

Jan. 6, 1931.

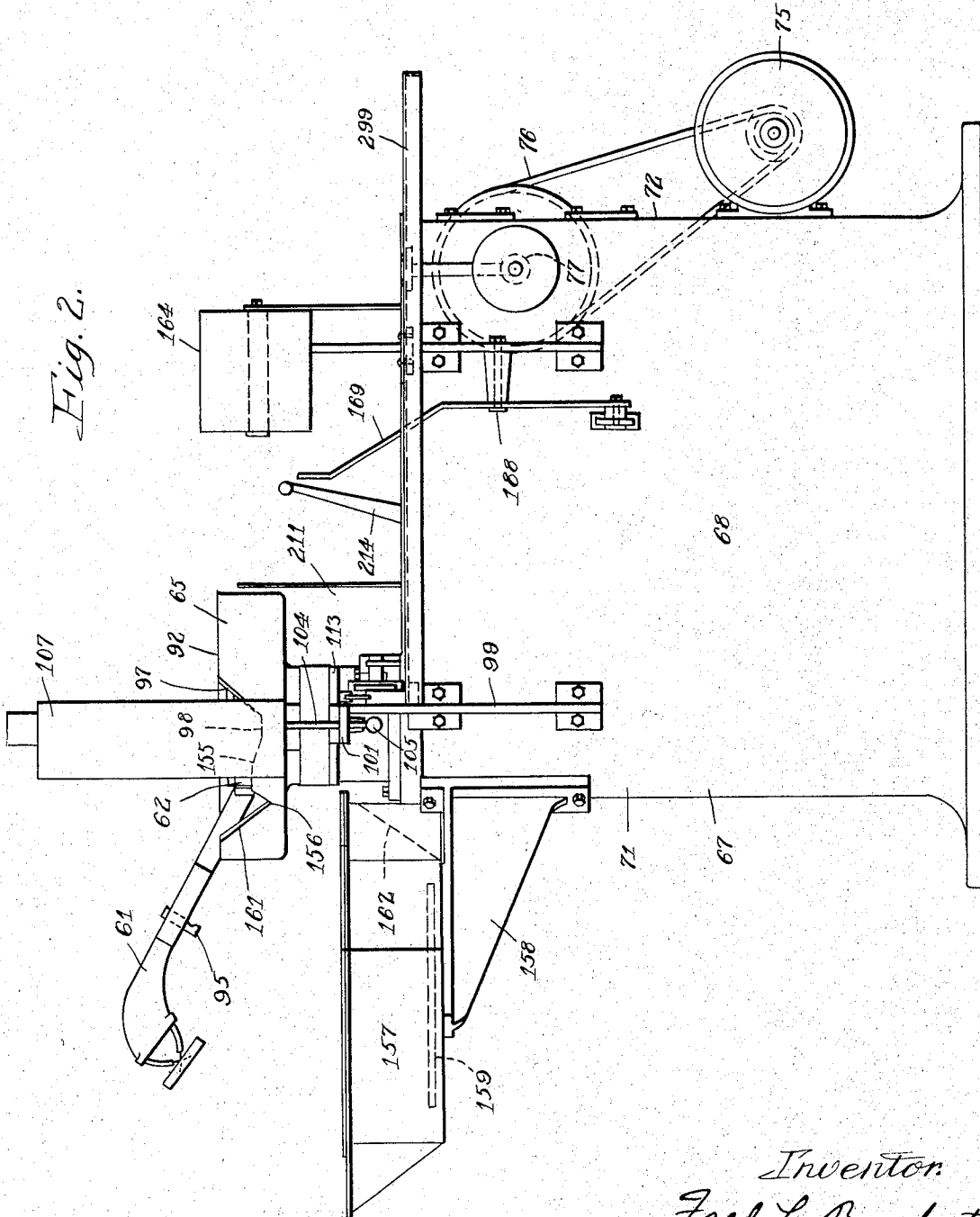
F. L. BORCHERT

1,787,773

ARTICLE MAKING AND WRAPPING MACHINE

Original Filed Nov. 10, 1923 11 Sheets-Sheet 2

Fig. 2.



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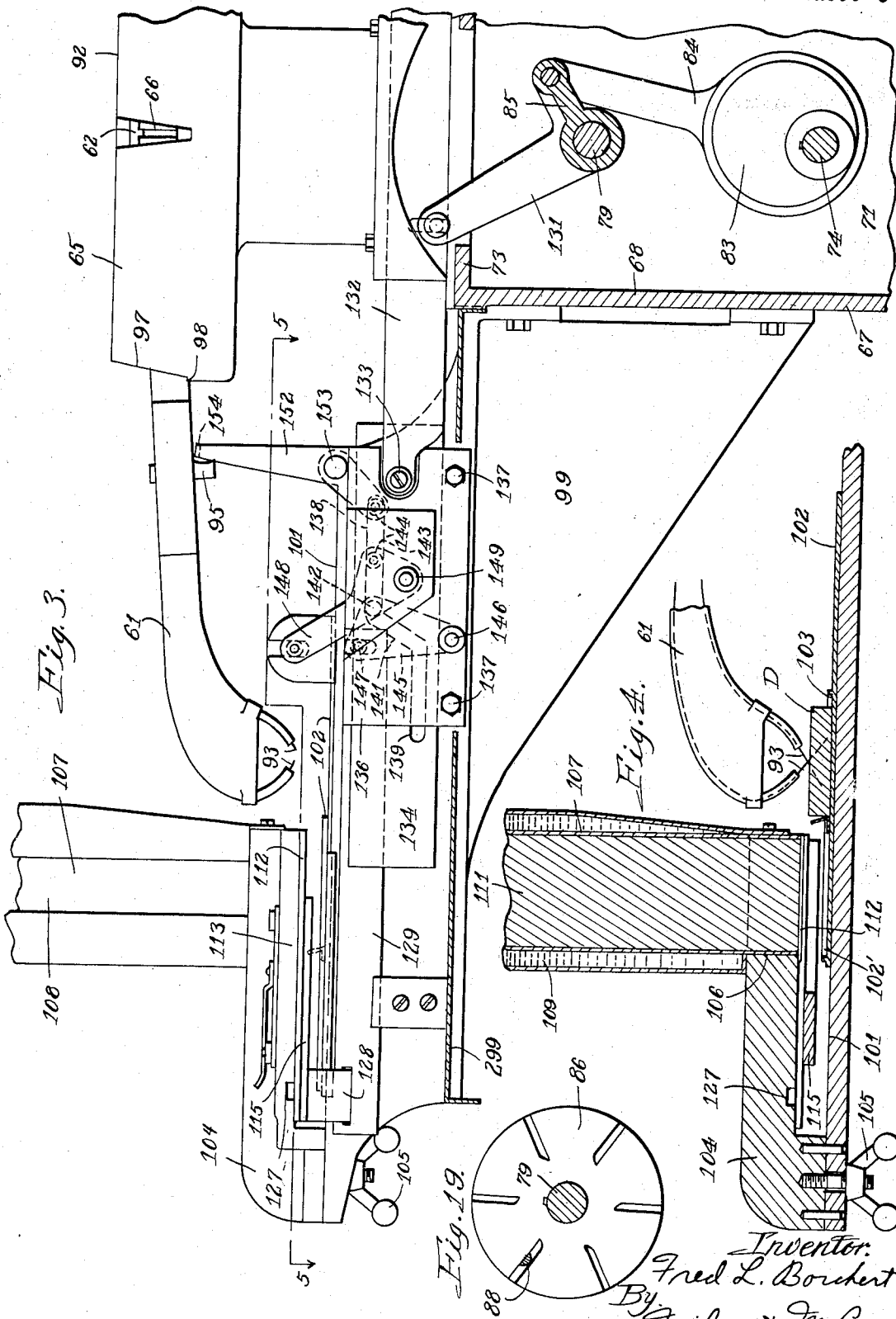
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ARTICLE MAKING AND WRAPPING MACHINE

Original Filed Nov. 10, 1923 11 Sheets-Sheet 3



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ARTICLE MAKING AND WRAPPING MACHINE

Original Filed Nov. 10, 1923 11 Sheets-Sheet 4

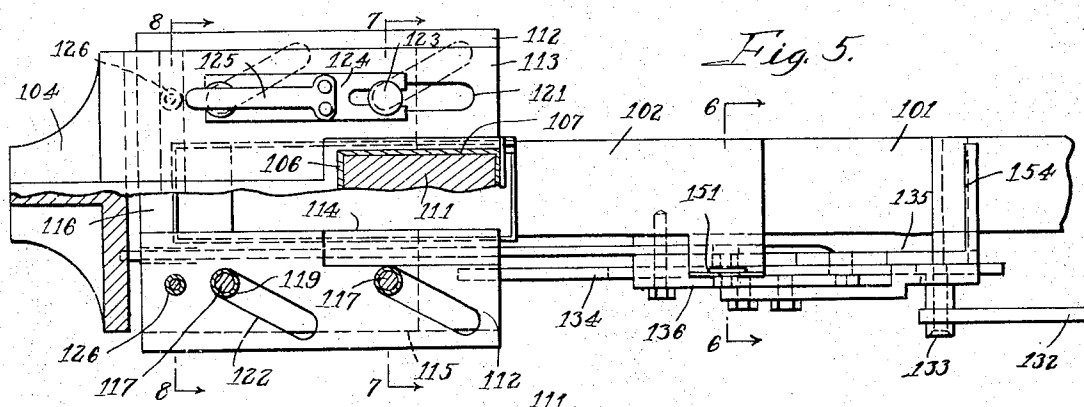


Fig. 5.

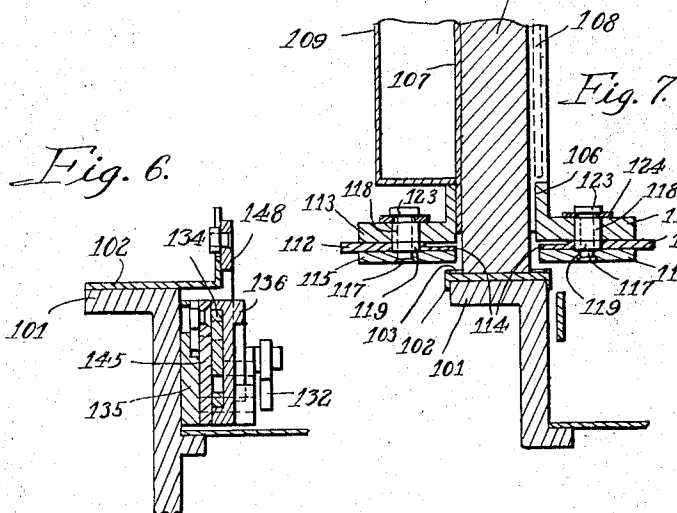
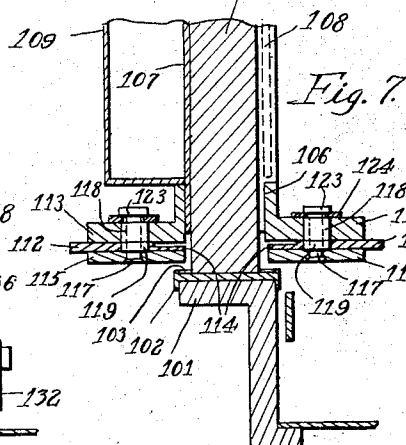


Fig. 6.



