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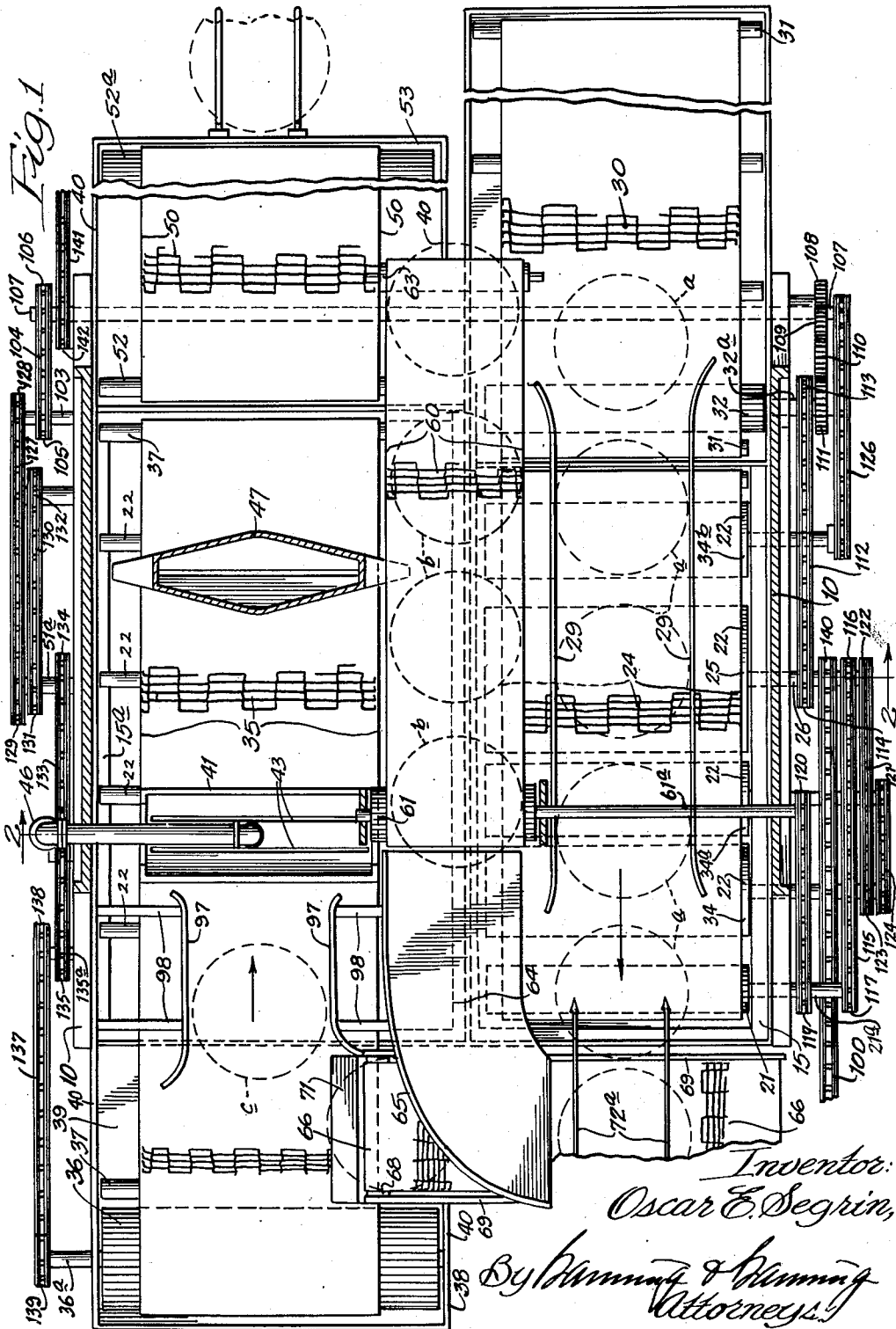
O. E. SEGRIN

2,260,686

COATING MACHINE

Filed Feb. 8, 1940

5 Sheets-Sheet 1



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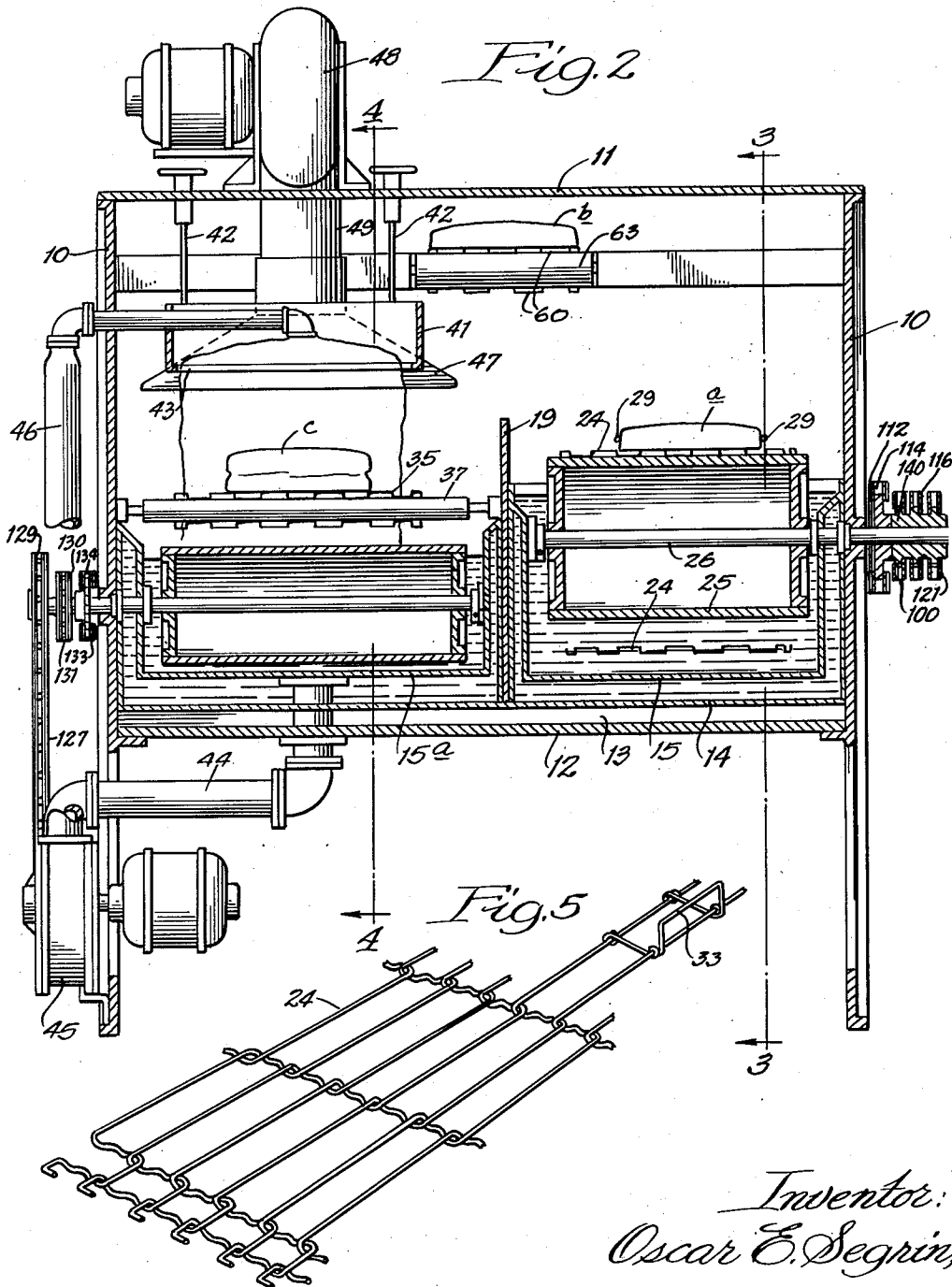
O. E. SEGRIN

