Oct. 14, 1924. **1,511,256**

A. L. BAUSMAN

DELIVERY APPARATUS FOR CONFECTIONERY MACHINES

Filed May 12, 1923 4 Sheets-Sheet 1

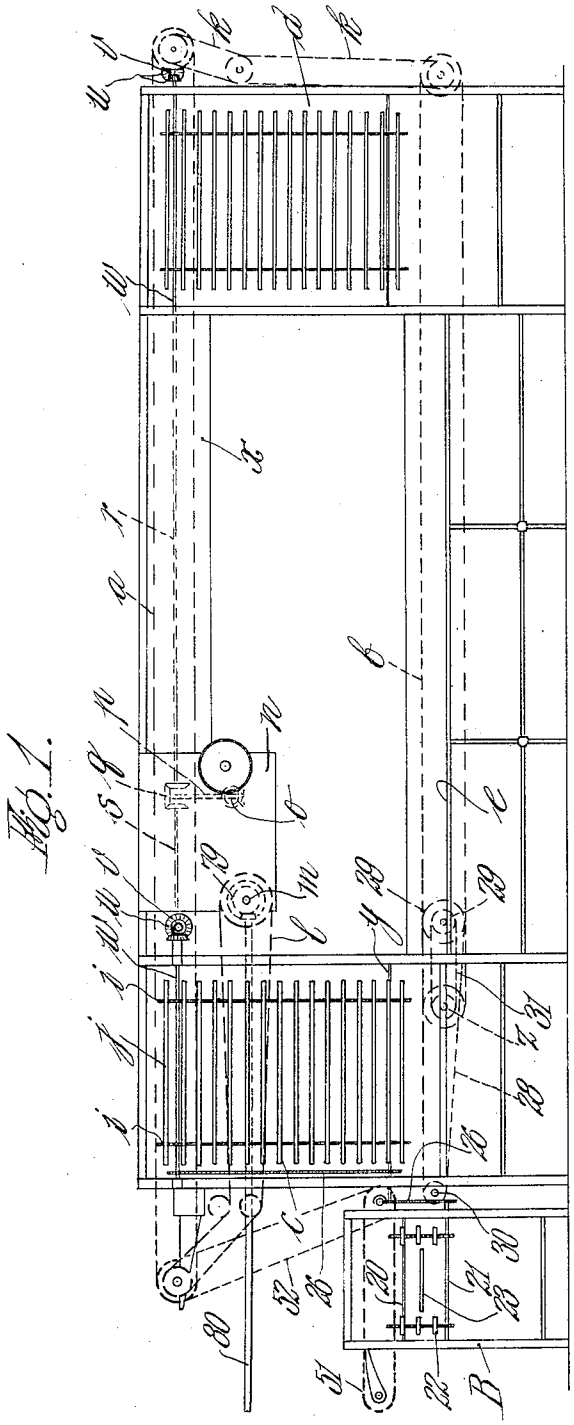


Fig. 1.

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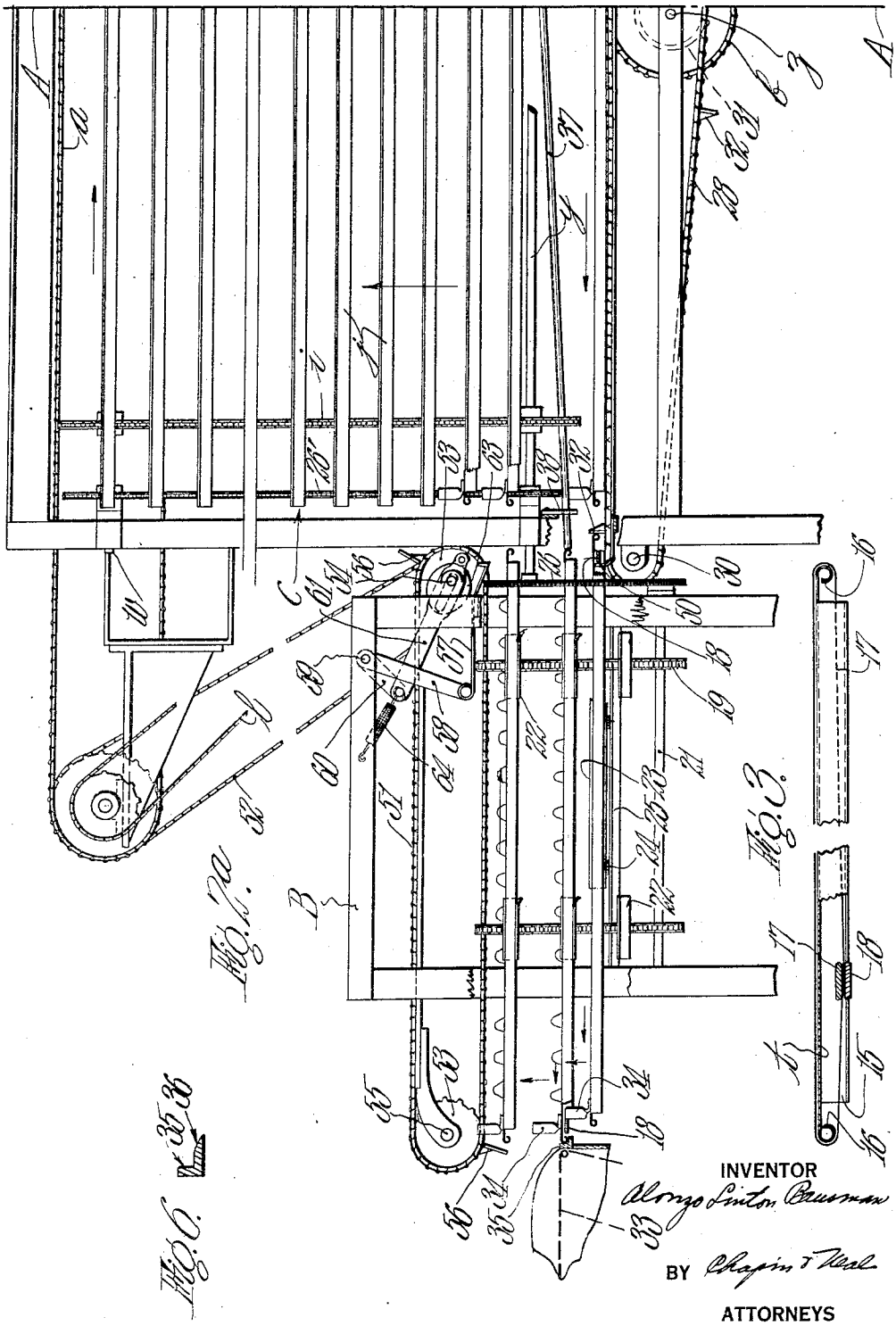


