

May 12, 1942.

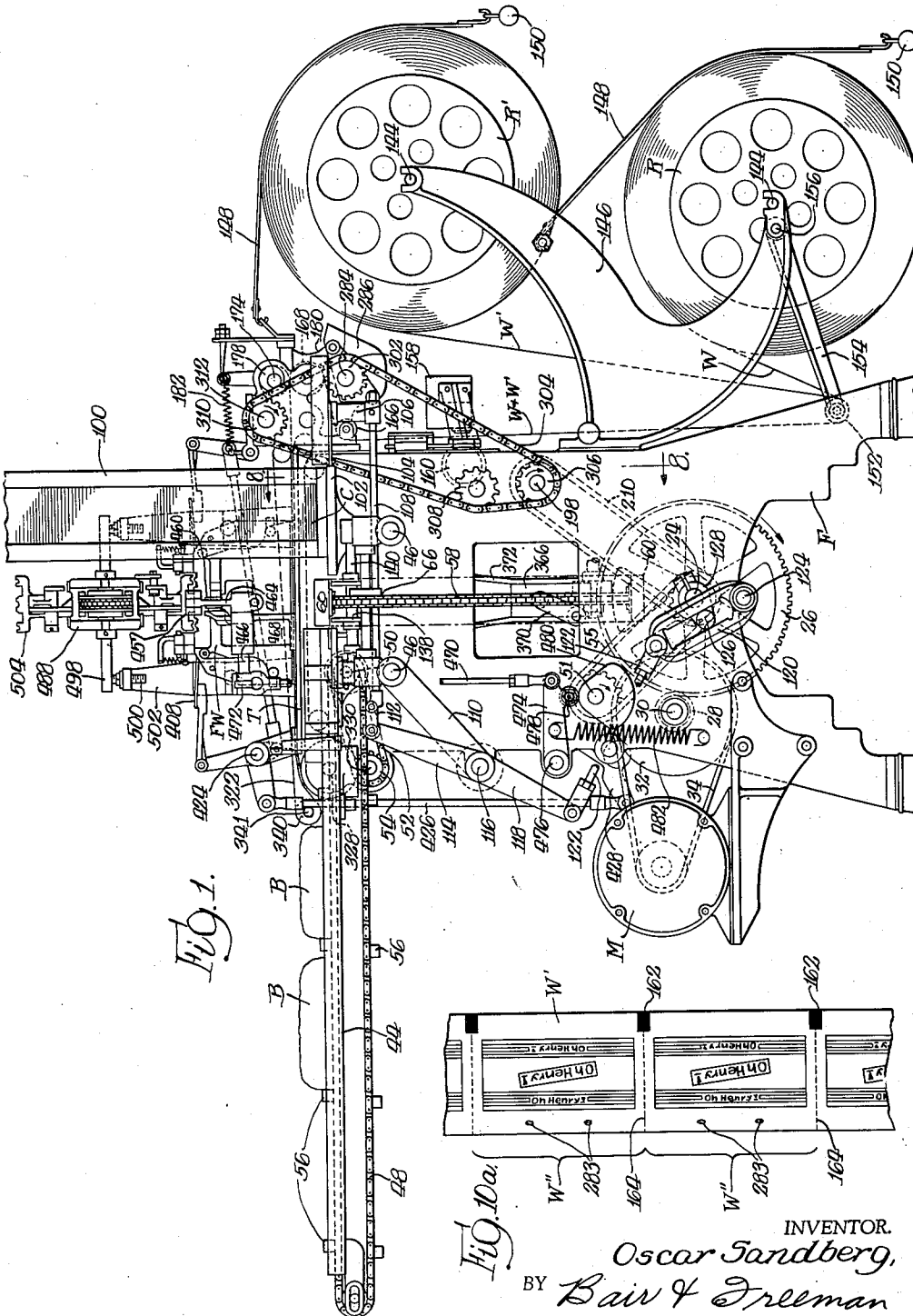
O. SANDBERG

2,283,097

WRAPPING MACHINE

Filed Feb. 5, 1940

10 Sheets-Sheet 1



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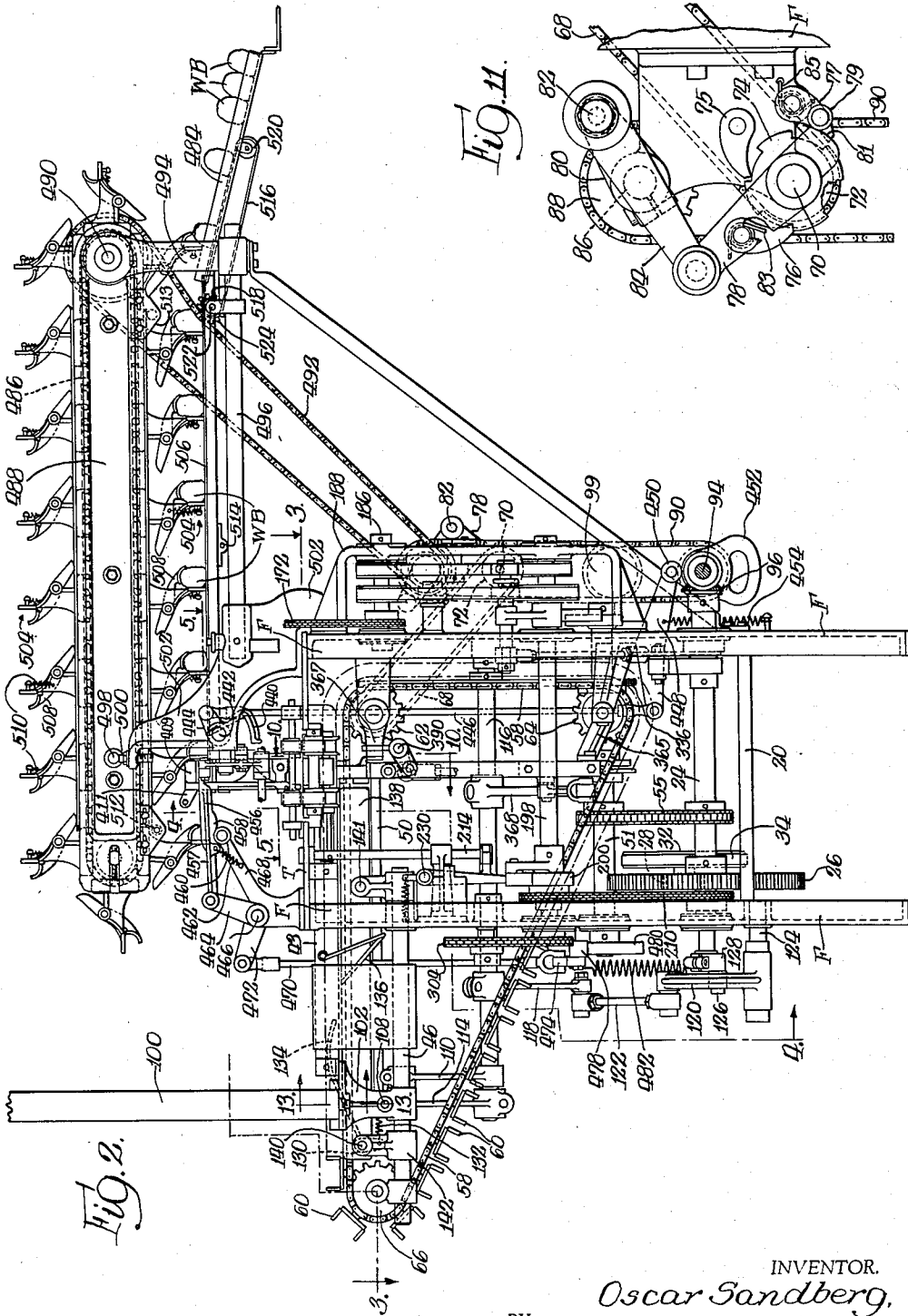
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WRAPPING MACHINE

10 Sheets-Sheet 2



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WRAPPING MACHINE

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10 Sheets-Sheet 3

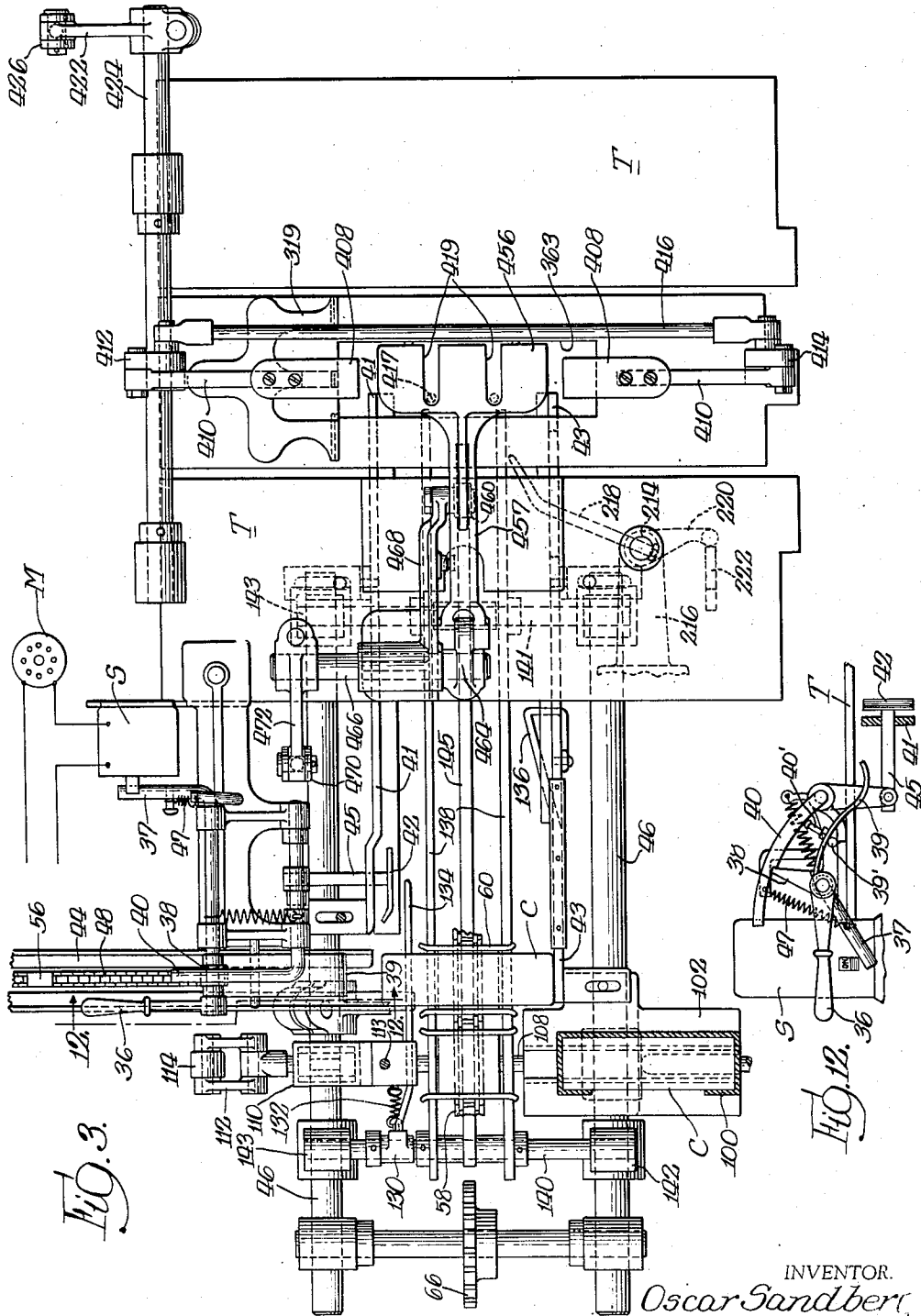


Fig. 3.

