May 19, 1931. O. KREMMLING 1,806,066

ART OF APPLYING FILLING MATERIALS TO PASTRY

Filed April 30, 1928

Fig. 1.

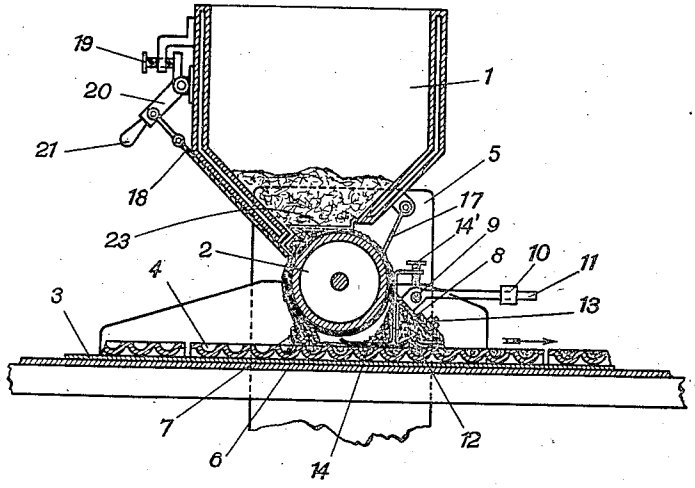
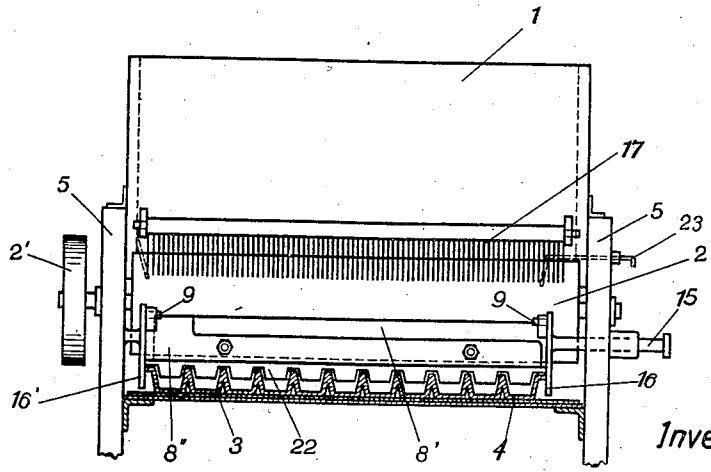


Fig. 2.



Inventor:
OTTO KREMMLING
BY
Atty

Patented May 19, 1931

1,806,066

UNITED STATES PATENT OFFICE

OTTO KREMMLING, OF HAMERSLEBEN, NEAR OSCHERSLEBEN, GERMANY

ART OF APPLYING FILLING MATERIALS TO PASTRY

Application filed April 30, 1928, Serial No. 274,015, and in Germany April 30, 1927.

My invention relates to the art of applying filling materials to pastry having cavities for the reception of such materials.

It is an object of my invention to provide a method of performing this operation—or sequence of operations—so as to prevent damage to the pastry and deterioration to the filling material, and to this end I charge the cavities, smooth and press down the filling material, and return the excess material to the supply, by resilient means.

It is another object of my invention to provide a machine for performing my method, and to this end in front of the part by which the material is distributed, generally a roller, I provide a resilient wiper which performs the functions aforesaid, with or without the assistance of other appliances, as will be described.

Various means have been proposed for filling the cavities of pastry, as waffles, with a filling material which will be referred to as "cream" but obviously may be any other substance. However, the problem was never solved satisfactorily because due consideration was not given to the fragile and delicate character of the pastry and the cream. Particularly in the case of frothy substances it is necessary that any treatment involving friction should be avoided as it imparts a dense and streaky constitution to the substance.

In the accompanying drawings a machine by which my method is performed, is illustrated by way of example.

In the drawings

Fig. 1 is a transverse section, and

Fig. 2 is an elevation of the machine, viewed from the right in Fig. 1.

Referring now to the drawings, 1 is a supply hopper for the cream which is open at the bottom, 2 is a distributing roller which closes the major part of the opening, 2′ is a pulley on the shaft of the roller, 3 is a conveyer which is moved below the roller 2 in the direction of the arrow, Fig. 1, by any suitable means, not shown, and 5, 5 are parts of a frame extending at either side of the conveyer and on which the hopper 1 may be secured as shown in Fig. 2. The articles which are to be filled are indicated at 4 and are illustrated as waffles by way of example. 16, 16′ are side shields between which the waffles 4 are moved by the conveyer 3 and preferably means are provided for varying the clearance of the shields as required by the varying width of the articles. As shown in Fig. 2, the shield 16′ is fixed to the frame, and the shield 16 is adapted to be displaced with respect to the shield 16′ by a handle 15 which is carried to slide in the frame part 5 at the right of the machine.

