Dec. 15, 1953 T. M. VAUGHAN 2,662,354

FRUIT WRAPPING MACHINE

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Fig. 1A.

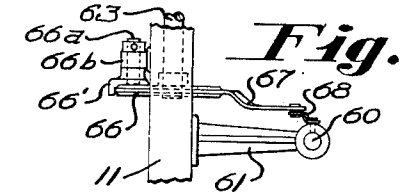


Fig. 1.

Fig. 1B.

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FRUIT WRAPPING MACHINE

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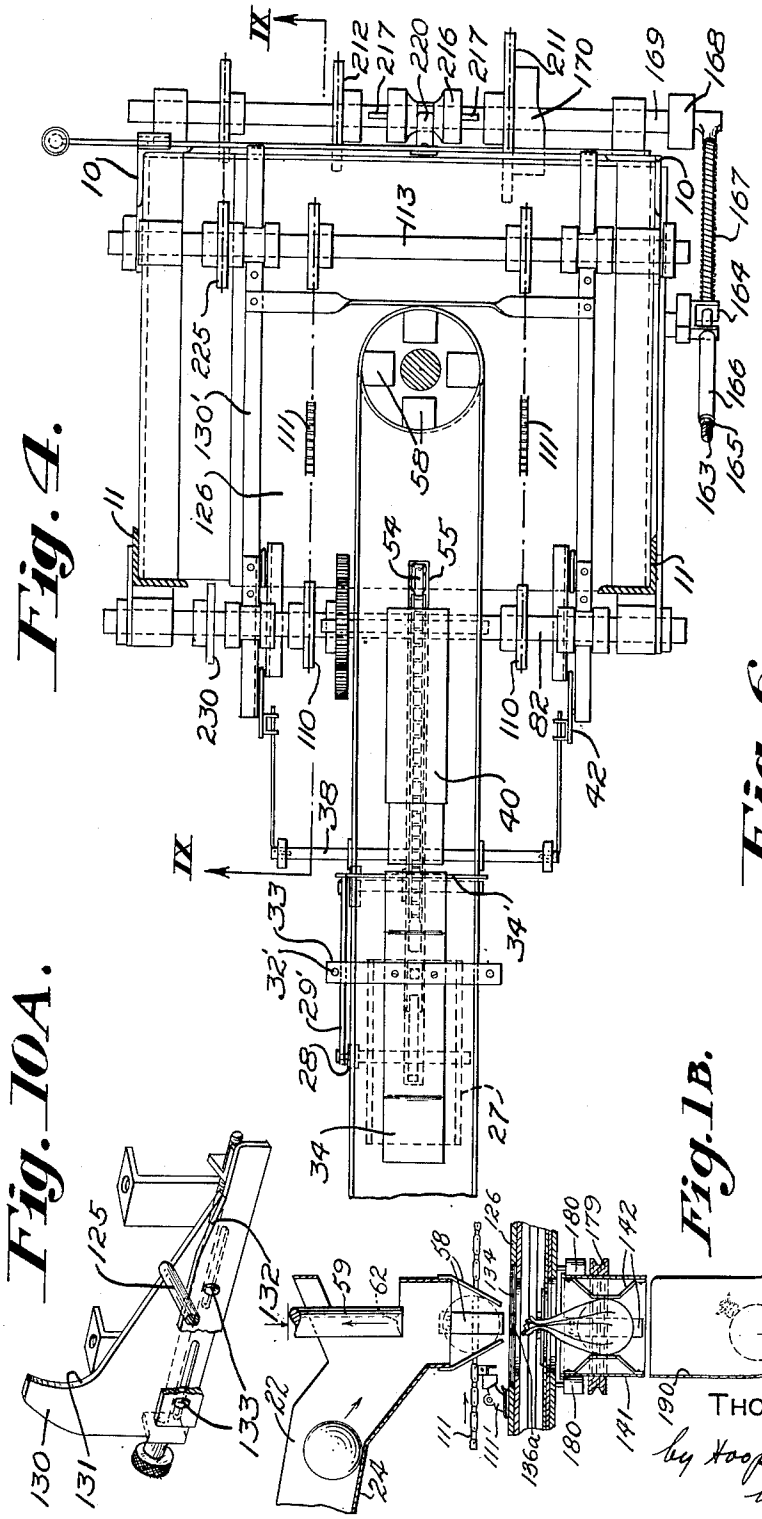


Fig. 4.

Fig. 10A.