Fig. 12.

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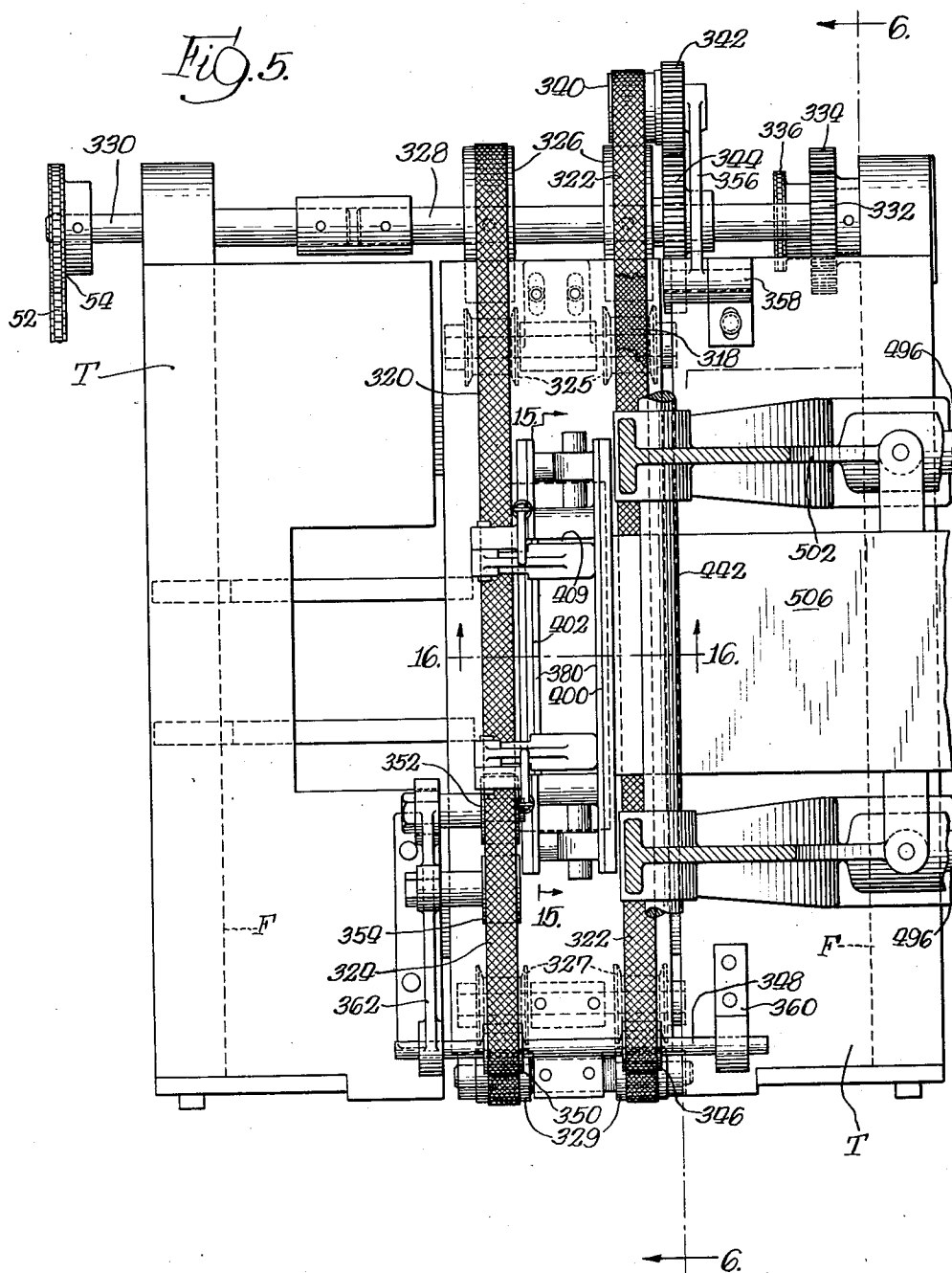
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10 Sheets-Sheet 5



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WRAPPING MACHINE

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10 Sheets-Sheet 6

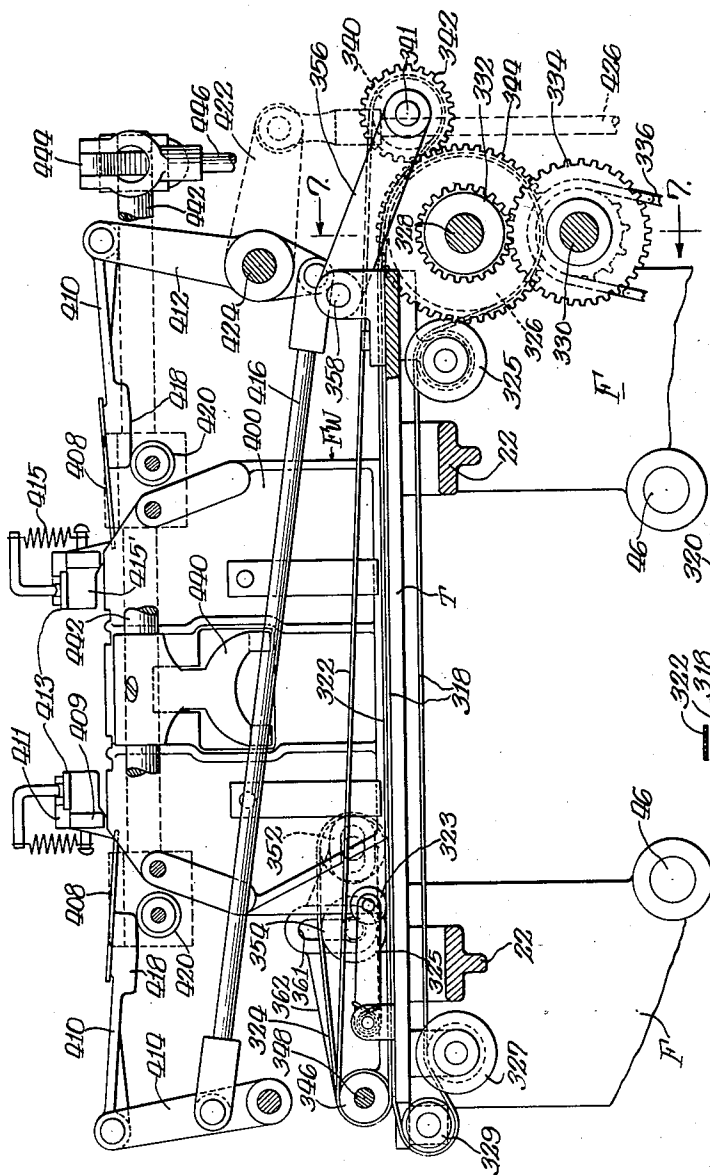


Fig. 6.

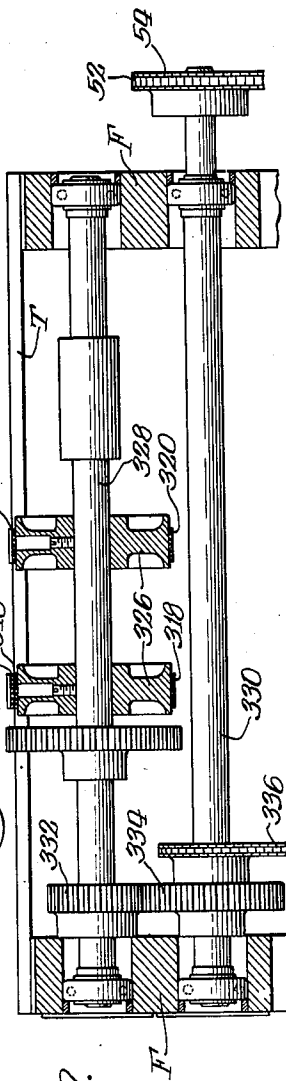


Fig. 7.

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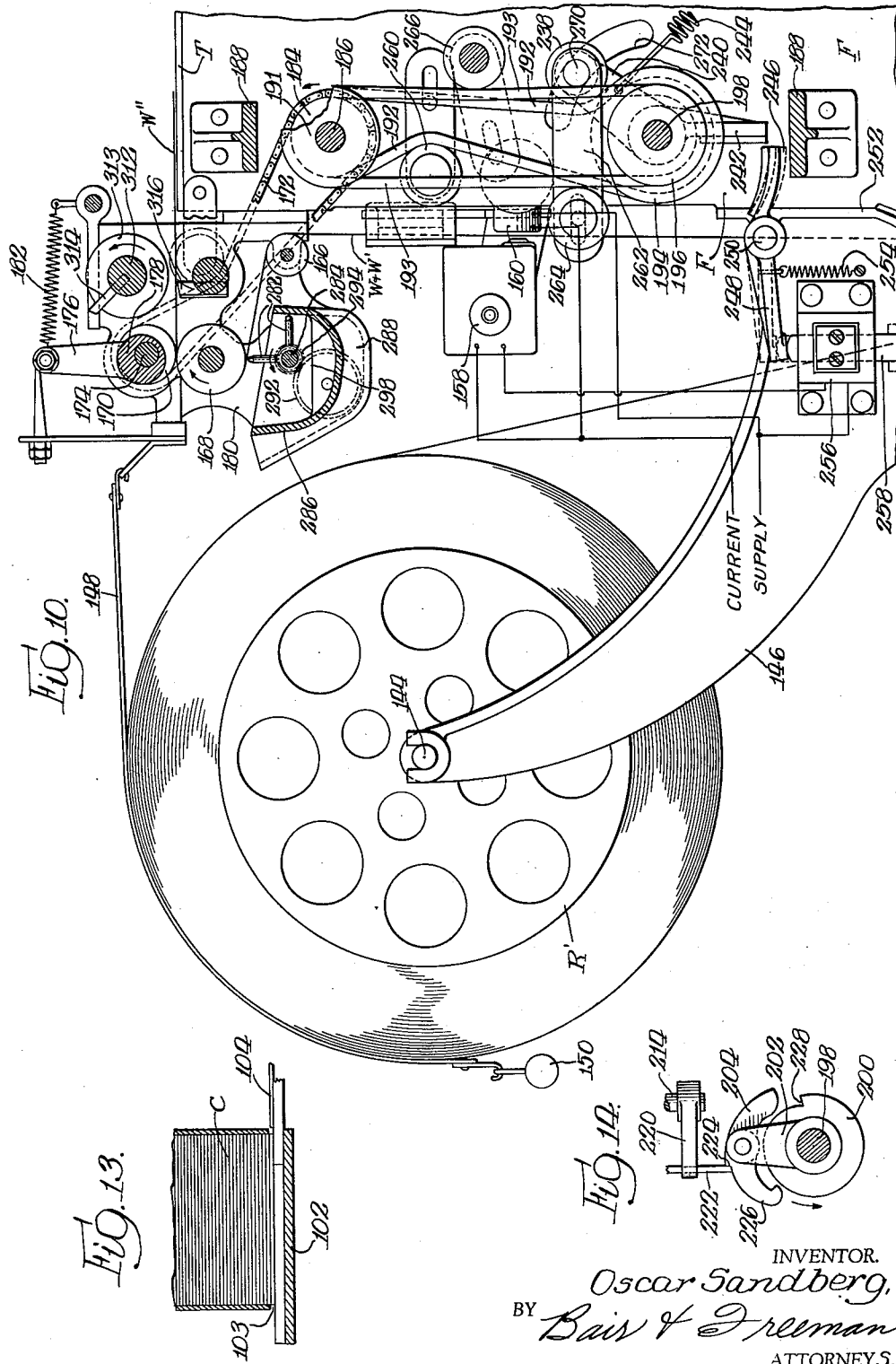
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10 Sheets-Sheet 8