18 is a slide for regulating the delivery of the hopper which is pivotally connected by a link with a bell crank lever 20, a screw 19 being provided in a bracket on the hopper 1 for regulating the opening position of the slide 18, and 21 is a handle on the bell crank lever 20 by which the slide 18 can be opened by hand for removing obstructions.

6 is a scraper or wiper arranged in front of the roller 2 and above the articles 4 which scrapes the cream from the roller 2 and piles it up in a body or crest 7 from which it flows into the cavities of the articles 4.

8 is the scraper or wiper in front of the roller 2 the objects of which are to force the cream into the cavities of the articles 4, to smooth down the surface of the cream, and to return the excess cream to the hopper 1. The upper edge of the wiper 8 is arranged in comparatively close vicinity to the roller 2.

The wiper 8 is resilient. In the present instance, it is suspended from two pivots 9 on the shields 16, 16′ and made it two parts, 8′ and 8″ so as to be adjusted in conformity with the displacement of the shields. Preferably, its eyes are slotted so as to permit a slight vertical displacement with respect to the pivots 9. 11 is a lever which is connected with the wiper 8, and 10 is an adjustable weight on the lever. Springs or any other suitable means might be provided instead of a weight or weights, the object being to regulate the pressure of the wiper on the articles in conformity with their fragility, and to vary the thickness of the layer of cream, and the force with which it is smoothed or pressed down.

Instead of a wiper adapted to be displaced with respect to the articles, I might provide a resiliently supported roller or other means for exerting pressure on the conveyer 3 from below. In this case, obviously, the wiper is fixed.

Preferably the wiper 8 is made entirely or partly of resilient material, for instance, rubber, in order to obtain a more perfect fit to the generally quite irregular surfaces of the articles 4. Its lower edge may also be serrated as at 22, Fig. 2, the serrations or projections entering the cavities in the articles and determining the amount of filling.

Several layers of cream may be applied if desired.

If it is desired that the cream should form a layer above the articles 4 shoes 12 are provided on the lower faces of the wiper 8 which resemble skids and are supported on the articles 4 as they move along. Screws 13 are provided for adjusting the shoes 12 so as to vary the clearance between the articles and the lower edge of the wiper.

14 are holding-down brackets arranged in front of the wiper 8 which are adapted to be adjusted by screws 14′ and serve for preventing rising and breakage of the articles due to one of them creeping to the top of the other.

23 is a slide or other similar part for varying the width of the opening in the hopper 1 in accordance with the displacement of the shield 16 with respect to the shield 16′. Instead of being pivoted to the shields the wiper 8 might be arranged independently and at the rear of the shields, and in this case only the shields and the slide 23 are adjusted for varying the effective width of the machine.

17 is a rake which engages the roller 2 above the wiper 8.

Instead of the roller 2, a conveyer might be provided which, in order to reduce the liability to fracture, should engage the articles only for a short distance.

It will be understood from this description that the wiper 8 is able to yield to any irregularity of the articles and does not exert excessive pressure even on warped articles, and the smoothing action of the wiper will be very uniform.

In this manner the delicate treatment required in particular for the very fragile waffles and other similar articles, to enable them to stand the operation of filling at all, is thoroughly effected here. The efficiency of my method and of the machines operated in accordance with it, is very high as there is practically no waste. The cream is also treated very delicately and without being subjected to any amount of friction throughout its way from the hopper 1 to the articles 4 and back to the hopper, if there is any excess. There is, consequently, no liability for the cream to become dense and streaky. My method and machines are much superior to hand filling not only as to output but also as to uniformity of distribution and thickness. The excess of cream is returned automatically to the hopper 1 by the roller 2 and separate means for returning the cream to the hopper are not required. Such means, however, may be provided for less delicate creams and also for applying the cream to the articles.

The skids 12 are provided only if it is desired that a layer of cream should be formed on the top of the articles.

The holding-down brackets 14 prevent any irregularity in the movement of the articles past the roller 2 in vertical direction, and laterally the articles are restrained by the shields 16, 16′. Small particles which may become detached from the pastry notwithstanding the delicate treatment are intercepted by the rake 17 and prevented from being carried into the hopper with the returning excess cream. If there are any foreign bodies in the hopper the slide 18 is retracted by the handle 21 and such bodies are allowed to leave the hopper without interruption of the operation.

I claim:

1. The method of filling fragile hollow forms open at one side which consists in filling the forms from a mass of material with a surplus of the material, wiping off a part of said surplus to form a crest of material, forcing the material into said forms and simultaneously wiping off the remainder of the surplus, and returning said remainder to the original mass.

