

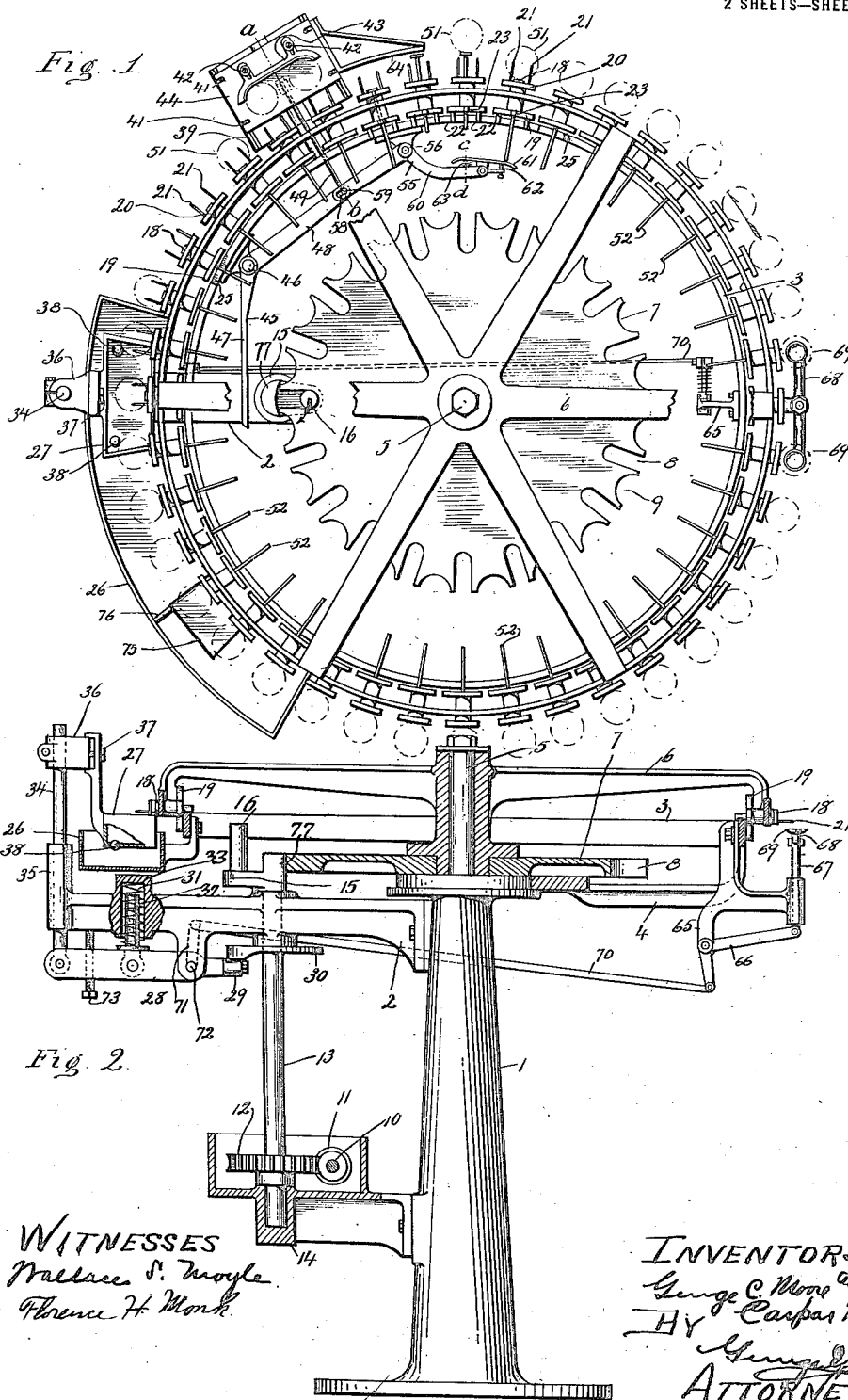
C. METTLER & G. C. MOORE.
DIPPING MACHINE.

APPLICATION FILED MAY 25, 1914.

1,166,071.

Patented Dec. 28, 1915.