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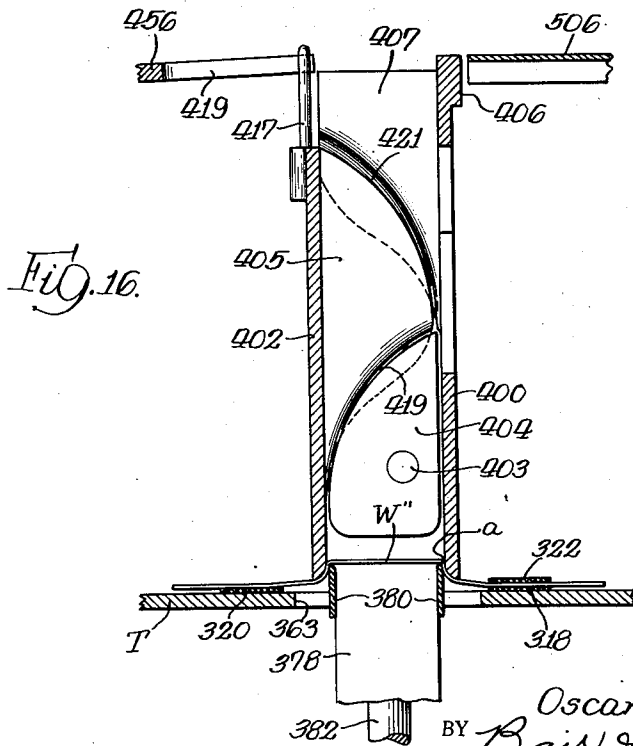
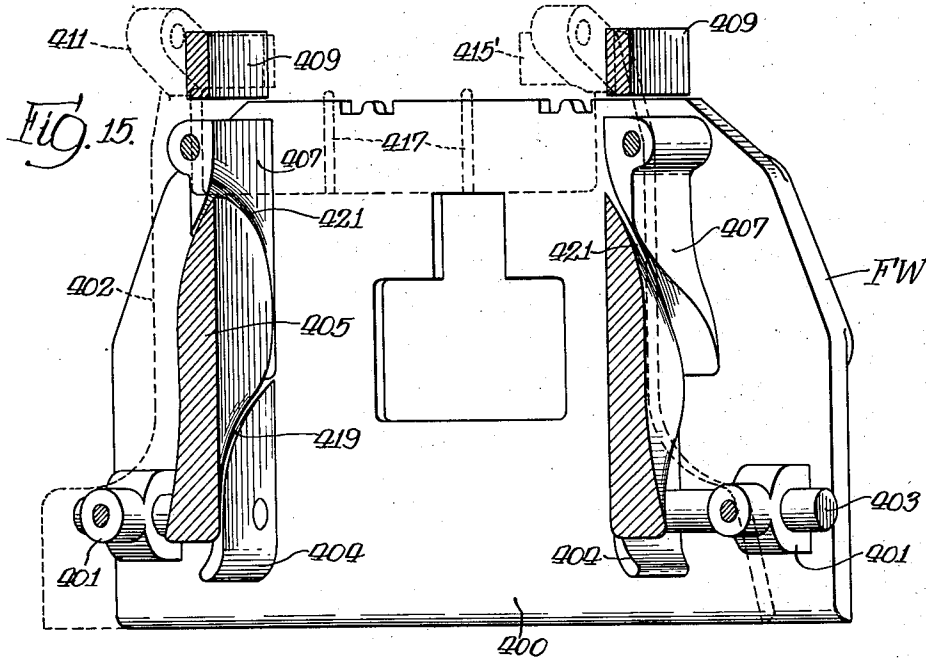
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WRAPPING MACHINE

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10 Sheets-Sheet 9



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WRAPPING MACHINE

2,283,097

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10 Sheets-Sheet 10

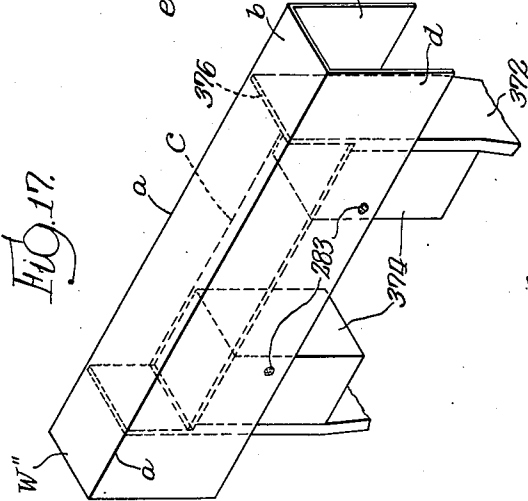
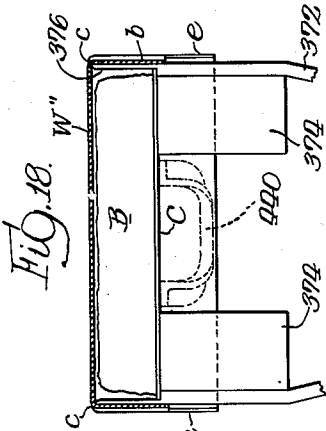
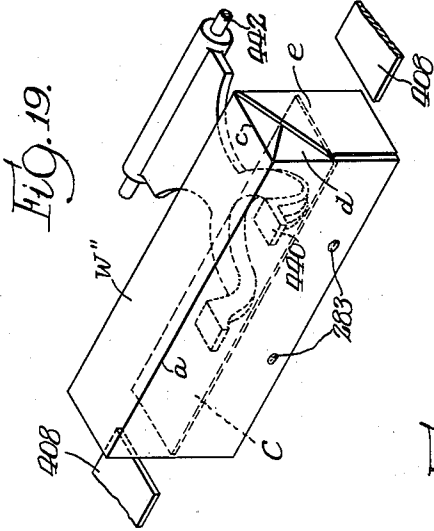
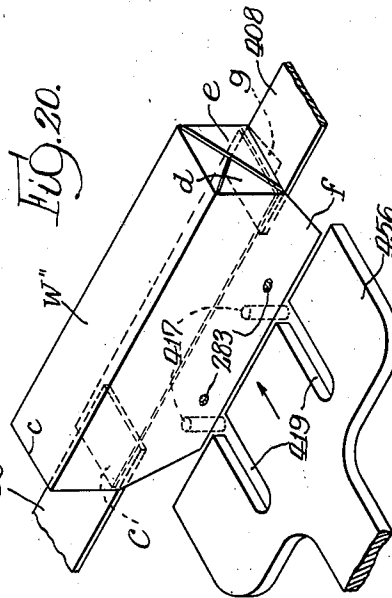
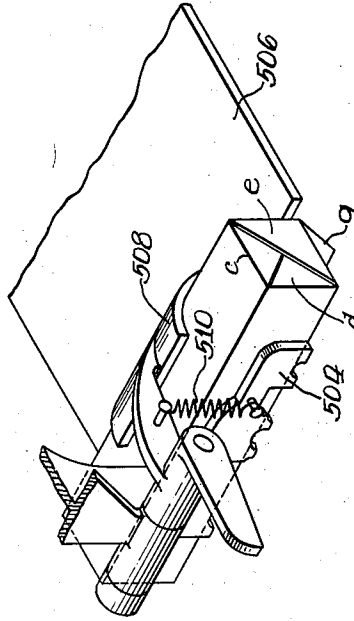


Fig. 21.



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UNITED STATES PATENT OFFICE

2,283,097

WRAPPING MACHINE

Oscar Sandberg, Defiance, Ohio, assignor to
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Application February 5, 1940, Serial No. 317,370

19 Claims. (Cl. 93—2)

My present application has to do with a machine for wrapping articles such as candy bars and the like and is a continuation-in-part of my copending application, Serial No. 179,260, filed December 11, 1937 now Patent No. 2,208,776, issued July 23, 1940.

One object of the invention is to provide a wrapping machine to which unwrapped candy bars, or other irregular shaped objects, may be fed and will be wrapped therein with one or more thicknesses of wrapping paper or the like in such manner that the wrapped bar presents an attractive appearance due to uniformity of size and shape of the wrapped bars, regardless of the shapes of the bars themselves.

Another object is to provide a wrapping machine into which bars, cards, and paper may be introduced, the machine being so designed as to periodically position one of the bars on one of the cards, advance it to a position in registry with a sheet of the wrapping paper and then perform folding operations on the paper so that the bar and card are enclosed therein and the result is a uniform, substantially cubicle package regardless of rounded ends of the bars, nut kernels projecting from the surface of the bars and other irregularities thereof.

Another object is to provide operating mechanism for a bar conveyor, for the card and paper feeding mechanism and for the wrapping mechanism, as well as for a wrapped bar conveyor which expels the wrapped bars from the machine, the foregoing mechanisms being operatively associated with each other for proper synchronous operation in an automatic manner requiring only the supply of bars, cards and wrapping paper to the machine by the operator thereof.

