

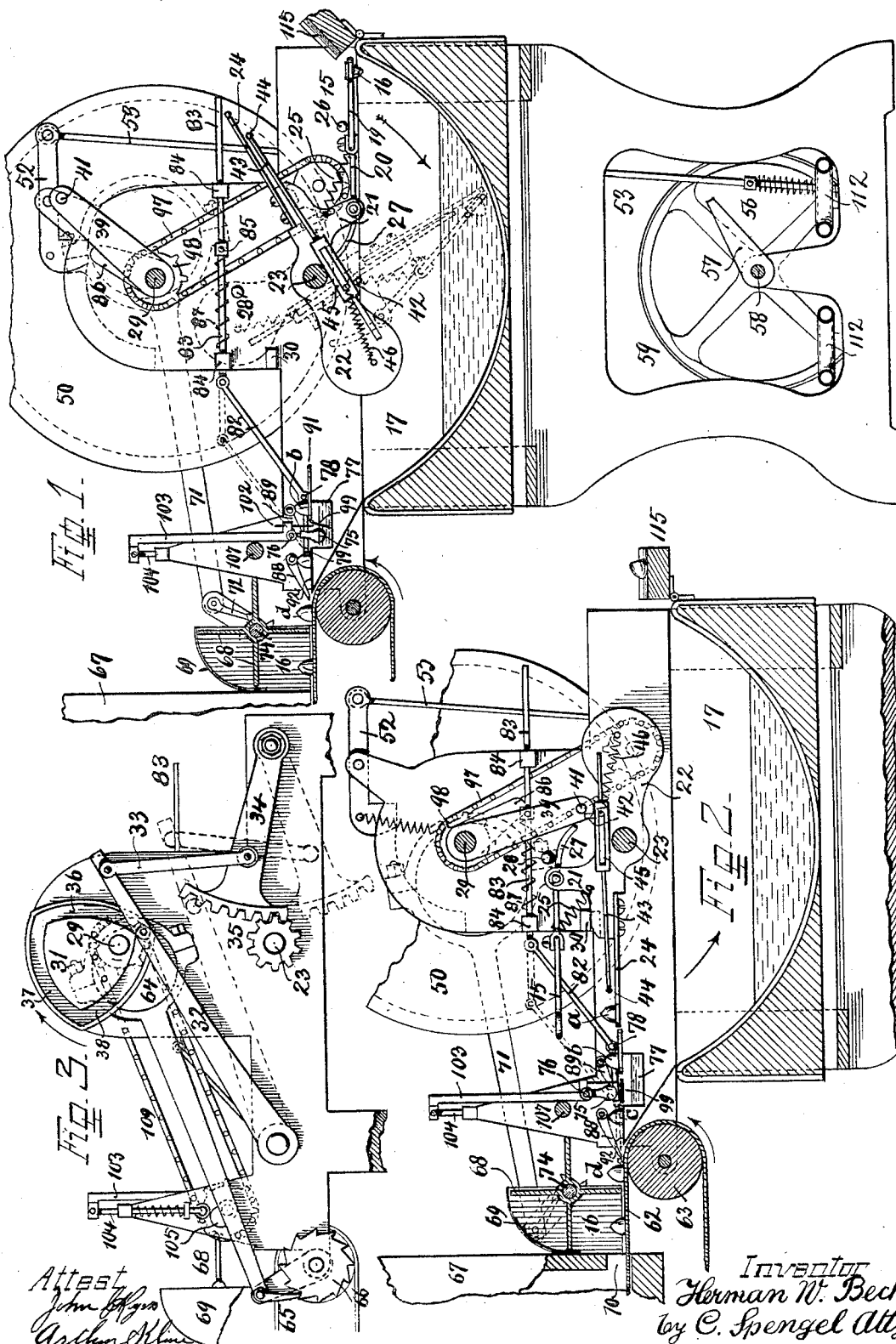
(No Model.)

3 Sheets—Sheet 1.

H. W. BECHT.
MACHINE FOR COATING CONFECTIONERY.

No. 581,685.

Patented May 4, 1897.



Inventor
Herman W. Becht
by C. Spengel Atty.

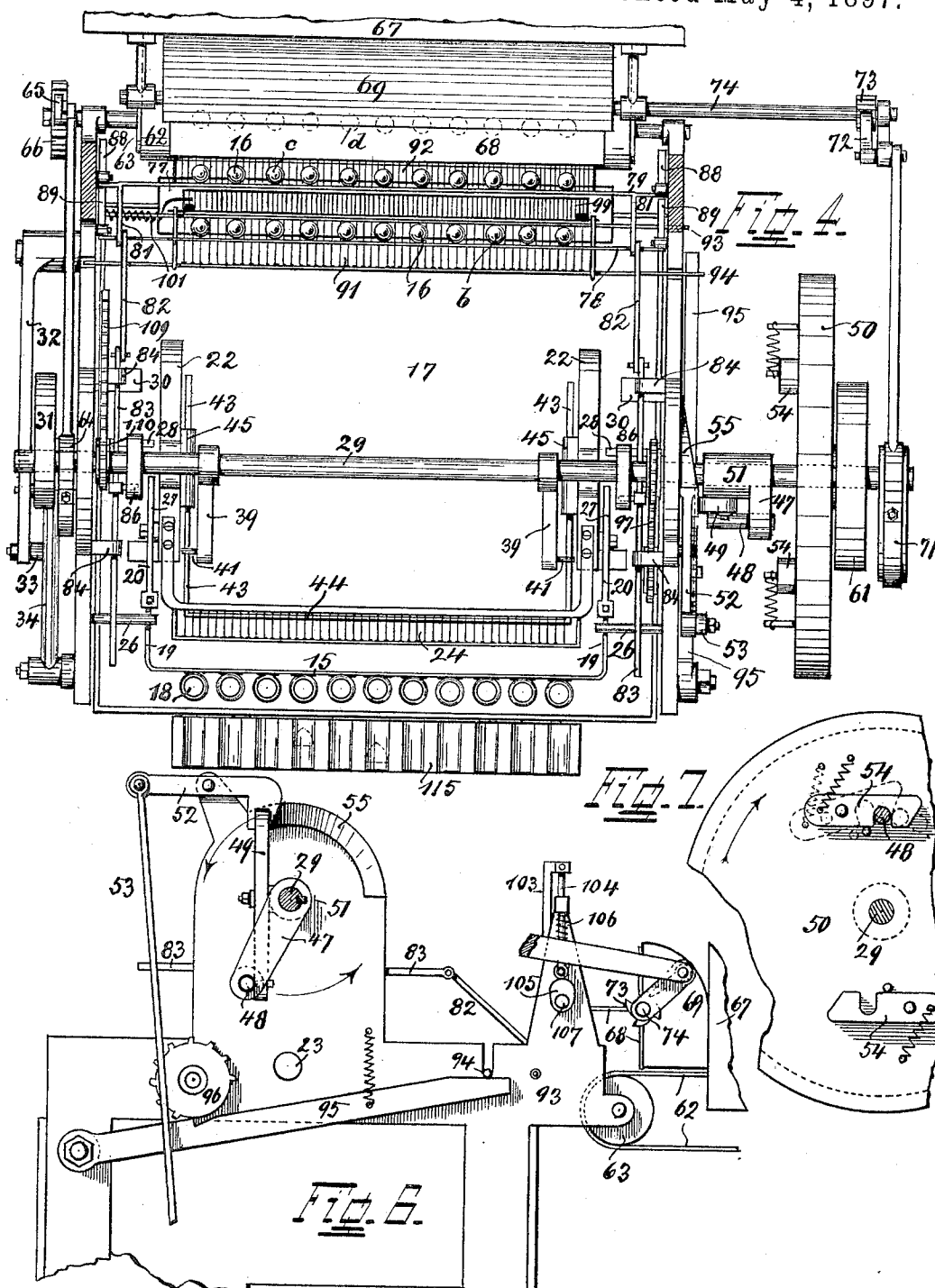
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3 Sheets—Sheet 2.