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COATING MACHINE

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5 Sheets-Sheet 2



Inventor:
Oscar E. Segrin,

By Manning & Manning
Attorneys.

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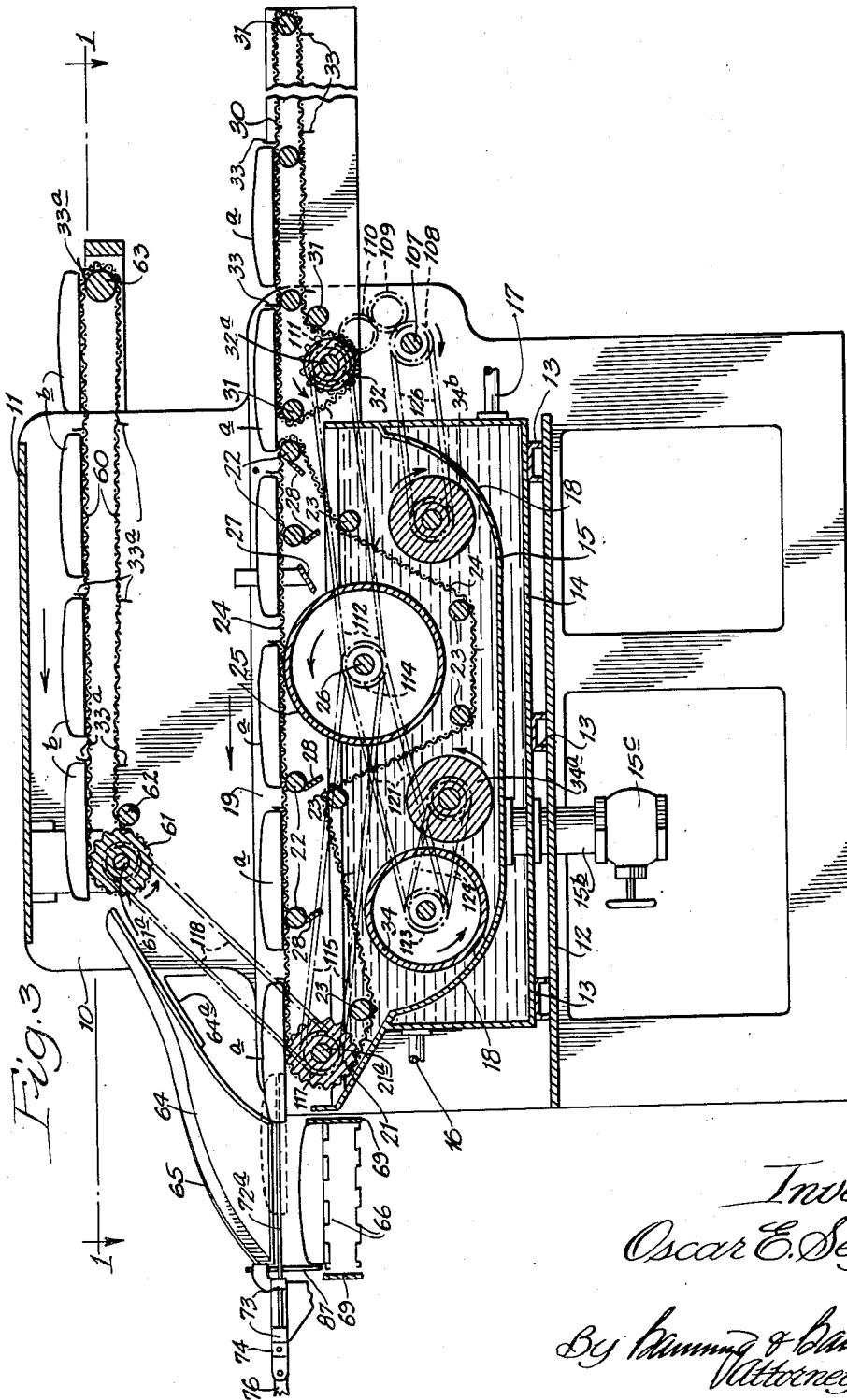
O. E. SEGRIN

2,260,686

COATING MACHINE

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5 Sheets-Sheet 3



Inventor:
Oscar E. Segrin,

By Hanning & Hanning
Attorneys.