Fig. 3.

Fig. 3a.

Fig. 3b.

Fig. 3c.

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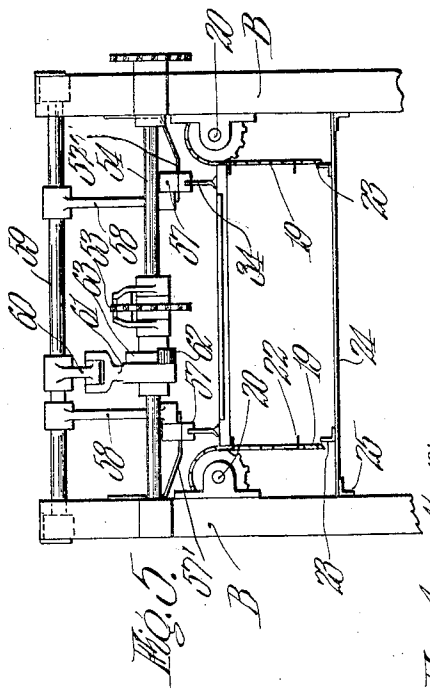


Fig. 5.

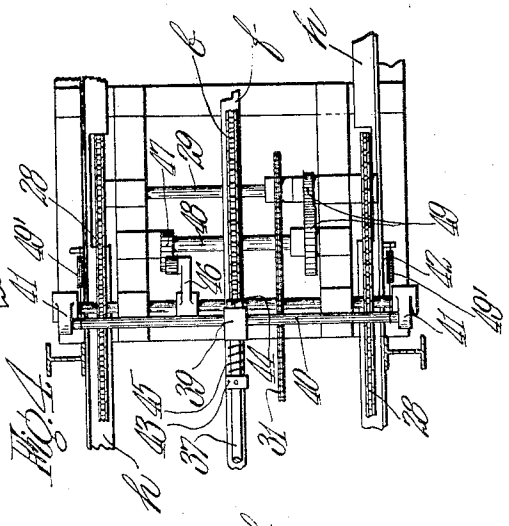


Fig. 4.

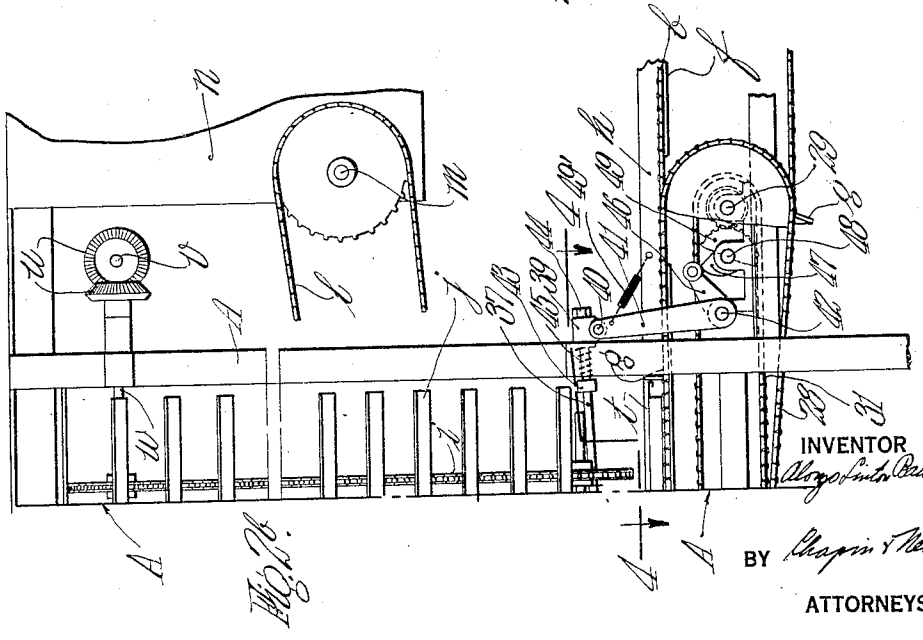


Fig. 6.

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DELIVERY APPARATUS FOR CONFECTIONERY MACHINES

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Fig. 8.