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3 Sheets—Sheet 3.

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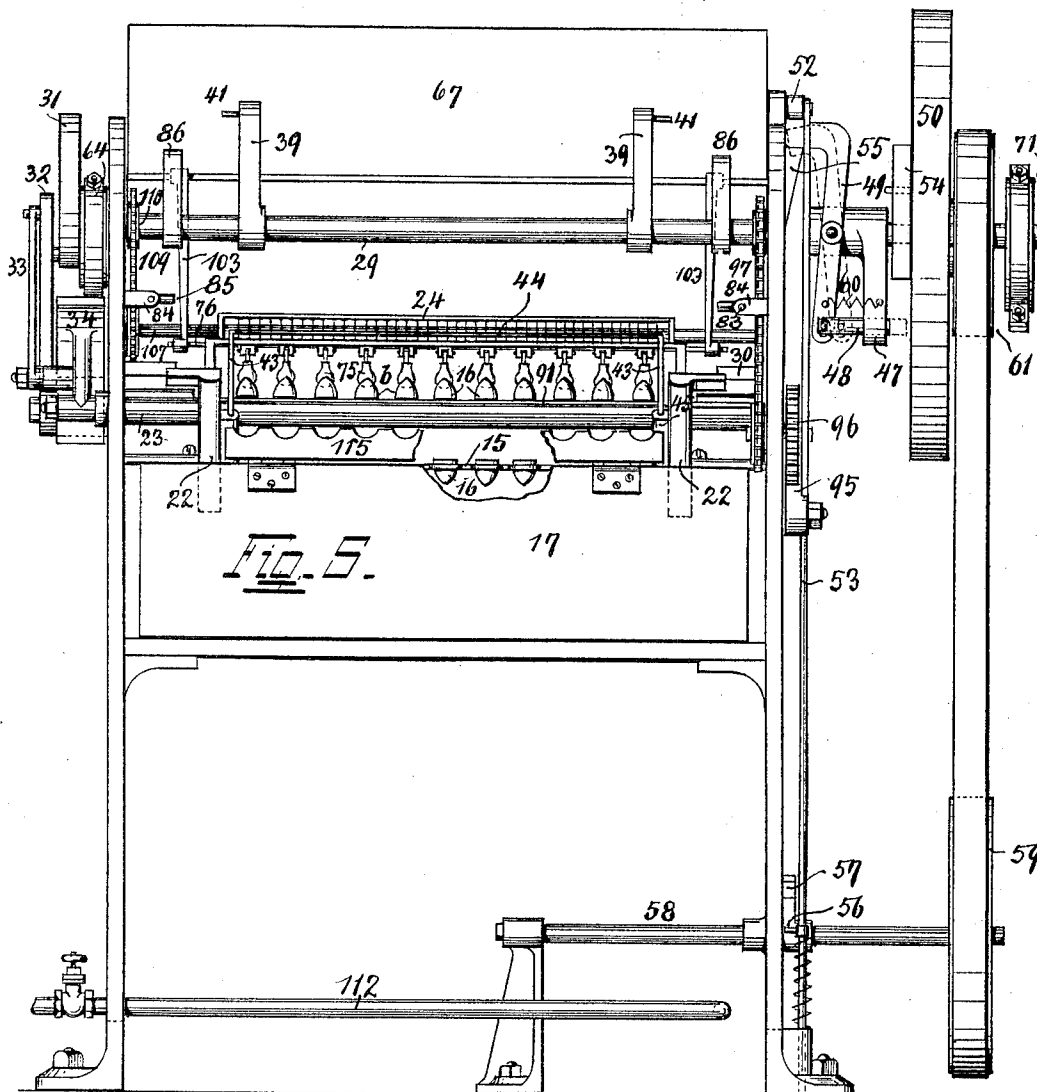


Fig. 5.

17

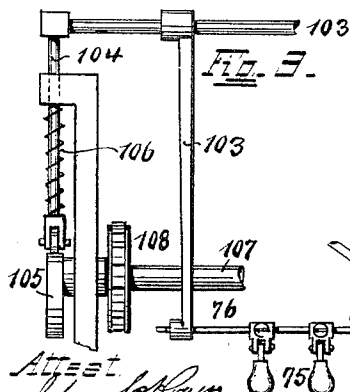


Fig. 6.

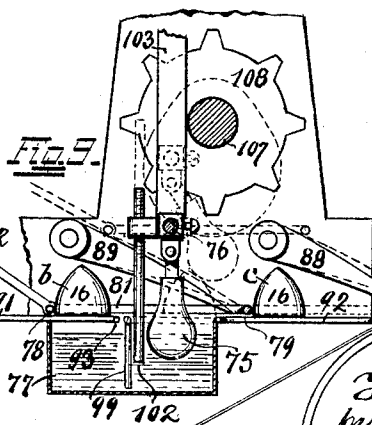


Fig. 7.

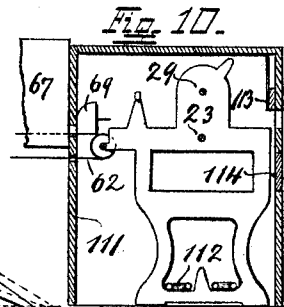


Fig. 10.

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UNITED STATES PATENT OFFICE.

HERMAN W. BECHT, OF CINCINNATI, OHIO.

MACHINE FOR COATING CONFECTIONERY.

SPECIFICATION forming part of Letters Patent No. 581,685, dated May 4, 1897.

Application filed March 18, 1896. Serial No. 583,747. (No model.)

To all whom it may concern:

Be it known that I, HERMAN W. BECHT, a citizen of the United States, and a resident of Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Confectioners' Coating-Machines; and I do declare the following to be a clear, full, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, attention being called to the accompanying drawings, with the reference-numerals marked thereon, which form a part of this specification.

This invention relates to improvements in coating-machines to be used in the manufacture of candy, and is intended for such work where centers of one kind of material are coated with material of another kind.