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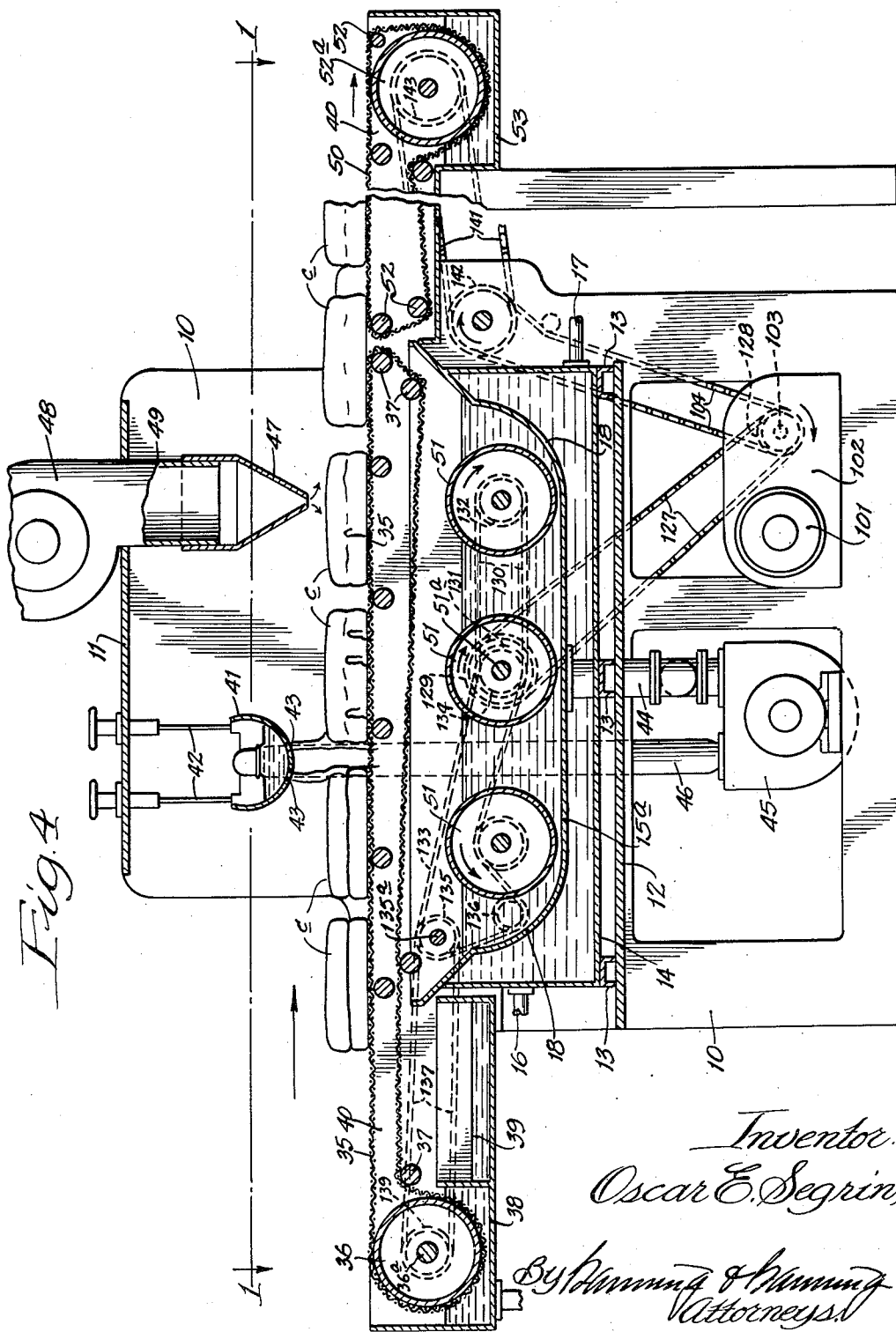
O. E. SEGRIN

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COATING MACHINE

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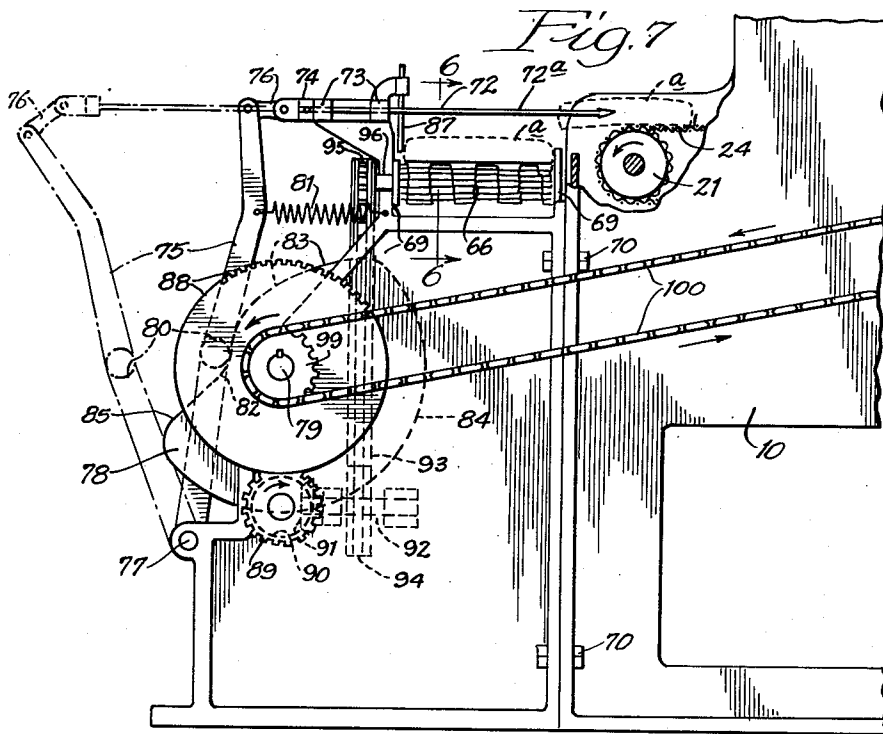
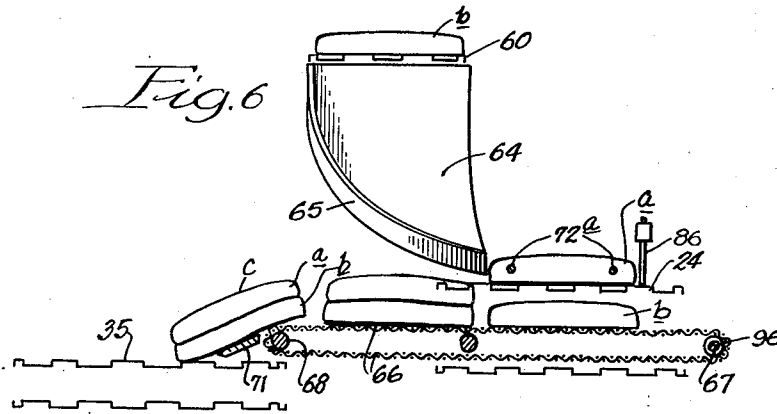
O. E. SEGRIN

2,260,686

COATING MACHINE

Filed Feb. 8, 1940

5 Sheets-Sheet 5



Inventor:
Oscar E. Segrin,
By Hamming & Hamming
Attorneys.