Jan. 6, 1931.

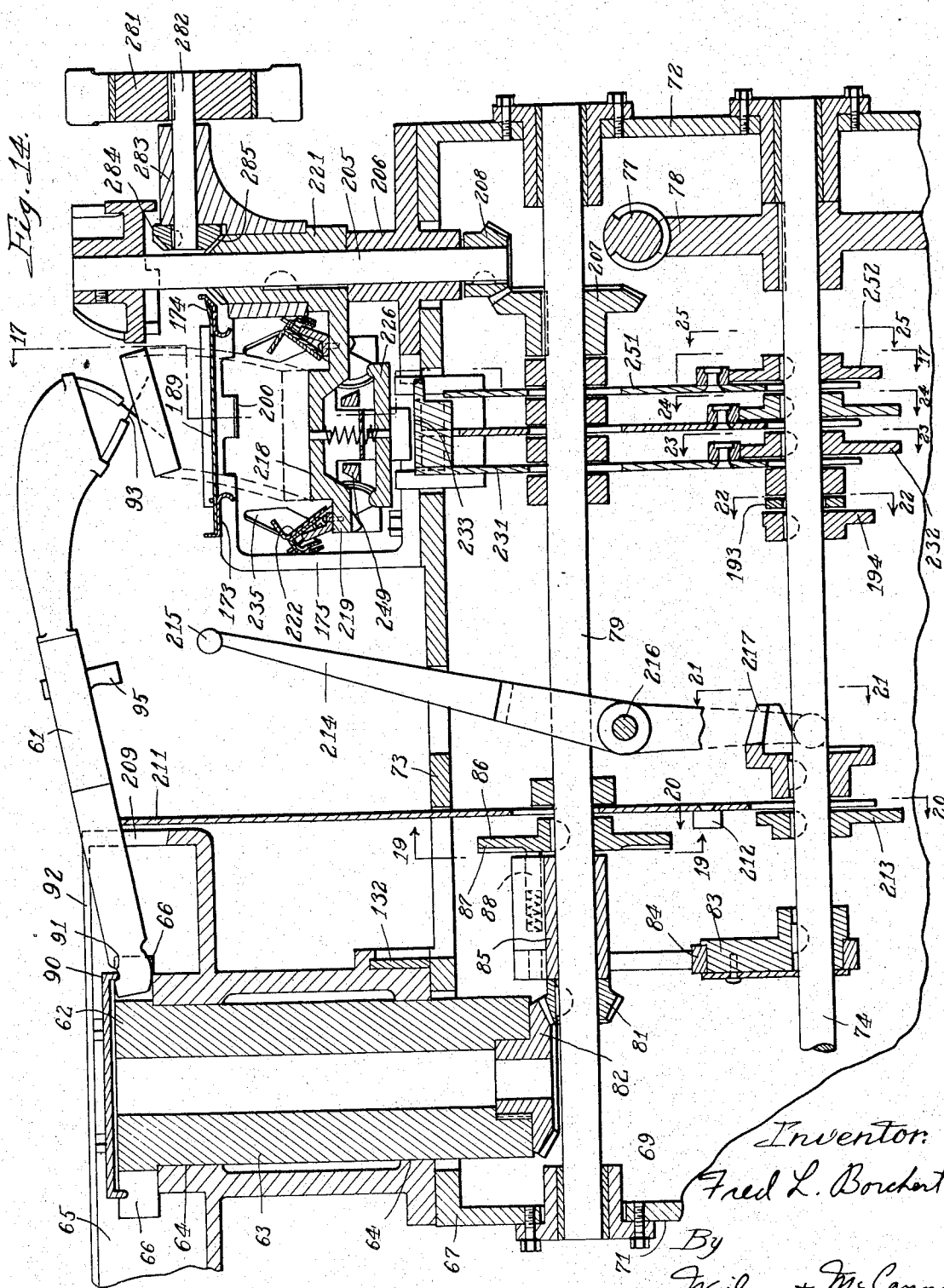
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ARTICLE MAKING AND WRAPPING MACHINE

Original Filed Nov. 10, 1923

11 Sheets-Sheet 5



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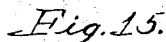
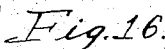
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ARTICLE MAKING AND WRAPPING MACHINE

Original Filed Nov. 10, 1923 11 Sheets-Sheet 6



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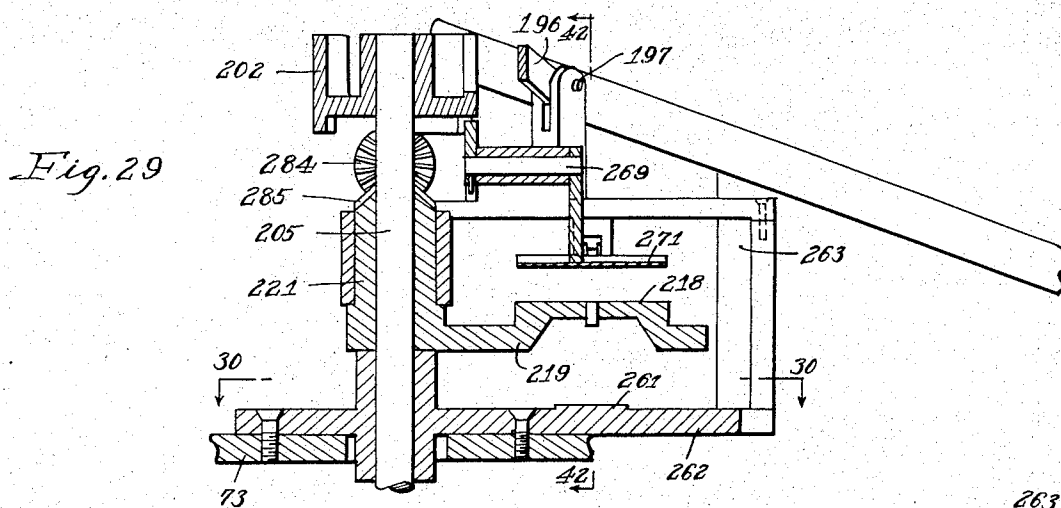
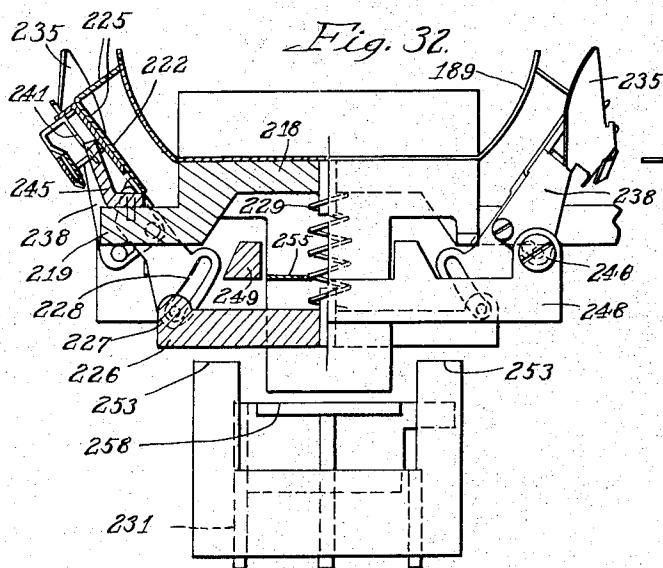
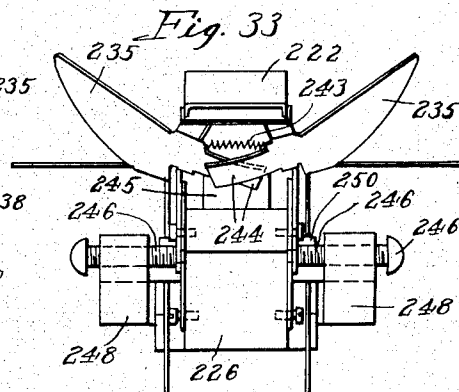
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ARTICLE MAKING AND WRAPPING MACHINE