More specifically it is intended for manufacturing chocolate drops where a hardened center of sugar or so-called "cream" is to be provided with a coating of chocolate. The procedure, mostly done by hand now, consists, substantially, of dipping or immersing the solid centers into the softened chocolate and withdrawing them, whereby a coating of the latter is left to adhere. The machine therefore embraces features new as well as improved and all necessary to carry out this procedure in addition to other functions not present or required in handwork. In general these features embrace the following: a holder and carrier which receives the centers and dips them into the softened chocolate, which is contained in a suitable vessel. After this means and devices act whereby the now-coated centers are released from the carrier and discharged from the machine. Before such is done, however, the drops are acted upon by certain instrumentalities whereby traces and imprints are imparted and caused to appear on the drops, causing them to look as if finished by hand. The discharge devices are so constructed as to advance the coated drops onto a carrier-belt which takes them away from the machine, preferably into a cooling device to harden the coating to permit packing. In case such cooling device is used, which is substantially a closed refrigerating-chamber, the machine also operates means to open the same at times

when drops enter, the chamber being otherwise closed to prevent loss of cold air. An inclosure provided with heat-supplying devices surrounds the machine, whereby the temperature of the air enveloping it and the material worked thereon is maintained at a certain point which is most conducive to successful operation and for turning out first-class work. Finally, there are features which are necessary in a machine of this kind for moving and operating all parts at certain speeds and at certain times to execute certain functions in proper order to attain the desired result.

In the following specification, and particularly pointed out in the claims, is found a full description of the invention, its operation, parts, and construction, which latter is also pointed out in the accompanying drawings, in which—

Figure 1 shows a vertical cross-section of the machine with the parts in position as they appear at the beginning of operations. Fig. 2 in a similar view shows appearance of parts after the operation has been started and partly completed. Fig. 3 is an end view showing parts of the machine in position which corresponds with the position of parts shown in Fig. 1. Fig. 4 in a top view shows the machine with parts in position as shown in Fig. 1. Fig. 5 is a front view of the machine. Fig. 6 shows parts of the machine in end view, partly in section, being the end where the power is applied and opposite to the one shown in Fig. 3. Fig. 7 shows parts removed by the section of the previous figure, being a part of the automatic stopping and starting device of which this figure is a detail view. Figs. 8 and 9 are detail views of the attachment whereby the manufactured goods are given the appearance of hand-finish. Fig. 10 is a reduced diagrammatic view of the machine as it appears when set up within an inclosure provided for the purpose of maintaining a certain temperature around the operating parts and material used. Figs. 8 and 9 are shown at an enlarged scale and Fig. 10 in a diminished scale.

In the drawings, 15 indicates the carrier on which the sugar centers 16 are supported while dipped into the softened chocolate, which is contained in a pan 17. This carrier consists, substantially, of a frame, preferably

of wire and adapted to support and hold the centers. For such purpose it is provided with a number of rings 18 of a size slightly less than the diameter of the sugar centers, which are of conical shape and therefore when passed point down into said rings are readily suspended therein. (See Figs. 1, 4, and 5.) They may be placed by hand or by a special feed device to be described yet. This part of the construction may be modified to suit size and shape of the particular centers to be dipped to make certain kinds of candy and is therefore exchangeable by having its ends 19, which are turned back at right angles to the main frame, detachably connected to arms 20. These arms, whereby the whole carrier is supported, are pivotally connected to lugs 21, forming parts of arms 22, which are secured to a rock-shaft 23. This latter rests in bearings in the ends of the machine-frame. In order to give a better understanding of the why and wherefore of certain constructions to be presently described, it is deemed advisable to give now an explanation of the procedure in general whereby the centers are caused to become coated. It is accomplished by simply swinging the carrier-frame whereon the centers are supported, as shown in Fig. 1, through the tank, the motion (in the direction of the arrow shown in Fig. 1) proceeding from rock-shaft 23, with arms 22 thereon, to which the carrier 15 connects. The extent of this motion, which is entirely within the limits of the tank, is substantially through half of a circle, so that the carrier at the end of this motion arrives at the other side of the tank in again a horizontal position, as shown in Fig. 2. While so passing through the tank the centers become thoroughly covered with chocolate. It is evident that during this motion means must be provided to hold the centers in position on the carrier, especially during the latter part of the motion, when the position of the centers becomes reversed. The construction of these means must be, further, such as to permit placing of the centers as shown in Fig. 1, as well as their discharge from the carrier when arrived in position as shown in Fig. 2. For such purpose a supporting-frame 24, also preferably of wire, is provided and rigidly connected to arms 22. Carrier-frame 15 has a tendency to approach this support by reason of a spring 25, connected with one end to the pivotally-supported arms 20 and with its other end in a suitable position on arms 22. These two parts—that is, carrier 15 and supporting-frame 24—are together during the larger part of their passage through the tank, but are separated when approaching the termini of their rotation by certain impediments, as follows: On the return swing—that is, when returning in the direction of the arrow from the position as shown in Fig. 2—the ends 19 of the carrier-frame encounter stops 26, projecting inwardly from the main frame into the path of these arms, and holding them

back separate them from supporting-frame 24, which latter now continues alone to the end of the motion. By reason of the pivotal connection of the carrier-frame to lugs 21 such separation is made possible. The carrier-frame is thus made accessible for the purpose of receiving a charge of centers to be coated. On the forward swing, meaning the one which performs the coating, and when starting in the direction of the arrow from the position shown in Fig. 1 the carrier does not start at once, because being held back against stops 26 by springs 25, which by the preceding separation of the parts were put under tension.

Not until the positively-connected and positively-moving support 24 has traversed the extent of its previous separation from the carrier does it come against the latter, so that when the parts approach a position as shown in dotted lines in Fig. 1 the contact is accomplished and the centers are prevented from dropping out of the carrier during the further progress of their passage. When approaching the end of their motion, as shown in Fig. 2, the free ends 27 of arms 20 encounter stops 28, which again separate the carrier 15 from supporting-frame 24, the latter by reason of its positive connection to arms 22 continuing to move. This separation takes place, however, in reversed order to that at the beginning at the other side, and the carrier 15 separates by being lifted upwardly. This leaves the centers, now coated, resting on their bases on supporting-frame 24, as shown at *a* in Fig. 2, from which position they are now ready to be discharged. It will be thus noticed that for part of the motion or passage during which the centers are coated carrier 15 and supporting-frame 24 form practically one connected structure and move positively with arms 22 on shaft 23, which supports them, but at the ends of this motion carrier-frame 15, by reason of its pivotal connection to arms 22, is capable of independent action, respectively inaction.

The reciprocatory rotation or rocking motion of shaft 23 is obtained by suitable mechanical means, in this case from a drive-shaft 29 by means of a grooved cam 31, in the groove of which a roller on a lever 32 travels. This latter connects by link 33 to a segmental rack 34, which meshes into a pinion 35 on shaft 23. In Fig. 3 the position of these parts is shown in conformity with the position of the parts as shown in Fig. 1. The cam rotating in the direction of the arrow will cause the roller on lever 32 to travel through part 36 of the groove, whereby lever 32 and rack 34 are depressed, as shown in dotted lines in Fig. 3, which causes partial rotation of shaft 23, whereby the parts connected to it are carried through the tank and to a position as shown in Fig. 2. The roller travels now through part 37 of the groove in cam 31, which part being on a center with the motion of said cam does not affect any of the parts from le-

ver 32 to shaft 23, which therefore all remain stationary. During this pause the discharge of the coated centers from support 24 is effected by means to be presently described.