UNITED STATES PATENT OFFICE

2,260,686

COATING MACHINE

Oscar E. Segrin, Chicago, Ill., assignor to Savage Bros. Company, Chicago, Ill., a corporation of Illinois

Application February 8, 1940, Serial No. 317,915

12 Claims. (Cl. 107—1)

This invention relates to a coating machine, and more particularly to that character of machine which is used to apply a coating, such as an icing, frosting, etc., to edible articles, such as cakes, cookies, confections, and various other bakery goods. The several coating operations hereinafter described are performed mechanically, without the aid of human hands, so that sanitary conditions are perfectly maintained.

One of the objects of the present invention is to provide a novel coating machine capable of applying different types of coating material to the edible articles treated by the machine; another object is to provide a coating machine for applying icing or other filling material between the layers of layer cakes, or the "sandwich type" of cookies or confections; and another object is to provide a coating machine having means for applying a coating to the under side of an article, then superposing the under-coated article upon a second article which is uncoated, and finally coating the entire top and sides of the duplex article, these operations being carried out in continuous succession.

Other objects and advantages will appear in the course of this specification, and with all of said objects and advantages in view, this invention consists in the several novel features of construction, arrangement and combination of parts hereinafter fully set forth and claimed.

One embodiment of the invention is illustrated in the drawings which accompany this specification, in which—

Figure 1 is a view, partly in plan and partly in horizontal section, of a coating machine forming the subject matter of this specification, the line of section being indicated at I—I in Figs. 3 and 4;

Fig. 2 is a vertical cross section taken on line 2—2 of Fig. 1;

Fig. 3 is a vertical longitudinal section taken on line 3—3 of Fig. 2;

Fig. 4 is a vertical longitudinal section taken on line 4—4 of Fig. 2;

Fig. 5 is a perspective view of a fragment of a conveyor which is employed for conveying the articles to be coated through the machine;

Fig. 6 is a fragmental vertical cross section taken on line 6—6 of Fig. 7; and

Fig. 7 is a side elevation of transfer mechanism forming a part of the machine and showing the same attached to a fragment of the frame of the machine.

Briefly, the coating machine embodies mechanism including a link conveyor arranged to re-

ceive edible articles and to convey them past a coating applicator, such as a roll which is partially submerged in the coating material, the roll acting to apply the material through the conveyor openings upon the under side of the articles. Associated with this mechanism is a second conveyor for conveying edible articles underneath a coating applicator, from which coating material is applied to the top and sides of the articles.

Either of the two coating mechanisms mentioned may be used independently of the other, but as a preference means are provided for feeding uncoated articles to a station where the under-coated articles are placed upon the uncoated ones, to form layer cakes or cookies of the "sandwich type." These plural layer articles may be manually transferred from the first named coating mechanism to the second one, but as a preference transfer mechanism is provided for automatically transferring the plural layer articles from one coating mechanism to the other to receive a coating deposit upon the top and sides of the plural layer articles.

Referring now to the accompanying drawings, which are rather schematic and not intended as working drawings of the machine, the reference character 10 designates two upright side members of the frame of a machine, connected at their upper ends by a top member 11, and connected intermediately of their upper and lower ends by a horizontal cross member 12.

Supported upon the cross member 12 as by channel members 13 (see Figs. 3 and 4) is a tank 14 within which is a reservoir 15 that contains the coating material used. As is well understood, the coating material comprises icing, frosting or filling material of various well known types. The space between the tank and reservoir provides a hot water jacket for containing a body of hot water or other heating medium, whereby the coating material may be kept at a suitable temperature for properly applying it to the articles.

A hot water supply pipe 16 conducts the water to the hot water jacket, and a discharge pipe 17 conducts the water away therefrom. Desirably the end portions of the bottom wall of the reservoir 15 are curved upwards as at 18, so as to avoid any sharp corners in the ends of the reservoir.

If desired, only one reservoir may be provided, but in situations where it is desired to apply different types of coating material to the articles, a lengthwise extending partition 19 (see Fig. 2)

may be provided in the tank 14, and two separate reservoirs 15, 15^a may be provided, each adapted to contain any desired coating material.

Trained around rollers 21, 22, disposed above the top of the reservoir and around rollers 23 located within the reservoir, is an endless conveyor 24, of open work construction and desirably composed of interlinked rods as illustrated in Fig. 5. The rollers 21, 22, serve to maintain the upper part of the conveyor in a horizontal plane, and the other rollers are so arranged as to cause the conveyor to dip into the coating material and pass around the hereinafter described applicator. The roller 21 is corrugated and provides the driving means for the conveyor and moves it in the direction of the adjacent arrow.

An applicator is provided in the reservoir 15 for applying coating material through the interstices of the conveyor to the under sides of the edible articles as they are carried past the applicator. In its preferred form, the applicator comprises a hollow roller 25 mounted upon a shaft 26 journaled in bearings carried by the side walls of the reservoir 15 and driven by suitable driving means to rotate in the direction of the arrow (see Fig. 3), but at a greater rate of speed than the speed of travel of the conveyor 24. The roller 25 is located in close proximity to the under side of the upper part of the conveyor 24, and during its rotation it carries coating material upon its cylindrical surface and applies it through the interstices of the conveyor 21 upon the under sides of the articles conveyed thereby.