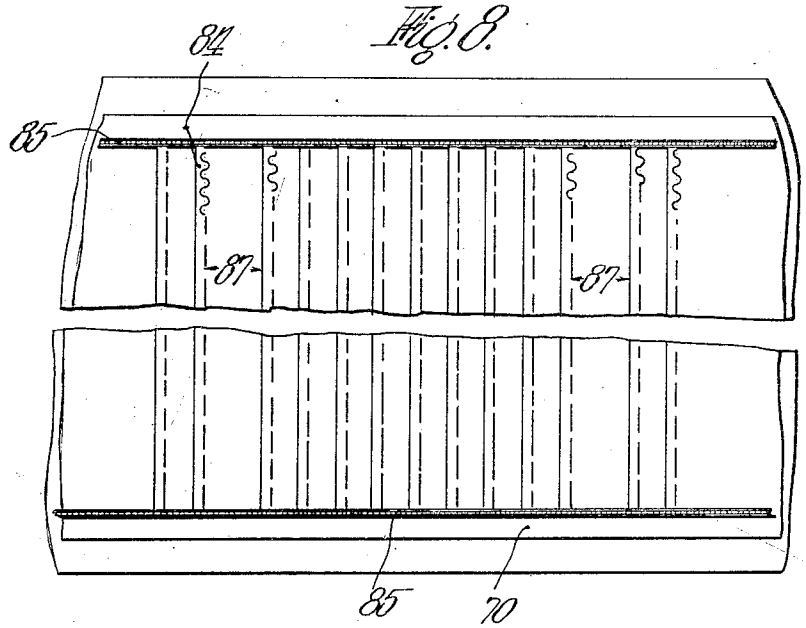
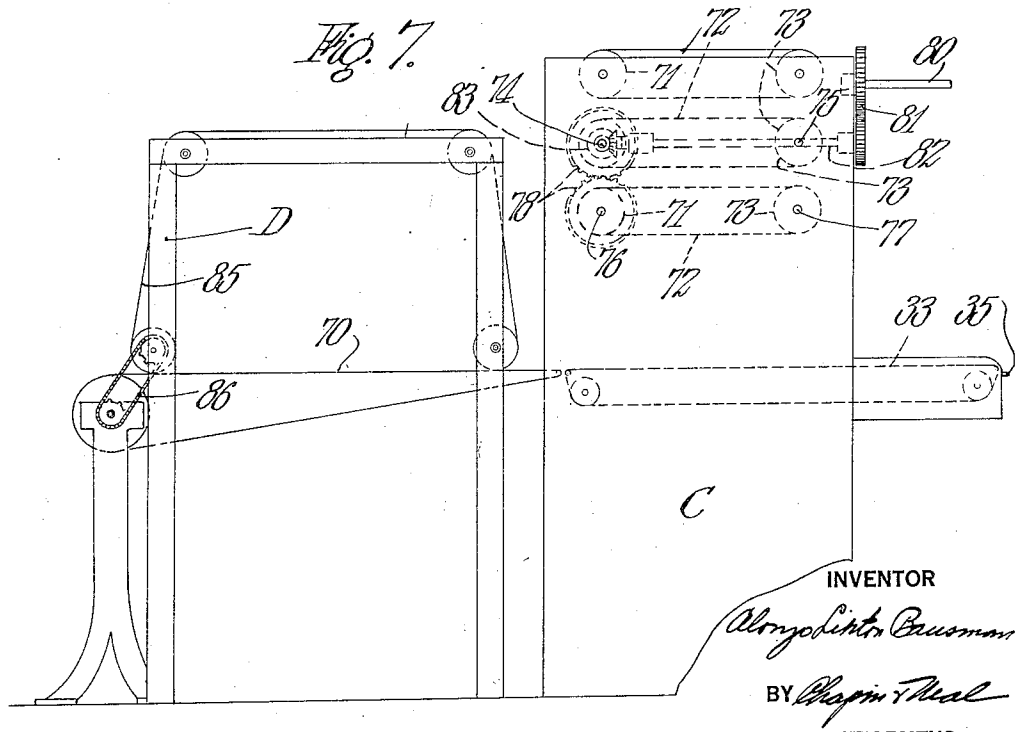


Fig. 7.



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Patented Oct. 14, 1924. 1,511,256

UNITED STATES PATENT OFFICE.

ALONZO LINTON BAUSMAN, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO NATIONAL EQUIPMENT COMPANY, OF SPRINGFIELD, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

DELIVERY APPARATUS FOR CONFECTIONERY MACHINES.

Application filed May 12, 1923. Serial No. 638,652.

To all whom it may concern:

Be it known that I, ALONZO LINTON BAUSMAN, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Delivery Apparatus for Confectionery Machines, of which the following is a specification.

This invention relates to improvements in the delivery apparatus of confectionery coating machines.

Confection coating machines, as they are usually constituted, deliver the coated confections from the coating belt to a series of plaques (such as strips of waxed paper) which are detachably secured to an endless delivery belt. These plaques, after being loaded with the confections, are detached from the belt and manually transferred to a plaque board, or tray, and the latter is then placed on a conveyer which carries the trays in a path of sufficient length, or through cooling means, until the coatings on the confections have become hardened. Usually also the conveyer, just referred to, carries the candies past packing stations at which operators are located who remove the candies from the trays and pack them,—the empty trays being eventually delivered back to a point near the delivery end of the coating machine to receive another plaque.

According to this invention, mechanism is provided to manipulate the plaque board, or tray, which was formerly manually moved, and such mechanism is designed to successively present the trays into confection receiving relation with a conveyer of the coating machine and subsequently remove them therefrom.

According to another feature of the invention, the tray presenting means, just described, is designed to receive an empty tray from the tray conveying means of the cooling apparatus, present it to the coating machine and subsequently transfer it back to the tray conveying means of the cooling apparatus.

According to another feature of the invention, the usual delivery belt, with its detachable plaques, is eliminated and plaque boards, or trays, of the type disclosed in my copending application Serial No. 613,474, filed January 18, 1923, are used in conjunction with the tray presenting and manipulating apparatus described.

The plaque boards, of my prior application, are characterized by plaques mounted thereon for relative movement and means are provided in connection with the tray, or plaque board, manipulating apparatus to move the plaque relatively to the tray while the latter is positioned in confection receiving relation with the coating machine.

The plaques, which desirably are in the form of endless belts, have an operating member, such as a cross bar, which may also serve to fasten the ends of the plaque together into endless belt form, and means are provided on each tray capable of engaging the cross bar of another tray, so that the movement of one tray may be utilized to effect the movement of the plaque on an adjacent stationary tray.

According to another feature of the invention, the plaques, which are moved relatively to their trays during the operation of loading them with confections, are automatically restored to their original positions after the confections have been removed therefrom.