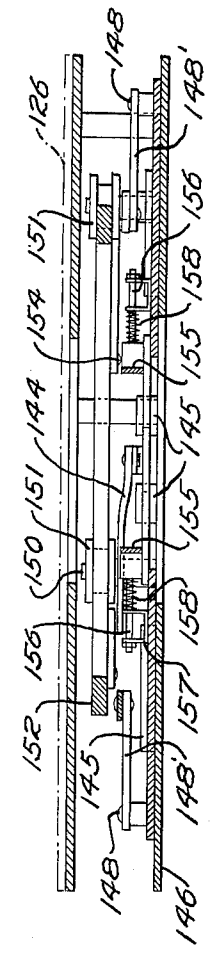


Fig. 6.

Fig. 1B.

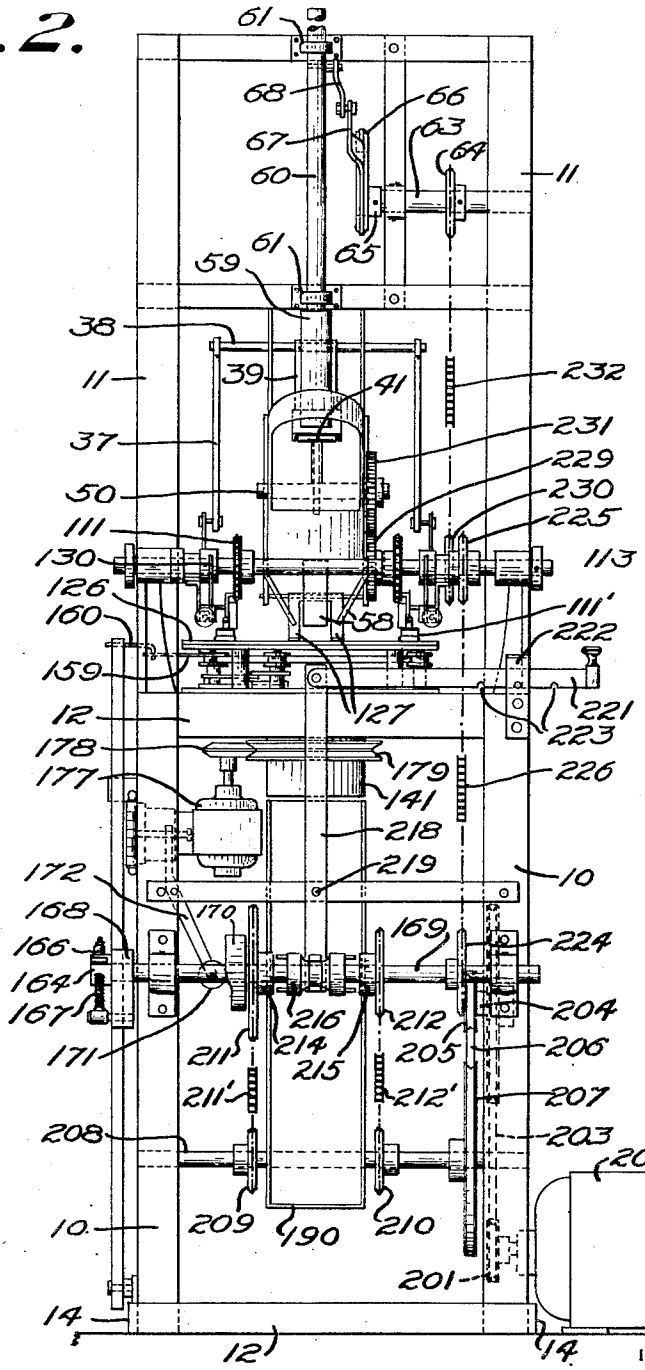
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FRUIT WRAPPING MACHINE

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Fig. 2.



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FRUIT WRAPPING MACHINE

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Fig. 11.

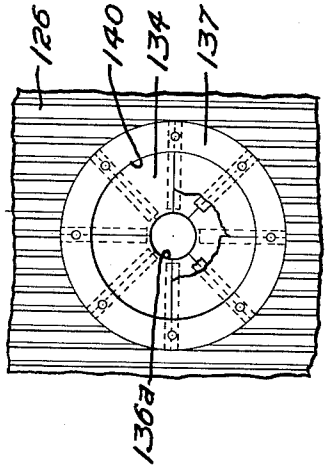


Fig. 12.

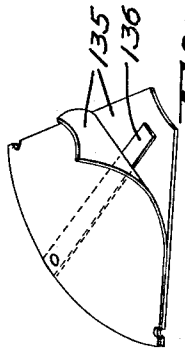


Fig. 14.