Desirably a baffle or scraper 27 is provided adjacent the roller 25, as shown in Fig. 3, which baffle serves to remove excess coating material from the roller and also serves to prevent the roller from throwing the coating material into the space above the tank. The baffle may be supported from some stationary portion of the machine. Suitable scrapers 28 are provided adjacent the rolls 22 to remove any coating material that may adhere thereto.

Above the conveyor 24, guide rails 29 (see Fig. 1), supported from the framework of the machine, are provided to guide the edible articles from the receiving station of the machine to a transfer station.

Desirably an auxiliary conveyor 30 (see Figs. 1 and 3) is provided for feeding the articles to the conveyor 24. The conveyor 30 is trained around rollers 31, 32, with its upper part in horizontal alignment with the upper part of the conveyor 24. The rollers 31 are rotatably mounted in side frame members 10^a which project beyond the main frame of the machine. Both conveyors may be provided with equidistantly spaced flexible or yieldable spacers 33, which act as guides against which the edible articles are placed so as to space them equidistantly, the purpose of which will be hereinafter fully set forth.

In the reservoir 15 are rotating drum-like stirrers 34, 34^a, 34^b, which serve to agitate the coating material and prevent any portion thereof from adhering to the walls of the reservoir. This is desirable on account of the heat which is conducted from the hot water jacket to the walls of the reservoir. The drum-like stirrers are mounted upon shafts journaled in bearings mounted on the side walls of the reservoir and are driven by driving mechanism to be hereinafter described. At one side of the coating mechanism described is a mechanism for applying coating to the top and sides of edible articles and which

may be used in conjunction with the coating mechanism previously described.

Referring now to Figs. 1, 2 and 4, a conveyor 35 will be seen, which is trained over rollers 36, 37, rotatably mounted in bearings carried by adjacent frame members of the machine. The conveyor may be of the same type as that heretofore described, so as to permit any excess filling material to fall through the interstices of the conveyor. The corrugated driving roller 38 for the conveyor 35 is located a slight distance beyond one end of the main frame of the machine, and is partially submerged in a tank 39, containing water, whereby any coating material adhering to the conveyor 35 may be washed therefrom when passing through the bath in the tank.

A receptacle or other container 39, carried by the frame members 40, serves to catch any drippings from the conveyor 35, while passing thereabove. This conveyor travels over the reservoir 15^a, above which an applicator for applying the coating material to the top and sides of the articles is located. As shown, the means for applying the coating material to the top and sides of the articles comprises a trough-like applicator 41, adjustably supported from the top member 11 of the frame by rods 42. The applicator 41 contains a supply of the coating material, and in its lower edge are longitudinally extending slots 43 through which the material may be discharged in the form of sheets upon the articles as they are being conveyed underneath the applicator. For replenishing the supply in the applicator as it is being discharged therefrom, the machine is provided with piping 44 leading from the bottom reservoir 15^a to the inlet side of a motor driven pump 45, and with piping 46 leading from the discharge side of said pump to the applicator 41. The pump and its motor may be mounted upon one of the side frames of the machine.

Desirably means are provided for blowing a stream of air upon the coated articles in order to insure a uniform distribution of the coating material thereon, and as shown said means comprise a nozzle 47 of elongated form and having a narrow slit in its lower end. The nozzle is mounted a short distance above the plane which is traversed by the coated articles, and is directed downward so that the air will be directed upon the tops and sides of the coated articles as they pass underneath the nozzle. A motor driven blower 48 is mounted upon the top member 11 of the frame and is connected to said nozzle by an air conduit 49. As the coated articles pass the nozzle, the stream of air issuing therefrom serves to spread the coating uniformly over the surface of the article, and in case any places on the sides thereof have not been covered by the coating material issuing from the applicator, the stream of air serves to spread the coating material over any such uncoated parts of the article. Any excess of coating material drips through the conveyor into the reservoir 15^a.

Desirably an auxiliary conveyor 50 for discharging the coated articles from the machine is provided. Said conveyor is trained around rollers 52, 52^a, rotatably mounted in bearings carried by the side frame members 40, the upper rollers 52^a serving to carry the upper part of the conveyor in horizontal alignment with the upper part of the conveyor 35. Desirably a tank 53 is provided for containing water in which the roller 52^a is partially submerged. Any coating material that may cling to the conveyor 50 is washed off while passing through the bath in the tank 53.

The conveyors 35, 50, are driven by a suitable driving mechanism, as will be hereinafter described.

Within the reservoir 15^a are rotating drum-like stirrers 51, which are mounted in bearings carried by the walls of the reservoir. Said stirrers act to agitate the coating material contained in the reservoir 15^a for the purpose of preventing filling material from remaining quiescent on the surface of the hot bottom of the reservoir and becoming overheated. A drain pipe 15^b leads down from each reservoir, through which unused coating material may be discharged. A valve 15^c normally prevents the escape of the coating material.

For coating layer or "sandwich" cakes, means are provided for feeding uncoated articles to the under coated ones, together with means to superimpose the under coated articles upon the uncoated ones, and means to transfer the plural articles to the conveyor of the top and side coating mechanism above described.

In the embodiment of the feed mechanism illustrated, a conveyor or feed belt 60 is employed, which is preferably located at a higher level than the conveyor 24. The belt 60 is desirably formed of the same linked rod construction as the other conveyors, and it is trained around rollers 61, 62, 63, rotatably mounted in bearings carried by the frame work of the machine. The corrugated roller 61 is the driving element for the belt 60, and drives it in the direction of the adjacent arrow at the same speed as that of the conveyor 24.

The feed belt 60, like the conveyor 24, is provided with equidistant spacers 33^a, which may be of any desirable form and serve as indicators to aid the attendant in placing the articles in equidistantly spaced relation on the belt 60, besides serving as stops for preventing the articles from being accidentally shifted out of their spaced relation to each other.

Supported by the frame work of the machine, as by a bracket 64^a, is a chute 64, which extends from the discharge end of the belt 60 to a transfer station adjacent the discharge end of the conveyor 24 (see Figs. 1, 3 and 6). Adjacent the belt 60 the receiving end of the chute extends in the same general direction as the belt, but in an inclined plane, and its discharge end describes an arc of a circle of about ninety degrees, with the edge of the chute over which the articles are discharged extending parallel with the conveyor 24. One edge of the chute is provided with an upstanding curved flange 65 which guides the direction of movement of the articles from the belt to the transfer station.

