June 29, 1926. 1,590,208

R. E. RUNDELL

SEALING MEANS FOR WRAPPING MACHINES

Filed Dec. 8, 1925

Fig. 1.

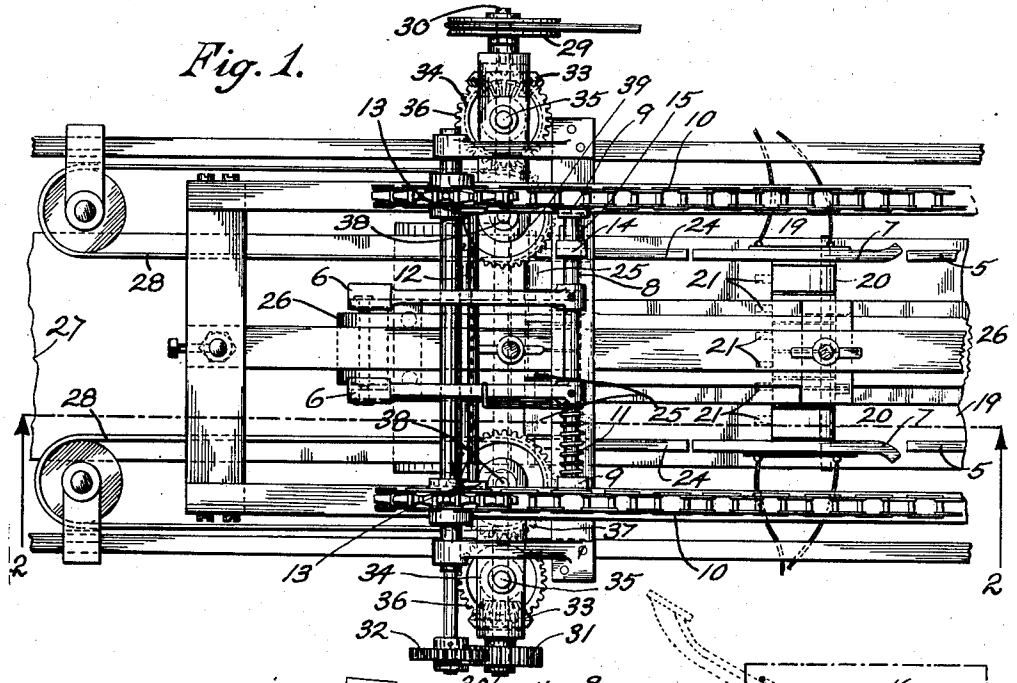


Fig. 2.

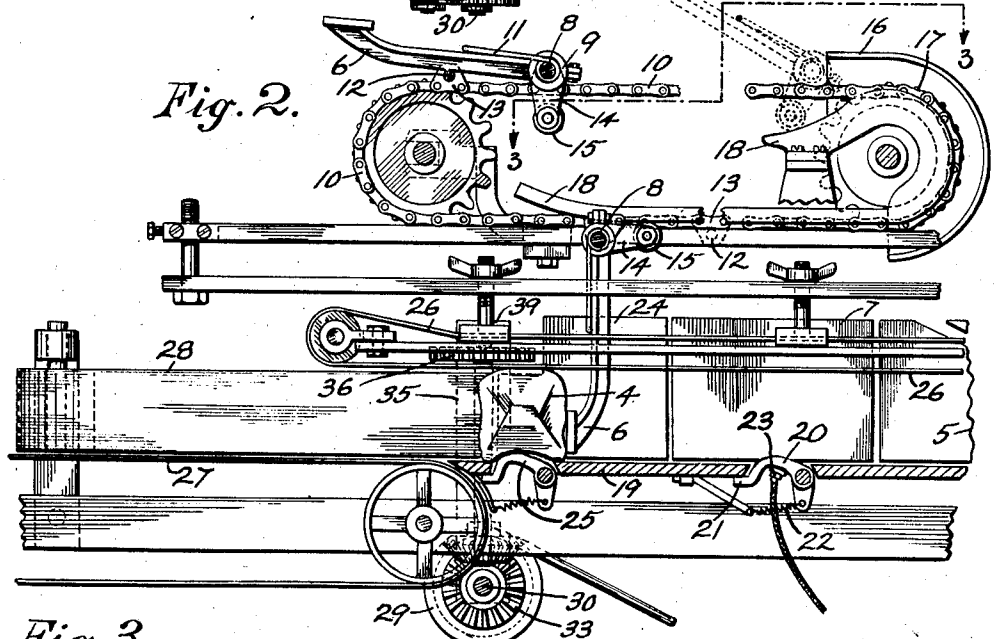
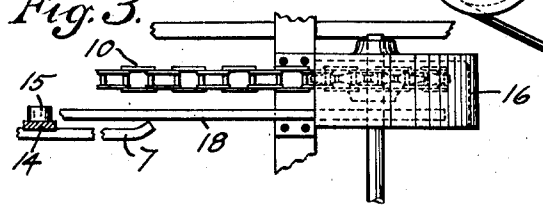


Fig. 3.