Original Filed Nov. 10, 1923 11 Sheets-Sheet 8



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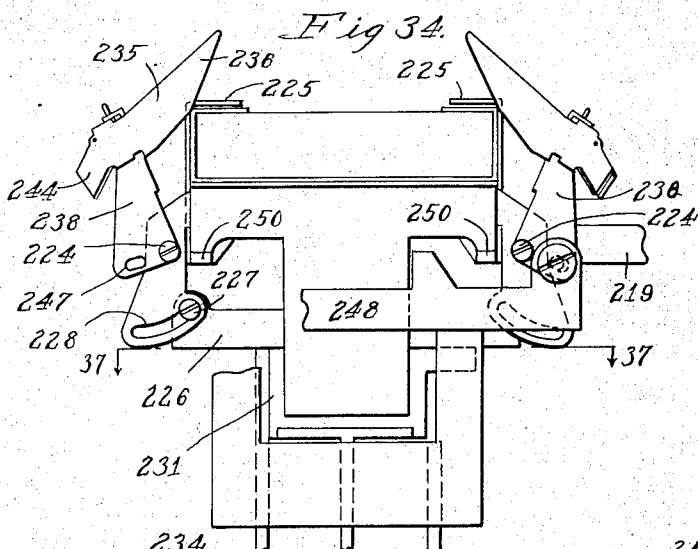
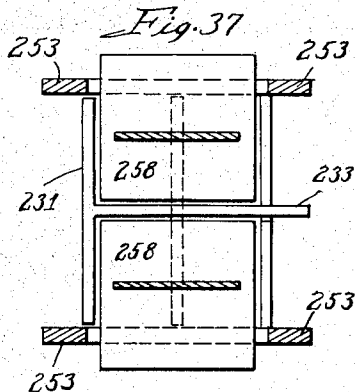
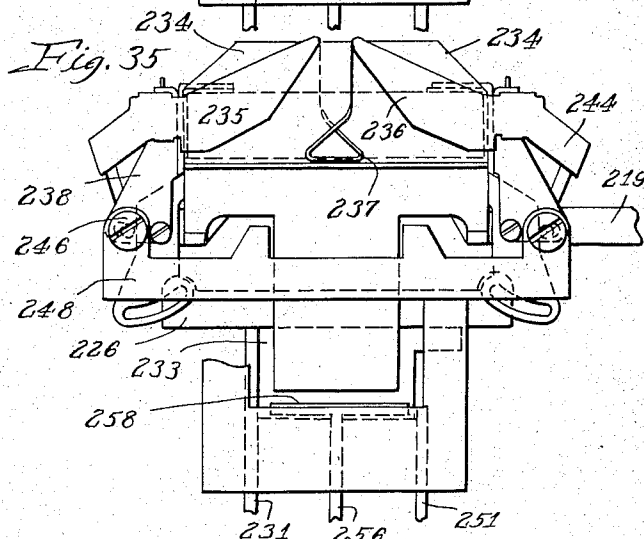
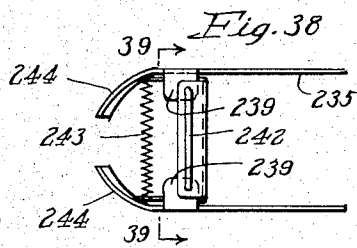
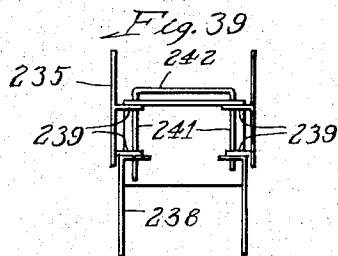
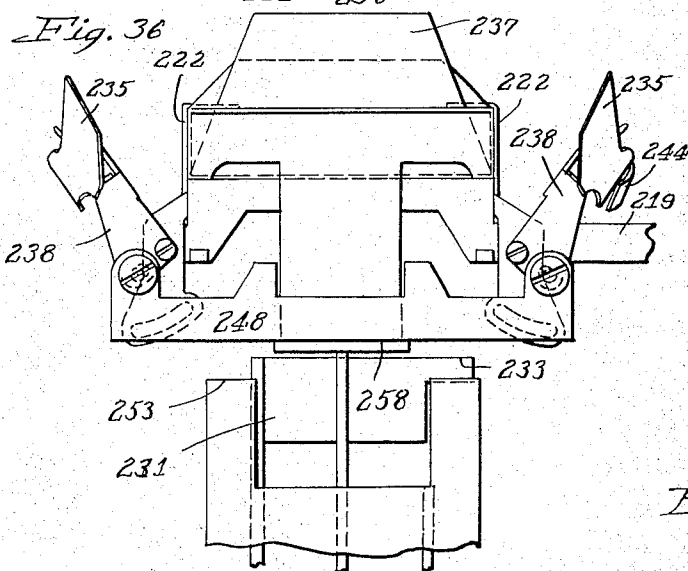
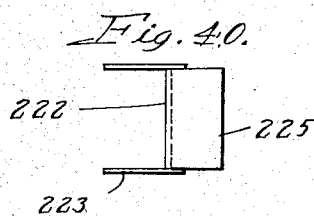
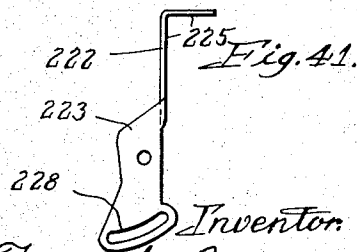
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ARTICLE MAKING AND WRAPPING MACHINE

Original Filed Nov. 10, 1923 11 Sheets-Sheet 9



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ARTICLE MAKING AND WRAPPING MACHINE

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Fig. 42.

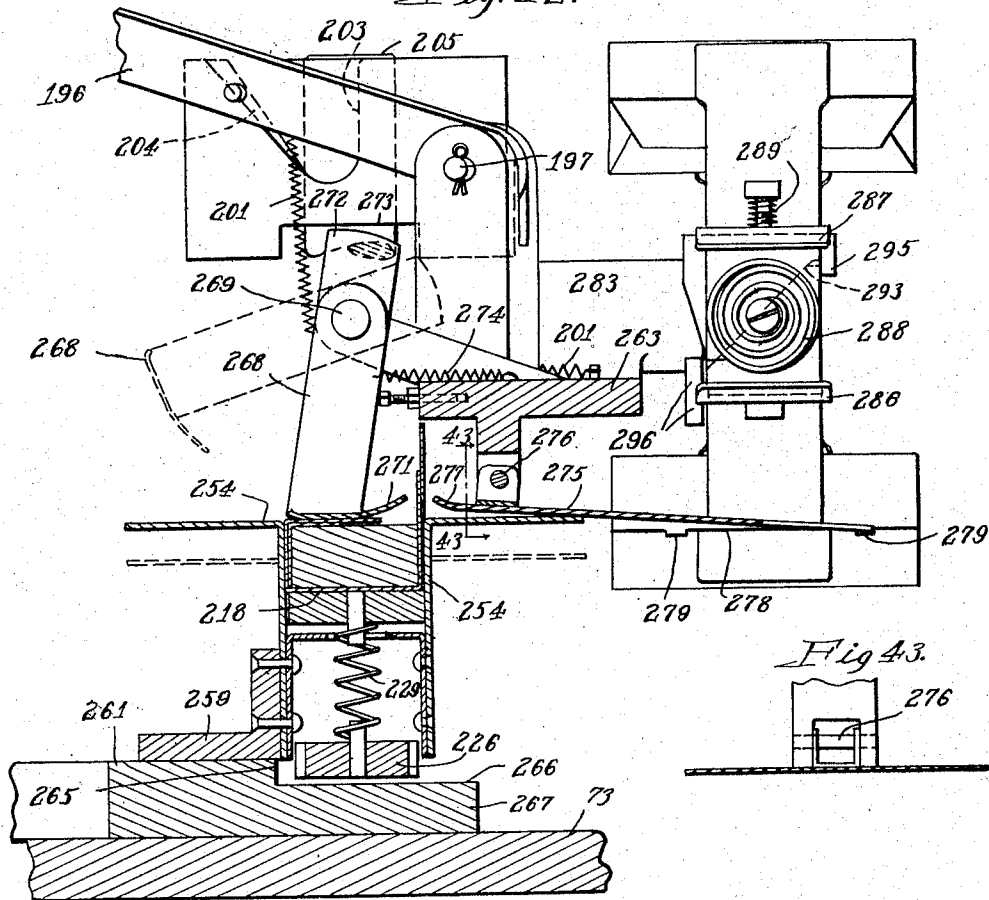


Fig 43.

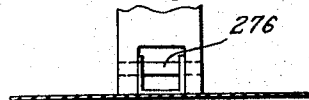


Fig. 44.

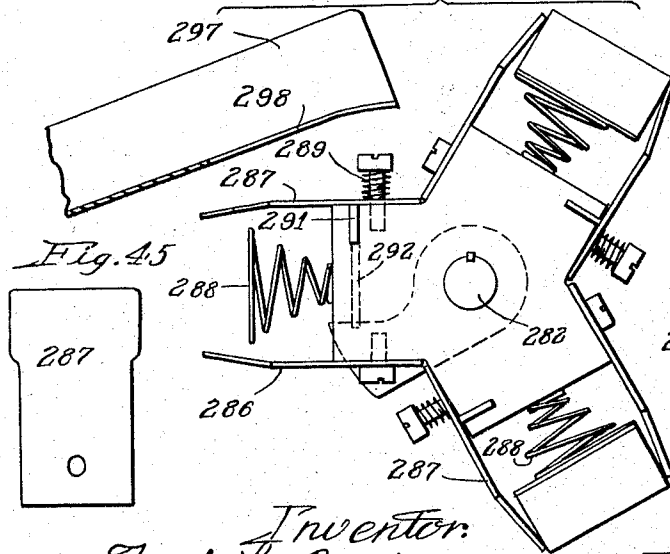
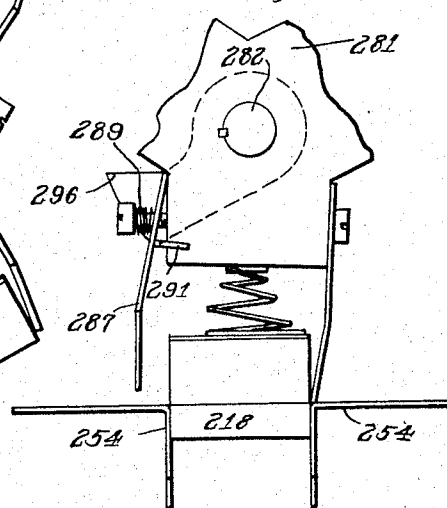


Fig. 46.



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ARTICLE MAKING AND WRAPPING MACHINE

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Fig. 48.

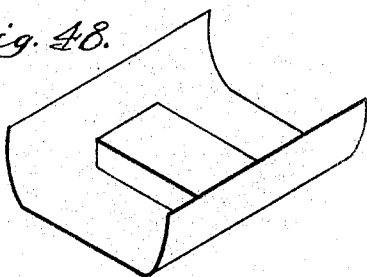


Fig. 47.

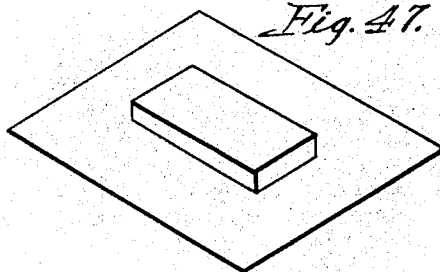


Fig. 49.

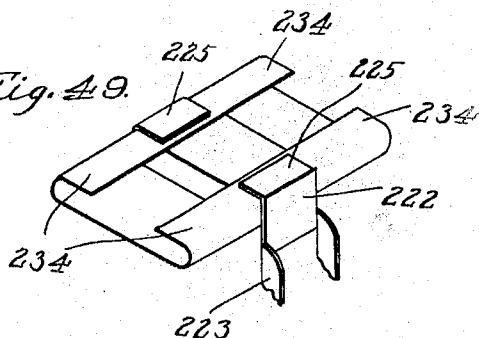


Fig. 52.

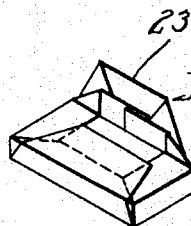


Fig. 50.

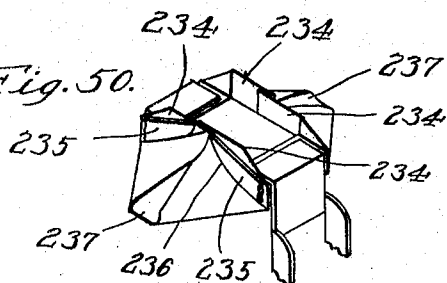


Fig. 53.