Extending transversely of the machine, from a place adjacent the discharge of the conveyor 24, in a plane somewhat below the plane traversed by the under coated articles, is the transfer element of the transfer mechanism, that serves to transfer plural layer articles to the conveyor 24 of the top and side coating mechanism. Said transfer element is illustrated in the form of a belt 66, desirably of the same construction as the other conveyors. The belt 66 is trained around rollers 67, 68, rotatably mounted in bearings carried by an auxiliary frame 69, which is removably attached to the side members 10 of the main frame of the machine, as by bolts and nuts 70. If desired, the auxiliary frame 69, and the mechanism carried thereby, may be disconnected from the frame which carries the coating mechanism. This may be done, when either coating mecha-

nism is employed separately or when it is desired to manually transfer the articles from one coating mechanism to the other.

When the transfer mechanism is used, the belt 66 extends transversely from the transfer station at the discharge end of the conveyor 24 to a position above the receiving end of the conveyor 35 of the top and side coating mechanism (see Fig. 6), and serves to transfer plural layer articles from the transfer station to the conveyor belt 35. Desirably a chute or slide 71 may be provided at the discharge end of the belt 66 to facilitate depositing or sliding the articles upon the conveyor 35.

In order to superimpose an undercoated article upon an uncoated one so as to bring the icing or filling material between the layers, an uncoated article is first deposited upon the transfer element at the transfer station and subsequently an undercoated article is placed thereupon, bringing the icing or filling between the two layers.

In the embodiment of the invention illustrated, this result is accomplished as follows: The conveyor 24 and belt 60 travel at the same speed, and the spacers 33, 33^a on the conveyor 24 and belt 60 respectively, are so located relative to each other that the belt discharges an uncoated article at the transfer station in time to lodge upon the belt 66, below the plane traversed by the undercoated articles, before the conveyor 24 discharges an undercoated article at the transfer station. The uncoated article at the transfer station lies in a plane below the plane in which the undercoated article travels, and a reciprocating fork 72 is provided for carrying the undercoated article from the conveyor 24 across and above the uncoated article, so that the icing or other filling on its under side shall not be disturbed.

As shown, the fork has two straight tines 72^a, barbed at their pointed ends and disposed in a plane coincident with the plane traversed by the undercoated article, and having means for projecting the tines into the undercoated articles as they are being discharged from the conveyor 24.

The two tines of the fork are slidably mounted in ears 73 carried by the frame 69, and their rear ends are secured in a cross bar 74, which is connected to an oscillatory arm 75 by a link 76. The arm 75 is fulcrumed on the frame 69 as at 77, and is oscillated in timed relation to the movement of the conveyor 24 to project the tines of the fork into the undercoated article as it is being discharged from the conveyor 24. The actuating means shown comprises a cam 78, mounted on a shaft 79 journaled in bearings carried by the frame 69, and having a face which engages a roller 80 mounted on the arm 75. A coiled spring 81, which is attached to the arm 75 and frame 69, serves to swing the arm in one direction with the roller 80 held in contact with the cam.

The face of the cam comprises a low part 82, which limits the forward movement of the fork into the undercoated article; a cam face 83 which acts to swing the arm 75 back and connects the low place 82 with a high place 84 which is concentric with the axes of the cam; and a cam face 85 which connects the high place 84 with the low place 82. During each cycle of rotation of the cam, the cam face 83 swings the arm 75 back to the limit of its stroke, thereby retracting the fork, which has been projected into an undercoated article, and carrying said article over the uncoated article which is resting on the transfer

belt. The fork is drawn back far enough to withdraw it from the article. The concentric face 84 of the cam is of sufficient arcuate extent to allow the fork to remain quiescent until the plural layer article has been moved beyond the path of travel of the fork, and while the roller 80 runs on the cam face 85, the spring 81 swings the arm 75 forward, thereby projecting the tines of the fork into another undercoated article.

A pin or other stop 86 may be provided for stopping the uncoated articles discharging from the chute 64 so as to center them with respect to the discharging undercoated articles, and a pin or other stop 87, supported by a bracket on the frame 69, is positioned so as to stop the undercoated article, discharging from the conveyor 24, directly above the uncoated article.

Actuating means are provided for advancing the transfer belt 66 in a step by step manner and so that it will be quiescent when an uncoated article lodges upon it and while an undercoated article is being placed thereon. The driving means shown comprises a mutilated gear 88 on the shaft 79; a mutilated pinion 89 rotatively mounted on the frame 69 and adapted to intermittently mesh with the mutilated gear 88; a beveled pinion 90 rotatively connected with the mutilated pinion 89, and a beveled pinion 91 meshing with the pinion 90 and mounted on a shaft 92 journaled in bearings carried by the frame 69. A sprocket chain 93, trained around a sprocket wheel 94 on the shaft 92 and around a sprocket wheel 95 on the shaft 96 of the drive roller 87 for the transfer belt 66, completes the intermittently acting drive mechanism for the transfer belt. The parts just described are proportioned and timed to advance the transfer belt one step during each cycle of rotation of the cam 78 and mutilated gear 88, and thereby transfer the plural layer articles from the transfer station to the conveyor 35 of the top and side coating mechanism. Desirably guide rails 97 (see Fig. 1) are mounted above the conveyor 35, adjacent the receiving end thereof, as by brackets 98, and serve to align the articles on the conveyor.

The shaft 79 for the cam 78 and mutilated gear 88 is driven from a driving element of the coating mechanism, and, as shown, a sprocket wheel 99 is mounted on said shaft, over which is trained a sprocket chain 100, which is driven by a sprocket wheel 140 of the machine.

The drive mechanism for the several conveyors, belts, stirrers, and other moving parts, may be of any desirable character. For the purposes of illustration, an electric motor 101 is shown, mounted on one of the side frame members 10, and it is provided with variable speed gearing 102, the main drive shaft 103 of which furnishes the drive means for the driven mechanism of the machine.