2 SHEETS—SHEET 1.



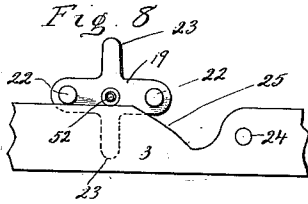
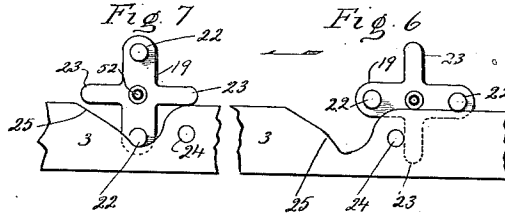
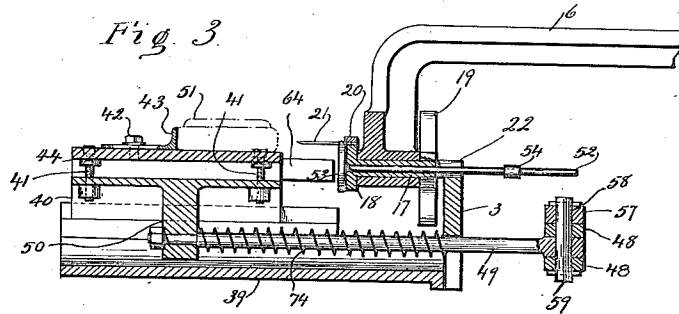
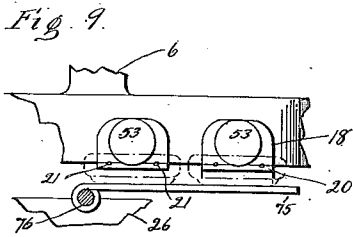
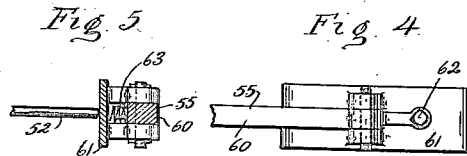
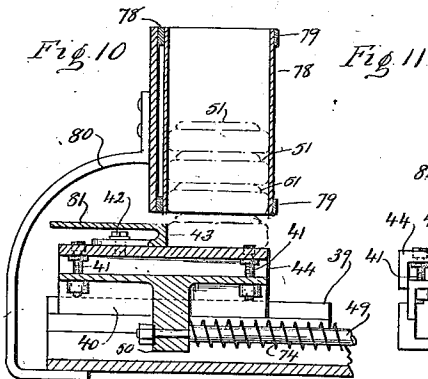
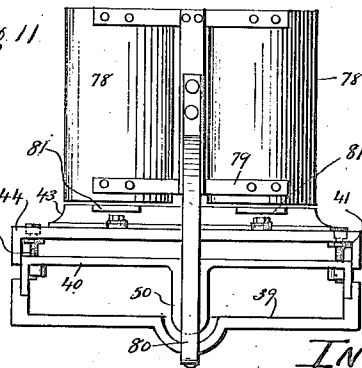
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2 SHEETS—SHEET 2.



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DIPPING-MACHINE.

1,166,071.

Specification of Letters Patent.

Patented Dec. 28, 1915.

Application filed May 25, 1914. Serial No. 840,841.

To all whom it may concern:

Be it known that we, CASPAR METTLER and GEORGE C. MOORE, citizens of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Dipping-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to a new and improved dipping machine, referring more particularly to a type of machine that is adapted to receive a fragile article, such as a candy, cake, cookie, or cracker, and automatically apply a coat of frosting or similar covering thereto, affix a nut-meat thereon, if desired, and thereafter eject the article in its completed form.

It is the object of our invention, among other things, to provide a machine of this character that will accomplish the several operations above indicated, and others, without injury to the article, and by mechanism that will necessitate the minimum amount of handling, and composed of such few parts of simple design that they are economical to construct, simple in operation, are not easily disarranged or liable to get out of order by reason of wear, or for other reasons.

To these, and other ends, our invention consists in the dipping machine, having such details of construction and combinations of parts as will be hereinafter described and more particularly pointed out in the claims.

Referring to the drawings, in which like numerals of reference designate like parts in the several figures, Figure 1 is a fragmentary plan view of our improved machine; Fig. 2 is a fragmentary elevation thereof with the several parts shown in their relative positions with the carrier frame at rest; Fig. 3 is an enlarged view of some of the parts taken upon line *a-b* of Fig. 1; Fig. 4 is an enlarged view of the ejector plate and the mechanism adjacent thereto; Fig. 5 is a sectional view thereof, taken upon line *c-d* of Fig. 1; Figs. 6, 7, and 8 are detail views of one of the carriers and a portion of the guide rail, these three views illustrating the relative positions of the parts as the said carrier is moved about its axis; Fig. 9 is a detail view of the dip-

ping plate; and Figs. 10 and 11 are sectional views of a hopper attachment that is desirable for delivering articles to the loading mechanism.