According to another feature of the invention, means are provided in conjunction with the coating machine for spacing the confections on the conveying means thereof in such a manner that no confections will pass off such means during the removal of one tray from, and the movement of a succeeding tray into, confection receiving relation with such means.

According to another feature of the invention, the tray presenting means operates intermittently and, in the case of coating machines wherein the confection carrying belt normally travels continuously, I may provide means for automatically stopping the belt during the interval in which a loaded tray is moved out of confection receiving relation and an empty tray is moved into such relation.

Other features of the invention will appear in the following description and in the illustrative embodiment of the invention in the accompanying drawings, in which:

Fig. 1 is a small scale elevational view showing in more or less conventional form a tray presenting and manipulating apparatus applied to a well known type of candy cooling and packing apparatus;

Figs. 2^a and 2^b, when joined together end to end along the dot and dash line A—A, affords an elevational view on a larger scale of the adjacent portions of the two apparatus;

Fig. 3 is an elevational view, partly in section, of a plaque board, or tray, having a relatively movable plaque thereon and designed for use with the apparatus of this invention;

Fig. 4 is a sectional plan view taken on the line 4—4 of Fig. 2^b;

Fig. 5 is a fragmentary end elevational view of the right hand end of the tray presenting apparatus shown in Fig. 2^a;

Fig. 6 is an enlarged cross sectional view of a tray positioning device shown in Fig. 2^a;

Fig. 7 is an elevational view, showing in conventional form, a well known type of candy coating machine and illustrates certain features of the invention relating to the coordination of the coating machine with the apparatus shown in Fig. 1; and

Fig. 8 is an enlarged fragmentary plan view, showing the means for spacing the candies supplied to the coating machine.

In these drawings, the invention has been illustrated in connection with its preferred and more common use in conjunction with a confectionery coating machine and a confectionery conveying, cooling and packing apparatus. That type of coating machine, illustrated more or less conventionally herein, is of the general type disclosed in U. S. Letters Patent No. 735,890 granted August 11, 1903 on an invention of E. P. F. Magniez. That type of conveying, cooling and packing apparatus, illustrated more or less conventionally herein, is of the general type disclosed in U. S. Letters Patent No. 1,123,934, granted January 5, 1915, on an invention of Schrafft, Blake and Lorentzen. The invention is capable of use to a certain extent with either apparatus, independently of the other, and it is likewise capable of being readily adapted to other types of coating machines and to other types of apparatus for conveying the coated confections until the coatings are hardened.

The apparatus for conveying, cooling and packing the confections is illustrated in Fig. 1 and includes upper and lower conveyer chains *a* and *b*, which travel horizontally and in an intermittent or step by step manner. The lower stretch of conveyer *a* and the upper stretch of conveyer *c* travel in opposite directions. Associated with these conveyers are two conveyers *c* and *d* which travel vertically, in opposite directions and intermittently,—being actuated during periods of rest of the horizontal conveyers. A tray, or plaque board, carrying the coated confections, is placed in the conveyer *c* and carried step by step upwardly at a relatively slow rate. Each tray eventually comes to rest in a position such that it is removed by the lower stretch of conveyer *a* from conveyer *c* and carried step by step in a horizontal path, being eventually inserted in conveyer *d*, while the latter is at rest. Conveyer *d* carries the tray step by step downwardly and eventually the tray is removed therefrom by the upper stretch of conveyer *b*, which carries the tray along a packing shelf *e*, and packers stationed at the shelf remove the candies and pack them,—the conveyer *d* eventually delivering the empty tray to that end of the apparatus from which it started.

The upper and lower conveyers *a* and *b* consist of single centrally located chains travelling on runways, such as *f*, (Figs. 2^b and 4) and moving trays, such as *t*, by means of lugs such as *g*,—the trays being supported on and guided by angle iron side members, such as *h*. The vertical conveyers *c* and *d* consist of two spaced pairs of chains *i*, the chains of each pair being connected together by a series of angle irons *j*, so that a tray is supported by and between the two pairs of chains by an angle iron on the inner stretch of each, after the manner disclosed in the second named patent. The conveyers are supported by suitable sprockets and shafts and these as well as other parts are suitably mounted in a frame A. Conveyers *a* and *b* are connected together by chains *k* (Fig. 1) and suitable sprockets at one end of the machine and conveyer *a* is driven by a chain *l* and suitable sprockets from a shaft *m* which is intermittently actuated by a suitable mechanism housed within a gear box *n*. In the latter is a second shaft *o*, which is also intermittently actuated during periods of rest of shaft *m*, and the arrangement is such that shaft *m* operates during the larger portion of the time, as for example five sixths of the time, one sixth of the time being occupied by the movement of shaft *o*. The latter drives by bevel gearing a vertical shaft *p* which through reversing gearing *q* operates two alined shafts *r* and *s* in opposite directions and these shafts carry the sprockets by means of which one pair of chains *i* of each conveyer *c* and *d* are driven. Shafts *r* and *s* are each connected by bevel gearing *u* and a cross shaft *v* to the operating shaft *w* for the other pair of chains *i* for each conveyer *c* and *d*.

Usually the several conveyers described are housed in, as indicated at *x*, to allow for the circulation of cold air, the more quickly to cool the candies, as disclosed in the second named patent.

The plaque boards, or trays, are preferably of the general type disclosed in the copending application, above identified. As shown in Fig. 3, the tray *t* has runners 15, depending from each side edge, and

rounded and depending end portions 16 over which a plaque 17 is trained. This plaque 17 may be made of a strip of waxed paper, or the like, and the ends of the strip are brought together beneath the tray in overlapping relation and suitably held together, as by being clamped between the sections of a two piece cross bar 18. The ends of this cross bar are supported on the inturned lower edge of the runners 15. The cross bar 18 constitutes an operating member for the plaque and it can be engaged from below and moved longitudinally to shift plaque 17 relatively to tray *t*.