The drive mechanism for the conveyors 24, 30, may comprise a sprocket chain 104 (see Fig. 4) trained over a sprocket wheel 105 on the drive shaft 103 and over a sprocket wheel 106 on a counter shaft 107. The counter shaft 107 drives the shaft 32^a for the drive roller 32 of the auxiliary conveyor 30, through a train of gears 108, 109, 110, 111. A sprocket chain 112 trained over a sprocket wheel 113 on the shaft 32^a of the roller 32 and over a sprocket wheel 114 on the shaft 26 of the applicator roll 25, drives the applicator roll, and a sprocket chain 115 trained over a sprocket wheel 116 on the shaft 26 and a sprocket wheel 117 on the shaft 21^a of the

conveyor driving roller 21 drives the latter and therewith the conveyor 24.

A sprocket chain 118 trained over sprocket wheels 119, 120, respectively, mounted on the shaft 21^a and shaft 61^a of the drive roller 61, drives the latter and therewith the belt 60 at the same speed as the conveyor 24. A sprocket chain 121 trained over sprocket wheels 122, 123, respectively, mounted on the shaft 26 and shaft 107 of the stirrer drum 34, drives the latter, and the stirrer drum 34^a is driven from the shaft of the stirrer 34 by a sprocket chain 124 trained around sprocket wheels on the shafts of the stirrers 34, 34^a. The stirrer 34^b is driven from the shaft 107 by a sprocket chain 126 trained over sprocket wheels on the shaft 107 and shaft of the stirrer 34^b.

The middle stirrer 51 is driven from the main drive shaft 103 by a sprocket chain 127 trained around sprocket wheels 128, 129, respectively, mounted on the shaft 103 and shaft 51^a. The stirrer 51 at the right (Fig. 4) is driven from the shaft 51^a by a sprocket chain 130 trained over sprocket wheels 131, 132, respectively, mounted on the shaft 51^a and shaft of the stirrer at the right, and the stirrer at the left is driven from the shaft 51^a by a sprocket chain 133 trained over sprocket wheels 134, 135 respectively mounted on the shaft 51^a and the shaft 135^a at the left, and over idlers 136. It will be observed that all of the stirrers rotate in the direction of the arrows thereon so as to move the coating material down along the end walls of the reservoirs and prevent it from becoming overheated.

The conveyor 35 is driven from the shaft 135^a for the sprocket wheel 135 by a sprocket chain 137 trained over a sprocket wheel 138 and a sprocket wheel 139 respectively mounted on the shaft 135^a and the shaft 36^a of the drive roller 36 for the conveyor. The auxiliary conveyor drive roller 52^a is driven from the shaft 107 by a sprocket chain 141 trained around sprocket wheels 142, 143 respectively mounted on the shaft 107 and the shaft of the drive roller 52^a. The transfer mechanism is driven from the shaft 26 by a sprocket wheel 140 on the shaft 26 and the chain 100.

The corrugated rollers for the several conveyors and belts act to positively drive the same in timed relation to each other. They act in the nature of sprocket wheels, with their ridges engaging in the spaces between the linked rods of the conveyors.

In the operation of the machine, an attendant places uncoated articles, designated as *a*, *b*, on the conveyor 30 and belt 60 directly in advance of the spacers 33, 33^a. The conveyor 30 advances the articles *a* to the conveyor 24 which conveys them across the applicator 25, where icing or filling material is applied, through interstices of the conveyor, to the under sides of the articles. As each undercoated article *a* arrives at the discharge end of the conveyor 24, an uncoated article *b* has previously arrived at the transfer station in a plane below that of the article *a*, and the fork 72 is then projected into the discharging article *a* by the arm 75. This position of the parts is seen in Fig. 7. The cam 78 thereupon swings the arm 75 back, retracting the fork and drawing the article *a* above and across the article *b*, until the articles *a*, *b* are located one above the other, whereupon the tines of the fork are wholly withdrawn from the article *a*. At this moment the intermittent driving mechanism for the transfer belt 66 becomes effective and ad-

vances said belt one step, carrying a plural layer article *c* to the receiving end of the conveyor 35 of the top and side coating mechanism (see Fig. 6). As the transfer belt comes to rest, another article *b* is deposited thereon, and another article *a* deposited on the article *b* as before described.

As the conveyor 35 commences to convey the plural layer article *c* to the top and side coating applicator, the guide rails 97 align the plural layer article *c* with the others on the conveyor. As the conveyor carries the articles underneath the applicator 41, they pass into the sheet or sheets of coating material discharging therefrom, whereby their sides as well as the top of the uppermost article *a* are coated with the material, and any excess coating material falls into the reservoir below. Subsequently the conveyor 35 carries the coated articles *c* underneath the air applicator, and the air stream acts to uniformly spread the coating material over the top and sides of the article. The air stream further serves to flow the coating into any places on the sides of the article *c* that may not have received coating material while passing the coating material applicator. The conveyor 35 discharges the coated articles upon the conveyor 50 from which an attendant removes them.

In case the transfer mechanism has been disconnected from the machine, the uncoated articles may be discharged upon a table (not shown), and an attendant may place the undercoated articles *a* upon the uncoated articles, and place them upon the conveyor 35.

In adapting my invention for use in coating any particular type of article and in employing the same for special purposes, it will be evident that various changes may be made in the form, construction and arrangement of the elements described. In view thereof, it should be understood that the form of my invention shown in the drawings and herein described is intended for the purpose of illustrating a typical embodiment of my invention and is not intended to limit the scope thereof.

I claim:

1. In a coating machine, the combination of a reservoir for containing coating material, a rotating drum-like applicator therein for applying coating material to the under sides of edible articles, a conveyor for conveying said articles over the applicator in close proximity thereto, whereby the applicator transfers coating material from the reservoir to the under sides of the articles, and driving means for rotating the applicator at a greater speed than that of the conveyor.

2. In a coating machine, the combination of two pervious conveyors arranged to travel oppositely in parallelism, one adapted to advance a plurality of edible articles in succession from an initial receiving to a discharge station, and the other adapted to advance a plurality of articles in succession from a receiving station to a final discharge station, means associated with the conveyor leaving the initial receiving station for applying coating to the under sides of the articles traveling thereabove, means associated with the conveyor proceeding toward the final discharge station for applying coating to the top and sides of the articles traveling therebelow, and transfer means operating in timed relation to the conveyor proceeding from the initial receiving station adapted to transfer the undercoated articles to the other conveyor preliminary

to overcoating thereon of the top and sides of such articles.