Still another object is to provide a wrapping machine in which a bar and card conveyor conveys the bars and cards from a bar feeding conveyor and a card hopper respectively to a position in registry with a wrapper, mechanism being associated with the bar and card conveyor to stop the machine if an exceptionally long or thick bar, unsuitable for wrapping, is discharged from the bar feed conveyor onto the bar and card conveyor, an automatic control device being also associated with the bar and card conveyor to be engaged by a bar, if one is present thereon, and effect the movement of a wrapper into position for wrapping the bars.

Still another object is to provide mechanism to discharge a card from the machine in case there is no bar on it.

A further object is to provide means for sup-

porting two webs of wrapping paper, means for cutting the webs into wrappers and feeding the wrappers to position for wrapping the bars and cards, the feeding mechanism including an electric viewing mechanism operated by marks on the web of wrapping paper and operative through speed change mechanism that propels the web of paper into the machine to change the speed thereof and thereby keep periodic advertising material on the wrapping paper in step with the bars as they are fed to wrapping position so that the advertising material will always be centered on the bars, regardless of irregularities in paper feed as caused by slippage and other factors.

A further object is to provide the speed changing mechanism in the form of a shaft driven by a pair of belts, one at a higher speed than required and the other at a relatively lower speed, the high speed belt being normally the controlling factor in paper feed and the slow speed belt being a modifying factor, operable if required for each of the wrappers to be cut from the web, the electric eye viewing mechanism being operatively associated with the slow speed belt to bring it into play and to vary the time period of such play, depending upon requirements determined by the amount that each wrapper is out of step with the wrapping mechanism.

A further object is to provide for cutting the web of wrapping paper into sheets or "wrappers" somewhat longer than the bar, the cutting mechanism being associated and timed with the web feeding mechanism and thereby adjusted for cutting the web at the proper points by the electric eye viewing mechanism, paper feed belts being provided for transferring the wrapper to wrapping position after it is cut from the web.

It is a further object of my invention to provide mechanism for applying adhesive to each wrapper before the wrapper assumes wrapping position, and to provide an electric heater effective to set the adhesive after the bar and card have been completely wrapped and as they are being expelled from the machine.

Still a further object is to provide wrapping instrumentalities which first crease the wrapper along parallel lines to insure a neat, right angle bend along the upper side edges of the wrapper, and then drape the sides and ends of the wrapper down the sides and ends of the bar and across the edges of the card, after which the end flaps are folded tightly into position under the bottom of the card and finally one side flap and then the other are folded under the bottom of the card, whereupon the adhesive on the wrapper is

brought into position for sticking the side flaps together under the bar and the card.

Still a further object is to provide a wrapped bar conveyor for discharging the wrapped bar from the machine and, in doing so, bringing the bar to a position over an electric heater to set the adhesive, the discharge conveyor including means to retain the bars in parallel position in a chute so that they may be readily removed therefrom and neatly placed in layers in cartons.

Each article wrapped by the machine is a package of substantially cubicle shape, with neat square corners, regardless of the shape of the bar within the package.

With these and other objects in view, my invention with respect to its features which I believe to be novel and patentable will be pointed out in the claims appended hereto. Although the invention is susceptible of a variety of embodiments, the attached drawings are chosen with a view to illustrating one embodiment and are not intended to be exhaustive, nor are they to be taken as limiting of the invention. On the contrary, they are chosen with a view to illustrating my invention so that others skilled in the art to which it appertains may apply it under varying conditions of practical use and may make such changes and modifications therein as conditions require, without departing from the spirit and purpose of the invention. In describing the invention in detail, reference will be made to the accompanying drawings, in which like reference characters designate corresponding parts throughout the several views, and in which

Figure 1 is a rear end elevation of my wrapping machine;

Figure 2 is a side elevation from the right side thereof with web reels, wrapper advancing rolls and adhesive applying mechanism omitted;

Figure 3 is an enlarged horizontal sectional view on the line 3—3 of Figure 2 showing a plan view of the wrapping table, omitting a bar and card conveyor, wrapper feed belts and a folding way;

Figure 4 is an enlarged vertical sectional view on the line 4—4 of Figure 2 to show various operating mechanisms and their relation to each other, the supporting frame therefor being omitted;

Figure 5 is a further enlarged horizontal sectional view on the line 5—5 of Figure 2, showing part of the wrapper folding mechanism and wrapper feed belts of the machine;

Figure 6 is a vertical sectional view on the line 6—6 of Figure 5;

Figure 7 is a vertical sectional view on the line 7—7 of Figure 6;

Figure 8 is an enlarged sectional view on the line 8—8 of Figure 1, showing driving mechanism for the wrapper cutting and feeding instrumentalities, the central portion thereof being broken away to conserve space on the drawings;

Figure 9 is a vertical sectional view on the line 9—9 of Figure 8 and shows a front elevation of the right half of the lower portion of the machine;

Figure 10 is also taken on the line 9—9 of Figure 8 and shows the left half of the front of the machine with parts of the supporting frame for a speed changing mechanism, feed rollers, a cutter, and adhesive applying mechanism being shown in section on the line 10—10 of Figure 2;

Figure 10a illustrates a section of the wrapping paper or web used in my machine;

Figure 11 is an enlarged elevation from the

reverse side of the machine showing a ratchet feed for a bar and card conveyor;

Figure 12 is a vertical sectional view on the line 12—12 of Figure 3 showing an automatic stopping arrangement for the machine;

Figure 13 is a sectional view on the line 13—13 of Figure 2 showing details of the card hopper of the machine;

Figure 14 is a sectional view on the line 14—14 of Figure 8 showing a clutch device for the paper feeding and cutting mechanism;

Figure 15 is a three-quarter elevation as taken in section on the line 15—15 of Figure 5 to show details of construction of the folding way of the machine;

Figure 16 is a sectional view on the line 16—16 of Figure 5 showing the operation of a wrapper creasing means;

Figure 17 is a perspective view illustrating one step in the method of wrapping a wrapper around a card and article, as performed in my machine;

Figure 18 is a sectional view through a wrapper that has been draped in the folding way of the machine, showing the association of an elevator and a forked supporting arm with the card and article being wrapped, and

Figures 19, 20 and 21 are perspective views, similar to Figure 17, illustrating further steps in the wrapping method.

My machine has to do with the wrapping of irregularly shaped articles as, for instance, candy bars of the type commonly sold in drug and grocery stores. Heretofore in the wrapping of such articles, there has been no provision made for shaping the wrapper in a predetermined, neat formation, and usually the bars were wrapped by hand with the wrapper more or less conforming to the shape of the bar. An undesirable result from hand wrapping is the likelihood of adherence of the wrapper to the article, especially if it is of a sticky nature as is usual with candy bars. Also, many bars have nut kernels as one of their ingredients, and often these project from the surface of the bar. When the wrapper more or less conforms to such surface, the appearance of the wrapper is further depreciated. Subsequently, when the article is unwrapped its appearance is not all that is usually expected of it.

I have designed a machine with the main object in view of remedying this condition by providing an elevator for the bar and a card supporting the bar, means being provided to effect an initial crease in the wrapper along what subsequently become the upper side edges of the package, the elevator having blades against which end flaps of the packages are folded as the elevator rises beneath a wrapper and carries with it the wrapper, the bar and the card. As the elevator rises, the wrapper is thus draped over the bar as it passes stationary side and end folding instrumentalities until it reaches the uppermost point of its travel. Thereupon, the portions of the side and end flaps which depend below the card are folded beneath the card and secured in position for completing the wrapping operation.

The foregoing operations are all performed automatically, it being merely necessary for the operator to see that the machine is supplied at all times with candy bars, or other articles to be wrapped, cards and webs of wrapping paper or the like.

Referring now to the specific construction of

the machine, I provide a pair of vertical frame members F, which may be made of cast steel or the like. The frame members F are rigidly connected together by cross members 20 and 22. At the top of the frame members F, a table T is supported.

Journalled in the frame members F is a main drive shaft 24. The drive shaft 24 has secured thereto a gear 26. The gear 26 meshes with a pinion 28 on a countershaft 30. A pulley 32 is secured to the countershaft 30 and is driven by a belt 34 from a motor M.

The motor M is controlled by a toggle switch S. A manual lever 36 is provided for latching the toggle switch S in "on" position. When the lever 36 is lowered against the bias of a spring 47, as shown in Figure 12, a dog 38 thereof engages under a latch 40. The latch 40 is adapted to be released by either a stop plate 42 of a stop plate 39 when the plate 42 is engaged by the end of a candy bar or when the plate 39 is engaged by the top of one, as will hereinafter be described. The plate 42 is carried by a rod 45 slidable through a bar and card conveyor side member 41, the opposite side member being shown at 43.

At the back end of the machine, a conveyor trough 44 (see Figure 1) is supported on stationary rods 46. A bar feed conveyor chain 48 traverses the trough 44 and is driven by a shaft 50, a chain 52 and a sprocket 54 on a shaft 330. The manner of rotating the shaft 330 will be hereinafter described. The chain 48 has lugs 56 adapted to engage candy bars B placed thereon by the operator and advance them toward a bar and card conveyor chain 58. The stop plate 39 is arranged to be engaged by a candy bar B in the conveyor 44 if such bar is too large in diameter to be properly wrapped by the machine.

The chain 58 travels at right angles to the chain 48 and is provided with pockets 60 to receive the respective bars. The conveyor chain 58 traverses sprockets 62, 64 and 66 and is driven intermittently and in synchronism with the chain 48 by a chain 68 and ratchet mechanism associated therewith, which will now be described.

The ratchet mechanism is shown in Figure 11 and includes a ratchet shaft 70 on which it mounted a sprocket 72 for the chain 68. A ratchet wheel 74 is mounted on the shaft 70 and is adapted to be driven by a pawl 76 carried by a pawl arm 78. The pawl arm 78 is pivoted on the shaft 70 and is driven by a crank arm 80. The crank pin 82 of the crank arm 80 is connected by a link 84 to the pawl arm 78.

A pair of holding pawls 75 and 77 are provided for holding the ratchet wheel 74 against rotation in reverse and forward directions respectively to insure that the conveyor chain 58 remains stationary during the return movement of the pawl 76. As the arm 78 swings in a counterclockwise or advance direction, a cam surface 81 thereof engages a roller 79 on the pawl 77 to lift the pawl as shown in Figure 11 to clear the ratchet teeth and thereby permit the ratchet wheel 74 to be advanced. The pawls 76 and 77 are biased toward the ratchet wheel 74 by springs 83 and 85, respectively.

The crank arm 80 is mounted on a shaft 86. The shaft 86 is rotated by a sprocket 88 connected by a chain 90 to a sprocket 92. The sprocket 92 is mounted on a shaft 94, which shaft is operatively connected with the main drive shaft 24 by bevel gears 96 and 98. An idler 99 is provided for the chain 90 and is mounted adjustably on a bracket 101.

