presents the packages 9 to a driven toothed transfer wheel 12 whereby said packages are lifted from the feeding conveyor 10 and deposited on one of the teeth 8 of the immersing wheel 4 as indicated in Figure 2.

On referring to Figure 3 it will be observed that the teeth of the transfer wheel 12 pass between the belts or chains 11 of the feeding conveyor 10 and also between the side faces of the teeth 8 of the immersing wheel 4.

At the other end of the chamber 5 there is a delivery conveyor 13 for discharging the packages 9 from the mechanism after having been immersed. If desired the conveyor 13 may be inclined, its lower end being situated in the chamber 5.

The packages 9 after passing through the bath 6 are removed from the immersing wheel 4 by a toothed transfer wheel 14 somewhat similar in construction to the wheel 12, and they are deposited onto the delivery conveyor 13.

The belts 15 (see Figure 3) of the latter conveyor pass around a pulley 16 which may be driven by the shaft 7 through the medium of suitable gearings; and said belts are kept taut by a weighted jockey pulley 17 in well known manner.

Immediately below the upper portion of the delivery conveyor 13 is a frame 18 which has attached to it a rod 19 depending from a lever 20 capable of being rocked by a ratchet wheel 21. 5 This ratchet wheel 21 may also derive its motion from the shaft 7 as desired.

Two arcuate plates 22 are supported in the chamber 5 to guide the packages 9 as they are passed through the bath 6.

10 Coils such as 23 for the circulation of steam or hot air are supported in the bath 6, and further coils 24 are supported below the upper portion of the delivery conveyor 13.

The chamber 5 is illuminated by electric lamps 15 such as 25 and has inspection ports 26 (Figure 1) in its side walls to allow of the progress of the packages being kept under observation.

In operating this improved immersing means the packages 9 are placed by hand, or fed uniformly from a suitable hopper, onto the endless feeding conveyor 10 whereby they are led to the transfer wheel 12 which in rotating lifts the packages, one at a time, from said conveyor 10 and deposits them on the teeth of the immersing wheel 25 4 as the latter is rotated by its driving means.

The packages being of light weight in comparison with the density of the bath 6 remain in their respective positions between the teeth 8 on the wheel 4, until on reaching a position approximately diametrically opposite the feeding means. They are transferred from the said wheel 4 to the conveyor 13 whereon they are dried by heat radiated from the coil 24; and any surplus wax or the like adhering to them is shaken off by the vibration imparted to the frame 18 by operation 30 of the ratchet wheel 21.

As the packages 9, thus treated, emerge from the immersing means they may be allowed to

drop into a conveniently disposed bin or they may be removed from the conveyor 13 by hand.

We claim,

1. Apparatus for immersing packages in melted wax comprising a tank for the wax, a main 5 wheel disposed in the tank for immersing the packages in the wax, said wheel having teeth which receive the packages; a second wheel, mounted adjacent to said main wheel and at one side thereof, having teeth whereby the packages 10 are engaged and fed to the main wheel, and a third wheel also mounted adjacent to the main wheel and at the other side thereof, said third wheel having teeth whereby the packages are removed from the main wheel. 15

2. Apparatus for immersing packages in melted wax comprising a tank for the wax, a main wheel disposed in the tank for immersing the packages in the wax, a toothed transfer wheel 20 having teeth cooperating with the main wheel whereby the packages are transferred to the main wheel, a conveyor for feeding the packages to the transfer wheel, a second toothed transfer wheel cooperating with the main wheel and receiving the packages therefrom, a second conveyor 25 operating with the second transfer wheel and receiving the packages therefrom, and means for automatically vibrating the second conveyor to remove superfluous wax from the packages.

3. An apparatus as claimed in claim 1, characterized in that each of said wheels includes a plurality of axially spaced members and the members of the second and third wheels being positioned between the spaces of the members of the main wheel. 35

LESLIE ROSS ARNOTT.

LEONARD WHITE ARMFIELD.

CARLYLE JACKSON WADDELL.