The tray presenting and manipulating apparatus includes a skeleton frame B one end of which is mounted closely adjacent one end of the tray conveying apparatus. In frame B is mounted a conveying means for moving trays *t* in a vertical path, in a step by step manner, and during the periods of operation of the described conveyers *d* and *e*. Such conveying means are generally like conveyers *e* and *d* and comprise two pairs of chains 19 mounted in laterally spaced relation. The chains of each pair are mounted on sprockets fixed in longitudinally spaced relation on upper and lower shafts 20 and 21, both of which are rotatably supported near their ends in suitable bearings secured to frame B, as best shown in Fig. 5. Each chain 19 carries a series of angle iron pieces 22 and each piece 22 on one chain lies at the same level as a corresponding piece on the other three chains so that four of such pieces are available to support a tray *t*. The pieces 22, on one chain of each pair, are preferably not connected to the other chain of the pair in order to permit an intermediate pair of angle irons 23 to be mounted stationarily in frame B as upon two cross bars 24 which at their ends are connected to longitudinal side bars 25 fixed to frame B. The angle irons 23 constitute a receiving means for an empty tray delivered from the tray conveying apparatus and are located in substantially the same plane as the upper stretch of conveyer *b* and intermediate two successive angle irons 22 when the latter are in positions of rest. Each pair of conveyer chains 19 is driven from conveyer *e* by means of chains 26 and suitable sprockets which chains connect the lower shafts *y* of conveyer *e* with the shafts 21. The shafts *y* are driven from the upper shafts of conveyer *e* by chains 26′,—those sprockets on shafts *y* which carry chains *i* being loose thereon.

The usual conveyer *b* of the tray conveying apparatus is not long enough to deliver the empty trays *t* onto the receiving means 23 and to accomplish this result I extend this conveyer by using two conveyer chains 28, arranged one on each side of chain *b*, as shown in Fig. 4. These chains are mounted on suitable sprockets carried by spaced shafts 29 and 30. These chains overlap to some extent the chain *b* and are driven from the latter by a chain 31 and suitable sprockets which connects shaft 29 to the shaft *z* carrying the end sprockets for chain *b*. Chains 28 carry lugs 32 for engaging the tray and moving it out of the tray conveying apparatus and onto the tray receiving means to the extent illustrated in Fig. 2ª. The tray is thus positioned so as to be subsequently engaged by angle irons 22 on chains 19 and lifted first to the level of the candy carrying belt 33 of a chocolate coating machine and later to a higher level.

Each tray *t* carries a pair of lugs 34 which are fixed to the upper face of the tray near the leading edge thereof and arranged one near each side edge thereof, as shown in Fig. 5, so as not to interfere with the movement of plaque 17. These lugs are of sufficient height, and are otherwise so arranged, that when a tray *t* is moved toward and onto the receiving means 23, the lugs on such tray will engage the cross bar 18 on the tray thereabove and move the latter longitudinally to the left as viewed in Fig. 2ª, whereby the upper stretch of plaque 17 will be moved to the right and in the same direction as belt 33 of the coating machine. Thus, while one tray is at rest in receiving relation with the coating machine the plaque on such tray is moved, relatively thereto, to receive the confections delivered from belt 33 and the operation of the plaque is thus effected by utilizing the horizontal movement of an incoming empty tray from the cooling apparatus.

In order that the plaque 17 may be operated in this manner, an abutment 35 is provided on the frame of the coating machine against which one end of tray *t* engages, whereby it is stationarily held during the pushing operation on cross bar 18. The trays, as initially positioned in the elevator chains 19, must necessarily be so disposed as to clear the abutment 35 when they are subsequently lifted. Consequently, supplementary means are necessary to move the tray horizontally after it has been brought to rest in substantially the plane of belt 33. For insuring that the adjacent ends of belt 33 and tray *t* are accurately at the same level during the transfer of coated candies from one to the other, I provide on the frame of the coating machine a stationary cam 36 which is engaged by a rounded end portion 16 of tray *t* during the supplementary horizontal movement just described, whereby said end of the tray will be elevated, if necessary, to the exact level desired simultaneously with its movement into engagement with abutment 35.

The supplementary horizontal motion, just alluded to, is effected by the use of a push rod 37 (Fig. 2ª) which is reciprocated at properly timed intervals and imparts a push to the right hand end of tray *t* to move the opposite end thereof against abutment 35. Rod 37 is guided a one end in an eye 38 attached to frame A (Fig. 2ª). Its other end is slidably supported in a block 39, pivotally mounted centrally on a cross rod 40, which in turn is supported at its ends in a pair of arms 41, fixed to a shaft 42. Rod 37 has two abutments 43 and 44 arranged one on each side of block 39 and a spring 45 acts between the latter and abutment 43. The arrangement is such that rod 37 can yield after it has moved tray *t* against abutment 35,—the arms 41 necessarily having a fixed throw which must be in excess of the maximum tray motion required to insure engagement of tray *t* with the abutment. The rod 42 described carries an arm 46, having a roll to ride on the periphery of a cam 47, and the latter is fixed to a shaft 48, which in turn is driven by spur gearing 49 from shaft 29 heretofore described. A spring 49′ tends to move arm 46 so as to hold its roll in engagement with cam 47. The gearing is such that cam 47 makes one complete revolution while chains *b* and 28 are moving a tray one step and the cam is so shaped as to push rod 37 to the left at practically the end of the tray movement.

The plaque operating bars 18 on the trays *t* are positioned near the left hand end thereof, when the trays are completely loaded, and necessarily these bars must be moved to the right hand end of the tray at some time between the time when the trays are emptied and the time when they become positioned in receiving relation with belt 33. To this end, I provide a pair of laterally spaced hooks 50, one of which is shown in Fig. 2ª, which hooks are arranged to engage, one near each end of cross bar 18, as the tray *t* is moved by chains 28, and hold this bar stationary, while the tray continues to move to the left, thus restoring the cross bar 18 into the position shown in Fig. 2ª, in connection with the lower tray *t*. These hooks 50 and cross bar 18 are automatically disengaged as chains 19 rise and remove tray *t* to the level of belt 33.