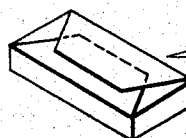
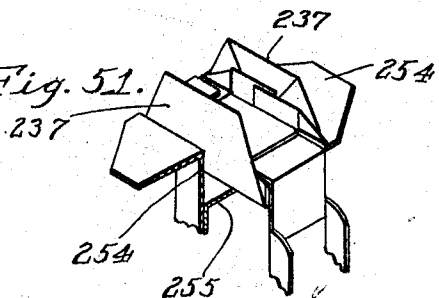


Fig. 51.



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UNITED STATES PATENT OFFICE

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ARTICLE MAKING AND WRAPPING MACHINE

Original application filed November 10, 1923, Serial No. 673,905. Divided and this application filed August 3, 1928. Serial No. 297,348.

This is a division of my application Serial No. 673,905, filed November 10, 1923, now Patent No. 1,687,707, granted October 16, 1928, for confection making machine. My invention while applicable to the manufacture and wrapping of various articles, is especially designed for making and wrapping confections such as chocolate coated bars. The machine disclosed herein automatically cuts a cake or slab of ice cream into small blocks or bars for individual eating, coats the bars, and then wraps the coated bars. The wrapped ice cream confections are then ready for distribution and sale, it being customary, however, to keep them at a low temperature until delivered to the customer. My patent above mentioned, relates to the manufacture of the confections, especially to the cutting and coating thereof. The cutting mechanism per se is claimed in my divisional application Serial No. 198,617 filed June 13, 1927, now Patent No. 1,687,708, granted October 16, 1928, and the work holding and transferring mechanism is claimed in my divisional application Serial No. 297,349 filed August 3, 1928. The present application relates more particularly to the combined machine for performing cutting, coating, and wrapping operations in the manufacture of various articles and commodities such as ice cream, candy, cheese, cake, sugar, soap, etc. in bar, lump and special forms. The wrapping mechanism per se is claimed in my application Serial No. 374,317, filed June 28, 1929, this being a division of the present application.

One of the objects of the present invention is to provide a machine for economically making and wrapping articles such as chocolate coated ice cream bars.

Another object is to provide the combined machine of the character described having mechanism for satisfactorily wrapping articles having irregular shapes or which in the course of production may vary in shape. In this connection I have also aimed to provide mechanism for wrapping coated articles which will not crack or mar the coating in the event of irregularities in the shape or portions of the articles.

Other objects and attendant advantages will be appreciated by those skilled in this art as the invention becomes better understood by reference to the following description and considered in connection with the accompanying drawings, in which—

Figure 1 is a top view of a machine embodying my invention;

Fig. 2 is a front elevation of the machine, with the wrapping mechanism and some of the picker arms removed;

Figs. 3 and 4 are enlarged vertical sections taken substantially on the lines 3—3 and 4—4, respectively, of Fig. 1;

Fig. 5 is a horizontal section taken substantially on the line 5—5 of Fig. 3;

Figs. 6, 7 and 8 are vertical sections taken substantially on the lines 6—6, 7—7 and 8—8, respectively of Fig. 5;

Fig. 9 is a top view of one of the picker arms removed;

Fig. 10 is a side view of the picker arm;

Figs. 11, 12, and 13 are cross-sections taken on the lines 11—11, 12—12 and 13—13, respectively, of Fig. 10;

Fig. 14 is an enlarged vertical section taken substantially on the line 14—14 of Fig. 1, and taken in part on the line 14—14 of Fig. 15;

Fig. 15 is an enlarged top view of the wrapper-feeding mechanism and the wrapping mechanism shown in Fig. 1;

Figs. 16, 17 and 18 are sectional views taken substantially on the lines 16—16, 17—17 and 18—18, respectively, of Fig. 15, the vertical section of Fig. 17 being taken on the line 17—17 of Fig. 14;

Fig. 19 (Sheet 3) is a section taken on the line 19—19 of Fig. 14;

Figs. 20, 21, 22, 23, 24, and 25 are sections taken substantially on the lines 20—20, 21—21, 22—22, 23—23, 24—24 and 25—25, respectively, of Fig. 14, showing in the last three figures the upper ends of the lifter bars;

Figs. 26, 27 and 28 are top views of the lifter bars shown in Figs. 23, 24 and 25, respectively;

Fig. 29 is a section taken substantially on

the line 29—29 of Fig. 15, with part of the wrapping mechanism removed;

Fig. 30 is a horizontal section taken on the line 30—30 of Fig. 29;

5 Fig. 31 is an enlarged top fragmentary view of one of the wrapping units or boxes;

Fig. 32 is a side view of said wrapping unit partly in vertical section as taken on the line 32—32 of Fig. 31 showing the upper
10 end of the cam lifter bars;

Fig. 33 is an end view of said wrapping unit;

Figs. 34, 35 and 36 are side views of one of the wrapping units showing the parts at different stages of the wrapping operation, as
15 will be explained more fully hereinafter;

Fig. 37 is a horizontal section taken substantially on the line 37—37 of Fig. 34;

Fig. 38 is a top section of one of the pairs
20 of tucker fingers forming part of said wrapping unit;

Fig. 39 is a section taken on the line 39—39 of Fig. 38;

Figs. 40 and 41 are top and side views, respectively, of one of the end folders used in
25 said wrapping unit;

Fig. 42 is an enlarged vertical section taken substantially on the line 42—42 of Fig. 15;

Fig. 43 is a section taken on the line 43—43
30 of Fig. 42;

Fig. 44 is an end view of the package-discharging means showing the relation of the delivery chute thereto;

Fig. 45 is a face view of one of the gripper
35 plates forming part of said package-discharging means;

Fig. 46 is a fragmentary view showing the action of one of the units of said package-discharging means at one stage in its operation;
40 and

Figs. 47 to 53 inclusive, are perspective views showing different stages in the wrapping of the bar, Fig. 53 showing the completely wrapped bar.

45 While my invention in its several aspects is applicable to the manufacture and wrapping, or to the wrapping only of various commodities as mentioned above, it is in the present instance embodied in a machine especially designed for the manufacture and
50 wrapping of confection bars, such for example as ice cream bars. Taking this as one practical embodiment of my invention, the following description will for the purpose of
55 clarity be directed to the functions of this particular machine. In this regard, it will be noted that the commodity is in the form of a small block or bar; and it should be understood that in the use of the terms "bar" or
60 "block" applicant contemplates any material or articles irrespective of their size or shape adapted to be handled, worked or wrapped by apparatus embodying the invention claimed herein.

65 Before entering into a detailed description

of the construction and operation of such machine, I will outline briefly its function and the cycle of operations as performed with respect to a single bar. The object is to cut bars from a brick or slab of ice cream, coat the bars with an edible substance such
70 as chocolate, and wrap them in suitable wrappers ready for sale. The present machine cuts bars from the slab, feeds them in succession to a loading or receiving station at
75 which each bar is picked up by an impaling device referred to as a picker arm. A series of these picker arms, twelve in the present instance, are carried on a head, which will be indexed, moving the picker arms in succession
80 from station to station. Each picker arm picks up a bar at the loading station and carries it by one or more indexing movements to a coating station, at which the bar is lowered into a bath of chocolate and is then raised,
85 permitting the surplus chocolate to drip off, and that adhering, to set or harden. During succeeding indexing movements, the coating on the bar (still carried by its picker arm) will harden, and when the bar reaches a wrapping
90 or discharging station it will be delivered from the picker arm onto a wrapper. This wrapper has been fed from a strip or coil to said wrapping station and cut off. The bar and its wrapper will then be acted
95 upon by a wrapping mechanism which folds in the ends of the wrapper, tucks in the corners of the side portions and then folds the sides over the tucked-in portions and the top of the bar, thus completely wrapping the bar. The
100 wrapped bar will then be discharged, as for example, into a delivery chute. The foregoing operations are all performed automatically in predetermined timed relation, a series of bars being acted upon at all times, and a
105 completely wrapped bar being delivered at each indexing movement of the head. In the present machine, there are three wrapping units or boxes carried on a head which indexes in timed relation with the picker arm
110 head, but this is not essential to the invention as a single wrapping unit may be used.

Referring now to the drawings, and especially to Fig. 1, the picker arms 61 are carried in circumferentially spaced, radiating relation by a head or carrier 62, these reference
115 numerals being generally applied. The loading, coating and wrapping stations are designated by the letters A, B, and C, respectively, Fig. 1. The head 62 will be indexed in step
120 by step movements in a clockwise direction viewing said figure, causing the picker arms to be moved in succession from station to station, it being noted that the bars harden in the period between the stations B and C.
125

Referring more particularly to Sheets 1 to 5 inclusive with reference to the construction and operation of picker arms 61 and head 62, it will be observed (Fig. 14) that the head has a vertical column 63 revoluble in bearings
130

64 in a stationary cam casting designated generally by 65, and rests at its upper end on said casting; the upper end of the head having radial slots 66 in which the picker arms are mounted, as will be presently more fully described. Said cam casting 65 is bolted to the top of the main frame designated generally by 67, which has front and back walls 68 and 69, end walls 71 and 72 and a top wall 73.

The mechanism which indexes the head 62, comprises a main drive shaft 74 journaled in the frame and continuously driven by suitable means, such as an electric motor 75, connected to said shaft through the agency of a belt 76 and a worm and gear 77 and 78 respectively, a secondary shaft 79 connected to the head by bevel gears 81 and 82 having a one to two ratio, and means operative between the shafts 74 and 79 for intermittently imparting a partial rotative movement to the latter. This means in the present instance consists of an eccentric 83 fixed to the shaft 74 and connected by a band 84 to a rocker arm 85 loose on the shaft 79, a ratchet toothed disk 86 fixed to the shaft 79 and having six equally spaced ratchet teeth 87 (Fig. 19), and a spring-pressed pawl or dog 88 carried by the rocker arm and adapted to engage said teeth. Upon each complete revolution of the main driving shaft 74 in a counter-clockwise direction viewing Fig. 3, the dog 88 which is in engagement with one of the teeth 87 will be drawn downwardly during the first half revolution of the eccentric 83 until it is carried into engagement with the face of the next lower tooth, and upon the succeeding half revolution of the eccentric 83, the dog will be moved upwardly, imparting rotative movement to the disk 86 in a clockwise direction viewing Fig. 19, for one-twelfth of a revolution in a clockwise direction viewing Fig. 1. It will thus be noted that the secondary shaft 79 and parts connected thereto will remain at a standstill during one-half of a revolution of the main shaft 74, and will be moved 60 degrees during the second half revolution of said main shaft, this being repeated, causing the head 62 and other parts described hereinafter to be intermittently indexed in step-by-step movements for advancing the picker arms to the several stations.