A card hopper 100 is mounted on a bracket 102 which in turn is supported on one of the rods 46. The lower end of the hopper 100 is opposite a pocket 60 of the conveyor 58 while the bar conveyor 44 is opposite the next forward pocket, as shown by the two pockets 60 illustrated in Figure 3. Cards C are stacked in the hopper 100 and are adapted to be expelled through a slot 103 therefrom one at a time into the pockets 60 of the bar and card conveyor 58 by a reciprocating blade 104 (see Figure 13).

For operating the blade 104, I provide a bracket 106 secured thereto (see Figure 1) and a rod-like link 108 slidable through the bracket 102 on the right hand rod 46 and through a companion bracket 110 on the left hand rod 46 (see Figure 3). The rod 108 is connected by a link 112 to a rocker arm 114 secured to a rock shaft 116. The rock shaft 116 is oscillated once each revolution of the ratchet wheel 74 so that a card C is expelled from the hopper 100 into each pocket 60 of the conveyor 58 and against a stop pin 113.

For rocking the shaft 116, I provide mechanism connected with the main shaft 24 and comprising a lever 118 on the rock shaft, a yoke 120 driven by the main shaft and a link 122 connecting the two together (see Figures 1 and 4). The yoke 120 is pivoted to the frame F at 124 and is oscillated on its pivot by a crank pin 126 of a crank arm 128. The crank arm is secured to the main shaft 24.

Pivoted on a rod 140 (see Figure 3, left hand end) is a boss 130 urged by a spring 132 to rotate counterclockwise. A card lifting rod 134 extends forwardly from the boss 130 and is normally urged to the position shown dotted in Figure 1 by the spring 132. A guide rod 136 is a further aid in the card removing operation which will be described later.

In order to keep the pockets 60 from tipping as they advance from a position opposite the bar conveyor 44 and the card hopper 100 toward the table T, I provide a pair of guide bars 138 engaging the bottoms of the pockets as they pass from the sprockets 66 to the sprocket 62. The bars 138 are supported at their ends on rods 140 and 141 which, in turn, are supported at their ends by brackets 142 and 143. The brackets 142 in turn are supported on the rods 46. The rods 140 and 141 also support a bar 145 along which the conveyor chain 58 travels.

Wrappers for the bars B are supplied in the form of inner and outer webs W and W' of the proper width and continuous length wound from reels R and R'. The reels R and R' have pintles 144 supported for rotation in seats of a pair of brackets 146. To prevent excess rotation of the rolls of web W and W', flexible straps 148 pass frictionally thereover and terminate in weights 150. The webs W and W' pass under a weight roller 152 carried by a pair of arms 154 pivoted at 156 to the lower ends of the brackets 146.

After passing under the roller 152, the webs W and W' extend upwardly between an electric eye mechanism 158 and a light source therefor indicated at 160. The purpose of the electric eye mechanism is to have marks 162 on the web W' (see Figure 10a) pass the electric eye and the eye in turn regulate the speed of feeding the web and determine the position at which it is cut into individual wrappers W'' before the wrappers are wrapped around the bars B. The desirable point of cutting is indicated by dotted lines 164, so that the web, printed with a re-

peated pattern (one for each bar), will be cut exactly between the patterns. The web W' may be either Cellophane or waxed paper printed with the trade name of the contents and the name of the maker or distributor thereof as is usually done, while the inner web W may be tissue, waxed paper, Cellophane or the like.

The webs W and W', after leaving the electric eye 158, pass over an idler roller 166 and then around a feed roller 168 (see Figure 10). Above the roller 168 a driver roller 170 is provided, at least the roller 170 being of rubber or the like to provide a good grip on the webs W and W' and to propel them toward the table T when the roller 170 is rotated counterclockwise by a chain 172 (see Figure 10).

For maintaining proper pressure between the rollers 168 and 170, the shaft 174 of the roller 170 is carried at its ends by eccentric levers 176. The eccentric levers 176 are pivoted at their centers by means of pintles 178 to brackets 180, which form the end plates for supporting the rollers 160 and 168. The levers 176 are urged in the proper direction for moving the roller 170 toward the roller 168 by springs 182.

For driving the chain 172, I provide a sprocket 184 on a shaft 186. The shaft 186 is journaled in the front frame member F and in a bracket 188 secured thereto, as shown in Figure 8. The shaft 186 has secured thereto a high speed V pulley 190 and a low speed V pulley 191. For driving the V pulleys 190 and 191, I provide a pair of belts 192 and 193. The belt 192 extends around a V pulley 194 and the belt 193 extends around a smaller V pulley 196. The pulleys 194 and 196 are secured to a countershaft 198.

The countershaft in turn is driven through a clutch mechanism (consisting of a notched disc 200, an arm 202 and a pivoted dog 204) from a sprocket wheel 206. The sprocket wheel 206 is loose on the shaft 198 and is retained in position by a collar 208. The sprocket wheel 206 is driven by a chain 210 from a sprocket wheel 212. The sprocket wheel 212 is secured to the main shaft 24.

The clutch consisting of the parts 200, 202 and 204 is adapted to be released and the shaft 198 to thereby be operated only when there is a bar approaching position to be wrapped. The mechanism for accomplishing this result is shown particularly in Figures 3, 8 and 14. A vertical rock shaft 214 is journaled in brackets 216 extending from the rear frame member F.

At its upper end, the shaft 214 is provided with a candy bar engaging lever 218 adapted to be engaged by the candy bar as it is advanced by the conveyor 58. This rotates the rock shaft 214 clockwise and swings a lever 220 at its lower end to engage and swing a lever 222 out of position in front of a shoulder 224 on the dog 204. Gravity thereupon causes the dog 204 to drop and a hook 226 thereon to engage the notch 228 in the disc 200 as soon as the notch comes to a position of registry with the hook. Thereupon the arm 202 and the shaft 198 will be rotated in unison.

The arm 222 is pivoted at 230 to a bracket 232 secured to the frame F. A spring 234 serves to normally retain the lever 222 against a stop 236 until the lever 220 swings the lever 222 toward the left in Figure 8, due to clockwise rotation of the vertical shaft 214 as already described.

Each time the shaft 198 is rotated one revolution, the pulleys 194 and 196 are also rotated one revolution. The belt 192 is normally the driving factor for the shaft 186. For this purpose, an

idler 238 is provided (see Figure 10). The idler 238 is mounted on a shaft 270 carried by an arm 240 pivoted on the shaft 198. The arm 240 has a downward extension 242 normally engaged with a stop 246 by a spring 244. The stop 246 is secured to a rocker arm 248 pivoted at 250 on a bracket 252. A spring 254 normally urges the rocker arm 248 to the position shown.

For moving the arm 248 to the dotted position in Figure 10, I provide a solenoid 256 and an armature 258 to be elevated thereby when the solenoid is energized. A second idler 260 is provided for the high speed belt 192 and this idler is adjustable for the purpose of tightening the belt to the desired degree for proper driving traction when the idler 238 is in the position of Figure 10.

The low speed belt 193 is normally loose, as illustrated, and is adapted to be tightened simultaneously with the loosening of the high speed belt 192. This is accomplished by mounting a link 262 on the lever 240 and having the lever 262 carry an idler 264 for the belt 193. Also for the belt 193 an adjustable idler 266 is provided, to compensate for stretching of the belt as the machine is operated.

From the foregoing description, it will be obvious that the spring 244 would loosen the idler pulley 236 and tighten the idler pulley 264 whenever the solenoid 256 is energized. There would be nothing, however, to return the idlers to their initial position. To accomplish this purpose, I provide the following described mechanism.

A rod 268 is pivoted at its upper end to the shaft 170 (see Figures 4 and 10). The shaft 270 extends rearwardly from the lever 240 through an arcuate slot 272 in the front frame member F. Back of the front frame member, a lever 274 similar to the lever 240 is pivoted on the shaft 198 and supports the shaft 270 so that it can be swung through its operating cycle without binding. The lower end of the rod 268 terminates in a fork 276 straddling the main shaft 24.

The main shaft has a cam 278 thereon for propelling the rod 268 upwardly through the medium of a roller 280 carried by the fork 276 and engaging the cam surface of the cam. If the stop member 246 were to remain in the dotted position of Figure 10, it will be obvious that during a period extending over about two-thirds of a revolution of the main shaft 24, the lever 240 would be shifted by the spring 244 to loosen the high speed belt 192 and tighten the low speed belt 193. The duration of such period is shortened, however, by actuating the solenoid 256 so that the stop 246 is removed from in front of the extension 242 of the lever 240 prior to the expiration of the two-thirds period of revolution mentioned. The relative position in the two-thirds period, where the solenoid 256 operates, would determine the duration of the last portion of that period effective to loosen the high speed belt and tighten the low speed belt. The speed of the shaft 186 and thereby of the feed rollers 168 and 170 is thereby governed in accordance with the marks 162 on the wrapper web W' in a manner which will appear when describing the operation of the machine in detail.

In Figure 10, I have also shown electrical connections from a source of current supply to the electric eye 158, the light source 160 and the solenoid 256. No attempt has been made to go into detail, the essential characteristics being continuous energization of the light source 160 and operation of the solenoid 256 only when the

electric eye 158 is actuated and thereby establishes a circuit for the solenoid.

As the webs W and W' pass from the roller 166 to the roller 168, two spots 283 of adhesive are applied to each wrapper section by adhesive applying pins 282 (see Figure 10). The pins 282 are rotated by a shaft 284 and dip into an adhesive pot 286. The pot 286 has a relatively deep portion 288. The adhesive is picked up from the relatively deep part 288 of the glue pot 286 and transferred into the adhesive pot proper by a gear 292 driven by a pinion 294. The pinion 294 is mounted on the shaft 284.

The adhesive, carried upwardly by the gear 292, passes into the adhesive pot proper over a wall 298 which serves to maintain the adhesive at a predetermined level for depositing the proper amount thereof on the pins 282. The pins 282, as they rotate, contact with the web W', thereby placing two spots of adhesive thereon at the positions indicated in Figure 10a at 283. The shaft 284 of the adhesive applying mechanism is driven by a sprocket 302 (see Figure 1). The sprocket 302 in turn is driven by a chain 304 and a sprocket 306. The sprocket 306 is mounted on the shaft 198 which is driven intermittently by the clutch mechanism 200, 202, 204. The chain 304 extends also around an idler sprocket 308 and a cutter drive sprocket 310 on a shaft 312.

The cutter shaft 312 has a cutter roll 313 thereon and a blade 314 projects from the roll (see Figure 10). The blade 314 is adapted to coact with a stationary blade 316 for severing the webs W and W' on the dotted line 164 of Figure 10a.