This machine is constructed with a plurality of carriers that move in a rotary path about a common center, having retaining devices connected therewith, upon which is placed the cake or other article to be operated upon, which is thereafter immersed in a bath of the coating material, and during its subsequent travel therefrom is rotated about its own axis so as to move the coated portion of the article through a path of 180°, after which it is automatically ejected onto any mechanism conveniently arranged to receive it.

In the drawings, the numeral 1 designates the standard, to which is secured the bracket 2 and the guide rail 3, the latter being circular in form and supported by a plurality of brackets 4.

Rotatably mounted upon a stud 5, connected with the standard 1, is a carrier frame 6, having a driving plate 7 fixed thereto. There are two types of notches in said plate 7, that is, the notches 8, having parallel sides, and the parti-circular notches 9 therebetween, the former being driving notches and the latter locking notches. Rotation is imparted to the driving plate 7, and through it to the frame 6, from a rotary shaft 10, having a worm 11 thereon, the teeth of which mesh into the worm gear 12 fixed on a shaft 13 rotatably mounted in the brackets 2 and 14. A head member 15 is fixed to one end of the shaft 13 and secured therein is a pin 16. During the rotation of the shaft 13, the pin 16 successively enters the notches 8, and imparts a rotary movement to the driving plate 7 and the carrier frame 6. As the pin 16 passes out of the notch 8, the rounded portion 77 of the head 15, opposite to the pin 16, enters and registers with the next succeeding parti-circular notch 9, and locks the driving plate 7 and the carrier mechanism against further movement until the pin 16 engages the next succeeding notch 8.

Rotatably mounted in the carrier frame 6 are a plurality of carriers 17, each being provided with a trip arm 19 upon one end and a head 18 upon the other end, to which are secured the two needles 21 by the plate 20. The trip arm 19 is provided with oppositely disposed trip pins 22 and similarly

disposed trip fingers 23, the latter being at substantially a right angle to the former and all constituting projecting members, when considered in relation to each other and the carriers. The carriers are moved about the axis of the carrier frame 6, with the pins 22 riding upon the top of the guide rail 3, substantially as shown in Figs. 6 and 8, and are rotated about their own axes by the engagement of one of the fingers 23 with a pin 24 fixed in said guide rail, the then position of the trip arm 19 being shown in Fig. 6. Continued movement of the carrier with the carrier frame causes one of the trip pins 22 to be moved into the cam notch 25 in the upper edge of the guide rail 3, a position substantially shown in Fig. 7. At this time the carrier has been rotated about its own axis 90°, and the turn is completed by the trip pin 22 in the cam notch 25 riding out of the notch upon the inclined face thereof, thereby imparting a rotation to the carrier through the remaining 90°, at which time the relative position of the parts is substantially as shown in Fig. 8. There are two of these cam notches 25 in the guide rail 3, the first being between the loading and dipping mechanism, and the second one adjacent to the ejecting devices. Upon one side of the machine is a drip pan 26, which is normally filled with the coating material that is maintained in a hot liquid state by means, not herein shown, but common in the art. Within the drip pan 26 is a cup 27, that has a movement toward and away from the bottom thereof through the pivotally mounted lever 28, having a roll 29 upon one end that is held in contact with the cam 30 by a spring 31 surrounding a pin 32 fixed to the said lever 28, and lying within a recess 33 in the bracket 2, a rod 34 slidably mounted in a lug 35 on the bracket 2 and connected at one end to the lever 28, and at the other end to a clamp 36, to which the cup 27 is removably secured by a bolt 37. The cup 27, at the bottom of its stroke is entirely immersed within the coating material in the drip pan 26, and its movement is so timed that when the carriers are at rest two of them are always over the cup and are partly submerged in the material within the cup at the completion of the up stroke thereof.

To facilitate the entrance of the coating material into the cup 27, a plurality of balls 38 are mounted in the bottom thereof, which uncover and open the port within which they lie when they engage the bottom of the drip pan 26, thereby permitting the material to flow therethrough into the cup. This materially assists in keeping the material in the cup 27 at such a height as to insure the proper submersion of the cake therein.