At the same time a tray, previously loaded with confections 51, is lifted by chains 19 to a level above belt 33 and the loaded tray remains at such level during the loading of the tray therebelow. While a tray is positioned at this upper level, the horizontal conveyer chains *a*, *b*, and 28 operate and the motion of chain *a* is made to operate a horizontally movable conveyer chain 51 (Fig. 2ª) by means of a chain 52 and suitable sprockets. The conveyer chain 51 travels over suitable sprockets such as 53 fixed to two cross shafts 54 and 55, the former being driven by chain 52, and both being rotatably mounted in frame B. Chain 51 carries lugs 56, one of which engages a tray *t*, while positioned below the lower stretch of the chain, and moves it to the right into a pair of alined angle irons *i* of the vertical conveyer *c* of the tray conveying apparatus, which conveyer is then at rest.

The tray *t* cannot be readily inserted completely in the conveyer *c* by the means described and an additional means is employed to complete the horizontal movement. Such means consist of two tray pushers 57, which are pivoted at one end to the lower ends of two arms 58, fixed in axially spaced relation on a cross shaft 59, mounted in frame B. Also fixed on this shaft is an arm 60, to the end of which is pivotally connected one end of a link 61, which near its other end is slotted to fit over and be guided by shaft 54. A roll 62 on link 61 engages a cam 63 on shaft 54, whereby the pushers 57 are moved to the right, as viewed in Fig. 2ª, and a spring 64 connecting link 60 to frame B moves the pushers in the opposite direction. The pushers are located in the path of travel of the lugs 34 on trays *t* and have latch like ends and are pivoted to arms 58, so that the pushers will be readily lifted by the lugs as the tray is moved by chains 51 and drop behind the lugs so as to be available to push the tray after it ceases to be moved by chains 51. The free ends of the pushers 57 are slidably supported on brackets 57′ attached to frame B (Fig. 5).

The confectionery coating machine, as above stated, may be of the general type disclosed in the Magniez patent, above identified, and this type of coating machine is so well known that a description of it herein is unnecessary, except in so far as its operation is coordinated with the apparatus heretofore described. In Fig. 1, a coating machine of the stated type has been illustrated in conventional form,—much of the mechanism having been omitted. The closed casing of the machine is shown at C, within which the coating belt 33, above referred to, is mounted. The usual delivery belt, ordinarily taking coated confections from belt 33, may be eliminated and the confections transferred directly from belt 33 to plaques 17, as described. Confections, to be coated, are supplied to belt 33 by a feed belt 70 of the usual type. In the upper part of the machine are three sets of speed changing devices, each consisting of two oppositely mounted cones 71 and 73 and a connecting belt 72. The cones 71 are drivers and the cones 73 are driven. The upper set of cones are for driving certain parts of the coating machine with which this invention

is not concerned. The set of cones 71 and 73 therebelow,—those mounted on shafts 74 and 75, respectively,—control the speed of belt 33 and shaft 75 is connected by the usual mechanism not shown to belt 33. The cones 71 and 73, for the lower set, control the speed of the feed belt 70 and are mounted on shafts 76 and 77, respectively. Shaft 76 is connected by spur gearing 78 to shaft 74 and shaft 77 is connected by the usual mechanism (not shown) to drive feed belt 70.

For the purpose of stopping the belt 33, and incidentally the feed belt 70, I provide means for driving the shaft 74, and thus shaft 76, from the tray conveying apparatus and in timed relation with those conveyers which operate in a horizontal direction. This belt 33 will be stopped during the interval in which the conveyer chains 19 are operated and therefore no confections will be delivered from belt 33 while the trays *t* are being moved into and out of receiving relation therewith. To accomplish this result, I utilize shaft *m* (Fig. 1) as a driver and connect it by bevel gearing 79 with a shaft 80, which extends to casing C and is connected by spur gearing 81 to a shaft 82, which by bevel gearing 83 operates shaft 74. The gearing 79 and 81 is preferably such as to increase the speed of shaft 74 over that of shaft *m*.

Instead of driving the belts 33 and 70 in this manner, they may be driven continuously in the usual manner and the result described may be obtained by so spacing the confections fed to belt 33 that none will pass off the delivery end thereof while the trays *t* are moving into and out of receiving relation. To this end, I utilize in conjunction with feed belt 70 a spacing means consisting of a number of groups of cross bars 84 each of which extends between and is connected at its ends to a pair of endless chains 85. Such chains are suitably mounted in a frame D for travel with their lower stretches resting on the feed belt 70. Chains 85 are driven from, and at the same speed as, belt 70 by a chain 86 and suitable sprockets. The cross bars 84, which may be notched, if desired, as shown in Fig. 8, are arranged in groups, each comprising a suitable number to insure one load for a plaque 17, and there is a space 87 between the groups in which no confections are placed. This space is so located relatively to the feed belt 70, and its longitudinal extent is such, that no confections will be delivered from belt 33 during the operation of moving a tray into and out of receiving relation with the coating machine.

The operation of the apparatus will sufficiently appear from the foregoing description.

The invention has been disclosed herein, in an embodiment at present preferred, for illustrative purposes but the scope of the invention is defined by the appended claims rather than by the foregoing description.

Claims.

1. The combination with a confectionery coating machine, of means for successively and automatically presenting trays into confection receiving relation therewith, and means for automatically removing the trays after they have been loaded with the confections.

2. The combination with a confectionery coating machine, having a confection carrying belt, of means for successively and automatically positioning trays with one end disposed in closely adjacent relation with and in the same plane as the delivery end of said belt, and means for automatically removing the trays after they have been loaded with confections.