3. In a coating machine, the combination of two pervious conveyors arranged to travel oppositely in parallelism, one adapted to advance a plurality of edible articles in succession from an initial receiving to a discharge station, and the other adapted to advance a plurality of articles in succession from a receiving station to a final discharge station, means associated with the conveyor leaving the initial receiving station for applying coating to the under sides of the articles traveling thereabove, means associated with the conveyor proceeding toward the final discharge station for applying coating to the top and sides of the articles traveling therebelow, a conveyor for conveying uncoated articles to the discharge station of the undercoated articles and delivering said undercoated articles so as to lie at a plane below the plane in which the undercoated articles are discharged, whereby the undercoated articles are discharged upon the uncoated ones, and transfer means operating in timed relation to the conveyor proceeding from the initial receiving station adapted to transfer the plural layer articles to the other conveyor preliminary to overcoating thereon of the top and sides of the plural layer articles.

4. In a coating machine, the combination of a reservoir for containing coating material, a coating applicator therein, a conveyor traveling over said applicator in close proximity thereto, and adapted to convey edible articles past said applicator whereby the latter applies coating material to the under sides of the articles, a second conveyor, a coating applicator located thereabove for depositing coating material upon the top and sides of articles conveyed by said second named conveyor, feed mechanism for feeding uncoated articles to a transfer station adjacent the discharge end of the first named conveyor, means to carry the undercoated articles from said first mentioned conveyor and deposit them upon the uncoated articles at said transfer station, transfer mechanism for transferring plural layer articles from said transfer station to said second named conveyor, and drive mechanism for synchronizing the movements of the conveyors and transfer mechanism.

5. In a coating machine, the combination of a reservoir for containing coating material, a coating applicator therein, a conveyor traveling over said applicator and adapted to convey edible articles past said applicator in close proximity thereto, whereby the applicator applies coating material to the under sides of the articles, feed mechanism for feeding uncoated articles to a transfer station adjacent the discharge end of said conveyor and underneath the plane traversed by the undercoated articles, means to carry the undercoated articles from the discharge end of said conveyor and deposit them one at a time upon an uncoated article at said station, a second conveyor, a coating applicator thereabove arranged to deposit a sheet of coating material in a downward direction upon articles carried underneath the same by said second named conveyor, transfer mechanism for transferring the plural layer articles from said transfer station to said second named conveyor, and drive mechanism for synchronizing the movements of the conveyors and transfer mechanism.

6. In a coating machine, the combination of a reservoir for containing coating material, a coat-

ing applicator therein, a conveyor traveling over said applicator in close proximity thereto, and adapted to convey edible articles past said applicator, whereby the applicator applies coating material to the under sides of the article, a belt for feeding uncoated articles in timed relation to the conveyor, a chute extending from the discharge end of the belt to a transfer station adjacent and below the discharge end of the conveyor for delivering uncoated articles to said station, and article carrying means at said transfer station for carrying undercoated articles from the conveyor and depositing them one at a time upon the uncoated articles delivered at said transfer station.

7. In a coating machine, the combination of a reservoir for containing coating material, a coating applicator therein, a conveyor traveling over said applicator in close proximity thereto, and adapted to convey edible articles past said applicator, whereby the applicator applies coating material to the under sides of the articles, a belt for feeding uncoated articles in timed relation to the conveyor, a chute extending from the discharge end of the belt to a transfer station adjacent and below the discharge end of the conveyor, a reciprocating fork for carrying uncoated articles one at a time from the discharge end of the conveyor and depositing them upon an uncoated article at the transfer station, and means for reciprocating the fork in timed relation to the conveyor.

8. In a coating machine, the combination of a reservoir for containing coating material, an applicator therein for applying coating material to the under sides of edible articles, a conveyor for conveying said articles over the applicator in close proximity thereto, whereby the applicator applies coating material to the under sides of the articles, a belt for conveying uncoated articles, a chute for conducting the uncoated articles to a transfer station adjacent the discharge end of the conveyor, means for carrying undercoated articles one at a time from the discharge end of the conveyor, above, out of contact with, and to an uncoated article at the station, top and side coating mechanism, and transfer mechanism for transferring plural layer articles from said transfer station to said top and side coating mechanism.

9. In a coating machine, the combination of a reservoir for containing coating material, an applicator therein for applying coating material to the under sides of edible articles, a conveyor for conveying said articles over the applicator in

close proximity thereto, whereby the applicator applies coating material to the under sides of the articles, a belt for conveying uncoated articles, a chute for conducting the uncoated articles to a transfer station adjacent the discharge end of the conveyor, means for carrying undercoated articles one at a time from the discharge end of the conveyor, above, out of contact with, and to an uncoated article at the station, top and side coating mechanism, a belt for conveying plural layer articles from said transfer station to said top and side coating mechanism, and means for intermittently advancing said belt.

10. In a coating machine, the combination of a reservoir for containing coating material, a conveyor, a coating applicator for applying coating material to edible articles carried by said conveyor, feed mechanism for delivering uncoated articles to a transfer station adjacent and below the discharge end of the conveyor, a fork adapted to be projected into each undercoated article when discharging from said conveyor, and to carry said article above an uncoated article at the transfer station and to deposit it thereon, and means for reciprocating said fork in timed relation to the conveyor.

11. In a coating machine, the combination of a reservoir for containing coating material, a conveyor, a coating applicator for applying coating material to edible articles carried by said conveyor, feed mechanism for delivering uncoated articles to a transfer station adjacent and below the discharge end of the conveyor, a fork adapted to be projected into each undercoated article when discharging from said conveyor and to carry said article above an uncoated article at the transfer station and to deposit it thereon, a reciprocating arm connected to said fork, and a cam having cam faces for actuating said arm.

12. In a coating machine, the combination of means for conveying edible article layers and means for applying a coating to one side of each of said articles, means for feeding a second group of edible article layers and delivering them each in face contact with the coated side of one of the first mentioned edible article layers to form a combined two layer edible article, an applicator for thereafter applying a coating to the top and sides of each two layer edible article, and a conveyor for conveying the two layer edible articles from the point where the constituent layers are united to a point adjacent the applicator and therefrom to the point of discharge.

OSCAR E. SEGRIN.