The cakes are placed upon the needles 21 by a loading mechanism, which consists es-

entially of a bracket 39 fixed to the guide rail 3, and having a slide 40 movable thereon toward and away from the axis of the guide frame 6, a carrier plate 44 movable toward and away from the slide by the screws 41, and a pressure plate 43, adjustably secured to the slide 40 by the screws 42.

Movement is imparted to the slide 40 through a rock lever 45 that is pivotally secured to the guide rail 3 by the pintle 46, and having an arm 47 thereon that lies in the path of the pin 16 and an arm 48, and a rod 49 that is secured to the arm 48 and to a lug 50 upon the slide 40 (see Fig. 3).

The cakes, designated by broken lines 51, 80 in Fig. 3, are placed on top of the plate 44 in the rounded corners of the pressure plate 43, and as the lever 45 is rocked upon its pivot mounting by the pin 16, the slide 40 is moved inwardly and the needles 21 enter the said cake and remain thereon as the slide 40 is moved in the opposite direction by the spring 74 surrounding the rod 49.

The ejecting mechanism comprises the rods 52, which are slidably mounted in the carriers 17, and each rod having a plate 53 upon the outer end thereof, which lies between the needles 21, a stop collar 54 fixed on the rods 52 to limit the movement of said rods in one direction, a rock lever 55 pivotally secured to the guide rail 3 by the pin 56, one arm of which is provided with a slot 58 in its outer end, and into which projects the pin 59 that secures the rod 49 to the arm 48 of the lever 45, the opposite arm 60 of said rock lever having pivotally connected therewith a pressure plate 61 that is normally held against an adjusting screw 62 by a spring 63. This pressure plate is rounded at both ends and is of such length as to contact with two of the rods 52 when the carrier frame 6 is at rest. The timing of the ejecting mechanism is such that as the slide 40 is moved toward the carrier frame and the cakes thereon placed onto the needles 21, of two of the carriers, the rods 52 are forced outwardly and the plates 53 push against the cakes and force them off the needles 21 of two other carriers to drop onto a tray or carrier (not shown) conveniently arranged to receive them. The collars 54 limit the outward movement of the rods 52, which are returned to their inward position by the arm 64 connected with the slide 40, which contacts with the plates 53 during the movement of said slide toward the carrier frame.

In brief, the successive operations of this machine are as follows,—the carrier frame has an intermittent, rotary motion and an operator places two cakes upon the plate 44 against the pressure plate 43 and both are placed on the needles of two adjacent carriers when the slide is moved inwardly. In this position the side of the cake to be

coated is uppermost. As the carrier frame rotates, the carriers having the cakes thereon are brought in contact with the cam notch 25 adjacent to the drip pan 26, and by reason thereof are turned over so that the side to be coated is now underneath instead of on top, as theretofore. In this position they continue their intermittent movement about the axis of the carrier frame 6 until brought to a rest position, with two of the carriers having cakes thereon, over the cup 27, which moves downwardly into the drip pan, securing a supply of coating material, and then upwardly to such height that a portion of the cake is immersed and a film of coating material remains upon the cakes. The limit of the upward movement of the cup is variably determined by the stop screw 73 threaded through the lever 28 and abuts against the bracket 2. When the cup moves downwardly the cakes that have been coated are moved out of the path of the cup by the next intermittent movement of the carrier frame. These operations continue until the carrier arrives at the cam groove 25 adjacent to the ejecting mechanism, when it is rotated about its axis by reason of its contact therewith and the coated portion of the cake is uppermost. The carriers are immediately thereafter brought into line with the pressure plate 61, which strips the cakes from the needles through the rods 52 and plates 53, which are returned to their inner position by the arm 64, during the next movement of the slide. The drip pan 26 is only of sufficient length to catch the drip of the coating material from the cake before it becomes set or hard, and the movement of the cup 27 therein keeps the same agitated and prevents the formation of a scum thereon. Before the cakes are moved beyond the drip pan, they pass over the wiping plate 75 that is very flexible and resilient, being secured upon the fixed pin 76 in such a manner that it presses very lightly against the coated surface of the cake and wipes off any excess material thereon, as well as distributes it uniformly on the entire surface to be coated.

