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E. G. JURGENS ET AL

2,217,020

DEPOSITING MACHINE

Filed April 1, 1938

2 Sheets-Sheet 1

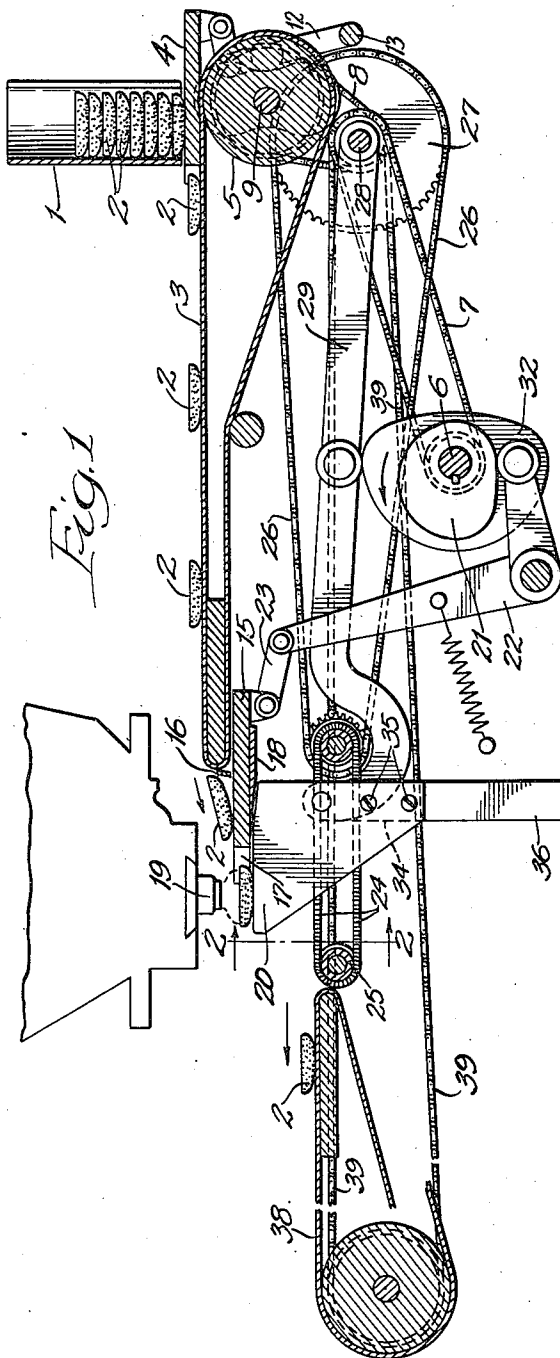


Fig. 1

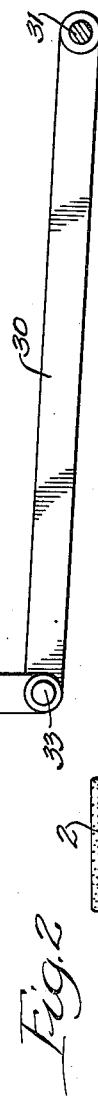


Fig. 2

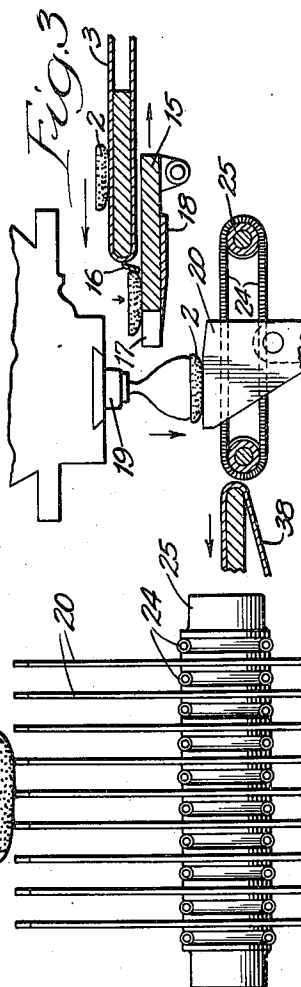


Fig. 3

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2 Sheets-Sheet 2

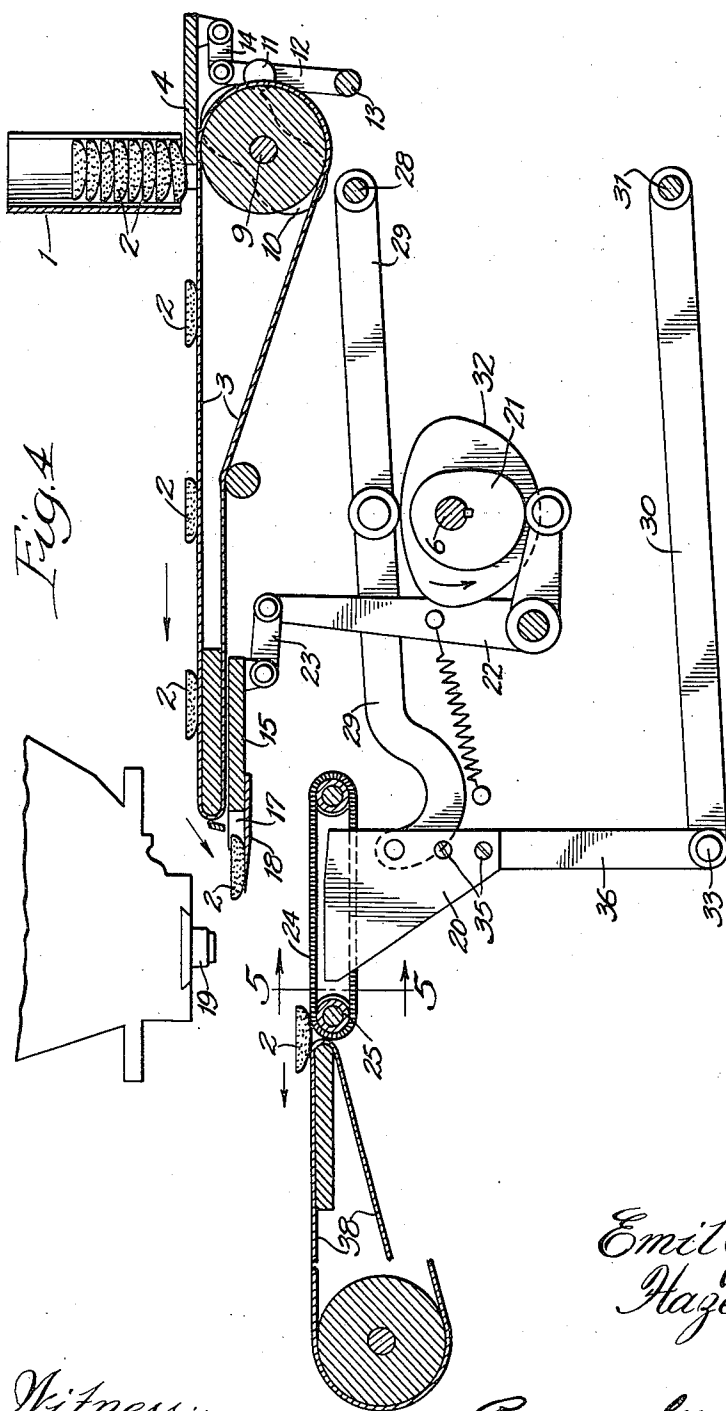


Fig. 4

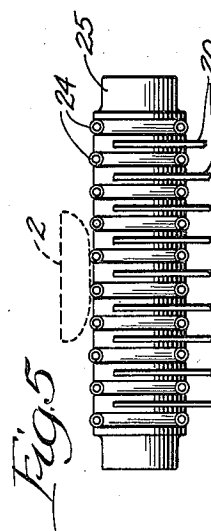


Fig. 5

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UNITED STATES PATENT OFFICE

2,217,020

DEPOSITING MACHINE

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Application April 1, 1938, Serial No. 199,386

2 Claims. (Cl. 91—3)

This invention relates to machines for depositing confection coatings, such as marshmallow, frostings, etc., on bakery goods. The improved construction herein disclosed relates to machines of the character described in Jurgens-Becker Patent No. 2,083,268 of June 8, 1937, and the Westerman patents referred to therein.

To attain the desired performance of mechanism of this type, it is desirable to move the articles receiving the coatings downwardly away from the depositing nozzles. Such action pulls the viscous coating material away from the depositing nozzles, making a clean break and insures symmetrical reception of the coating. In prior machines that action has been accomplished by oscillating vertically the horizontal intermittently driven feed belts for the articles operated upon.

The purpose of the present invention is to make a relatively fast machine and to simplify the mechanism by obviating the need for intermittently driven oscillating feed belts.

The objects of the invention are attained by means of continuously driven belts in different planes and by providing, underneath the depositing mechanism, a series of vertically reciprocating plates mounted so that their upper edges receive the articles from one belt and carry the articles down away from the depositing nozzles to another belt. The latter belt consists of a series of separate continuous belt elements traveling between the vertically movable transferring plates.

The drawings diagrammatically illustrate the improvement. Of these drawings:

Figure 1 shows a longitudinal sectional view of the machine partly broken away, indicating the general arrangement of the principal operating elements thereof.

Fig. 2 is a sectional detail as indicated by the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary view repeating part of the mechanism shown in Fig. 1 but with the transfer plates in a lower position.