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Patented June 29, 1926. 1,590,208

UNITED STATES PATENT OFFICE.

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SEALING MEANS FOR WRAPPING MACHINES.

Application filed December 8, 1925. Serial No. 74,078.

This invention relates to an improvement in sealing means for wrapping machines. It is particularly designed and adapted for use in connection with machines for wrapping articles of irregular contour, such as loaves of bread, with wax-paper, or with ordinary gummed wrapping paper. It consists in certain parts, constructions and combinations which will be hereinafter fully described and then specifically set forth in the claims hereunto appended.

In the accompanying drawings, which form a part of this specification and in which like characters of reference indicate the same or like parts, Fig. 1 is a plan view of a device constructed in accordance with the invention; Fig. 2 is a sectional elevation taken on the line 2—2 in Fig. 1; and Fig. 3 is a fragmentary plan view taken on the line 3—3 in Fig. 2.

The specific sealing means selected to illustrate the invention is but one of numerous possible concrete embodiments of the invention. The invention, therefore, is not to be restricted to the precise details of the structure shown and described.

This specific sealing means was designed for use on a bread wrapping machine which handles loaves of bread of more or less irregular contour, particularly at the bottom of the loaf where lies the overlapping seam of the wax-paper wrapper in which the loaf is enclosed.

A wrapped loaf 4 enters the device between the folder plates 5—5 which are a part of the wrapping machine proper. From the plates 5—5, the loaf is moved, by the pushers 6—6, into position between the electrically-heated plates 7—7. The pushers 6—6 are arranged in pairs, and each pair is secured to two conveyor chains 10—10, by means of a rod 8 and two lugs 9—9. When the work of the pushers on a particular loaf is done, and the loaf is forwarded by other means to be hereinafter described, the pushers are retracted or moved backwardly out of contact with the loaf, in order to avoid dragging them across the waxed surface of the wrapping paper and thus marring it. When in this retracted position, the pushers 6—6 are pressed by springs 11—11 against crossrods 12, the latter being secured to the conveyor chains 10—10 by means of lugs 13—13. Two pushers 6—6 are pinned on each rod 8, and each of the latter carries an arm 14 provided with a cam bowl 15, the purpose of which is to bring the pushers 6—6 into operative position after having been retracted and returned to the front end of the machine to there engage another loaf, and forward it. Coacting with the cam bowls 15 is a stationary cam 16, the latter being concentric with one of the sprockets 17 over which the chains 10 run. As the rear chain 10, carrying the arm 14 and cam bowl 15, turns over its sprocket 17, the bowl engages a stationary cam-rail 18 which causes the pushers 6—6 to rise from the crossrod 12 and stand at right angles to the right line movement of the chain beyond the sprocket 17, where it engages the rear side of a loaf and pushes the same ahead of it until it reaches the conveyor belt 27. When a loaf reaches this conveyor belt, the cam bowl 15 rides off the end of the cam-rail 18, whereupon the spring 11 swings the pushers 6—6 backwardly, thus retracting them and preventing them from marring the waxed surface of the wrapper, and causing them to snap back against the crossrod 12 where they remain until they again reach the front end of the machine.

The electrically heated plates 7—7 melt the wax of the paper and thus seal the ends of the wrapper which are folded against the ends of the loaf. This, however, does not seal the overlapped seam running along the bottom of the loaf which is usually quite irregular in contour. For the purpose of effecting the sealing of this seam throughout its length rather than at the high spots only as heretofore, there is provided means which follows the irregularities of the loaf bottom and presses against the seam under the same. As shown, this means includes a series of spring-pressed fingers 20 mounted side by side in an aperture cut through the bed-plate, and protruding above the same. Each of these fingers is provided with a stop-lug 21 for engagement with the under

side of the bed-plate 19 when no loaf is immediately over the fingers. Each finger is further provided with a spring 22 which normally holds the stop-lug 21 against the bed-plate 19.