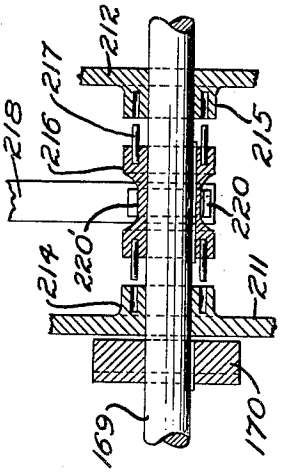
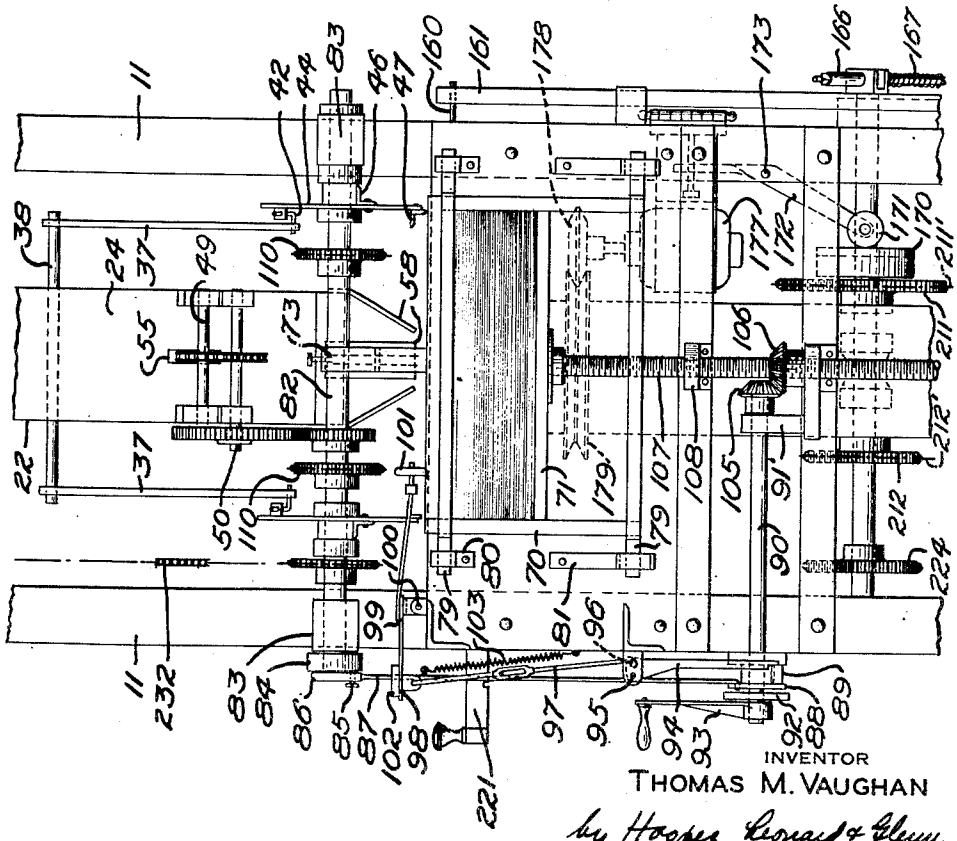


Fig. 3.



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FRUIT WRAPPING MACHINE

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Fig. 9.