Each picker arm or work holder best shown in Figs. 5 to 13 inclusive, comprises a shank 89 adapted to be inserted in one of the slots 66, as shown in Fig. 14, with a recess 91 engaged beneath a retaining plate 90 fixed to the top of the head 62. Each picker arm rests intermediate its ends on one of several supports, thereby holding the outer end of the picker arm, which is adapted to carry a bar at the desired elevation. During the greater part of the operation the picker arms ride intermediate their ends on the top edge 92 of the cam casting, which edge is shaped to provide cam surfaces which will be noted hereinafter

in the order of their function for controlling movements of the picker arms.

My invention contemplates the provision of a novel form of picking or impaling elements which will penetrate and carry a comparatively soft bar without marring it and which leave a maximum surface of the bar exposed for coating. In the present embodiment, this means comprises a pair of flexible wire fingers or prongs 93 slidably mounted in the outer end of the picker arm and attached to a slide 95 adapted to be moved lengthwise on the shank for advancing and retracting the fingers or picker elements. Said wire fingers 93 are guided at their outer ends in tubular extensions 96 so arranged that the wires will cross in close proximity and be projected in diverging relation. Thus, viewing Fig. 4, when a picker arm is moved to the loading station and lowered by reason of riding down an inclined cam face 97 to the bottom 98 thereof which forms a stop (Fig. 2) the wire fingers will be positioned directly over and in close proximity to a bar D at the loading station A, and upon projecting said fingers by moving the slide 95 outwardly, said fingers will enter the bar at substantially a common point and be disposed in diverging relation within the bar. Upon raising the picker arm, the bar will be carried with it by reason of the hold had by the fingers. It will be observed that by lowering the picker arm to a lesser degree than shown, the wire fingers will enter the bar at spaced points, the distance between which may be varied according to the location of the stop surface 98 above mentioned. In practice, the distance between these penetration points may be varied by raising or lowering the stop surface 98, and the extent of projection of the fingers may also be varied by greater or less movement of the slide 95, thus accommodating the picker arm to bars of different sizes and consistency. It will be observed that wire picker fingers of this kind do not to any appreciable degree mar the bar, that practically the entire surface of the bar is exposed for coating, and that when the fingers are withdrawn there is only a very small hole, or at the most two such holes, not covered by the coating material. It follows that this picker means does not appreciably mar the product, and in the present case the coating material seals the ice cream bar except for the small opening or openings left by the wire fingers. It will also be observed that by reason of this construction, the elements which hold the bar are confined within the same when it is immersed in a coating material; and only a small portion of the picker arm comes in contact with such material, so that after the picker fingers have been withdrawn they are not covered with coating material, nor does this material interfere in any way detrimental to the operation of the pickers. The work holding and transferring

means just described is claimed in my divisional application, Serial No. 297,349, filed August 3, 1928.

The apparatus for cutting and feeding the cream bars to the loading station will now be described, reference being had particularly to Figs. 3 to 8 inclusive. This apparatus per se is claimed in my divisional application, Serial No. 198,617, filed June 13, 1927.

On the front wall 68 of the frame is bolted a bracket designated generally by 99, having formed at its top a flat horizontal bed 101 disposed in a plane radial with respect to the head 62. A cream bar slide or carrier designated generally by 102 rests on the bed 101 and is adapted to be reciprocated lengthwise thereon for moving its cream-carrying portion 103 back and forth between a receiving position beneath the slab of ice cream and a position which I have described above as the loading station. The means for reciprocating the cream bar slide will be presently described. Above said bed is supported a hopper in which one or more bricks or slabs of ice cream may feed downwardly by gravity, and from the bottom of which bars will be cut and deposited on said bar-receiving portion 103 of the slide 102. This hopper and the cutter assembly are carried on a bracket designated generally by 104, detachably secured to the outer end of the bed bracket 101 by means of a nut and bolt 105 and locating pins as shown in Fig. 4. Said bracket 104 is shaped to provide a throat 106 overlying the bed 101; and in this throat is detachably mounted the lower end of a hopper 107. The hopper, adapted to be filled with one or more bricks of cream from the top, is inclosed save for an opening 108 on one side, with a water jacket 109. This water jacket is for the purpose of tempering the hopper or chute, or in other words, for preventing the ice cream from freezing to the walls or guiding faces in the chute, and in this way interfering with free gravity feed of the cream brick 111. On the other hand, if the ice cream is of a kind that does not solidify to the same degree as ordinary cream the jacket may be packed with ice so that the walls or guides in the hopper will be kept cold and have no tendency to melt the cream.

The cream brick in the hopper normally rests on a pair of cutter blades 112 supported beneath the bracket 104 and above the slide 102 from horizontal ledges 113 over-reaching the bed 101. These blades, rectangular in form as shown in Fig. 5, and comparatively thin as shown in Fig. 7, each have a cutting edge 114 and are adapted to be simultaneously advanced toward each other in the plane in which they are supported so as to bring the cutting edges together in a cutting action. When closed, the brick of cream 111 rests upon and is supported by these cutting blades. When the blades are retracted, the

brick feeds down by gravity and rests on the bar-receiving portion 103 of the slide, as shown in Fig. 7. Upon the next succeeding action, the lower end of the brick will be severed, thus leaving a cream bar on the slide 102, which will be fed to the loading station by movement of said slide as will be presently described. The cutter blades rest upon and are directly supported by a flat U-shaped cutter operating slide, the side portions 115 of which underlie the blades and are joined by a cross portion 116. Each side portion 115 of said slide has a pair of fixed upstanding pins 117, upon each of which is mounted a pair of rollers 118 and 119. The rollers 118 are disposed in slots 121 in the ledges 113 parallel with the movement of the slide, and the rollers 119 are disposed in angular slots 122 in the cutter blades. Each of the pins 117 reaches above the ledges 113 and has an enlarged head 123 beneath which is located a removable latch member 124. These latch members are bifurcated at their ends so as to be received under the heads 123, and a suitable flat spring 125 is provided on the top of each latch member overlying one of the heads 123 for preventing displacement of the parts. It will be seen that upon removal of the latch member, the cutter operating slide and the cutter blades will fall from position so that they may be removed for cleaning.

Each cutter blade carries near one end a roller 126 located in a transverse slot 127 in the under side of the bracket 104. Said cutter-operating slide has a depending part 128 detachably connected with a cutter feed bar 129 as shown in Fig. 3, so that upon lengthwise reciprocation of said feed bar the slide will be reciprocated and will cause by the action of its roller 119 on the walls of the slots 122, the cutter blades to be fed to closed and opened positions for the purpose described. In further regard to the movement of the cutter blades, it will be noted that they are held against lengthwise displacement by the action of the rollers 126 in the slot 127, thus resisting the end thrust imposed by the action of the angular slots 122 and reducing the end thrust friction to a minimum. It follows from the foregoing that when the cutter feed bar moves inwardly from its retracted position, that is, to the right viewing Fig. 3, the cutter blades will be closed on the brick of cream severing the lowermost end portion, which constituting the bar to be subsequently coated and wrapped, rests on the cream slide as above mentioned and is adapted to be carried to the loading station by movement of such slide. After this cream bar has been removed from the loading station by the impaling picker arm as will be presently described, the cream bar slide will be retracted until its receiving portion 103 underlies the brick 111; and upon the return stroke of the cutter feed bar the

cutter blades will be retracted, permitting the brick to feed down by gravity and rest on said portion 103. It will be noted that when the cream bar slide is in its advanced position, its rear end 102' underlies the brick so as to catch any drippings therefrom.

Mechanism is provided for operating the cutter feed bar 129, the cream bar slide 102 and the picker finger slide 95 in co-operating relation. This mechanism, best shown in Figs. 3, 5, 6, 7 and 8 is operated from the rocker arm 85 above mentioned. This rocker arm has formed integrally therewith, an upstanding arm 131 connected by means of a pin and slot to a link 132 adapted to be reciprocated in the plane of the cutter feed bar by oscillation of said rocker arm. Said link 132 is in turn pivotally connected at 133 to a flat cam slide 134 slidably mounted between an inner and an outer housing 135 and 136 fixed by bolts 137 to the bracket 99. In this cam slide is formed a slot composed of upper and lower parallel portions 138 and 139 joined by an inclined slot portion 141. In the normal or retracted position of the cam slide shown in Fig. 3, there are three rollers 142, 143 and 144 disposed in the upper slot portion 138. The roller 142 is carried by a lever 145 disposed between said cam slide and the inner housing member 135, said lever being pivotally mounted at 146 and connected at 147 to the cutter feed bar. The roller 143 is carried by a lever 148 pivoted at 149 between said cam slide and the outer housing member 136, said lever being pivotally connected by a pin and slot 151 to the cream bar slide 102. The roller 144 is carried by a lever 152 pivotally mounted at 153 on the inner end of the bed 101, this lever having a broad operating end 154 adapted to actuate the slide 95 of the picker arm located at the loading station. When the rocker arm 131 is swung to the right viewing Fig. 3, by the action of the eccentric 83, the cam slide 134 will be moved to the right, thereby causing the inclined cam slot 141 to actuate the rollers 142, 143 and 144 in succession. The roller 142 will be operated to swing the lever 145 in a clockwise direction, thereby moving the cutter feed bar to the right and closing the cutter blades. The roller 143 will next be operated by said inclined cam portion 141 to swing the lever 148 in a clockwise direction, and thereby advance the cream bar slide 102 for positioning the cut-off cream bar at the loading station. The roller 144 will then be operated by said cam portion 141 for moving the lever 152 in a counter-clockwise direction for projecting the picker fingers into the cream bar D at the loading station as above described. It will be observed that the cutter blades will be held closed and the cream bar slide 102 stationary (by reason of the rollers 142 and 143 moving idly in the slot portion 139) during projection of the

picker fingers; and that upon movement of the rocker arm 131 in the opposite direction, said rollers 142, 143 and 144 will be operated in inverse order for returning the operated parts to the starting position. In this regard, the term "starting position" is simply used for purpose of clarity in describing the operation, since the rocker arm 131 moves continuously but at a slow speed.

After the picker fingers have entered the cream bar at the loading or receiving station A the head 62 will be indexed, moving the picker bar along the cam surface 155, Fig. 2, slightly elevating the picker arm and upon the next succeeding indexing movement this picker arm will drop into a depression 156 in the cam bracket, thus immersing the cream bar in a bath of chocolate or any other edible coating material contained in a tank 157. This tank, arcuate in shape as shown in Fig. 1, so as to underlie the cream bars, is supported on the frame by brackets 158. A suitable heating element designated diagrammatically by dotted lines 159 in Fig. 2, keeps the coating material at a proper consistency. The bar will remain immersed until the next indexing movement of the head 62, when the picker arm will be moved along the inclined cam surface 161 to the elevated position shown in Fig. 2. In this position, the bar is inclined as shown, causing the surplus chocolate to drip off from one end into the tank, the bottom of which is inclined downwardly toward the dipping end, as noted by dotted lines 162, Fig. 2.