3. The combination with a confectionery coating machine, of means periodically operable to move a tray carrying a relatively movable plaque into confection receiving relation with said machine, means operable while the tray is at rest in such relation to move said plaque relatively to the tray, and means subsequently operable to remove the tray after said plaque has been loaded with the confections.

4. The combination with a confectionery coating machine, of means periodically operable to move a tray carrying a relatively movable plaque into confection receiving relation with said machine, means operable while the tray is at rest in such relation to move said plaque relatively to the tray, means subsequently operable to remove the tray after said plaque has been loaded with the confections, and means operable during the movement of the tray into confection receiving relation to move the plaque in an opposite direction.

5. The combination with a confectionery coating machine, having a confection carrying belt normally moving continuously, of intermittently operable means to move a tray into confection receiving relation with said belt, and means for automatically stopping the movement of said belt during the interval in which the tray is moved into said relation.

6. The combination with a confectionery coating machine, having a confection carrying belt normally moving continuously, intermittently operable means for moving one tray into confection receiving relation with said belt and moving another tray out of such relation, and means for stopping the movement of said belt during said movements of the trays.

7. The combination with a confectionery coating machine, having a confection carrying belt normally moving continuously, of intermittently operable means for

moving a tray carrying a relatively movable plaque into confection receiving relation with said belt, means for automatically stopping the movement of said belt during said movement of the tray, and means for moving said plaque during the operation of said belt.

8. The combination with a confectionery coating having a confection carrying belt normally moving continuously, of intermittently operable means for moving a tray carrying a relatively movable plaque into confection receiving relation with said belt, means for automatically stopping the movement of said belt during said movement of the tray, and means for moving said plaque in the same direction as said belt during the period when the tray is positioned in said relation.

9. The combination with a confectionery coating machine, having a confection carrying belt normally moving continuously, of intermittently operable means for moving one tray carrying a relatively movable plaque into confection receiving relation with said belt and moving another tray out of such relation, means for automatically stopping the movement of said belt during said movement of the trays, and means for moving the plaque on the first named tray while the latter is at rest in said relation and during the operation of said belt.

10. The combination with a confectionery coating machine and an apparatus wherein trays loaded with coated confections are conveyed until the coatings are hardened, of mechanism operable to receive a tray from said apparatus, move it into confection receiving relation with the coating machine and subsequently transfer the tray to said apparatus.

11. The combination with a confectionery coating machine and an apparatus wherein trays carrying relatively movable plaques loaded with coated confections are conveyed until the coatings are hardened, of mechanism operable to receive a tray from said apparatus, move it into confection receiving relation with the coating machine and subsequently transfer the tray to said apparatus, and means for automatically moving the plaque relatively to its tray while the latter is in confection receiving relation with the coating machine.

12. The combination with a confectionery coating machine and an apparatus wherein trays carrying relatively movable plaques loaded with coated confections are conveyed until the coatings are hardened, of mechanism operable to receive a tray from said apparatus, move it into confection receiving relation with the coating machine and subsequently transfer the tray to said apparatus, and means operable by the movement of a succeeding tray toward confection receiving relation with the coating machine to move the plaque on the tray already positioned in such relation.

13. The combination with a confection coating machine and an apparatus wherein trays carrying relatively movable plaques loaded with coated confections are conveyed until the coatings are hardened, of mechanism operable to receive a tray from said apparatus, move it into confection receiving relation with the coating machine and subsequently transfer the tray to said apparatus, means for automatically moving the plaque relatively to its tray while the latter is in confection receiving relation with the coating machine, and means for restoring the plaque to its original position relatively to its tray before the latter is again presented to the coating machine.

14. The combination with a confectionery coating machine and an apparatus wherein trays carrying relatively movable plaques loaded with coated confections are conveyed until the coatings are hardened, of mechanism operable to receive a tray from said apparatus, move it into confection receiving relation with the coating machine and subsequently transfer the tray to said apparatus, means for automatically moving the plaque relatively to its tray while the latter is in confection receiving relation with the coating machine, and means operable during the subsequent transfer of the tray from said apparatus to the coating machine to restore the plaque to its original position relatively to its tray.

15. The combination with a confectionery coating machine and an apparatus wherein trays carrying relatively movable plaques loaded with coated confections are conveyed until the coatings are hardened, of mechanism operable to receive a tray from said apparatus, move it into confection receiving relation with the coating machine and subsequently transfer the tray to said apparatus, means operable by the movement of a succeeding tray toward confection receiving relation with the coating machine to move the plaque on that tray already positioned in such relation, and means for restoring the plaque to its original position relatively to its tray before the latter is again presented to the coating machine.

16. The combination with a confectionery coating machine and an apparatus wherein trays carrying relatively movable plaques loaded with coated confections are conveyed until the coatings are hardened, of mechanism operable to receive a tray from said apparatus, move it into confection receiving relation with the coating machine and subsequently transfer the tray to said apparatus, means operable by the movement of a succeeding tray toward confection receiving relation with the coating machine to

move the plaque on that tray already positioned in such relation, and means operable during the subsequent transfer of the tray from said apparatus to the coating machine to restore the plaque to its original position relatively to its tray.

17. The combination with a confectionery coating machine, having a confection carrying belt, and an apparatus wherein trays loaded with coated confections are conveyed until the coatings are hardened; of mechanism operable to receive a tray from said apparatus, move it into confection receiving relation with the coating machine and subsequently transfer the tray to said apparatus, and auxiliary means for alining one end of the tray with the delivery end of said belt.

18. The combination with a confectionery coating machine, having a confection carrying belt, and an apparatus, wherein trays loaded with coated confections are conveyed until the coatings are hardened; of mechanism operable to receive a tray from said apparatus, move it into confection receiving relation with the coating machine and subsequently transfer the tray to said apparatus, and supplementary means capable of moving the tray vertically and horizontally into a predetermined position with respect to the delivery end of said belt.