5 After such discharge, the cam continuing to rotate, the roller on lever 32 travels through part 38 of the groove therein, which raises said lever and rack 34, the latter rotating pinion 35 in reverse order and brings the parts
10 back to their original position, as shown in Figs. 1 and 3.

It will be observed that shaft 29 makes one continuous rotation against a partial rotation of shaft 23, part of which is in one direction
15 and the other part back again to the same extent, with a rest interposed, however, before the return motion, all being obtained by means of a suitable mechanical movement like the cam described.

20 To prevent any vibration of the supporting-frame 24 when arrived in a position as shown in Fig. 2, a stop 30 is provided, which, reaching out into the path of projections from arms 22, forms a positive limit to the motion
25 toward that side. The discharge of the coated centers from support 24 is effected by means of the upper completely-rotating shaft 29 at the time when shaft 23 is at the rest between its divided motion and is by arms 39 on shaft
30 29, which act by pins 41 on them against pins 42 on push-rods 43, which latter at their outer ends carry a push-bar 44, extending across supporting-frame 24. This discharge or push device is carried in bearings 45 on arms 22,
35 and is therefore always in ready position with reference to supporting-frame 24, which is also carried by said arms.

Bearings 45 and push-rods 43 are substantially parallel to frame 24, so that the proper
40 action of push-bar 44 in the right direction with reference to frame 24 is readily obtained. Arms 39, by the means described, push bar 44 out against the coated centers, whereby the whole row of them is simultaneously
45 shoved off from supporting-frame 24, arriving in a position indicated by *b* in Figs. 2 and 4.

In due time pins 41 disengage from pins 42 on the push-rods as the rotation of arms 39
50 proceeds, and the whole discharge device is drawn in again by means of springs 46, connected with one end to arms 22 and with the other to laterally-projecting pins on push-rods 43. Suitable slots are provided in bear-
55 ings 45 to guide the pins projecting from push-rods 43 and permit their movement. While shaft 29, with the cam at its end and arms 39, makes a complete rotation to every operation of the machine, it does, however,
60 not rotate continuously, and there is a positive stop of all parts, when arrived in a position as shown in Fig. 1, to give sufficient time to supply centers to carrier 15. This stop may be obtained by any automatically-acting
65 clutch device, which in this case is constructed as follows: To shaft 29, where it reaches through the machine-frame at one

end, is rigidly connected an arm 47, in the outer end of which a sliding pin 48 is loosely carried. This pin is positively connected to
70 a lever 49, pivoted to the hub 51 of arm 47 on shaft 29 and therefore rotating with the latter.

A spring 60, between arm 47 and lever 49, by drawing them together, has a tendency to
75 push pin 48 on the latter outwardly to cause it to project beyond arm 47, which tendency is, however, counteracted for the time being by a trip-lever 52, against the end of which the free end of lever 49 rests and whereby it is
80 prevented from going through the movement which the tendency of the spring would otherwise impart to it. When this trip-lever is, however, lifted out from under the end of lever 49 by a treadle or automatic means act-
85 ing on a rod 53, then this lever 49 is not able to restrain pin 48 any longer, and the same is at once projected outwardly, as shown in dotted lines in Fig. 5. In this position it comes within the path of spring-catches 54,
90 carried by a disk or pulley 50, which is loosely mounted on shaft 29 and rotates continuously, being driven, preferably, by a belt from a suitable motor.

The nearest one of catches 54, which reaches
95 pin 48 first, engages therewith, the act of engagement being shown in dotted lines in Fig. 7, and inasmuch as said pin is carried by arm 47, rigidly connected to shaft 29, this latter shares at once into the rotation. Lever
100 49 is also carried around and duly encounters an inclined surface 55, upon which it rides and the projection of which increases until it equals the thickness of trip-lever 52, the end of which rests against the highest end of
105 this inclined plane and virtually forms a continuation thereof. This lever 52, whenever operated as described, is immediately returned to its original position, best by spring action, and is therefore in place by the time
110 lever 49 arrives, the end of which is carried onto it from the highest point of the incline 55. During the rotation of these parts the outer end of lever 49, because riding up an
115 incline 55, is, however, gradually forced outwardly, moving its other end with pin 48 correspondingly inwardly until this latter is completely withdrawn from the catch 54 which held it, thereby disconnecting again
120 arm 47 and shaft 29 from the continuously-rotating pulley 50. This disconnection, due to the complete withdrawal of pin 48, is so timed that it occurs at the moment when the free end of lever 49 has arrived upon the end of trip-lever 52, as above described. Thereby
125 rotation of shaft 23 is not only limited to one revolution, but the parts are also left in ready position to start the next rotation as soon as the carrier has been supplied with centers to be coated.

Where the start is not by a treadle, but by
130 automatic means, a projection 56 is provided on rod 53 and located in the path of an arm 57, which is continuously rotated by a shaft

58, and at certain intervals, by engaging with projection 56, pulls rod 53 down to lift trip-lever 52. These intervals are properly timed by the proportionate size of pulleys 59 and 61, whereby shaft 58 is rotated and embrace the time which the feeding of carrier 15, as well as one operation of the machine, requires. The rotation of shaft 58 is of course a continuous one, and for which purpose pulley 61 rotates with pulley 55, the two being connected. This describes the operation and parts of a machine which completely coats centers fed to it at one side and discharged by it finished at the other. Under certain contingencies, however, additional parts may become desirable or necessary. For this instance the point where the coated centers discharge, as shown at *b*, may be upon a carrier-belt 62, guided by rollers 63, and which may be of a length which gives the coating of the centers time to harden before they are finally discharged and received for packing. With every discharge from the machine this belt should of course sufficiently advance to make room for the row next arriving. This movement is by means of an eccentric 64 on shaft 29, which by operating a pawl 65 acts on a ratchet-wheel 66 on belt-roller 63.

In some cases, and especially during the hot season, the hardening of the coated centers is accelerated by passing them on carrier-belt 62 through a refrigerator or ice-box 67 of the kind as, for instance, shown in my Patent No. 537,522. In such case it is desirable to close the opening through which the centers pass every time after a row of them has entered, to prevent waste of the refrigerant. For such purpose a revolving door with four wings 68 is provided, which revolves in a casing 69, the ends of which are closed, and which is in front of and across the real opening 70 of the ice-box. This door rotates and advances to the extent of one wing with every advance of belt 62, such wing following immediately behind the entering row and closes the opening. These wings never stop at any intermediate positions, but only at such points where they completely close the opening, and as shown in Fig. 2. The movement of this door is similar to the one for carrier-belt 62 and is by an eccentric 71 on shaft 29, which, by operating a pawl 72, acts on a ratchet-wheel 73 and rotates a shaft 74, which supports and turns the wing-door. In the drawings the carrier-belt is, however, not shown as receiving the coated centers in the position they are shown in at *b* and in which they arrive immediately after their discharge from supporting-frame 24, the reason being the interposition of a special device which marks the coated centers before their discharge in a manner to give them the appearance of hand-made goods. In this latter mode of finishing, when a coated center is set down, the hand in releasing it is usually passed up and over the pointed top, which is

the last part remaining in contact with the ends of the fingers.