The specific sealing means shown being for use in connection with a machine wrapping bread with wax-paper, an electrical heater 23 is attached to each finger 20. It is to be understood, however, that when the sealing means is used in connection with a machine wrapping with ordinary gummed wrapping paper, no heating means need be used, the pressure of the fingers alone being sufficient to effect the sealing of the seam.

After a pair of pushers 6—6 have pushed a loaf past the fingers 6—6, said loaf is moved thereby in between two cooling plates 24 and over a second series of fingers 25, the latter being like the fingers 20, except in that they have no heating means. Thus, the device has two tandem series of spring-pressed fingers, the fingers of the leading series being heated to melt the wax of the paper and thus seal the seam, while the fingers of the second series are cold to cool and harden the sealing wax.

To resist the upward thrust of the fingers 20 and 25, there is provided a pressure belt 26 the operating run of which travels along with the loaf, so that the wax surface of the wrapping paper at the top of the loaf will not be marred. This pressure belt remains in action until the loaf has been pushed, by the pushers 6—6, into the range of action of a conveyor belt 27 the operating run of which forms a continuation of the bed-plate 19. When the loaf reaches this conveyor belt, it is also within the range of action of two side belts 28—28 the operating runs of which move forward with the conveyor belt 27 and so prevent marring of the wax surface of the wrapper as the loaf is forwarded on out of the device.

The conveyor belt 27 and the side belts 28—28 are driven as follows: A belt deriving its motion from any suitable source of motion drives the shaft 30 which carries a gear 31 driving a gear 32 on the pulley shaft of the conveyor belt 27. At each end of the shaft 30, a bevel gear 33 meshes with a bevel gear 34 on a vertical shaft 35, each vertical shaft having a gear 36 meshing with a gear 37 on the shaft 38 of the vertical pulley 39.

In view of the foregoing, further description of the operation of the device is deemed to be unnecessary to a full understanding of the invention. It is therefore omitted in the interest of brevity.

What is claimed is:

1. Sealing means for wrapping machines, comprising mechanism for forwarding an article of irregular contour enclosed within a wrapper having an overlapped seam, and means following the irregularieties of said article and pressing against said seam to seal it.

2. Sealing means for wrapping machines, comprising mechanism for forwarding an article of irregular contour enclosed within a wrapper having an overlapped seam, means following the irregularities of said article and pressing against said seam to seal it, and means for resisting the thrust of said pressing means.

3. Sealing means for wrapping machines, comprising mechanism for forwarding an article of irregular contour enclosed within a wrapper having an over-lapped seam, means following the irregularities of said article and pressing against said seam to seal it, and a pressure belt engaging said article and through it resisting the thrust of said pressing means.

4. Sealing means for wrapping machines, comprising mechanism for forwarding an article of irregular contour enclosed within a wrapper having an overlapped seam, means following the irregularities of said article and pressing against said seam to seal it, and means for heating said pressing means.

5. Sealing means for wrapping machines, comprising mechanism for forwarding an article of irregular contour enclosed within a wrapper having an overlapped seam, and means following the irregularities of said article and pressing against said seam to seal it, said means including a series of spring-pressed fingers mounted side by side in the path of said seam.

6. Sealing means for wrapping machines, comprising mechanism for forwarding an article of irregular contour enclosed within a wrapper having an overlapped seam, and means following the irregularities of said article and pressing against said seam to seal it, said means including two tandem series of spring-pressed fingers mounted side by side in the path of said seam.

7. Sealing means for wrapping machines, comprising mechanism for forwarding an article of irregular contour enclosed within a wrapper having an overlapped seam, and means following the irregularities of said article and pressing against said seam to seal it, said means including two tandem series of spring-pressed fingers mounted side by side in the path of said seam, and means for heating the fingers of the leading series.

8. Sealing means for wrapping machines, comprising mechanism for forwarding an article of irregular contour enclosed within a wrapper having an overlapped seam, and means following the irregularities of said article and pressing against said seam to seal it, said mechianism including a conveyor belt, a pusher forwarding the article past said pressing means to said belt, and

means for retracting said pusher when the article reaches said belt.

9. Sealing means for wrapping machines, comprising mechanism for forwarding an article of irregular contour enclosed within a wrapper having an overlapped seam, and means following the irregularities of said article and pressing against said seam to seal it, said mechanism including a conveyor belt, a pusher forwarding the article past said pressing means to said belt, and spring-actuated and cam-controlled means for retracting said pusher when the article reaches said belt.

In testimony whereof, I have signed my name to this specification.

RUPERT E. RUNDELL.