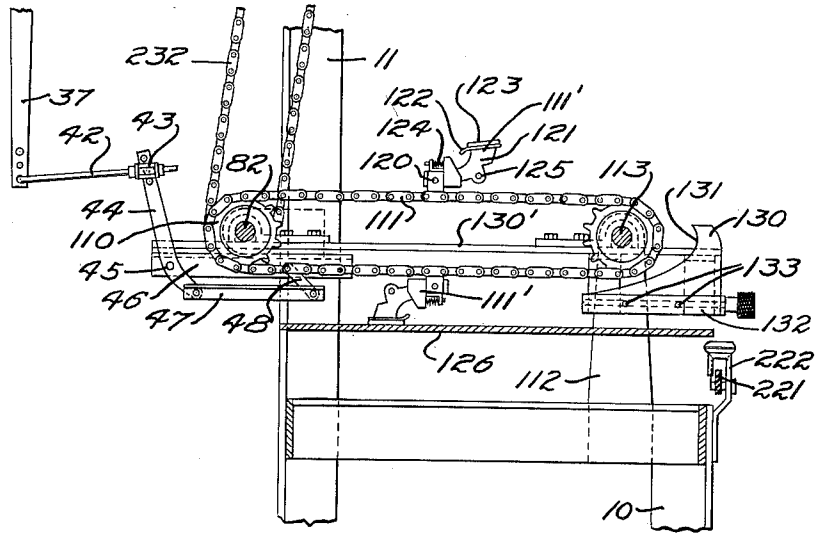
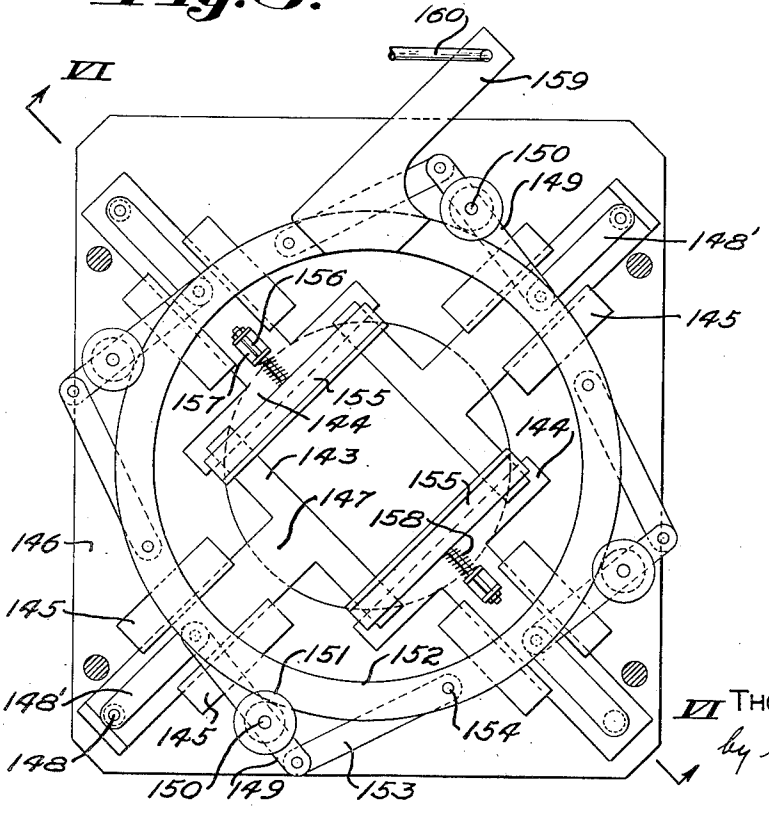


Fig. 5.



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FRUIT WRAPPING MACHINE

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Fig. 7.

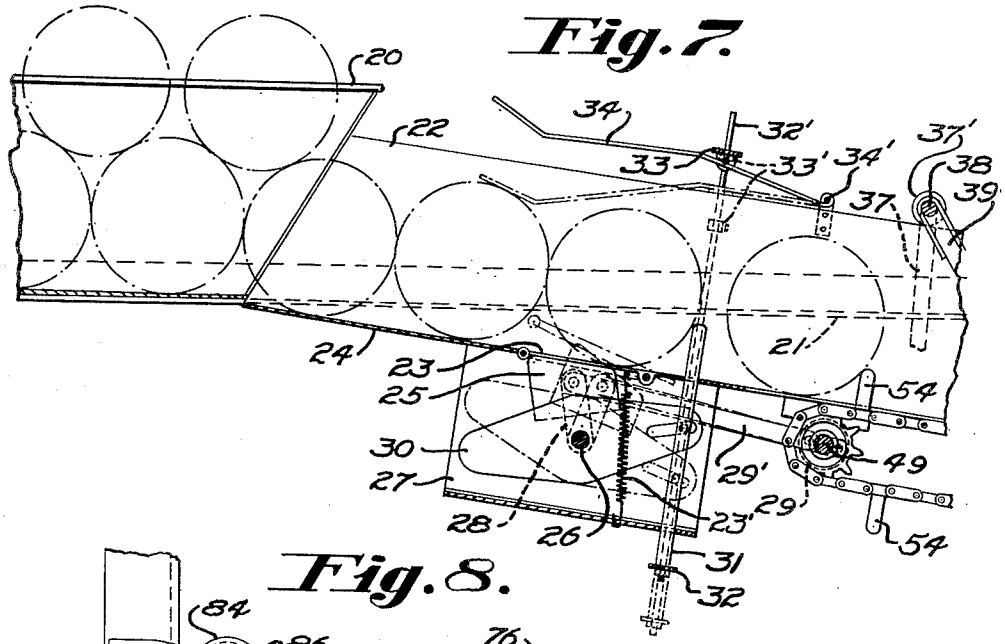


Fig. 8.