In letting go, more or less chocolate adhering to the operator's fingers is deposited at the point in form of a peculiar-shaped irregular or curly protuberance, the significance of which is well understood by the trade and manufacturers. In order to retain this peculiar shape or hand-mark and to destroy the machine-finished appearance, this special device is interposed and acts substantially like the fingers of an operator would in setting a coated center down and, in letting go of it, passing the fingers up and over the top thereof. It consists principally of a number of bulbs 75 of soft material, preferably soft rubber, and of which a row is suspended on a rod 76, their distance and position being such as to be right in the path of the coated centers should they be advanced beyond their position as shown at *b*. These bulbs as to size and shape resemble the end of a human finger and the whole row of them has a vertically-reciprocating movement for the purpose of being dipped into a trough 77, containing also softened chocolate, whereby they become covered with the latter the same as the fingers of a hand-operator would. In Figs. 1 and 9 they are shown in their lowest position and dipping into trough 77. In Fig. 2 they are shown elevated, and being then right in the path of the centers should they be advanced from position *b* to position *c* it is evident that a contact takes place and the centers, while passing below the bulbs, are subjected to the same action and receive the same effects as if the fingers of a hand-operator were passing over them. The bulbs are pivotally supported and are themselves so light and pliable that they readily yield to the advancing centers without upsetting or displacing them. This part of the operation is shown in dotted lines in Fig. 9, where a center is shown in an intermediate position while passing from *b* to *c* and while slipping past under one of the bulbs. For their advance, additional push-bars 78 and 79 are used, which move the centers, bar 78 from position *b* to position *c* past the bulbs and bar 79 from position *c* to position *d* on the carrier-belt, as shown in Figs. 2 and 4. Bar 79 is pivotally connected to bar 78 by links 81, and the two are connected by links 82 to push-rods 83, supported and guided in bearings 84. Pins project out laterally into the path of arms 86 on shaft 29, which, when the shaft rotates, shove the push-rods 83, with push-bars 78 and 79, out to the required extent. After released by arms 86 springs 87 return the push-bars to their original position. All the push-bars operate at the same time, the necessity of which is very evident and is for the purpose of making room for the rows of centers which follow those previously advanced. Thus bar 79 shoves the centers from *c* to *d* onto the carrier-belt and makes room for those coming

from *b* to *c*. At the same time bar 78 shoves the centers from *b* to *c* and makes room for those coming from *a* on the supporting-frame 24 of the machine and from which they are discharged by bar 44. As will be seen, the centers advanced from *a* to *b* and from *b* to *c* are now also in ready position to be advanced at the next operation of the push-bars, so that for every discharge by bar 44 from the machine one row of centers passes onto the carrier-belt with one row in an intermediate position. On their return it is necessary that push-bars 78 and 79 clear the centers, occupying positions at *c* and *b*. For such purpose these bars are laterally extended to cause their ends to move in the path of pawls 88 and 89, below which they pass on their outstroke, the pawls yielding upwardly. On the return stroke the pawls cannot yield and the bars slide up and over them, passing thereby above the centers and drop into position back of them. This may be seen in dotted lines in Fig. 9. On their passage from supporting-frame 24 to the carrier-belt the centers move, preferably, over a drainage-grate to permit them to become freed of surplus chocolate. In this case wire grates 91 and 92 are provided for the purpose, of which 91 is loosely supported at one side and hinged at its other side 93, the end at the loosely-supported side being extended beyond the machine-frame, as shown at 94. A knocker-arm 95, operated by a toothed wheel 96, is adapted to act against this extended end 94 of grate 91, whereby this latter is vibrated in order to free it from the chocolate which drains from the centers. This vibration is interrupted at times when the push-bars operate to prevent interference with them, and which interruption is obtained by a blank space in the face of wheel 96. This latter may be driven in any suitable manner. In this case it is by chain 97 and sprocket-wheel 98 on shaft 29.

In order to permit bulbs 75 to dip into trough 77, part of grate 91 is adapted to yield downwardly, such part being in the form of a flap 99, hinged to grate 91 and normally held up by a spring 101. When the dipping takes place, which is at a time when the push-bars are at rest, a projecting pin 102, carried by the frame 103, which supports rod 76 with the bulbs, comes in contact with flap 99 and opens the same in advance of the bulbs, thereby permitting them to dip into the trough below. On the up movement of bulbs 75 and pin 102 flap 99 follows, being raised up by spring 101. All parts which support the centers, after dipped and coated—such as supporting-frame 24, grate 91, flap 99, and grate 92—are of open wirework to permit all surplus chocolate draining from the centers to drip back into pan 17. Part of this drainage enters trough 77 and is usually sufficient to furnish the chocolate needed to supply bulbs 75. The reciprocating movement of frame 103, which carries them, is obtained by supporting this frame on rods 104, which are

guided in the ends of the machine-frame and acted on at their lower ends by cams 105, which raises all these parts at certain times and permits them again to drop, at which time the bulbs dip into trough 77. This dropping movement may be by gravity only, or may be aided by springs 106.

Cams 105 are secured to a shaft 107, which is readily rotated in any suitable manner from other parts of the machine. In this case it is provided with a sprocket-wheel 108 and connected by a chain 109 to a similar wheel 110 on shaft 29.

Chocolate when softened is a rather difficult material to work with, owing to the effect changes of temperature have upon it. In cold weather it chills readily, while in hot weather it runs too free.

Perfectly-coated drops can only be turned out with the chocolate at proper consistency, and this latter can only be attained by a proper temperature, which, however, must also be maintained without any changes. This effect of the temperature applies not so much to the chocolate contained in pan 17 as to the parts of the machine which support the centers and otherwise come in contact with them and the air which surrounds the whole. Therefore, to satisfy this requirement, the machine is contained in an inclosure or cabinet 111, wherein, by steam-pipes 112 or other suitable means, the temperature of the air which surrounds all parts may be maintained at even stage. This permits the operator to feed the machine without being exposed to a high temperature, which in winter should be about 110° Fahrenheit. The centers are supplied through a sliding window, and a hinged flap 114 is provided, which permits removal of pan 17 whenever necessary. Formation of settlements is prevented by the carrier-frame 15, which at every operation of the machine passes over the bottom of the pan, which bottom is shaped to conform to the arc on which said carrier travels and whereby the mass is constantly stirred and kept in agitation.

In Fig. 2 an automatic feed device is shown which consists, substantially, of a flap 115, hinged near the front edge of the machine and provided with grooves adapted to receive the centers. These grooves are arranged at right angles to the carrier-frame and so placed and spaced that when said flap is elevated to an inclined position all the centers resting in the grooves on it will slide at once in rings 18 of the carrier-frame. This device gives the operator time to place the centers while the machine is in operation and permits them to be fed all at once into the carrier-frame.