The coated bars will now be carried by successive indexing of the head 62 to a position over the wrapping station C at which each bar is discharged into a wrapping mechanism. During the period between raising the bar from the chocolate bath to the time that it reaches this station, the coating will harden or set sufficiently to permit of the bar being wrapped. The combined mechanism for cutting and coating the bars and for discharging them is claimed in my parent application, Serial No. 673,905, filed November 10, 1923, Patent No. 1,687,707.

Mechanism is provided for feeding a suitable wrapper to said station C, so that the coated bar may be lowered onto the wrapper and then be raised by the wrapping mechanism which will be presently described. The wrappers are preferably fed to said station from a strip and cut off. As shown in Figs. 15 and 17, the wrapper strip 163, taken from a roll 164 suitably supported on the frame, passes over a stationary support 165 and between fixed and movable gripping elements 166 and 167 carried by a slide 168, which is adapted to be reciprocated by a lever 169 for feeding the leading end of the wrapper between fixed and stationary shear blades 171 and 172 respectively, and onto a wrap-

per table formed by the separated parts 173 and 174, shown in section in Fig. 14. Said support and table parts are carried on and above the main frame by suitable means such as a bracket 175. The wrapper support 165 has a longitudinal opening 176 for clearance of the gripper element 166 and its supporting part 177 which connects this element to the slide 168. Wire riders 178 rest or float on the wrapper at each side of the opening 176 for preventing the wrapper from buckling. These riders may be supported in any suitable manner, and at points are attached to a cross piece 179, which likewise rests or floats on the wrapper and is retained at its ends in vertical guide slots 181 in the side walls of the support 165. The movable gripping element 167 is fixed to a shaft 182 mounted on the slide 168, which shaft carries a fixed crank arm 183, the pin 184 of which is disposed in a slot 185 in the upper end of the lever 169. The movable gripping element 167 is beveled on its lower end, providing a gripping edge 186, and has on the side opposite from said gripping edge a finger 187 adapted to be depressed by hand at the will of the operator for withdrawing said gripping edge from the paper. As shown in Fig. 17, the lever 169 which is pivoted on the frame at 188, has been swung in a clockwise direction to the full limit of its feed stroke, thereby feeding the leading end 189 of the wrapper onto the wrapper table 173—174 and beneath the wire hold-down fingers 191 above said table. Upon the back stroke of the lever 169, the thrust of the lever on the pin 184 will swing the crank arm 183 in a counter-clockwise direction viewing Fig. 17, thereby likewise swinging the gripping element 167 and withdrawing its edge 186 from the wrapper. Thus on the back stroke, the gripping elements 166 and 167 pass idly beneath and above the wrapper. Immediately upon reversal of the stroke, the forward pressure of the lever 169 will be transmitted to the gripping element 167, swinging it in a clockwise direction so as to cause its gripping edge to press down on the wrapper and take hold of it with a pressure which increases with the resistance of the wrapper to move with the gripper elements. It will be observed at this point that the lever 168 by reason of its connection through the crank arm 183 and shaft 182 with the slide 168, moves the latter in the feed and return strokes, said arm 183 being limited in its back movement by striking a stop 192 on the slide. These feed and return strokes are imparted to the lever 169 by a link 193 connected to the lower end of the lever and operated by a cam 194 (Figs. 17 and 22) fixed to the main drive or cam shaft 74, the link

being suspended at one end of said shaft 74 and carrying cam follower rollers 195.

After having been fed to the wrapper table the wrapper 189 will be severed from the strip 163 by the shear blades 171 and 172. The movable blade 172 is operated by a lever 195, (Figs. 15, 16 and 42) pivotally mounted at 197 on a stationary part and connected by a link 198 to the blade. This lever carries a roller 199, which is held by a spring 201 against the top end of a rotary cylindrical cam 202. This end of the cam has four equally spaced depressions 203 into each of which the roller drops abruptly and will then be raised by the inclined cam portions 204 when the cam is rotated as will be described herein-after.

Each time the roller 199 drops into a depression 203, the blade 172 will obviously be lowered in a quick shearing action, thereby severing the wrapper. The link 198 may be swung in a clockwise direction about its pivot on the lever 106 (viewing Fig. 16) until the pivotal connection between the blade 172 and said link lies above a line between the lever pivots, thereby holding the blade in an in-operative position. The cam 202 is so timed that the blade 172 will be operated in a shearing action after each wrapper has been fed to the wrapper table.

Just after the wrapper has been cut as described, a picker arm with a coated bar having been moved into registration with the wrapper, will be lowered so as to bring the bar down onto the wrapper and through the opening between the table parts 173 and 174, thus carrying the wrapper ahead of it and into a wrapping box or unit, which will be presently described. Inwardly projecting guides 200 at the sides of the wrapper table between the table parts 173 and 174 intercept the intermediate portions of the wrapper in its downward passage to the platen and serve to prevent the wrapper from tipping endwise. When the bar and wrapper have been so positioned, the picker fingers will be withdrawn from the bar and the picker arm will be raised. To this end, the cylindrical wall of the cam casting 65 is cut away as at 209 for free vertical movement of the picker arm. When each arm reaches this passage, it will ride onto the upper end of an upstanding cam bar 211 which carries a roller 212 following a cam 213 (Fig. 20) fixed to the shaft 74. This cam is so shaped and positioned on said shaft as to lower and raise each picker arm and its coated bar at the proper times. The picker fingers will be withdrawn from the bar when the latter is in the lowered position by the action of the a lever 214 (Fig. 14), the upper end 215 of which is normally in a position beyond the outer side of the picker finger slide 95, so that when the latter is lowered into the path of said lever end 215, the lever 214

may be swung in a counter-clockwise direction about its pivot 216 as shown in Fig. 14, for withdrawing the picker fingers. A cam 217 (Fig. 21) fixed to the shaft 74, operates the lever 214 for withdrawing the picker fingers, and when the lever is released by the cam, will be returned to said normal position by any suitable means, at present by gravity.

The wrapping mechanism will now be described. In the present machine, I have provided three wrapping units or boxes, each similar in construction and operation, mounted in equally spaced relation to index about a vertical shaft 205, which is journaled in a bearing casting 206 fixed to the top wall of the frame as best shown in Fig. 14. This shaft is adapted to be indexed by rotative movement of the shaft 79 by means of bevel gears 207 and 208 having a ratio of two to one. Inasmuch as the shaft 79 is given a rotative movement of one-twelfth of a revolution to each complete revolution of the main drive shaft 74, the shaft 205 will be moved 120 degrees or one-third of a revolution upon each indexing movement. In other words, the picker arm head 63 and the shaft 205 are simultaneously indexed, the former one-twelfth of a revolution and the latter one-third, for the purpose of bringing a wrapping unit and a picker arm carrying a coated bar into registration. This arrangement, however, is not essential as a single wrapping unit may be used in place of the three shown herein for wrapping each bar instead of every fourth bar as is done at present. The mechanism of each wrapping unit is assembled around a horizontal table or platen 218 formed integrally with a platen frame 219, these platen frames being carried in radial spoke-like relation by and about a hub 221.

Inasmuch as the wrapping units are similar in construction and operation, a description of one will suffice. Referring more particularly to Figs. 14, 17 and 31 to 41 inclusive, it will be observed that the platen proper 218 has a flat top substantially the same length and width as the bar to be wrapped. Mounted upon or associated with the platen frame are devices for folding the wrapper about the bar in the course of wrapping it, these devices being operated by cams on the shaft 74, as will be described later, when the wrapping unit is located below the wrapper station C. On each end portion of the platen frame is pivotally mounted an end folder member designated generally by 222 shown in detail in Figs. 40 and 41. Each end folder has in the present instance side members 223 straddling the platen frame 219 and pivotally connected thereto by a screw 224. The upper end of each end folder is shaped to provide angular folding portions 225; and means provided for rocking the end folder members on their pivots in a folding and retracting stroke. This comprises a part 226 disposed

directly below the platen between the sides 223 of each end folder and carrying screws 227, each of which passes through a cam slot 228 in the lower end of the adjacent side 223. A spring 229 interposed between the platen 218 and the part 226, best shown in Fig. 32, normally urges the latter to a lowermost position, so as to hold the end folders in the retracted or open position shown in this figure. The wrapper 189 and a coated bar are here shown on the top of the platen on which they have been placed by the picker arm as described above, it being noted that the ends of the wrapper have been partially folded in by reason of their contact with the inner edges of the folding portions 225. This position of the bar and wrapper is also shown in Fig. 48. Upon raising the part 226, the screw pins 227 will swing the end folders on their respective pivots, thereby swinging the upper folding portions thereof inwardly, to the position shown in Fig. 34, so as to fold the ends of the wrapper down over the top of the bar. This folding operation is also shown in Fig. 49. A lifter bar 231 operated by a cam 232 (Fig. 23) fixed to the shaft 74 serves to lift the part 226, it being noted, Figs. 26 and 27, that this lifter bar has a T-shaped head 233 for holding the part 226 level, so as to operate both end folders alike.

The next folding operation to be performed is to tuck in the upper corners 234 of the side portions of the wrappers, this being done by two pairs of side tuckers 235. Each tucker has a flat finger portion, the under edge 236 of which is beveled so that when the finger is swung inwardly toward the bar, it will engage the top corner portion 234 of the wrapper and carry it against the side of the bar, leaving the intermediate side portion 237 of the wrapper extending, it being noted (viewing Fig. 50) that the corner portions 234 of the wrapper will be held flat against the sides of the coated bar and that the side portion of the wrapper pulled in by these tuckers will crease substantially along the lower tapered edge 236 of the tuckers. Each tucker is pivotally mounted on a frame 238 which in turn is pivotally mounted concentrically with the end folders 222, that is, on the screw pivots 224 above mentioned. As shown in Figs. 38 and 39, each tucker 235 has laterally turned portions 239 hinged on pintles 241, at present formed from a single piece of wire 242, which pintles pass through parts of the frame 238 as shown in said figures, and are retained in position thereby. The pintles 241 are substantially radial with respect to the pivot pins 224. A contractile spring 243 interposed between and connected to each pair of tuckers at the rear of their hinged mounting, serves to normally hold the tuckers in the open position shown in Figs. 31, 32 and 33. It will be further observed that each tucker has a curved rear end 244, 130

which in this open position, is disposed at the rear of an upstanding stop 245, fixed to the platen frame, as best shown in Fig. 32. Means is provided for swinging the tucker frames 238 inwardly, this being done by screw pins 246 which engage in slots 247, said screw pins being carried by said bars 248, as best shown in Figs. 31 and 33, jointed and held in rigid relative relation by cross bars 249, best shown in Figs. 31 and 32. Said side bars 248 are adapted to be lifted by a lifter bar 251 operated by a cam 252 (Fig. 25) fixed to the shaft 74, it being observed that the lifter bar 251 has a head provided with ends 253, best shown in Figs. 28 and 37, which lie beneath the side bars 248 and are adapted to raise these side bars evenly at the four corners so as to uniformly operate the tuckers at both ends of the platen. It will be observed that normally the lifter ends 253 are withdrawn below the side bar 248 as shown in Fig. 32, so that the weight of these side bars holds the tucker frames 238 and the tuckers in the retracted open position herein shown. When the lifter bar 251 is raised by the action of the cam 252 as will be obvious, the tucker frames 238 will be swung inwardly about their respective pivots from the position shown in Fig. 32 to that in Fig. 35. The tuckers 235, however, remain open until their ends 244 strike the stops 245, and being retarded thereby cause the tuckers to swing inwardly on the respective hinges in a quick movement. In this particular instance, the tucking operation commences shortly after the ends of the wrapper have been folded in, so that as shown in Fig. 34, when the end folders 225 have reached the folding position the tuckers have already entered on the tucking operation.