Some classes of cakes are sold with a nut-meat attached thereto, and mechanism is provided for applying these nut-meats, comprising a bracket 65 secured to the guide rail 3, upon which is pivotally mounted a rock lever 66, one end of which is secured to a plunger 67, having an arm 68 upon the upper end thereof that terminates at each end in the cups 69, a link 70 connected with the rock lever 66, and an arm 71 fixed on the pintle 72 that is secured in the rock lever 28. The nut-meats are placed in the cups 69, the movement of which is so timed that as the carrier frame 6 comes to its rest position the plunger 67 moves upwardly and the meats in the cup 69 contact with

the soft coating on the cake and adhere thereto.

In Figs. 10 and 11 we have illustrated a hopper for delivering the articles to be coated onto the carrier plate 44, which comprises the companion tubes 78 open at both ends, secured together by the bands 79, and supported above the carrier plate 44 by the auxiliary bracket 80 fixed to the bracket 39, and stop plates 81—81 attached to the pressure plate 43.

In operation the tubes 78 are filled with the articles to be coated, the lower one of which rests upon the top of the carrier plate 44 against the pressure plate 43, when in its rearmost position, and is carried forward and placed upon the needles 21 during the next movement of the slide, at which time the stop plates 81 are under the said tubes and prevent any further delivery of the articles therefrom until the slide has again returned to its rear position, when the operations are repeated.

There are minor changes and alterations that can be made within our invention, and we would therefore have it understood, that we do not limit ourselves to the exact construction herein shown and described, but claim all that falls fairly within the spirit and scope of our invention.

Having described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. In a machine of the character described, the combination with means for holding a fragile article, comprising a rotary member, and pointed members connected with one end thereof and projecting therefrom substantially parallel with the axis of said rotary member, said pointed member entering said article; of means for applying a coating to said article, comprising a liquid containing receptacle movable toward and away from said article and into and out of the liquid in said receptacle; and means for stripping said article from said holding means, said means being movable substantially parallel with said pointed member and within said rotary member.

2. In a machine of the character described, the combination with a plurality of carriers; of means connected therewith for holding a fragile article; means for moving said carriers as a unit; and means for independently and successively rotating said carriers within said moving means, comprising projecting members on said holding means at right angles to each other, a member fixed adjacent to said holding means and having a notch therein in the path of some of said projecting members, and a member fixed in said latter member and projecting into the path of the remainder of said projecting members.

3. In a machine of the character described,

the combination with a plurality of carriers; of needles connected therewith; a frame within which said carriers are mounted; means for moving said frame; a member
5 adjacent to the path of movement of said frame and having a notch therein; a trip member fixed in said member adjacent to said notch; and projecting members on said carriers some of which engage said notch
10 and some said trip member, for the purpose of rotating said carriers within said frame.

4. In a machine of the character described, the combination with a plurality of carriers for carrying articles thereon; of ejector
15 mechanism connected therewith; a carrier frame within which said carriers are mounted; means for moving said frame; means for rotating said carriers within said frame; and a member movable in the path of said
20 ejector mechanism and contacting therewith whereby a movement is imparted to said ejector mechanism, independently of said carriers, whereby any article upon said carriers is stripped therefrom without move-
25 ment of said carriers.

5. In a machine of the character described, the combination with means for holding a cake or similar fragile article; of means for placing said article upon said holding means,
30 comprising a slide, having a pressure plate thereon movable toward and away from said holding means; and means for adjusting the position of said pressure plate upon said slide.

6. In a machine of the character described, the combination with a plurality of carriers; of ejector mechanism mounted therein and movable therewith; a carrier frame, within
40 which said carriers are mounted; means for moving said frame; means for rotating said carriers about their axes within said frame; a member operated in the path of said ejector mechanism and successively contacting
45 with the ejector mechanism in each of said carriers; means for operating said latter member so as to impart an independent movement to said ejector mechanism without said carriers; means for placing articles
50 upon said carriers, comprising a reciprocating member; means for imparting movement thereto toward and away from said carriers; and means actuated with said reciprocating member for moving the ejector mechanism in the opposite direction to that above
55 referred to.

7. In a machine of the character described, the combination with means for holding a cake or similar fragile article; of means for automatically applying a coating to said
60 article; and means having an independent movement toward and away from the holding means for automatically applying nut-meats to the said article.

8. In a machine of the character described,
65 the combination with means for holding a

cake or similar fragile article; of means for automatically applying a coating to said article; and means for automatically applying nut-meats to the said article, said means comprising a reciprocating member having
70 nut retaining cups connected therewith.