2. A machine for applying filling material to fragile hollow forms, comprising means for feeding a surplus of filling material from a mass of such material to said forms, means for wiping off a portion of the surplus to form a crest of material on the forms, means for wiping off the remainder of the surplus and pressing the material into the forms, and means for returning said wiper off remainder to the original mass.

3. A machine for applying filling material to fragile hollow forms comprising a supply hopper, means for feeding a surplus of material from said hopper to said forms, means for wiping off a portion of said surplus to form a crest of the material on the forms, means for wiping off the remainder of the surplus and pressing the material into the forms, and means for returning said wiped off remainder to the hopper.

4. A machine for applying filling material to fragile hollow forms comprising a supply hopper, means for feeding a surplus of material from said hopper to said forms, means for moving said forms past said feeding means, a wiper adjacent to and above the path of the forms in front of said feeding means for wiping off a portion of the surplus to form a crest of material on said forms, a second wiper in front of said first wiper to wipe

off the remainder of the surplus and press the material into the forms, and means for returning said wiped off remainder to the hopper.

5. A machine for applying filling material to fragile hollow forms comprising a supply hopper, means for feeding a surplus of material from said hopper to said forms, means for moving said forms past said feeding means, a wiper adjacent to and above the path of the forms in front of said feeding means for wiping off a portion of the surplus to form a crest of material on said forms, a second wiper in front of said first wiper to wipe off the remainder of the surplus and press the material into the forms, and means for returning said wiped off remainder to the hopper, said second wiper being formed of resilient material.

6. A machine for applying filling material to fragile hollow forms comprising a supply hopper, means for feeding a surplus of material from said hopper to said forms, means for moving said forms past said feeding means, a wiper adjacent to and above the path of the forms in front of said feeding means for wiping off a portion of the surplus to form a crest of material on said forms, a second wiper in front of said first wiper to wipe off the remainder of the surplus and press the material into the forms, and means for returning said wiped off remainder to the hopper, said second wiper being formed of resilient material and having projections thereon adapted to enter the hollow forms.

7. A machine for applying filling material to fragile hollow forms comprising a supply hopper, means for feeding a surplus of material from said hopper to said forms, means for moving said forms past said feeding means, a wiper adjacent to and above the path of the forms in front of said feeding means for wiping off a portion of the surplus to form a crest of material on said forms, a second wiper in front of said first wiper to wipe off the remainder of the surplus and press the material into the forms, and means for returning said wiped off remainder to the hopper, with means for preventing foreign bodies in the returning filling material from entering the hopper.

8. A machine for applying filling material to fragile hollow forms comprising a supply hopper, means for feeding a surplus of material from said hopper to said forms, means for moving said forms past said feeding means, a wiper adjacent to and above the path of the forms in front of said feeding means for wiping off a portion of the surplus to form a crest of material on said forms, a second wiper in front of said first wiper to wipe off the remainder of the surplus and press the material into the forms, and means for returning said wiped off remainder to the hopper, and a rake in the path of the returning filling material to prevent foreign bodies from entering the hopper.

9. A machine for applying filling material to fragile hollow forms comprising a supply hopper, a feed roll below said hopper for feeding a surplus of material from said hopper to said forms, means for moving said forms past said feeding roll, a wiper adjacent to and above the path of the forms in front of said feeding means for wiping off a portion of the surplus to form a crest of material on said forms, a second wiper in front of said first wiper to wipe off the remainder of the surplus and press the material into the forms, and means for returning said wiped off remainder to the hopper.

10. A machine for applying filling material to fragile hollow forms comprising a supply hopper, means for feeding a surplus of material from said hopper to said forms, means for moving said forms past said feeding means, a wiper adjacent to and above the path of the forms in front of said feeding means for wiping off a portion of the surplus to form a crest of material on said forms, a second wiper in front of said first wiper to wipe off the remainder of the surplus and press the material into the forms, and means for returning said wiped off remainder to the hopper, and a rake in the path of the returning filling material to prevent foreign bodies from entering the hopper, said second wiper being formed of resilient material.

11. A machine for applying filling to pastry comprising a supply hopper, a feed roll below said hopper, forms below said feed roll for holding pastry, a wiper above said forms adapted to form a crest of filling material on the forms so as to leave a surplus and a second wiper adapted to wipe off the surplus and smooth down the filling material, said feed roll being adapted to return the surplus filling material to the hopper.

12. A machine for applying filling to pastry comprising a supply hopper, a feed roll below said hopper, forms below said feed roll for holding pastry, a wiper above said forms adapted to form a crest of filling material on the forms so as to leave a surplus and a second wiper adapted to wipe off the surplus and smooth down the filling material, said feed roll being adapted to return the surplus filling material to the hopper, and a rake in the path of the returning filling material to prevent foreign bodies from entering the hopper.

In testimony whereof I have affixed my signature.

OTTO KREMMLING.