The next operation is to fold the projecting sides upwardly in the manner shown in Fig. 51. This is done by side folders 254, one being positioned at each side of the platen 218 and having right angular parts providing a flat top portion and a vertical portion, the latter of which are rigidly connected by a U-shaped piece 255, it being noted, Fig. 17, that the vertical portions of the parts 254 and 255 are disposed between the parts 226 and 248. This side folder unit normally rests on stop lugs 250 projected from each side of the platen frame 219, thereby holding the top horizontal portions or wings of this folder unit flush with the top of the platen 218. Upon raising this side folder unit, the projecting sides 237 of the wrapper which overlies said wings will be raised or folded upwardly by the latter over the tucked-in corners of the wrapper in the manner shown in Figs. 36 and 51. The side folder is raised by a lifter bar 256 operated by a cam 257 fixed to the shaft 74, the lifter bar having a head 258 which engages the lower ends of the side lifter, as will be obvious. It will be

noted at this point, however, that just after starting the side folding operation, that is, after the side folders 254 have been raised above the top of the platen and have started to fold the sides of the wrapper, the tuckers will be quickly released and retracted so as to be out of the way of the side folding operation. The end folders are, however, still held in the folding position, as shown in Fig. 51.

There remains now the top folding operations for completely wrapping the bar. In the present instance, the upstanding sides 237 of the wrapper are folded down over the top after the wrapping unit has been indexed. Both the end and side folders 225 and 254 are held in their respective folding positions while the platen is being indexed the first time. To this end, one of the side folders is equipped with a shoe 259, (Figs. 17 and 42), which when the platen indexes, rides over the lifter head 258 and onto a track 261, shown in Figs. 17, 23, 30 and 42, and the end folder operating part 226 likewise rides over said head and track in advance of said shoe, thus holding both the end and side folders in the folded positions. The track 261 is formed integral with a bracket 262 bolted to the top of the main frame and shaped to provide an upstanding portion 263, which carries a package discharging means which will be presently described. The track 261 reaches from the point 264 adjacent to the wrapping lifter bars to the point 265 (Figs. 30 and 42) at which it steps down to a level 266 and terminates at 267. When the wrapping unit reaches the end of this first indexing movement which I term the second wrapping station, the part 226 rides off the track 261 onto the lower level 266, thereby withdrawing the end folders, this being shown in Fig. 42. The first top fold will be made at this station by a folding member 268 in the form of a lever pivotally mounted on a fixed pin 269 and having a side folding end 271 reaching the full length of the bar as shown also in Fig. 29. The upper end 272 of this lever is adapted to follow the under edge of the cylindrical cam 202, which normally holds the lever with its folded end 271 elevated as shown in dotted lines in Fig. 42. When a depression 273 in said cam is reached, the lever will enter it under pressure of a suitable spring 274, which imparts a rapid movement to the lever in a counter-clockwise direction viewing said figure, causing it to fold one of the upstanding sides of the wrapper down over the top of the bar, as shown in Fig. 52. There are three equally spaced depressions 273 in said cam, so arranged as to actuate the top folder lever immediately after each wrapping unit is moved to the second station. When the wrapping unit is again indexed, the top fold lever 268 will be retracted by the cylindrical cam as will be obvious.

The remaining upstanding side portion of the wrapper will be folded down as shown in Fig. 53 by a second top folder designated generally by 275, during the indexing of the unit from the second to the third station, said top folder 275 being best shown in Figs. 15 and 42. This folder pivotally suspended from a pin 276 carried by a part of the stationary support 263, is substantially flat from end to end and arcuate in shape as shown in dotted lines in Fig. 15, its leading end 277 being turned upwardly and its opposite end being cut away to provide an opening 278 for passage of the package discharging means, leaving narrow portions 279, which ride over the second top fold of the wrapper and hold it down until the wrapped bar has been picked up by said discharging means, which will be presently described. The tendency of the longer end of the top folder 275 to drop more than a few degrees beyond the position shown in Fig. 42, is limited by contact of the folder between its leading edge 277 and the pin 276 against the adjacent underside of the bracket carrying said pin. Viewing Fig. 42, it will be manifest that when the wrapping unit indexes to the third station, the remaining upstanding side portion of the wrapper will be brought into contact with the leading edge 277 of the second top folder 275, and will be carried under said folder and folded thereby, down over the first top fold. During the first part of this indexing movement the top folding lever 268 will be retracted and the shoe 259 will ride off the track 261, thereby partially lowering the side folders 254 so that the leading folder 254 will not interfere with the top folder 275 on the uppermost fold of the wrapper. After the indexing unit has been sufficiently advanced under the top folder 275 to insure its holding both top folds down in position, the shoe 259 will ride off the lower track 266, thereby allowing the side folders 254 to drop to their normal position and releasing the raised bar from any propelling connection other than frictional contact with the platen or the wrapping unit.

At the time the wrapped bar is thus released and while it is still riding over the top fold ends 279, it will be grasped by a pair of gripper plates forming part of a package-discharging means, which will be now described, reference being had particularly to Figs. 14, 15, 42, 44, 45 and 46. This means comprises a head 281 equipped with three equally spaced gripping units (Fig. 44), the head being fixed to a shaft 282 journaled in a bearing 283 carried by the above mentioned casting 263, and said shaft carrying a fixed bevel gear 284 meshing with a bevel gear 285 on the upper end of the indexing hub 221 (Fig. 14). This package-discharging device is located at a point between the second and third stations to which the wrapping units are in-

dexed, these stations being identified by the position of the wrapping units as shown in Fig. 15. Each gripping device on the head 281 comprises a fixed and a movable gripper plate 286 and 287, respectively, and a helical spring 288 attached at its smaller end to the head between said gripper plates. Each movable plate 287 normally held in closed position against the head by a compression spring 289 is adapted to be positively moved to an open position shown in Fig. 33, by the action of a wedge 291, the shape of which is shown in Fig. 42. Each wedge is slidable in a slot 292 in the head and has an inclined side 293 engaging a complementary wall in the slot 292, and has also an oppositely inclined edge 294 disposed at the inner side of the head. An overhanging stop 295 on the outer end of the wedge prevents displacement thereof. The inclined edge 294 of each wedge is adapted to be brought into contact with a stationary cam 296, shown in Figs. 42 and 46 for the purpose of forcing the wedge outwardly and swinging the gripper 287 to an open position for widening the opening between the grippers, so that they may receive one of the wrapped bars. Viewing Fig. 15, it will be observed that the package-discharging head revolves in a plane intersecting the path of the wrapped bars, and that the gripper plates moving in a counter-clockwise direction viewing Fig. 44, pass between the top folder parts 279. Said discharging head 281 and the wrapping units are in such timed relation that during each indexing movement a wrapped package will be carried beneath said top fold portions 279 and between a pair of downwardly moving gripper plates, one of which has been opened as shown in Fig. 46, so as to clear the trailing end of the wrapped bar or package. After the package comes into registration with this gripping unit it will be brought into contact with the spring 288 thereof, which will be slightly compressed holding the folded ends of the wrapper down. After the package passes a vertical plane intersecting the center of the head 281, the gripper plate 287 will be released by the wedge 291 riding off the cam 296, and will be moved by pressure of the spring 289 into gripping engagement with the package. This engagement of the gripper plates 286 and 287 and of the spring 288 with the package is sufficient to hold the package which will be lifted from the platen and carried upwardly to the uppermost position shown in Fig. 44 upon the next succeeding indexing movement. Upon the following indexing movement, the package will be carried by the grippers into a delivery chute 297, which is cut away at 298 for clearance of the gripper plates. Viewing Figs. 15 and 44 it will be obvious that inasmuch as the ends of the package project beyond the grippers and will be carried onto the bottom wall of the chute, the

package will be delivered from the grippers during the next succeeding movement, with the folded side down. Upon each indexing movement, a wrapped package will obviously be delivered into the chute which may be suitably arranged for conveying the packages away. A suitable work table 299 is supported on the frame between the cream cutting and feeding mechanism and the wrapping mechanism for convenience of the operator.

It is believed that inasmuch as the function of each part of the apparatus has been described in relation to its co-operating parts, a detailed description of the general operation is not necessary. However, it will be manifest that the bars will be cut and fed to a loading or receiving station in succession, from which they will be picked up, dipped in a bath of coating material, raised, carried for a period in which to harden, and then fed at a wrapping station onto a wrapper as shown in Fig. 47, and into a wrapping unit or box to the position shown in Fig. 48; that the wrappers are fed in succession to said wrapping station and cut off; and that the wrapping units will be moved in succession to respectively receive the wrapper and bar at the wrapping station and will perform the successive wrapping operations shown in Figs. 49 to 53 inclusive, and carry the wrapped bar to the discharging means which picks up and delivers it into a delivery chute. It will also be manifest that all of these operations are automatically performed in the proper sequence. Due to the time required for hardening the coating material, the present machine is operated at a speed which produces about 80 dozen wrapped ice cream bars an hour. This speed is for practical work-a-day purposes. However, apparatus of this kind may be operated at a higher or a lower speed and it is not uncommon in practice to operate this machine to produce 100 dozen wrapped ice cream bars per hour. The wrapping mechanism when used for wrapping only may be operated at a higher speed than in the present case.