9. In a machine of the character described, the combination with a plurality of carriers; of means connected therewith for holding a fragile article; means for moving said car-
75 riers as a unit; a notched member fixed adjacent to the path of movement of said carriers; a trip member fixed in said notched member; and a plurality of projecting members on said holding means at right angles to
80 each other, some of said projecting members, during their movement engaging said trip member; and the remainder of said projecting members moving into and out of the notch in said notched member.
85

10. In a machine of the character described, the combination with a plurality of carriers; of means connected therewith for holding a fragile article; a frame for supporting said carriers; means for moving
90 said frame; and means for rotating said carriers within said frame, comprising projecting members on said holding means at right angles to each other, a member secured in a part fixed adjacent to said holding
95 means and projecting into the path of some of said projecting members, and a notch in said fixed part in the path of the remainder of said projecting members.

11. In a machine of the character described, the combination with a plurality
100 of carriers; of a frame within which said carriers are mounted; means for moving said frame; means for holding said carriers against rotation and for rotating the same
105 within said frame, said means comprising a fixed member, having one or more notches therein, trip members adjacent to said notches, and elements connected with said carrier movable adjacent to said fixed mem-
110 ber and in the path of said notches and trip members, some of said elements always being in contact with said fixed member.

12. In a machine of the character described, the combination with a fixed mem-
115 ber, having one or more notches in one edge thereof; a rotary member, having a portion thereof substantially parallel with said fixed member; a plurality of carriers rotatably mounted in said rotary member
120 and having elements connected therewith that project over and contact with one edge of said fixed member; stripping mechanism movable endwise within said carrier; and means for imparting an endwise movement
125 in both directions to said stripping mechanism within said carriers.

13. In a machine of the character described, the combination with a fixed mem-
130 ber, having one or more notches in one edge

thereof; a rotary member, having a portion thereof substantially parallel with said fixed member, a plurality of carriers rotatably mounted in said rotary member and having elements connected therewith that project over and contact with one edge of said fixed member; stripping mechanism movable endwise within said carrier; and means for imparting an endwise movement in both directions to said stripping mechanism within said carriers, said means comprising independent elements upon opposite sides of said carrier and movable toward and away from said carrier.

14. In a machine of the character described, the combination with a fixed member, having one or more notches in one edge thereof; a rotary member, having a portion thereof substantially parallel with said fixed member; a plurality of carriers rotatably mounted in said rotary member and having elements connected therewith that project over and contact with one edge of said fixed member; one or more needles connected with each of said carriers and projecting beyond one end thereof; and means mounted in said carrier and movable in a path substantially parallel with said needle for stripping from said needle any article placed thereon.

15. In a machine of the character described, the combination with a fixed member, having one or more notches in one edge thereof; a rotary member, having a portion thereof substantially parallel with said fixed member; a plurality of carriers rotatably mounted in said rotary member and having elements connected therewith that project over and contact with one edge of said fixed member; stripping mechanism movable endwise within said carrier; and means for automatically affixing fragile articles to said carriers and during the opera-

tion thereof move said stripping mechanism in one direction within said carrier.

16. In a machine of the character described, the combination with a fixed member, having one or more notches in one edge thereof; a rotary member, having a portion thereof substantially parallel with said fixed member; a plurality of carriers rotatably mounted in said rotary member and having elements connected therewith that project over and contact with one edge of said fixed member; stripping mechanism movable endwise within said carrier; means for imparting an intermittent movement to said rotary member; and means actuated by the same means that imparts intermittent movement to said rotary member for moving said stripping mechanism in one direction.

17. In a machine of the character described, the combination with a fixed member, having one or more notches in one edge thereof; a rotary member, having a portion thereof substantially parallel with said fixed member; a plurality of carriers rotatably mounted in said rotary member and having elements connected therewith that project over and contact with one edge of said fixed member; stripping mechanism movable endwise within said carrier; means for imparting an intermittent movement to said rotary member; and means actuated from said means for imparting an intermittent movement to said rotary member for imparting an endwise movement in both directions to said stripping mechanism.

In testimony whereof we affix our signatures in presence of two witnesses.

CASPAR METTLER.
GEORGE C. MOORE.

Witnesses:

GEORGE E. HALL,
FLORENCE H. MONK.