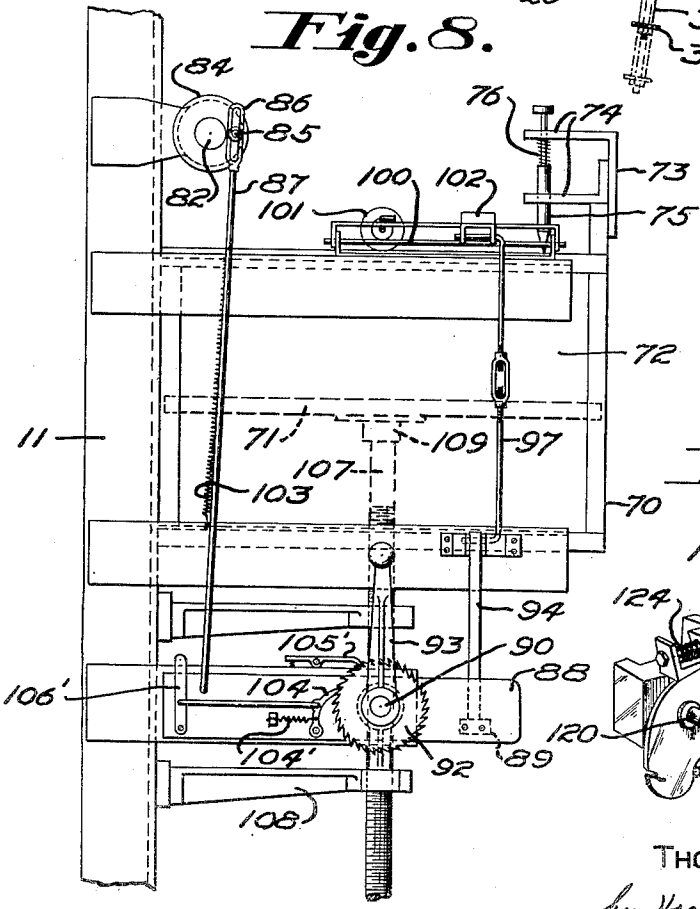
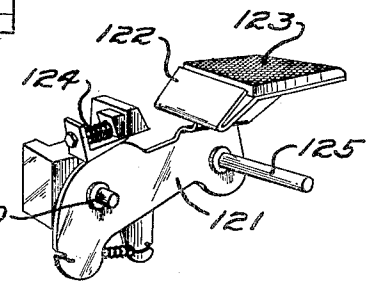


Fig. 10.



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Patented Dec. 15, 1953

2,662,354

UNITED STATES PATENT OFFICE

2,662,354

FRUIT WRAPPING MACHINE

Thomas M. Vaughan, Tampa, Fla., assignor to United Paper Company, Tampa, Fla., a corporation of Delaware

Application June 24, 1949, Serial No. 101,059

9 Claims. (Cl. 53—42)

1

This invention relates to a wrapping machine for fruits, vegetables and other articles. More particularly, it relates to a machine for applying paper wrappers to citrous fruit, such as oranges or grapefruit and constitutes an improvement on an earlier form of my machine covered by United States Patent No. 2,248,290 issued July 8, 1941.

Thus, I have provided improvements in connection with the feeding of the friut, the positioning and feeding of the wrappers, and in the ejector, clamping, and twisting mechanisms. Other objects and advantages of the invention will appear from the following description and from the accompanying drawings, which are illustrative only, in which

Figure 1 is a side view in elevation of the improved machine of this invention;

Figure 1A is a top view of the eccentric assembly for reciprocating the ejector mechanism shown in Figure 1;

Figure 1B is a schematic view showing the chief elements in the path of the fruit pieces moving through the machine;

Figure 2 is a view in elevation of the front end of the machine shown in Figure 1;

Figure 3 is a view in elevation from the rear of a portion of the machine shown in Figure 1;

Figure 4 is a plan view taken substantially along line IV—IV of Figure 1 and showing a part thereof;

Figure 5 is a plan view of the clamping jaw mechanism;

Figure 6 is a vertical view taken along line VI—VI of Figure 5;

Figure 7 is a vertical view in cross-section of details of the gate mechanism shown in Figure 1;

Figure 8 is a detailed side view in elevation of the wrapper positioning mechanism;

Figure 9 is a detailed view of the wrapper feeding mechanism taken along line IX—IX of Figure 4;

Figure 10 is a detailed view of one of the gripping members shown in Figure 9;

Figure 10A is a perspective view of gripping members cam release mechanism;

Figure 11 is a plan view of a portion of the table containing a wiping opening with wiper blades in position therein;

Figure 12 is a detailed view of the construction of a wiping blade;

Figure 13 is a detailed view in perspective of the drive and braking mechanism for the wrapper twisting drum; and

Figure 14 is a view in cross section of a speed-changing clutch for the machine shown in Figure 1.

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General construction and operation

Referring to the drawings, the improved machine comprises front vertical frame members 10 and rear vertical frame members 11. Horizontal frame members, respectively designated 12 and 13, connect the vertical frame members 10 and 11 on the two sides of the machine. Other horizontal frame members, respectively designated 14 and 15, connect frame members 10 and 11 to complete the main frame construction of the improved machine of this invention.