Fig. 4 is a longitudinal section of the machine partly broken away and showing the relationship between movable parts of the mechanism as it would appear when the transfer plates are in their lowermost position.

Fig. 5 is a sectional detail taken on the line 5—5 of Fig. 4.

This improved depositing machine has the merit of more simplified mechanism than heretofore employed for the same purpose and the capacity for much faster operation and hence increased production.

The articles operated upon are supplied to the

machine by gravity through magazines of tubular form indicated in the drawings at 1. The articles are designated by 2. From the lower end of the magazine these articles are removed at a regular rate to be received by a feed belt 3 by means of a reciprocating serrated plate 4.

The belt pulley 5 for belt 3 is driven from drive shaft 6 through chains 7 and 8. The pulley shaft 9 also carries a cam 10 for operating the serrated plate or shelf 4. This cam acts upon a roller 11 on arm 12 swinging from the fixed pivot 13. The upper end of the arm is connected by link 14 to an ear on the shelf 4.

A serrated plate or shelf 15, similar to shelf 4, receives the articles from belt 3, as indicated in Fig. 1. This shelf moves to the right after each row of articles comes to rest thereon, and in this direction drags underneath the articles which are retained against movement by a fixed bar 16 until the toothed end 17 arrives beneath the articles which then drop down between the teeth on to a rest 18. On the return motion of plate 15 to the left, the articles are pushed beneath depositing nozzles 19 along the upper edges of transfer plates 20.

The means for reciprocating serrated plate 15 is a cam 21 on continuously driven shaft 6 which cam operates a bell crank arrangement 22 having the link connection 23 with plate 15.

The transfer plates 20 are a unit in the form of a comb, the plates forming teeth, located between a series of belts 24, each of which may be a continuous coiled spring, and forming together a belt unit having a common drive from pulley 25 driven by chain 26. This chain leads to a sprocket 27 fast to an intermediate drive shaft 28.

The transfer plates 20 are connected at 34 and supported on parallel arms 29 and 30 which remain vertical as the plates are oscillated arcuately around the centers 28 and 31. The operating arms 29 for transfer plates are located at the sides of the belt unit formed by belts 24 and are oscillated around shaft 28 by cam 32 fast to drive shaft 6 and are connected to tie rod 33 at the ends of arms 30 by links 36. The plate support 34 is secured by screws 35 to bars 36.

The articles are carried away from the depositing mechanism by belt 38 which is driven by chain 39 from shaft 28.

In the operation of the machine, the articles received by the serrated shelf 15 from continuously driven belt 3, by right-hand movement of shelf 15, are caused to drop between the teeth 17 on to a fixed support 18. Upon the reverse motion to the left of shelf 15, the transfer plates 20

arrive in their uppermost position to form a continuation of the fixed shelf 18 and receive the articles in the exact location required for receiving deposits from nozzles 19. The deposit is made while the transfer plates are in their uppermost position and then these plates move downwardly to carry the articles directly down to the receiving belts 24.

Reciprocating plungers serve to push measured amounts of the deposit substance through nozzles 19 in timed relation with the reciprocation of transfer plates 20. These plates move down to beneath the upper surface of belts 24 as shown in Fig. 4 which then serve to carry the articles away and allow clearance for the return upward movement of the transfer plates.

The method of operation here described allows for relatively fast work and less mechanism than heretofore employed for the same purpose.

We claim:

1. In a machine for depositing viscous coatings upon receiving articles comprising depositing mechanism for intermittent delivery of measured quantities of coating material, a series of horizontally spaced receiving and transferring members mounted to reciprocate vertically beneath the depositing mechanism, feeding mechanism for delivering articles for support on the upper edges of the receiving and transferring members, a series of delivery elements located below the upper limit of stroke of the transferring

members and alternating with said members, and means for imparting horizontal movement to said delivery elements and for effecting vertical reciprocation of said transferring members whereby articles at rest on said transferring members to receive coatings from the depositing mechanism are carried downwardly away from the depositing mechanism and transferred to said delivery means.

2. A machine for depositing viscous coatings upon receiving articles comprising depositing mechanism for intermittent delivery of measured quantities of coating material, a series of horizontally spaced receiving and transferring members in the form of plates mounted to reciprocate edge-wise vertically beneath the depositing mechanism, a continuously driven belt arranged for delivering articles for support on the upper edges of the receiving and transferring members, a series of continuously driven narrow belts located below the limit of the upward stroke of said transferring members and between said members, and means for effecting vertical reciprocation of said transferring members, whereby articles at rest on said transferring members to receive coatings from the depositing mechanism are carried downwardly away from the depositing mechanism and placed on the delivery belts.

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