The webs W and W' are propelled between the cutting blades 314 and 316 onto the table T and individual wrappers, indicated as W'', are sheared therefrom. The wrappers W'' are then propelled by a pair of lower advancing belts 318 and 320 (see Figures 4, 5 and 6) to a position against a wrapper stop 319. The front belt is indicated at 318 and the rear one at 320. Upper feed belts at the front and rear are indicated at 322 and 324, respectively. The belts 318 and 320 pass around drive rollers 326 mounted on a shaft 328. They also pass over idler spools 325 and 327 and over an idler pulley 329. The shaft 328, as shown in Figure 7, is driven from the shaft 330 through a pinion 332 and a gear 334. The shaft 330 in turn is driven from the camshaft 51 by a chain 336. The chain passes over an idler 338 which rotates freely on the rock shaft 116.

The upper belt 322 is driven by a pulley 340 geared to the shaft 328 by a pinion 342 and a gear 344. The relative pitch diameters of the pinion and gear are such, in relation to the diameters of the pulleys 340 and 326, that the belts 318 and 322 travel at the same speed. A pressure roller 323 is carried by an arm 325 and is spring urged downwardly to cause the belt 322 to produce a good grip on the wrapper W'' between the belts 318 and 322.

The belt 322, at its opposite end, drives a pulley 346 on a shaft 348. The shaft 348 has secured thereto a second pulley 350 which in turn drives the belt 324 at one of its ends. At its other end, the belt 324 passes over an idler pulley 352, and between the pulleys 350 and 352 is a second pressure roller 354. The roller 354 engages the belt 324 by weight, the roller being slidably mounted for vertical movement in a slot 361 of a bracket 362.

The pulley 340 and the pinion 342 at one end of the belt assembly are mounted on a shaft 341

carried by an arm 356 pivoted at 358. The opposite end of the belt assembly includes a front bracket member 360 in addition to the rear bracket 362 for supporting the shafts for the pulleys 346, 350, 352 and 354.

The conveyor 58 brings the bars B and the cards C to a position below the belts 318 and 320, so that the bar and card can be elevated through an opening 363 in the table and then between the belts to be wrapped within the wrapper supported by the belts.

The means for elevating the bar and card includes a vertical, stationary guide bar 364 along which a block 366 is adapted to reciprocate (see Figure 4). The bar 364 is supported by brackets 365 and 367 at its lower and upper ends. For reciprocating the block 366, I provide an arm 368 and a link 370. The arm 368 is secured to the rock shaft 116 and thereby the block 366 is elevated each revolution of the main shaft 24. Secured to the sides of the block 366 are a pair of elevating bars 372, having card supporting blocks indicated at 374. Folding guide blades 376 extend upwardly from the bars 372 and are adapted to pass the ends of the cards C, with the bars 372 straddling the pocket 60, as shown in Figure 4.

A wrapper creasing member having end elements 378, and front and rear side creasing blades 380 spanning the elements, is associated with the card and bar elevator for imparting an initial crease to the wrapper along the upper front and rear edges of the package. The wrapper creasing member, as shown in Figure 4, is supported on vertically reciprocable rods 382. The rods 382 are slidable in stationary bearings 384. The lower ends of the rods 382 are connected by links 386 to rock arms 388. The rock arms are carried by a rock shaft 390 having an operating lever 392 extending therefrom. The lever 392 is operated by a link 394 having on its lower side a forked member 396 straddling the camshaft 51. A cam 398 is provided on the camshaft for raising the lever 394 each revolution of the camshaft and thereby elevating the wrapper creasing blades 380, as shown in Figure 16, to form creases in the wrapper W, W'. The creases are indicated at a and are formed by contact of the wrapper against the inner lower surfaces of a front plate 400 and a back plate 402 of the folding way FW. As the wrapper creasing member 378-380 is elevated, it draws the front and rear marginal edges of the wrapper from between the belts 318 and 322 and off the top of the belt 320, as illustrated.

The folding way FW has its front plate 400 terminating in a thickened edge 406 at its upper end, the purpose of which will hereinafter appear. Referring to Figure 15, the construction of the folding way will now be described.

The front plate 400 has projecting therefrom a pair of bosses 401. Rods 403 are supported in the bosses and in turn support folding plates 404. Above the plates 404 are folding guides 405 formed as part of the back plate 402 (which has been omitted from Figure 15 as the section line for this figure is taken just ahead of the back plate 402; the general outline of the back plate 402, however, has been indicated in dotted lines). Above the folding guides 405, other folding guides 407 are formed on the front plate 400.

The back plate 402 has a pair of forward projections 409 and a pair of rearward projections 411. Pivoted to each projection 411 is a candy bar hold-down finger 413. The fingers 413 are

biased downwardly by springs 415. Projecting upwardly from the back plate 402 is a pair of stop pins 417. The folder blade 456 is provided with a pair of slots 419 to clear the pins 417 and to also clear the spots 283 of adhesive, as will be later described.

After the sides and ends of the wrapper W' are folded as in Figures 18 and 19, the portions of the end flaps depending below the card C are folded under the card as in Figure 20. This is accomplished by end folding blades 408 carried by arms 410 (see Figures 3 and 6). The arms 410 are pivoted to rock levers 412 and 414. The rock levers 412 and 414 are connected together for synchronous movement by a link 416.

Each arm 410 has a cam surface 418 supported on a roller 420. The purpose of this arrangement is to impart a swinging and thereby pressing action of the blades 408 upwardly against the wrapper to fold it tightly against the bottom of the card C.

For oscillating the rock arms 412 and 414 in synchronism with the rest of the machine, I provide an arm 422 secured to a shaft 424 on which the rock arm 412 is mounted. A link 426 extends downwardly from the arm 422 (see Figure 9) and connects with a bell crank 428 pivoted at 430 to the frame of the machine. The bell crank 428 carries a roller 432 riding against a cam 434. A spring 438 biases the roller against the surface of the cam. The cam 434 is mounted on the camshaft 51 which, it will be recalled, is driven by the chain 55 from the main shaft 24.

Before the folding guide members 376 and the candy bar supporting blocks 374 of the elevator bars 372 recede downwardly to permit the end folding blades 408 to operate, the card C is supported at points spaced inwardly from its ends by a forked arcuate arm 440 (see Figures 2, 6, 18 and 19). The arm 440 is mounted on a rock shaft 442 which has a lever 444 connected by a link 446 with a rock lever 448. The rock lever 448 carries a roller 450 riding against a cam 452 on the shaft 94. A spring 454 biases the roller to engage the cam.

After the package is folded as in Figure 20, the portion of the back side flap depending below the card C is folded under the card by a folding blade 456. The blade 456 is formed at the front end of an arm 457. The arm has a lower cam surface 458, as shown in Figure 2 supported on the roller 460. The cam surface is held against the roller by a spring 462. The rear end of the blade is pivoted to a lever 464 mounted on a shaft 466. The shaft 466 is carried by a bracket 468 which also supports the roller 460.

For operating the blade 456 in synchronism with the rest of the machine, I provide a link 470 connecting an arm 472 on the shaft 466 with an arm 474 pivoted to the frame of the machine at 476, as shown in Figure 1. The arm 474 carries a roller 478 held against a cam 480 by a spring 482. The cam 480 is mounted on the camshaft 51.

A wrapped bar conveyor is provided for discharging the wrapped bars WB from the machine to any desired point, such as a discharge chute 484. This conveyor includes a conveyor chain 486 supported for operation on a frame 488. The usual sprockets are provided for the conveyor chain 486 and one of them is mounted on a shaft 490 driven by a chain 492 from the shaft 86. The shaft 490 is supported in a pair of brackets 494 which in turn are supported by rods 496 extending forwardly from the frame of the machine.

The conveyor frame 488 may be swung upwardly about the shaft 490 as a pivot for the purpose of conveniently getting at the folding mechanism and removing any bars or wrappers that might have become distorted during the wrapping operation and tend to clog the folding way or other parts of the machine. The rear end of the frame 488 has a stud 498 extending from each side thereof and resting on set screws 500 carried by brackets 502 extending upwardly from the table T and from the front frame member F. The brackets 502 also support the shaft 442 on which the forked arm 440 is mounted and support the folding way FW. The set screws 500 are properly adjusted so that when the studs 498 of the conveyor frame 488 rest thereon, carriers 504 of the conveyor will just clear a platform 506 along which the wrapped candy bars are slid by the carriers.

The carriers 504 are spaced along the chain 486 and each one has a finger 508 pivoted thereto and biased by a spring 510 to the closed positions illustrated along the top stretch of the conveyor chain 486. Each finger 508 is opened relative to its carrier 504 by a roller 512 carried by the frame 488 at the proper time (just prior to the carrier 504 engaging a candy bar that has been wrapped). As the rear end of the finger 508 leaves the roller 512, the spring 510 recloses the finger relative to the carrier to firmly grip the wrapped bar WB and urge it toward the platform 506. The bar is thereupon slid from its supported position on the forked arm 440, across the forward edge 406 of the folding way FW and onto the platform 506. This operation folds the remaining (front) depending flap shown at / in Figure 21 against the bottom of the card under the bar and causes the spots of adhesive at 283 to contact with the back bottom flap and cause it to adhere thereto.

Under the platform 506 is an electric heater 514. The heater 514 serves to set the adhesive 283 so that when the wrapped bars are finally discharged from the platform 506 onto the discharge chute 484, the retention of the wrapper in position is assured.

To prevent the wrapped bars WB from assuming undesired positions with relation to each other in the chute 484, I provide discharge belts 516 (see Figure 2). The belts 516 at their upper ends pass over rollers 518 and at their lower ends pass over rollers 520. A shaft 522 is provided for the roller 518 and on the shaft a sprocket 524 is provided which is driven by the discharge conveyor operating chain 492.

Practical operation

In the operation of my machine, assuming that there is a proper supply of cards C in the hopper 100 and a proper supply of webs W and W' on the reels R and R', the machine may be started by throwing the toggle switch S to "on" position. To retain it in this position, the manual control lever 36 is lifted as in Figure 12 thereby causing coaction of the latch 40 with the hook 38. Cards C will now be supplied to each of the pockets 60 of the bar and card conveyor 58, the conveyor being intermittently operated and each pocket halting in front of the discharge slot 103 of the hopper. Instead of the cards being carried through the machine, however, they will be discharged therefrom by the card lifting rod 134. The spring 132 acts to keep the rod 134 in its elevated position for this purpose and such elevated position is possible

because the card C is comparatively light in weight. The card is therefore tipped by the rod 134 so that it will slide out of the pocket and engagement of the card with the guide rod 136 further tips the card to insure that it will slide completely from the pocket as desired.

Since there are no candy bars to engage the finger 218 of the clutch operating rock shaft 214, the mechanism for feeding the webs W and W' to the machine and for cutting them into individual wrappers will remain inoperative.

The operator may now place candy bars (or other articles to be wrapped) on the bar conveyor 44 between the lugs 56 thereof. Since these lugs are timed in their movement with the pockets 60, each time a pocket halts in alignment with the conveyor 44, a bar B will be deposited on the card C that has been previously deposited in the pocket from the hopper 100.