In the general construction and operation of the improved machine of this invention, vegetables or pieces of fruit of relatively regular shape, such as oranges, are automatically or manually fed into a downwardly inclined chute in which a gate mechanism permits pieces to pass successively when the machine is operating. These successive pieces of fruit continue through the fruit feeding and spacing mechanism where they are given a spaced relation to each other. The passage of fruit through the feeding mechanism actuates a lever system which allows the wrapper-feeding means to successively engage wrappers. These wrapper-feeding means position the wrapper beneath an ejector mechanism into which the pieces of fruit successively pass from the fruit-feeding mechanism. As the level of the supply of wrappers drops, a wrapper stock-positioning mechanism periodically raises the wrappers into a position which will maintain the stock or supply where the wrapper-feeding means can continue to engage successive wrappers while fruit is passing through the machine.

An ejector timed to synchronize with the balance of the operations of the machine successively ejects pieces of fruit in a downward direction from a cup at the delivery end of the chute, through a positioned wrapper, a wrapper wiping and adjustable clamping mechanism, and into a wrapper twisting drum. This drum is rotated to complete the wrapping and then is stopped by a brake. The fully wrapped piece is pushed out of the machine by a succeeding piece of fruit on the next downward stroke of the ejector.

When the flow of fruit to the machine ceases, the machine as a whole will idle without positioning any additional wrappers or a clutch can be moved to disengage the machine from the prime mover. Moreover, the stock of wrappers can be replenished very simply by replacing the wrapper holder which is removably attached to the machine or by inserting a fresh supply in the exhausted holder. The clutch mechanism also provides for more than one rate of operation of the machine to accommodate different sizes of

fruit or wrappers requiring a different speed of operation.

Fruit-feeding and spacing mechanism

In the embodiment of the improved machine illustrated in the drawings, fruit, such as oranges, is placed in a shallow tray 20 supported on a bracket 21 extending rearwardly of the machine. Oranges in tray 20 pass out through an opening at the front thereof immediately adjacent to and in registry with the entry end of a chute 22 which is also supported by bracket 21. Chute 22 is of sufficient size to accommodate successive pieces of fruit in single file. These pieces pass downwardly due to the incline of the chute as shown in Figures 1 and 7. A gate mechanism is employed at this point to prevent too rapid descent of the fruit and to assist in the initial spacing thereof as it passes into the machine.

The gate mechanism comprises a tongue 23 hingedly positioned at the front thereof on floor 24 of chute 22. A rocking cam 25 is mounted beneath tongue 23 so as to project through an aperture in floor 24 and move tongue 23 each time it is rocked. Cam 25 is rigidly fastened to a rocking plate 30 supported on a shaft 26 journaled in the sides of a depending enclosure 27 which in turn is fastened to the underside of chute 22. A lever 28 is affixed to shaft 26 and causes it to rock by virtue of being connected to a rotating plate 29 on a shaft 49 through link 29'. One end of rocking plate 30 is slotted for engagement with a pin extending from the side of a depending lever 31. The lower end of lever 31 is rigidly connected to a yoke 32, the outer ends of which are fastened to parallel spaced rods 32', which pass upwardly outside the respective sides of chute 22. The upper ends of these rods are slidably joined by a yoke 33, the underside of which pivotally supports a gate lever 34, one end of which is hinged to a bracket 34' extending across the top of chute 22. Collars 33' on rods 32' periodically lift gate lever 34 out of obstructing position in chute 22 upon upward movement of lever 31 when rocking plate 30 is rocked in a counterclockwise direction as seen in Figure 7. The upper end of lever 31 also projects through a registering aperture into chute 22 following tongue 23.

Hence, when rocking plate 30 is rotated in a counterclockwise direction, obstructing gate lever 34 is raised permitting a single piece of fruit to move down chute 22 over tongue 23 (which at that moment lies flat under the influence of a spring 23') until it reaches the projecting upper end of lever 31. As plate 30 rocks the other way, the lowering of lever 34 and the raising of tongue 23 halts additional fruit from passing along. Tongue 23 also assists the preceding piece of fruit in passing over the projecting end of lever 31 which has substantially been withdrawn. Thus each piece of fruit will pass on down chute 22 without excessive forward motion and in a somewhat periodical occurrence. If desired, a conventional counter can be attached to shaft 26 to give a record of the total number of pieces of fruit handled by the machine.

Following bracket 34', there is a shaft 38 which extends across the tops of the sides of chute 22. This shaft is rotatably supported in spaced sleeves 37' fastened by conventional brackets to said sides. Depending levers 37 are keyed respectively at the outer ends of shaft 38. At the center of shaft 38 there is a downwardly and forwardly inclined channel plate 39, the front portion 40 of which projects into chute 22 substantially parallel to floor 24. A series of rollers 41 are journaled in the flanges of plate 39 on the underside thereof.