19. The combination with a confectionery coating machine, having a confection carrying belt normally moving continuously, of intermittently operable means for presenting trays carrying relatively movable plaques into confection receiving relation with said belt, means operable while the tray is at rest in such relation to move said plaque to receive the confections delivered by said belt, and means for assisting in spacing the confections on said belt so that no confections will pass off said belt while said tray is in motion.

20. The combination with a confectionery coating machine, having a confection carrying belt normally moving continuously, of intermittently operable means for presenting trays carrying relatively movable plaques into confection receiving relation with said belt, means operable while the tray is at rest in such relation to move said plaque to receive the confections delivered by said belt, and means for assisting in spacing the confections on said belt in groups each sufficient for one plaque with a space between the groups so that no confections will pass off said belt while said tray is in motion.

21. The combination with a confection carrying belt, of intermittently operable means for moving trays vertically into and out of the plane of said belt and in a path such that one end of each tray is carried into closely adjacent relation with the delivery end of said belt, and means operable as each tray is moved into the plane of said belt to move the tray to bring one end thereof into substantially contiguous relation with said end of said belt.

22. The combination with a confection carrying belt, of intermittently operable means for moving trays vertically and moving one tray approximately into the plane of the delivery end of said belt and another tray out of the plane of said belt and in a path such that one end of each tray is carried into closely adjacent relation with the delivery end of said belt, and means operable after the first tray has been moved approximately into said position to carry one end of the tray into the same plane as said end of said belt.

23. The combination with a confection carrying belt, of intermittently operable means for moving trays carrying relatively movable plaques step by step in a vertical path such that one end of each tray passes in closely adjacent relation to the delivery end of said belt, said means coming to rest in such position that one tray is always moved substantially into the same level as that of the delivery end of said belt, means operable while the first named means is at rest to successively supply trays thereto and at the same time move the plaque on that tray positioned on the level of said belt.

24. The combination with a confection carrying belt, of a stationary abutment closely adjacent the delivery end thereof, a series of trays each having a lug, a plaque mounted on each tray for relative movement and having an operating member, intermittently operable conveying means to successively move trays into substantially the plane of the delivery end of said belt and subsequently remove them therefrom, supplementary means to move each tray horizontally against said abutment, and conveying means to successively supply trays to the first conveying means while the latter is at rest and at the same time move the plaque on that tray engaged with said abutment by the engagement of the lug on one tray with the operating member on the other tray.

25. The combination with a confection carrying belt, of a stationary abutment and a stationary inclined plane adjacent the delivery end of said belt, intermittently operable means to successively move trays in a substantially vertical path adjacent said abutment and plane and into approximately the plane of said belt, and means operable as each tray comes to rest in the last named plane to move it horizontally to carry one end thereof up said inclined plane and against said abutment.

26. The combination with a tray conveying apparatus, wherein the loaded trays are carried away by a vertical conveyer and un-

loaded trays are delivered by a horizontal conveyer, of means for receiving a tray delivered by the horizontal conveyer, intermittently operable mechanism for taking the tray from said receiving means and carrying it step by step in a vertical path in parallel and adjacent relation to said vertical conveyer, and intermittently operable mechanism effective during the interval of rest of the first named mechanism to transfer the tray from the first mechanism and insert it in said vertical conveyer.

27. The combination with a tray conveying apparatus, wherein the loaded trays are carried away by a vertical conveyer and unloaded trays are delivered by a horizontal conveyer, of means for receiving a tray delivered by the horizontal conveyer, intermittently operable mechanism for taking the tray from said receiving means and carrying it step by step in a vertical path in parallel and adjacent relation to said vertical conveyer, an intermittently operable endless conveyer effective during the interval of rest of said mechanism to move the tray out of the first named mechanism and insert it partially into said vertical conveyer, and supplementary means to move the tray the remaining distance and into a predetermined position in said vertical conveyer.

28. The combination with a tray, having a plaque movably mounted thereon, of means for automatically loading said plaque with confections, means for moving the plaque relatively to the tray during the loading operation, conveying means to carry the tray through a predetermined path during which the confections may be removed from the plaques and to carry the tray back to its original position, and means operable prior to the return of the tray to move the plaque in an opposite direction.

29. The combination with a tray, having a plaque mounted in endless belt form thereon and an operating member for such plaque, of means for supporting a pair of such trays in adjacent relation, means on one tray for engaging the plaque operating member of the other tray, and means for relatively shifting the trays to engage the last named means with said operating member and move the plaque.

30. The combination with a tray, having a plaque movably mounted thereon, of means for automatically depositing confections on the plaque, and means for moving the plaque relatively to the tray during the depositing operation.

31. The combination with a tray, having a plaque movably mounted thereon, of means for automatically depositing confections on the plaque, means for moving the plaque relatively to the tray during the depositing operation, and means for conveying the loaded tray away and positioning an empty tray in operative relation with the depositing means.

32. The combination with a confection carrying belt, of a stationary abutment and a stationary inclined plane adjacent the delivery end of said belt, intermittently operable means to successively move trays in a substantially vertical path adjacent said abutment and plane and into approximately the plane of said belt, and means operable as each tray comes to rest in the last named plane to move it horizontally to carry one end thereof up said inclined plane and against said abutment, said last named means having associated therewith a yieldable connection permitting continued travel thereof after the tray has engaged said abutment.

33. The combination with a tray, having a plaque movably mounted thereon, of means for automatically depositing confections on the plaque, means for moving the plaque relatively to the tray during the depositing operation, and means for conveying the tray loaded with confections through a cooling apparatus.

34. The combination with a tray, having a plaque movably mounted thereon, of means for automatically depositing confections on the plaque, means for moving the plaque relatively to the tray during the depositing operation, means for conveying the tray loaded with confections through a cooling apparatus, and reconveying it into receiving relation with said depositing means, and means for again moving the plaque relatively to the tray before it is again positioned in said relation.

In testimony whereof I have affixed my signature.

ALONZO LINTON BAUSMAN.