It should be understood that the apparatus illustrated in the drawings is simply one example of the principles and objects of my invention and that in practice many changes may be made in the construction and arrangement without departing from the spirit and scope of the invention as expressed in the appended claims:

I claim:

1. Apparatus of the character described comprising an indexing head equipped with radiating picker arms each adapted for picking up a bar, dipping it in a bath of coating material and lowering the coated bar onto a wrapper, and mechanism for folding the ends and sides of the wrapper about the bar.

2. Apparatus of the character described

comprising an indexing head equipped with radiating picker arms each adapted for picking up a bar, dipping it in a bath of coating material and lowering the coated bar onto a wrapper, mechanism for folding the ends and sides of the wrapper about the bar, and mechanism for discharging the wrapper bar.

3. Apparatus of the character described comprising means for cutting bars from brick material at a receiving station, means for delivering wrappers in succession to a wrapping station, means for carrying the bars in succession from the receiving station to the wrapping station, means for coating the bars during the interval between said stations, and means for receiving the wrapper and bar brought together at the wrapping station and for folding the wrapper about the bar.

4. Apparatus of the character described comprising means for coating a bar, means for delivering a wrapper to a wrapping station, means for carrying the coated bar to the wrapping station, and means for receiving the wrapper and bar at said station and for folding the wrapper about the bar.

5. Apparatus of the character described comprising an indexing head equipped with a plurality of radiating picker arms, receiving, coating and wrapping stations spaced about the head to which stations the picker arms are adapted to be moved by indexing of the head, means for causing the picker arms to pick up a bar at the receiving station, dip the bar at the coating station and deliver it at the wrapping station, and mechanism at the latter station for wrapping the bar.

6. Apparatus as set forth in claim 5 including a continuously revolving drive shaft, mechanism driven by said shaft for indexing said head, and means operated by said shaft for operating said wrapping mechanism.

7. Apparatus of the character described comprising an indexing head equipped with radiating picker arms adapted for picking up at a receiving station a bar to be wrapped, dipping the bar in a bath of coating material and delivering the coated bar at a wrapping station, and a second indexing head equipped with a plurality of wrapping units adapted to be indexed for bringing the wrapping units in succession to the wrapping station, each wrapper unit being adapted for receiving a coated bar at said wrapping station and folding a wrapper about the bar.

8. Apparatus of the character described comprising, a rotary head having radiating picker arms, means for feeding bars in succession to a receiving station at which each bar is adapted to be picked up by a picker arm, means for lowering each picker arm for dipping its bar into and raising it from

a bath of coating material, means for delivering wrappers in succession to a wrapping station, means for causing each picker arm to deliver its coated bar onto a wrapper at said wrapping station, and mechanism for receiving each wrapper and bar and folding the wrapper about the ends, sides and top of the bar.

9. Apparatus of the character described comprising, a main drive shaft and a secondary drive shaft in parallel relation, means for continuously rotating the main drive shaft, means operating between said shafts for intermittently imparting rotative movement to the secondary shaft, a rotary head connected to the secondary shaft so as to be indexed thereby, a plurality of picker arms emanating from said head and adapted to be moved in succession to a receiving station, means for cutting material from a brick and feeding the cut bars in succession to said receiving station at which each bar will be picked up by one of the picker arms, a coating tank into which each bar is adapted to be dipped by its picker arm and elevated for hardening, means for feeding wrappers in succession to a wrapping station, means for causing each picker arm to lower its coated bar onto the wrapper at said wrapping station, and mechanism for folding the said wrapper about the bar.

10. Apparatus as set forth in claim 9 in which the wrapping mechanism comprises a platen at the wrapping station adapted to receive a wrapper and bar from above, devices for folding the ends of the wrapper over the bar, tucking the projecting corners of the wrapper in, and folding the sides of the wrapper over said tucked-in corners, and cams on the main shaft for operating said devices.

11. Apparatus of the character described comprising a main drive shaft adapted to be continuously rotated, a head adapted to be indexed by means operated by said drive shaft, radially projecting picker arms on said head adapted to be moved from station to station by indexing thereof, mechanism operated by said drive shaft for cutting bars from a strip of material and feeding the cut-off bars in succession to a receiving station at which each bar is picked up by a picker arm, means for coating each bar while it is held by a picker arm, and mechanism operated by said drive shaft for folding a wrapper about the bar after it has been placed by said picker arm at a wrapping station.

12. Apparatus of the character described, comprising means for cutting bars from strip material and feeding them in succession to a receiving station, means for picking up a bar at the receiving station and dipping it in a bath of coating material, elevating the coated bar for hardening and then moving the bar to a wrapping station,

means for feeding wrappers in succession to said wrapper station, and mechanism for folding each wrapper about a bar at said wrapping station.

13. Apparatus as set forth in claim 12, in which said wrapping mechanism includes end folders, side tuckers, side folders, and top folders for completely wrapping the bar.

14. Apparatus of the character described having a receiving station, a discharging station, a wrapping station, means for cutting a slab of ice cream into blocks and positioning the blocks in succession at said receiving station, means for picking up each block at the receiving station and transferring it to the discharging station, means for coating each ice cream block during its travel between said stations, a wrapping mechanism at the discharging station, means for discharging the coated ice cream block at said discharging station into said wrapping mechanism, and mechanism for operating said cutting means, block holding and transferring means and said wrapping means in timed relation.

15. A machine of the character described having a receiving station, a coating station, and a wrapping station, block holding and transferring means operable to pick up blocks at the receiving station and carry the blocks to said coating station and thence to said discharging station, means for cutting a slab of ice cream into blocks and positioning each block at the receiving station to be picked up by the holding means, means for coating the blocks at said coating station, and wrapping means operated in timed relation with said block holding and transferring means for wrapping the coated blocks discharged therefrom.

16. A machine of the character described having a cutting station, a coating station, and a wrapping station, means for moving blocks of ice cream in succession from said cutting station to said coating station and thence to said wrapping station, means at the cutting station for cutting a slab of ice cream into blocks, means at the coating station for coating said blocks, means at the wrapping station for applying a wrapper to each block, and a driving mechanism for operating said cutting, coating and wrapping means in timed relation.

17. A machine of the character described having a receiving station, a coating station, a discharging station, block holding and transferring means operable to pick up blocks at the receiving station, carry the blocks to the coating station to be coated and thereafter carry the coated blocks to the discharging station, means for cutting a slab of ice cream into blocks and positioning the blocks at the receiving station, means for causing the blocks to be coated at the coating station, means for feeding wrappers to the

discharging station, means for discharging the coated bars at said discharging station and for causing each bar to be positioned on a wrapper, and means at said discharging station for folding each wrapper about the block positioned thereon.

18. A combined confection making machine comprising, means for cutting bars from brick material, means for coating said bars, means for applying a wrapper to each coated bar, and automatic mechanism for operating each said means in timed relation to cut, coat and wrap said bars.

19. A combined confection making machine comprising, means for forming individual confections from bulk material, means for coating said confections, means for applying a wrapper to each coated confection, and automatic mechanism for operating each said means in timed relation to form, coat and wrap said confections.

20. A combined confection making machine comprising, means for cutting bars from one end of a slab of ice cream, means for coating the cut off bars, means for applying a wrapper to each coated bar, and mechanism for automatically operating each said means in timed relation to cut, coat, and wrap ice cream bars.

21. A combined confection making machine comprising, means for sizing individual bars of ice cream to be coated, means for impaling each bar and holding it suspended, means for coating each bar while it is held on said impaling means, means for applying a wrapper to each coated bar after it has been held on said impaling means for a period sufficient for the coating to congeal, and automatic mechanism for operating each said means for sizing, impaling, coating, and wrapping said bars of ice cream in timed relation.

22. A combined machine for making coated ice cream confections comprising, means for sizing individual bars of ice cream to be coated, means for impaling each bar and coating it while it is held impaled, mechanism for wrapping coated bars and automatic mechanism for causing each said means to be operated in timed relation to size, impale, and coat each bar and to deposit each coated bar in the wrapping mechanism.

23. A combined machine for making coated ice cream confections comprising, means for sizing individual bars of ice cream to be coated, means for impaling each bar, and for coating it while it is impaled, means for applying a wrapper to each coated bar, and automatic mechanism for operating each said means in timed relation for sizing, impaling and coating the bars and for causing each coated bar to be deposited in the wrapping mechanism and to be wrapped thereby.

24. A combined machine for making coated ice cream confections comprising, means

for carrying coated ice cream bars, a wrapping mechanism, means adapted to be operated to place each coated bar in succession into the wrapping mechanism, and automatic mechanism for causing said bar placing means and said wrapping mechanism to be operated in timed relation to wrap each coated bar in succession.

25. A combined machine for making coated ice cream confections comprising, a carrier equipped with a plurality of work holders each having means for impaling a bar of ice cream to be coated and for holding the bar suspended while it is being coated, means for coating the bars, means for applying a wrapper to each coated bar, and mechanism for automatically operating said carrier and for causing bars of ice cream to be impaled and coated and thence wrapped.

26. A combined machine for making coated ice cream confections comprising, a carrier equipped with a plurality of work holders each having means for impaling a bar of ice cream to be coated and for holding the bar suspended while it is being coated, means for coating the bars, wrapping mechanism for applying a wrapper to each coated ice cream bar, and mechanism for automatically operating said carrier and said coating means in timed relation with each other and with the wrapping mechanism and for causing each coated ice cream bar to be delivered to the wrapping mechanism to be wrapped thereby.

27. A combined machine for making coated confections comprising, means for forming individual confections from bulk material, means for coating individual confections, means for delivering said coated confections one at a time onto a wrapper, wrapping mechanism for folding said wrapper about the confection, and automatic mechanism for operating said forming means, confection delivery means and said wrapping mechanism in timed relation.

28. A combined confection making machine comprising a rotary head equipped with circumferentially spaced work holders each having means for impaling a bar of ice cream, means for indexing said head to move the work holders from station to station, means for cutting a slab of ice cream into bars, means for causing each bar to be impaled by a work holder at one station, means for coating the impaled bar at another station, means for applying a wrapper to each coated bar, and automatic mechanism for operating each said means in timed relation with the other.

29. A combined confection making machine comprising a rotary head having circumferentially spaced work holders each having means for impaling a bar of material to be coated, means for indexing said head and moving the work holders in succession from an impaling station to a coating station and to a discharging station, said stations be-

ing so spaced about the rotary head that the travel of a work holder between the impaling station and the coating station will be of comparatively short duration and the travel between the coating station and the discharging station will be of longer duration for allowing the coating to congeal, means for causing bars to be impaled by work holders moved in succession to the impaling station, means for coating the bars at the coating station, means for applying a wrapper to each coated bar, and automatic mechanism for operating each said means in timed relation to each other and for causing each coated bar discharged at the discharging station to be delivered to the wrapping means.

In witness of the foregoing I affix my signature.

FRED L. BORCHERT.