A rod 42 is movably connected to the lower end of each lever 37. The forward end of each rod 42 is threaded through a clevis 43 pivotally attached to the upper end of a bent crank 44. Crank 44 is pivoted at 45 to a fixed bracket 46 extending rearwardly of the frame members 11. The lowermost end of each crank 44 is pivoted to a horizontal cam bar 47, the forward end of which is swingably attached to bracket 46 by lever 48. Hence, as fruit passes beneath rollers 41, shaft 38 is rotated in a counterclockwise direction as seen in Figure 1, cam bars 47 are depressed and permit the gripping members of the wrapper-feeding mechanism to make contact with the topmost wrapper in the wrapper holder.

Supported on the underside of chute 22 in appropriate brackets 48' are two sprocket shafts 49 and 50, the rear one 49 of which is rotatably connected to rotating plate 29. Sprockets 51 and 52 are respectively mounted on sprocket shafts 49 and 50 and actuate a sprocket chain 53, spaced lengths of which support in a rigid upstanding fashion fingers 54 which travel upwardly through a longitudinal slot 55 in floor 24. The spacing of these fingers can be varied by substitution of sprocket chains having fingers with the desired distance between them for different sizes of articles. The fingers effect a uniform and timed spacing of the fruit which passes gate lever 34 during the operation of the machine. Each piece of fruit discharged successively from a section of the chain 53 between fingers 54 drops into a cup 56 at the lower forward end of chute 22. Cup 56 is closed on three sides thereof except for a recess 57 to permit an attendant to watch the operation. Four spring clips 58 are welded around the periphery of the lower end of cup 56 and are bent inwardly so that each piece of fruit will come to rest thereon until pushed downwardly by an ejector mechanism.

The ejector mechanism comprises a vertically reciprocating ram 59 fastened to the bottom of a vertical reciprocating shaft 60. Shaft 60 is journaled in brackets 61 supported by cross members bolted to frame members 11. The lower end of ram 59 is made of metal, wood, plastic or other suitable substance and has a concavity 62 therein to center each piece as it moves it downwardly in the ejection action. For the actuation of the ram 59 a cross shaft 63 is provided mounted at the upper end of the rear of the frame structure adjacent one of the members 11. Shaft 63 carries a driven sprocket 64 and an eccentric 65. Surrounding the eccentric is an eccentric follower 66, the extended forward end 67 of which is pivotally linked by link 68 to shaft 60 intermediate the brackets 61. The other end of follower 66 has an integral lug 66' which pivots on a pin 66*a* extending through a bracket 66*b*, which bracket is affixed to frame member 11*a*. Upon rotation of shaft 63, ram 59 is reciprocated through the appropriate vertical distance at a predetermined greater rate of speed on the down stroke and lesser rate of speed on the up stroke, such strokes being in synchronism with the other operations of the machine.

Wrapper positioning and feeding mechanism

The supply of wrappers for the improved machine is carried in a holder 70 of generally cubical outline. Holder 70 has a floating bottom 71 there-

in movable vertically. Sheet metal sides 72 of holder 70 guide the travel of bottom 71 in connection with the vertical corner angle members of holder 70. A rigid bracket 73 is bolted to holder 70 at the rear intermediate the sides 72 and has upper and lower horizontal arms 74 extending over the stock of wrappers in the holder on bottom 71. The arms 74 are drilled for receipt of a vertical spike 75 pressed into downward engagement with the topmost two or three wrappers under the influence of a spring 76 compressed between a shoulder on spike 75 and the underside of upper arm 74. Integral bands 78 extend around the rear and sides of holder 70 and terminate in outwardly extending ears 79. The upper pair of ears on upper band 78 fit into hooks 80. The ears on lower band 78 are engaged by swingable latches 81 which complete the removable fastening of holder 70 firmly and immovably against the rear of the machine in the position shown in Figure 1. When the supply of wrappers is exhausted or when a different size of wrapper is desired, the removal of holder 70 is a simple matter so that another holder can be hung in place on hooks 80 and the latches 81 closed. In some cases, a fresh supply of wrappers may simply be inserted into an exhausted holder from the rear after the bottom 71 has been lowered.

Spanning the rear vertical frame members 11 is a shaft 82 supported in bearings 83. A rotating plate 84 is rigidly connected to one end of shaft 82 and carries a pin 85 on the outer face thereof in an eccentric position. Pin 85 slides and rotates in a slot 86 at the upper end of a rod 87. A head on pin 85 prevents any disengagement thereof from rod 87. The lower end of rod 87 is pivotally connected to the forward end of a pawl plate 88 which carries at the rearward end thereof a horizontally and laterally extending boss or lug 89. Plate 88 is freely and rotatably supported on a counter shaft 90 journaled at one end in the rearwardly extending bracket 91. The outer end of shaft 90 is keyed to a ratchet gear 92 and a handle 93.