The cards and bars are thereupon advanced forwardly in the machine past the stop plate 42. If any of the bars are longer than the distance between the sides 41 and 43, they will engage the stop plate 42, or if any of them in the conveyor 44 are too large in diameter, they will lift the stop plate 39 and thereby release the latch 40 from the hook 38. This operation permits the arm 37 (see Figure 12) to be raised by the spring 47 and move the switch S to "off" position. The bar that struck the stop plate 39 or the stop plate 42 is then removed from the machine by the operator as it is either too thick or too long to be wrapped properly.

When one of the bars finally reaches a position so that it contacts with the lever 218, the clutch operating rock shaft 214 will be rocked for the purpose of swinging the clutch operating arm 222 to a position that permits the hook 226 of the dog 204 to engage in the notch of the constantly rotating clutch disc 200. This will cause the shaft 198 to rotate one revolution if only one bar passes by, and contacts with the arm 218, or to keep it continuously rotating as long as there are bars in the successive pockets. In this way, a wrapper is cut from the web and fed to wrapping position only when a bar also comes to wrapping position.

The web feeding and cutting mechanism is normally operated by the high speed belt 192 at a speed somewhat higher than required to feed one wrapper W' to the machine during one revolution of the shaft 198 which corresponds to one candy bar coming to wrapping position. The purpose of this is to compensate for any possible slippage of the webs as they are propelled to the belts 318, 320, 322 and 324. To cause the cutter bar 314 to function at the proper point in the length of the webs (at the dotted line 164 in Figure 10a), the electric eye viewing mechanism 158 is provided. Whenever one of the marks 162 of the web W passes the eye, it effects energization of the solenoid 256.

Energization of the solenoid depresses the stop arm 246 (see Figure 10, dotted position) to permit the high speed belt 192 to be loosened and the low speed belt 193 to be tightened, thus slowing down, for a variable period of time, the rotation of the shaft 196 driven from the shaft 198. Whenever one of the marks 162 is the maximum distance ahead of where it should be (resulting from no slippage), then the maximum period of speed reducing is effective. When there is slippage, then the mark will not be so far ahead of its required position for proper operation of the blade 314 at the dotted line 164

and consequently the solenoid 256 will be energized at a relatively later period in the rotation of the shaft 198, thereby reducing the time period of speed reducing of the mechanism.

During each revolution of the shaft 198 (which rotates at the same speed as the main shaft 124), the solenoid will be energized to permit the spring 244 to shift the mechanism to slow speed position. The cam 278, each revolution of the main shaft, will reset the mechanism to high speed position until the solenoid is again energized.

The next step in the operation consists of the wrapper creasing member 378—380 forming the creases at *a* (see Figures 16 and 17). The creasing elements or blades 380, it will be noted, are beveled along their upper edges to effect the forming of the crease when they strike the wrapper W, W' and lift the wrapper, as in Figure 16, into the folding way FW.

The wrapper creasing member 378—380 then recedes as the elevator 366, the bars 372, and the card supporting blocks 374, together with the folding guide blades 376, rise into the folding way. The wrapper, together with the bar and card, are thereupon elevated by the elevator, as shown in Figure 17, with the blocks 374 of the bars 372 engaging the card C adjacent its ends and the folding guide blades 376 extending up beyond the ends of the card to support the wrapper spaced above the bar B. The relative positions of these parts are also shown in Figure 18.

As the bar, card and wrapper are elevated through the folding way, the folding blades 404 thereof first engage the ends *b* of the top of the wrapper extending beyond the upper edges of the blades 376 and fold them downwardly, as shown in Figure 19. The flaps *b* are confined between the folding guide blade 376 and (successively) the inner faces of the folding blades 404 and the folding guide members 405 and 407. The upper edges of the blades 376, it will be noted, are beveled to form a definite crease along the ends of the upper edge of the bar, as indicated at *c*.

The sides of the wrapper along the front and rear sides of the bar B extend beyond the blades 376, as indicated at *d* and *e*. These portions form end flaps, the flaps *d* being engaged by the folding guide members 405 of the folding way and partially folded, whereupon the flaps *d* pass upwardly through slots 419 between the blade 404 and the member 405. The flaps *e* are then engaged by the guides 407 and folded upon the flaps *d* as the folding of the flaps *d* is being completed. The flaps *d* and *e* eventually pass through a slot 421 between the folding members 405 and 407 to assume the position of Figure 19.

The folding guide blades 376 form a solid support against which the flaps *b*, *d* and *e* are folded as they pass through the slots 419 and 421. This keeps the ends of the package square, regardless of the shape of the ends of the bar B.

The package is now ready for support of the card, bar and wrapper on the forked arm 440. The arm swings upwardly to the position shown in Figure 19, whereupon the elevator bars 372, the supporting blocks 374 and the folding guide blades 376 are lowered out of the way of the end folder blades 408.

The supporting ends of the forked arm 440 are spaced inwardly from the ends of the card C so that when the end folder blades 408 subsequently move inwardly and swing upwardly, due to their pivotal mountings on the arms 412 and the cam and roller arrangement at 418—420,

the arm will not interfere with the operation of the blades. The blades 408 fold the portions of the flaps *d* and *e* depending below the card *C* to a position under the card and then support the partially wrapped bar, while the back folding blade 456 moves into folding position. Such movement is forwardly and the blade 456 also swings upwardly, due to its connection with the arm 464 and the cam and roller arrangement 458-460. It is believed obvious, from an inspection of Figure 20, how the blade 456 functions. As it moves forwardly, it swings the depending rear flap at *f* under the card *C* and the slots 419 of the blade clear the stop pins 417 and also clear the spots of adhesive 283. When the blade 456 is pulled backwardly, the stop pins prevent the candy bar from being pulled back with it. Also, the bar is held to some extent by the hold-down fingers 413, which prevent any undesired upward movement of the bar relative to the blades 408.

Finally one of the carriers 504, as shown in Figure 21, engages the bar while the finger 508 is being released from the roller 512, thus closing the carrier and finger about the bar and giving the carrier a firm grip on the bar. The carrier then slides the bar over the upper edge 406 of the front plate of the folding way and onto the platform 506. This operation swings the front flap *g* rearwardly under the bar and against the flap *f* to which it adheres as the flap *f* has the adhesive spots 283 facing downwardly thereon.

As the wrapped bar is slid along the platform 506, the heater 514 sets the adhesive of the wrapped bar WB. The wrapped bars are discharged from the carriers by the rear ends of the fingers 508 engaging a second roller 513 carried by the conveyor frame 488, thus opening the carriers and releasing the wrapped bars. The wrapped bars WB are then picked up by the discharge belts 516 and carried in spaced relation down the chute 484 until they are discharged by the belts and then slide on down the chute by succeeding bars carried by the belts. The belt arrangement prevents any canting of the bars in the chute and insures that the bars will be discharged from the belts in parallel relation so that a number of them can be readily picked up and deposited as a layer in a carton.

In the present application, I have described the web feeding and cutting mechanism without directing any claims thereto. This mechanism is described in further detail and claimed in my copending application, Serial No. 317,369, filed February 5, 1940.

Having described one specific embodiment of my invention together with the operation thereof, I desire it to be understood that this form is selected merely for the purpose of facilitating disclosure of the invention rather than for the purpose of limiting the number of forms which it may assume. It is to be further understood that various modifications, adaptations and alterations may be applied to the specific form disclosed to meet the requirements of practice without in any manner departing from the spirit and scope of the present invention except as set forth in the claims appended hereto.

I claim as my invention and desire to secure by Letters Patent of the United States:

1. In a wrapping machine for articles, mechanism for folding a wrapper about the top and sides of an article and across the edges of a card associated therewith comprising a vertical folding way having side and end folding plates, a re-

ciprocating elevator adapted to engage and elevate the article and card through said way, folding guide members extending above the article on the elevator to engage the wrapper and elevate it with the article through said way and to space the wrapper from the article during folding whereby to form a square edged package regardless of the shape of said article, means for thereafter folding the portions of the end flaps depending below the card to a position beneath it comprising end folder blades, means for supporting each of said end folder blades comprising a rock arm pivoted to the outer end thereof, a roller supporting the inner end thereof and a cam surface on said blade adjacent the inner end thereof and supported on said roller, said cam surface being shaped to swing the blade up under the card and article as the blade is moved longitudinally inward by the rock arm, and means to thereafter fold the side flaps depending below said card to a position beneath the card.

2. In a wrapping machine for articles, mechanism for folding a wrapper about the top and sides of an article and across the edges of a card associated therewith comprising a vertical folding way having side and end folding plates, a reciprocating creasing member cooperating with the wrapper and with the folding way to effect the formation of initial creases in the wrapper prior to draping of the wrapper around the article, a reciprocating elevator adapted to engage and elevate the article and card through said way, folding guide members extending above the article on the elevator to engage the wrapper between the creases thereof and elevate it with the article through said way and to space the wrapper from the article during folding whereby to form a square edged package regardless of the shape of said article, means for thereafter folding the portions of the end flaps depending below the card to a position beneath it comprising end folder blades, means for supporting each of said end folder blades comprising a rock arm pivoted to the outer end thereof, a roller supporting the inner end thereof and a cam surface on said blade adjacent the inner end thereof and supported on said roller, said cam surface being shaped to swing the blade up under the card and article as the blade is moved longitudinally inward by the rock arm, and means to thereafter fold the side flaps depending below said card to a position beneath the card.

3. In a wrapping machine for articles, mechanism for folding a wrapper about the top and sides of an article and card comprising a vertical folding way having side and end folding plates, a creasing member engaging said wrapper to place initial creases therein, a reciprocating elevator adapted to engage and elevate the article and card through said way, folding guide members extending above the article on the elevator to engage the wrapper and elevate it with the article through said way, and means for thereafter folding the portions of the end and side flaps of the wrapper depending below the card to a position beneath the card.

4. In a wrapping machine for articles, mechanism for folding a wrapper about the top and sides of an article and card comprising a vertical folding way having side and end folding plates, a creasing member engaging said wrapper to place initial creases therein, said creasing member comprising a pair of end members mounted for vertical reciprocation, a pair of

creasing blades spanning the end members, a reciprocating elevator adapted to engage and elevate the article and card through said way, said elevator having folding guide blades movable between said creasing blades and slidable adjacent said end members, said folding guide blades extending above the article on the elevator to engage the wrapper and elevate it with the article through said way and to coast with the way to place end creases in the wrapper spanning the ends of said initial creases, and means for thereafter folding the portions of the end and side flaps of the wrapper depending below the card to a position beneath the card.