In a recapitulation of the different functions of the machine as they follow each other the operation of the machine may be described as follows: Centers 16 having been supplied to holders 18 of the carrier-frame 15, either directly by hand or by the feed device 115, the machine is started by the release

of trip-lever 52 by means of arm 57 acting on rod 53, connected to said lever. Pin 48, carried in arm 47, fast on shaft 29, is thereby released and permitted to be engaged by 5 spring-catches 54, carried around by a positively-driven and continuously-rotating pulley 50. Drive-shaft 29 is thereby started to rotate, but immediately stopped again, when moved to the extent of one revolution, by 10 reason of lever 49 riding up on inclined surface 55, whereby pin 48 is withdrawn from catches 54 and the shaft 29 is disconnected from the driving-pulley. During this rotation of shaft 29 shaft 23 is also operated by 15 a suitable mechanical movement connecting the two. In this case a cam 31 is used, which acts on a segmental rack and pinion. The operation of shaft 23 by reason of this particular movement is such as to impart to it 20 a rocking motion—that is, a partial rotation first in one direction and a similar rotation back again to the starting-point, with a rest between. During this first partial rotation the centers supported on carrier-frame 15, 25 connected by means of arms 22 to shaft 23, are carried through the softened chocolate contained in pan 17, thereby becoming coated. During this passage through the pan the centers are held in their position on carrier 15 30 by a supporting-frame 24. When arrived at the other side, as shown in Fig. 2, the parts supporting the centers, after assuming positions which permit their discharge from the machine, come to a temporary stop. During 35 this intermission the coated centers are discharged by a push-bar 44, carried on push-rods 43 and shoved out by pins 41 on arms 39, acting against pins 42 on said rods. Arms 39 are rotated by shaft 29, which does not 40 stop when shaft 23 stops, thereby giving these arms, set back sufficiently so as not to interfere while the centers are being coated, time to catch up again with the parts on shaft 23, against which they then act. After 45 this discharge the parts which carried the centers through pan 17 are returned again to their original position, as shown in Fig. 1, by which time shaft 29 has also completed its revolution and all parts of the machine 50 have come to a general stop to receive another batch of centers to be coated.

The coated centers are discharged onto a carrier-belt 62, which moves them into an ice-box to harden the coating. This carrier-belt 55 as well as a door on the refrigerator which opens before and closes after the entrance of centers are operated at the same time both from shaft 29 and at a time immediately following the discharge of centers from the machine. Before reaching the carrier-belt the 60 coated centers may be subjected to the action of an attachment which imparts to them certain traces and marks giving the appearance of handwork. This attachment when used 65 is interposed between the discharge end of the machine and the carrier-belt, whereby the centers while passing from one to the other

are subjected to its action. This action is substantially by causing certain traces to show on the not-yet-hardened coating of the 70 centers while they pass such attachment, as well as by depositing also additional chocolate on them in irregular shape and in excess of the general coating. The details of this attachment, as well as those of additional push- 75 bars 78 and 79, made necessary by it and operated from shaft 29 simultaneously with the other discharge device, have been sufficiently described before.

Having described my invention, I claim as 80 new—

1. In a coating-machine for the purpose described, the combination of a vessel to contain softened chocolate, a carrier apparatus 85 pivotally supported above it and adapted to receive conical centers which are supported points downward, means whereby it is rotated in a manner to pass the centers through the vessel, the rotation being of an extent to reverse the position of the centers, so that on 90 delivery they drop out base first, a discharge device which moves the coated centers from the carrier apparatus after release therefrom and a drainage-grate which receives the centers and permits the surplus coating to drain 95 from them.

2. In a coating-machine for the purpose described, the combination of a vessel to contain softened chocolate, a carrier apparatus 100 pivotally supported midway above it and adapted to receive conical centers which are inserted points downward, means which impart an oscillating motion to this carrier apparatus, which motion is through the afore- 105 said vessel from one side thereof to the other at which sides the motion terminates and at which termini the centers are respectively received and discharged, so that they become coated during their passage, the path of the motion being entirely within the limits of the 110 vessel and of an extent to reverse the position of the centers, so that on discharge they drop out base first.

3. In a coating-machine for the purpose described, the combination of a vessel to contain 115 softened chocolate, a carrier apparatus pivotally supported above it and adapted to receive centers, means whereby it is rotated in a manner to pass through aforesaid vessel to cause the centers to become coated, a device 120 which marks them in a manner to impart the appearance of coating by hand, a discharge device which moves the coated centers from the carrier apparatus and past below the attachment last mentioned to subject them to 125 the action of the latter and general machine elements for operating all parts and cause them to perform their functions automatically at the proper time.

4. In a coating-machine for the purpose 130 described, the combination of a vessel to contain softened chocolate, a carrier apparatus pivotally supported above it and adapted to receive centers, means whereby it is rotated

in a manner to pass through aforesaid vessel to cause the centers to become coated, a carrier-belt which receives the coated centers from the carrier apparatus, a device which marks them in a manner to impart the appearance of coating by hand interposed between the two, a discharge device which moves the coated centers from the carrier apparatus onto the carrier-belt and also past below the attachment last mentioned to subject them to the action of the latter and general machine elements for operating all parts and cause them to perform their functions automatically at the proper time.

5. In a coating-machine for the purpose described, the combination of a vessel to contain softened chocolate, a carrier apparatus pivotally supported above it and adapted to receive centers, means whereby it is rotated in a manner to pass through the aforesaid vessel to cause the centers to become coated, a discharge device which moves the coated centers from the carrier apparatus, a cabinet which so closely surrounds the whole machine as to permit access to the latter through openings in its walls, an opening in the front wall of the cabinet so located with reference to the carrier apparatus that when the latter is at rest, it stops within convenient position with reference to said opening to permit feeding from the outside and means to supply heat to the interior of the cabinet.

6. In a coating-machine for the purpose described the combination of a pan to contain softened chocolate, a carrier apparatus pivotally supported above it, means which impart to it an oscillating motion whereby it is caused to move through the aforesaid pan, such carrier apparatus consisting substantially of two members pivotally connected and with a normal tendency to approach each other, to hold the centers between them while passing through the pan and adapted to separate at the termini of their motion to admit the centers at the beginning and to release them at the end of the motion and a discharge device whereby the coated centers are removed from the carrier apparatus.

7. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a supporting-frame 24 having a reciprocatory motion through the pan, a carrier-frame 15 pivotally connected by arms 20, a spring whereby frame 15 is normally held against frame 24 to hold the centers between them while passing through the pan, stops which act on the extended arms 20 in a manner to separate the frames to admit and release the centers and a discharge device to remove the centers from between the frames after coated.

8. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a supporting-frame 24, a rock-shaft 23 by which it is carried and reciprocated, a carrier-frame 15 pivotally con-

nected by arms 20 so as to share in the reciprocatory motion of frame 24, a spring whereby frame 15 is normally held against frame 24 to hold the centers between them while passing through the pan, stops which act on the extended arms 20 in a manner to separate the frames to admit and release the centers and a discharge device to remove the centers from between the frames after coated.

9. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a completely-rotating drive-shaft 29 and a rock-shaft 23, both supported above the pan, a mechanical connection between the two whereby shaft 23 receives a rotatory reciprocating motion from shaft 29, first in one direction and back again through the pan with a rest between, arms 22 connected to shaft 23, a supporting-frame 24 carried by these arms, a carrier-frame 15 supported on arms 20 whereby it is pivotally connected to arms 22, a spring whereby carrier-frame 15 is normally held toward frame 24 while passing through the pan, stops 26 and 28 whereby the two frames are drawn apart at the termini of their motion and when above the pan and a discharge device operating during the interval between the two movements comprising the reciprocating motion of shaft 23.

10. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a completely-rotating drive-shaft 29 and a rock-shaft 23, both supported above the pan, a mechanical connection between the two whereby shaft 23 receives a rotatory reciprocating motion from shaft 29, first in one direction and back again through the pan with a rest between, arms 22 connected to shaft 23, a supporting-frame 24 carried by these arms, a carrier-frame 15 supported on arms 20 whereby it is pivotally connected to arms 22, a spring whereby carrier-frame 15 is normally held toward frame 24 while passing through the pan, stops 26 and 28 whereby the two frames are drawn apart at the termini of their motion and when above the pan, a push-bar 44 carried by push-rods 43, bearings 45 on arms 22 in which rods 43 are supported, arms 39 on shaft 29 which by acting on push-rods 43 cause bar 44 to be moved out for the purpose of discharging the coated centers from the parts whereby they have been carried through the pan and a spring to return the push-bar to its normal position.

11. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a supporting-frame 24 having a reciprocating motion through the pan, a carrier-frame pivotally connected by arms 20, a spring whereby frame 15 is normally held against frame 24 to hold the centers between them while passing through the pan, stops which act on the extended arms 20 in a manner to separate the frames to admit and release the centers, a carrier-belt which

receives the centers after being coated and a discharge device which moves them from between the frames onto said belt.

12. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a completely-rotating drive-shaft 29 and a rock-shaft 23, both supported above the pan, a mechanical connection between the two, whereby shaft 23 receives a rotatory reciprocating motion from shaft 29, first in one direction and back again through the pan with a rest between, arms 22 connected to shaft 23, a supporting-frame 24 carried by these arms, a carrier-frame 15 supported on arms 20 whereby it is pivotally connected to arms 22, a spring whereby carrier-frame 15 is normally held toward frame 24 while passing through the pan, stops 26 and 28 whereby the two frames are drawn apart at the termini of their motion and when above the pan, a carrier-belt which receives the centers after being coated, a discharge device which moves them from between the frames onto said belt and mechanical connection from shaft 29 whereby the belt is intermittingly operated.

13. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a supporting-frame 24 having a reciprocatory motion through the pan, a carrier-frame 15 pivotally connected by arms 20, a spring whereby frame 15 is normally held against frame 24 to hold the centers between them while passing through the pan, stops which act on the extended arms 20 in a manner to separate the frames to admit and release the centers, a discharge device to remove the centers from between the frames after being coated, and an attachment below which the coated centers pass after their discharge from the machine for the purpose of receiving the appearance of handwork.

14. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a completely-rotating drive-shaft 29 and a rock-shaft 23, both supported above the pan, a mechanical connection between the two, whereby shaft 23 receives a rotatory reciprocating motion from shaft 29, first in one direction and back again through the pan with a rest between, arms 22 connected to shaft 23, a supporting-frame 24 carried by these arms, a carrier-frame 15 supported on arms 20 whereby it is pivotally connected to arms 22, a spring whereby carrier-frame 15 is normally held toward frame 24, while passing through the pan, stops 26 and 28 whereby the two frames are drawn apart at the termini of their motion and when above the pan, a discharge device operating during the interval between the two movements comprising the reciprocating motion of shaft 23, an attachment below which the coated centers pass after their discharge from the machine for the purpose of receiving the appearance of handwork and mechanical con-

nection from shaft 29 whereby said attachment is operated.

15. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a carrying apparatus adapted to receive and pass centers through the latter, a discharge device which moves the coated centers from the carrying apparatus and a series of bulbs 75 yieldingly supported in the path of the discharged centers which pass below bulbs 75 for the purpose described.

16. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a carrying apparatus adapted to receive and pass centers through the latter, a suitable support or grate so located as to be even with the carrying apparatus when the latter arrives in the position from which it releases the coated centers, a discharge device which moves the coated centers from the carrying apparatus onto said grate, an additional device operating at the same time with the discharge device and whereby the centers previously arrived on the grate are advanced across the same, an adjustable frame 103 supported above the grate and reaching across the same, a series of bulbs 75 pivotally supported thereon and so located as to be in the path of the centers when they are advanced across the grate, a trough 77 below the latter to supply chocolate to bulbs 75 which latter are adapted to enter said trough, a flap 99 forming a part of the grate, but adapted to yield to the descending frame which supports the bulbs, thereby admitting the latter to dip into trough 77 and mechanism whereby frame 103 and the bulbs supported thereon are reciprocated in a manner to enter trough 77 and to be elevated at the proper time to bring bulbs 75 within the path of the centers when they pass across the grate.

17. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a carrying apparatus adapted to receive and pass centers through the latter, a grate 91 loosely supported at one side and so located as to be even with the carrying apparatus when the latter arrives in the position from which it releases the coated centers, a discharge device which moves the coated centers from the carrying apparatus onto said grate and a shaking mechanism or knocker-arm 95 whereby said grate is vibrated for the purpose described.

18. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a completely-rotating drive-shaft 29 and a rock-shaft 23, both supported above the pan, a carrying apparatus adapted to receive and release centers, connected to the rock-shaft by which it is reciprocated through the pan, passing from one side therein to the other and back again, a discharge mechanism operated by the drive-shaft, a cam 31 on the latter, a lever 32 op-

erated by the cam, a segmental rack 34 operated by lever 32, a pinion 35 on the rock-shaft and in mesh with rack 34 and by means of which rock-shaft 23 is operated from shaft 29, the action by the formation of cam 31 being such as to cause rock-shaft 23 and the parts operated by it, to remain inactive while the discharge device operated by shaft 29 performs its function.

19. In a machine for the purpose described, the combination of a pan to contain softened chocolate, a completely-rotating drive-shaft 29 and a rock-shaft 23, both supported above the pan, suitable mechanical connection between the two shafts, whereby the latter shaft is actuated from the drive-shaft, a carrying apparatus adapted to receive and release centers, connected to the rock-shaft by which it is reciprocated through the pan, passing from one side therein to the other and back again, a discharge mechanism operated by the drive-shaft, a carrier-belt which receives the discharged centers, supported on rollers 63, a ratchet-wheel 66 carried on one of the latter, an eccentric 64 on shaft 29 and a pawl 65 operated by it to rotate the ratchet-wheel for the purpose described.

20. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a completely-rotating drive-shaft 29 and a rock-shaft 23, both supported above the pan, suitable mechanical connection between the two shafts whereby the latter shaft is actuated from the drive-shaft, a carrying apparatus, adapted to receive and release centers, connected to the rock-shaft by which it is reciprocated through the pan, passing from one side therein to the other and back again, a discharge mechanism operated by the drive-shaft, a carrier-belt which receives the discharged centers, a refrigerating-chamber into which they are carried by the belt, a casing 69 across the front of the refrigerating-chamber, a wing door carried on a shaft 74 which is supported in the ends of casing 69, a ratchet-wheel 73 carried at one end of shaft 74, an eccentric 71 on shaft 29 and a pawl 72 operated by it for the purpose of rotating the wing door.

21. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a completely-rotating drive-shaft 29, a rock-shaft 23, both supported above the pan, suitable mechanical connection between the two shafts whereby the latter shaft is actuated from the drive-shaft, a carrying apparatus adapted to receive and release centers, connected to the rock-shaft by which it is reciprocated through the pan, passing from one side therein to the other and back again, a discharge mechanism operated by the drive-shaft, gratings which receive the centers discharged from the carrying apparatus, an attachment consisting substantially of a row of bulbs 75 supported across the gratings, to act on the centers for the purpose described and while they pass over such

grates, a trough 77 below the latter which supplies the bulbs, mechanism whereby these bulbs are reciprocated to enter trough 77, a flap 99, forming part of the gratings and adapted to yield for the purpose of admitting the bulbs to the trough, and push-bars operating in a manner to move the centers across the gratings at the time when the bulbs have arrived at proper height above the latter.

22. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a carrying apparatus adapted to pass centers through the latter and provided with rings 18 within which the centers are supported, a feed device consisting substantially of a hinged flap 115 provided with grooves arranged and distanced with reference to rings 18 in a manner to cause the centers to drop into the latter when said flap is elevated and a discharge device which moves the coated centers from the carrying apparatus.

23. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a completely-rotating drive-shaft 29 and a rock-shaft 23, both supported above the pan, suitable mechanical connection between the two shafts whereby the latter shaft is actuated from the drive-shaft, a carrying apparatus adapted to receive and release centers, connected to the rock-shaft by which it is reciprocated through the pan, passing from one side therein to the other and back again, a discharge mechanism operated by the drive-shaft, a continuously-rotating pulley 50 and a start-and-stop mechanism whereby shaft 29 may be temporarily engaged and held connected with pulley 50 to the extent of one complete revolution.

24. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a completely-rotating drive-shaft 29 and a rock-shaft 23, both supported above the pan, suitable mechanical connection between the two shafts whereby the latter shaft is actuated from the drive-shaft, a carrying apparatus adapted to receive and release centers, connected to the rock-shaft by which it is reciprocated through the pan, passing from one side therein to the other and back again, a discharge mechanism operated by the drive-shaft, a continuously-rotating pulley 50 having spring-catches 54, an arm 47 on shaft 29 carrying an adjustable pin 48, adapted to be projected into the path of spring-catches 54, a lever 49 whereby this pin is normally held out of engagement with spring-catches 54, a trip-lever 52 controlling the action of lever 49, an inclined plane 55 whereby this latter is enabled to terminate the engagement between the parts on shaft 29 and pulley 50 and means to operate the trip-lever.

25. In a coating-machine for the purpose described, the combination of the pivotally-supported carrier apparatus adapted to hold centers, a pan below it to contain softened chocolate, mechanism whereby the carrier ap-

paratus is caused to pass through this pan, from one side to the other and back again, the bottom of this pan being shaped to conform to the shape of the arc through which the free, swinging end of the carrier apparatus travels and reaching close to such end prevents formation of sediment, and a discharge device to move the coated centers from the machine after passing through the pan.

26. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a completely-rotating drive-shaft 29, a rock-shaft 23, both supported above the pan, suitable mechanical connection between the two shafts whereby the latter shaft is actuated from the drive-shaft, a carrying apparatus adapted to receive and release centers, connected to the rock-shaft by which it is reciprocated through the pan, passing from one side therein to the other and back again, a discharge mechanism which delivers the centers from the carrying apparatus, grates which receive the centers from the latter and a reciprocatory push-bar operated from the drive-shaft to advance the previously-delivered centers to make room for the ones following.

27. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a completely-rotating drive-shaft 29 and a rock-shaft 23, both supported above the pan, suitable mechanical connection between the two shafts whereby the latter shaft is actuated from the drive-shaft, a carrying apparatus adapted to receive and release centers, connected to the rock-shaft by which it is reciprocated through the pan, passing from one side therein to the other and back again, a discharge mechanism which delivers the centers from the carrying apparatus, grates which receive the centers from the latter, push-bars 78 and 79 loosely joined by links and loosely connected to push-rods 83, arms 86 on drive-shaft 29 which by acting on rods 83 operate the push-bars to successively advance the centers across the grates, springs whereby the push-bars are returned and means like pawls 88 and 89 whereby the returning push-bars are lifted to clear the rows of centers in intermediate positions.

28. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a completely-rotating drive-shaft 29 and a rock-shaft 23, both supported above the pan, suitable mechanical connection between the two shafts whereby the latter shaft is actuated from the drive-shaft, a carrying apparatus adapted to receive and release centers, connected to the rock-shaft by which it is reciprocated through the pan, passing from one side therein to the other and back again, a support at even height with the carrying apparatus when the same has arrived at the end of its motion after having passed through the pan, push-bars 44, 78 and 79 having a reciprocatory motion and being operated from the drive-shaft,

whereby the coated centers are discharged from the carrying apparatus and delivered onto and successively advanced on the support above mentioned.

29. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a completely-rotating drive-shaft 29 and a rock-shaft 23, both supported above the pan, suitable mechanical connection between the two shafts whereby the latter shaft is actuated from the drive-shaft, a carrying apparatus adapted to receive and release centers, connected to the rock-shaft by which it is reciprocated through the pan, passing from one side therein to the other and back again, a support like a grate and a carrier-belt substantially in line with the carrying apparatus when the same is in position ready to deliver, a push-bar 44 to discharge the coated centers onto the grate, a push-bar 78 to move them across the latter and a push-bar 79 to move them onto the carrier-belt, arms on shaft 29 whereby all these push-bars are operated and springs to return them to their normal positions.

30. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a completely-rotating drive-shaft 29 and a rock-shaft 23, both supported above the pan, suitable mechanical connection between the two shafts whereby the latter shaft is actuated from the drive-shaft, a carrying apparatus adapted to receive and release centers, connected to the rock-shaft by which it is reciprocated through the pan, passing from one side therein to the other and back again, a discharge mechanism operated by the drive-shaft, a continuously-rotating pulley 50, a start-and-stop mechanism whereby shaft 29 may be temporarily engaged and held connected with pulley 50 to the extent of one complete revolution, a trip-lever 52 whereby the action of this start-and-stop mechanism is controlled, a rod 53 on the latter and a continuously-rotating arm 57, which by acting on rod 53 operates the trip-lever at certain intervals.

31. In a coating-machine for the purpose described, the combination of a pan to contain softened chocolate, a completely-rotating drive-shaft 29 and a rock-shaft 23, both supported above the pan, suitable mechanical connection between the two shafts whereby the latter shaft is actuated, which shaft is provided with a carrier device for passing the centers to be coated through the pan and automatically-acting mechanism whereby shaft 29 may be temporarily engaged and held connected with pulley 50 for the purpose described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

HERMAN W. BECHT.

Witnesses:

C. SPENGEL,
ARTHUR KLINE.