5. In a wrapping machine, in combination, means to feed articles to be wrapped to a folding position, folding means comprising a vertically disposed folding way having side and end folding plates, an elevator movable past said way, said articles being intermittently halted in line with said way and elevator, means for feeding wrappers to position above said article and in line with said way and elevator, means to reciprocate said elevator to elevate the article and the wrapper thereabove past said folding way whereby to drape the sides and ends of said wrapper about said article, a movable support adapted to engage the article at the end of its travel through said way to support the article during the retraction of the elevator, means for actuating said movable support to supporting position relative to the article, and means for folding the ends and sides of said wrapper around the bottom of said article during and after retraction of the elevator comprising an end folder blade for each end of the article, a side folder blade for one side of the article, three rock shafts, three rollers, said blades having their ends away from the article supported by said rock shafts and their ends toward the article supported by said rollers, said blades having cam surfaces to engage said rollers to impart upward swinging movement to the blades as they are propelled longitudinally to a position beneath the article, means for extending and retracting said end folding blades and thereafter said side folding blade, a platform, and means to thereafter engage the article, move it from said movable support onto said platform and along the platform while engaging it therewith, the remaining side of the wrapper engaging an edge of said folding way and being thereby folded under the article.

6. In a wrapping machine, in combination, means to feed articles to be wrapped to a folding position, means for feeding wrappers to said machine, folding means for said wrappers comprising a vertically disposed folding way having side and end folding plates, a creasing member movable into said way to impart initial creases along lines on said wrapper which become the upper side edges of the wrapped package, an elevator movable past said way, said articles being intermittently halted in line with said way and elevator, said wrappers being fed to a position above said article and in line with said way and elevator, means to reciprocate said elevator to elevate the article and the wrapper thereabove past said folding way whereby to drape the sides and ends of said wrapper about said article, and means for folding the end and side flaps of said wrapper around the bottom of said article comprising an end folder blade for each end of the article, a side folder blade for one side of the article, means for propelling said end

blades and then said side blade longitudinally to a position beneath the article, and means to thereafter engage the article and move it across the forward edge of said folding way, the remaining side flap engaging said edge and being thereby folded under the article.

7. In a wrapping machine, means for elevating an irregular article to be wrapped, a card lying therebeneath and a wrapper past instrumentalities for draping the sides and ends of the wrapper around the article, means for engaging the wrapper in advance of the article to space the wrapper from the article, said instrumentalities draping said sides and ends of the wrapper against said last means to form square upper side and end edges and square ends for the draped wrapper, means for folding the ends of the wrapper around and beneath the card comprising horizontally movable plates, means for periodically shifting said plates inwardly into engagement with the ends of the draped wrappers depending below said cards and for swinging them upwardly towards the bottoms of the cards, means for folding one side of the draped wrapper around and beneath the card comprising a third plate, means for periodically shifting the third plate inwardly into engagement with one side of each draped wrapper depending below said cards and for swinging said last plate upwardly during such inward shifting to swing said side of the wrapper toward the bottom of the card, and means for folding the other side of the wrapper around and beneath the card.

8. In a wrapping machine, means for elevating an irregular article to be wrapped, a card lying therebeneath and a wrapper past instrumentalities for draping the sides and ends of the wrapper around the article, means for imparting initial creases in the wrapper, means for thereafter engaging the wrapper in advance of the article to space the wrapper from the article and form square upper side and end edges for the draped wrapper, means for folding the ends of the wrapper around and beneath the card comprising horizontally movable plates, means for periodically shifting said plates inwardly under the bottom of the card, means for folding one side of the draped wrapper around and beneath the card comprising a third plate, means for periodically shifting the third plate inwardly under the card, and means for folding the other side of the wrapper around and beneath the card.

9. In a wrapping machine, means for elevating an irregular article to be wrapped, together with a card lying therebeneath and a wrapper past instrumentalities for draping the sides and ends of the wrapper around the article, said means comprising vertical blades having shoulders below their upper ends with said upper ends located at the ends of the card and said shoulders engaging the marginal ends of the card, means for folding the ends of the wrapper around and beneath the card comprising horizontally movable plates, means for periodically shifting said plates inwardly under the bottom of the card, means for folding one side of the draped wrapper around said upper ends of said blades and beneath the card comprising a third plate, means for periodically shifting the third plate inwardly under the card, said plates being mounted for upward pressing action relative to said card when the plates are so shifted, and means for folding the other side of the wrapper around said upper ends of said blades and beneath the card.

10. In a wrapping machine, means for elevating an irregular article to be wrapped, a card lying beneath the same and a wrapper past instrumentalities for draping the sides and ends of the wrapper around the article, said means comprising a pair of creasing blades, means for engaging said creasing blades with the wrapper, an elevator to thereafter engage the card, folding guide members to engage the wrapper and support it spaced from the article, means for raising the elevator and the folding guide members, means for folding the ends of the wrapper around and beneath the card, comprising a pair of horizontal movable plates, means for shifting said plates inwardly into engagement with the ends of the draped wrapper, means for folding one side of the draped wrapper around and beneath the card comprising a third plate, means for shifting the third plate inwardly into engagement with one side of the draped wrapper, and means for folding the other side of the draped wrapper around and beneath the card comprising means for moving the partially wrapped article transversely of said other side.

11. In a wrapping machine, means for elevating an irregular article to be wrapped, a card lying beneath the same and a wrapper past instrumentalities for draping the sides and ends of the wrapper around the article, means for folding the ends of the draped wrapper around and beneath the card, means for folding one side of the draped wrapper around and beneath the card comprising a rock arm, a folding plate having one end pivoted thereto, means for shifting the rock arm and plate inwardly toward the wrapper, means comprising a roller for supporting the other end of the plate for pivotally moving the plate upwardly during said inward shifting to swing the side of the wrapper toward the bottom of the card, said plate having a cam surface coacting with said roller, means for folding the other side of the draped wrapper around and beneath the card comprising a platform, and means for moving the partially wrapped article transversely of said other side onto said platform and for moving it along the platform in intimate contact therewith.

12. In a wrapping machine, means for elevating an irregular article to be wrapped, a card lying beneath the same and a wrapper past instrumentalities for draping the sides and ends of the wrapper around the article, means for folding the ends of the draped wrapper around and beneath the card, means for folding one side of the draped wrapper around and beneath the card comprising a rock arm, a folding plate having one end pivoted thereto, means for shifting the rock arm and plate inwardly toward the wrapper, means comprising a roller for supporting the other end of the plate for pivotally moving the plate upwardly during said inward shifting to swing the side of the wrapper toward the bottom of the card, said plate having a cam surface coacting with said roller, means for folding the other side of the draped wrapper around and beneath the card comprising a discharge conveyor having openable, spring closed carriers for moving the partially wrapped article transversely of said other side onto said platform and for moving it along the platform, and means for opening said carriers prior to engaging the articles to move them and at the discharge end of the conveyor to release them.

13. In a wrapping machine, means for elevating an article to be wrapped, a card lying be-

neath the same and a wrapper past instrumentalities for draping the sides and ends of the wrapper around the article, means for folding the ends of the draped wrapper around and beneath the card, means for folding one side of the draped wrapper around and beneath the card, means for folding the other side of the draped wrapper around and beneath the card comprising a discharge conveyor for engaging and moving the partially wrapped article transversely of said other side, said conveyor being pivotally mounted at its discharge end, and stops for limiting the position of the other end relative to the platform, said conveyor being thereby swingable upwardly away from the stops to readily gain access to said instrumentalities and said folding means to gain access to any improperly wrapped article under said conveyor or adjacent said instrumentalities and said folding means.

14. In a wrapping machine, means for elevating an article to be wrapped, a card lying beneath the same and a wrapper past instrumentalities for draping the sides and ends of the wrapper around the article, means for folding the ends and sides of the wrapper around and beneath the card, a platform, a discharge conveyor for engaging and moving the wrapped articles along said platform, said conveyor being pivotally mounted at its discharge end, and a stop for limiting the position of the other end relative to the platform, said conveyor being thereby swingable upwardly away from the stop and platform to readily gain access to said folding mechanism and to any improperly wrapped article on said platform.

15. In a wrapping machine for elevating an article to be wrapped, a card lying beneath the same and a wrapper past instrumentalities for draping the sides and ends of the wrapper around the article, means for folding the ends and sides of the wrapper around and beneath the card, a platform, a discharge conveyor for engaging and moving the wrapped articles along said platform, a chute at the discharge end of said platform, belts adapted to receive wrapped articles discharged periodically from said conveyor and discharge them onto said chute in positions aligned with each other, said conveyor being pivotally mounted at its discharge end, and a stop for limiting the position of the other end relative to the platform, said conveyor being thereby swingable upwardly away from the stop and platform to readily gain access to said folding mechanism and to any improperly wrapped article on said platform.

16. In a wrapping machine for elevating an article to be wrapped, a cord lying beneath the same and a wrapper past instrumentalities for draping the sides and ends of the wrapper around the article, means for folding the ends and sides of the wrapper around and beneath the card, a platform, a discharge conveyor for engaging and moving the wrapped articles along said platform, openable carriers on said conveyor to receive the wrapped articles and effect their movement along said platform, a chute at the discharge end of said platform, and a pair of laterally spaced belts adapted to receive wrapped articles discharged periodically from said carriers of said conveyor and discharge them onto said chute in positions aligned with each other, said conveyor being pivotally mounted at its discharge end, and a stop for limiting the position of the other end relative to the platform, said conveyor being thereby swingable upwardly away from the

stop and platform to readily gain access to said folding mechanism and to any improperly wrapped article on said platform.

17. In a wrapping machine, means for elevating an article to be wrapped, a card therebeneath and a wrapper past instrumentalities for draping the sides and ends of the wrapper around the article, said wrapper having spots of adhesive thereon, means for folding the ends of the draped wrapper around and beneath the card, a folding blade for folding one side of the draped wrapper around and beneath the card, said blade having slots to avoid smearing said adhesive, means for folding the other side of the draped wrapper around and beneath the card and thereby bringing the adhesive to a position for holding the wrapper in wrapped position, a platform, a discharge conveyor for moving the wrapped article along said platform, and means imparting heat to the adhesive as the wrapped article passes along said platform to thereby set the adhesive.

18. In a wrapping machine for articles, mechanism for folding a wrapper about an article comprising a folding way having side and end folding plates, a creasing member engaging said wrapper to place initial creases therein, a recipro-

cating ram adapted to engage and move the article and wrapper through said way, and means for thereafter folding the portions of the end and side flaps of the wrapper extending beyond the article to a position enclosing the article.

19. In a wrapping machine, means for moving an irregular shaped article to be wrapped, and a wrapper past instrumentalities for draping the sides and ends of the wrapper around the article, said means comprising a pair of creasing blades, means for engaging said creasing blades with the wrapper, a ram to thereafter engage the article, means for moving the ram, means for folding the ends of the wrapper around the article comprising a pair of movable plates, means for shifting said plates inwardly into engagement with the ends of the draped wrapper, means for folding one side of the draped wrapper around the article comprising a third plate, means for shifting the third plate inwardly into engagement with one side of the draped wrapper, and means for folding the other side of the draped wrapper around the article comprising means for moving the partially wrapped article transversely of said other side.

OSCAR SANDBERG.