Overhanging lug 89 there is an off-center lever 94 pivotally supported at 95 and having a crank arm portion 96 hookedly engaged underneath by an adjustable rod 97. The upper end of rod 97 is pivotally connected to the outwardly extending end 98 of a lever 99 pivoted at 100 to the frame of the machine. The inner end of lever 99 carries a roller 101 which rests, or tends to move downwardly due to the weight of the roller, on the topmost sheet of the stock of wrappers in holder 70. A counterweight 102 is provided at end 98 of lever 99 to partially offset the weight of roller 101, although the roller is designed to tend always to descend.

As the wrapper-feeding mechanism successively withdraws the topmost wrapper from holder 70, roller 101 will sink a corresponding amount until the wrapper positioning means are actuated to elevate the height of the topmost wrapper in the holder 70 into a position where the wrapper-feeding mechanism gripping means will continue to engage. This actuation of the positioning means occurs at a predetermined level for roller 101, whereupon rod 97 lifts crank portion 96 and swings the lower end of lever 94 to the right (in Figure 3) out of the path of lug 89. Thereupon rod 87 descends under the influence of spring 103 between rod 87 and the frame of the machine, until the top of slot 86 rests against pin 85. Continued rotation of shaft 82 will rock plate 88 and cause a pawl 104 thereon to turn ratchet gear 92

in a clockwise direction as seen in Figure 8. Pawl 104 is held in engagement with gear 92 by a spring 104'. A pivoted detent 105' is maintained in engagement with gear 92 by a spring and prevents any movement of gear 92 in a counterclockwise direction when pawl 104 is returned to engage the next succeeding tooth on the gear. As gear 92 turns, it rotates shaft 90 and bevel gear 105 on shaft 90, this in turn rotates bevel gear 106 which is interiorly threaded for the reception of a vertical threaded rod 107 journaled in brackets 108 and terminating in rotatable engagement in a cap 109 supporting the movable bottom 71. An extension 91' on bracket 108 supports the other end of shaft 90. As ratchet gear 92 turns, bottom 71 and the supply of wrappers thereon is elevated until roller 101 is raised into a position which permits lever 94 of its own weight, or under the influence of a spring, to again overhang lug 89 at a time when rod 87 is in its topmost position. Thereafter, pin 85 will idle in slot 86 until roller 101 descends the predetermined distance. When the supply of wrappers is exhausted, the threaded rod 107 can easily be returned to its lowermost position by turning handle 93 counter to the rotation of shaft 90 during elevation of bottom 71 and by holding pawl 104 out of engagement by moving lever 105' to the left as seen in Figure 8 and by pressing on the free end of detent 105' to disengagement.

Shaft 82 also carries driven sprockets 110 which mesh with sprocket chains 111 carrying gripping members 111' for the wrapper-feeding mechanism. At the front end of the machine there are brackets 112 supporting a cross shaft 113 having corresponding sprockets 114 which also engage the respective chains 111. Each chain 111 carries two gripping members each of which is in lateral registry with a corresponding gripping member on the companion chain 111. Each gripping member comprises a lever 121 which is rotatably connected about a pivot 120 and extends laterally and outwardly from the respective carrying link of the respective chain 111. Lever 121 carries on the outer end thereof in trailing position a gripping base 122 faced with a frictional material 123, such as rubber. The base 122 is kept in wrapper engagement position by a spring 124.

Near the outer end of lever 121 there is a pin 125 extending laterally a sufficient distance to ride on a cam bar 47 if cam bars 47 are in raised position and raise base 122 enough to prevent gripping contact between material 123 and the topmost wrapper in holder 70. When cam bars 47 are lowered by the raising of plate 39, the facing material 123 of each pair of gripping members does engage and moves the topmost wrapper, after tearing it loose from spike 75, across and into position on a longitudinally grooved table 126. During the passage of a wrapper over table 126, depending fingers 127, pivotally supported from a hanging bracket 128 supported in turn by the sides of chute 22, keep the wrapper feeding smoothly and keep it from shifting position as the gripping members release it.

To release gripping members 111' at the end of the wrapper feeding stroke, two similar adjustable cams 130 are provided. These cams are mounted in depending fashion on the front ends of hanging brackets 130' and are in a plane substantially parallel to and just outwardly of the planes of the respective sprocket chains 111. Each cam 130 has a fixed cam rise 131 and an

adjustable initial cam rise 132 slidably supported next to and continuous with fixed cam rise 131 by means of screws 133. When a pair of gripping members 111' brings a wrapper into correct position beneath cup 56 at the end of the working stroke of the gripping members, pins 125 strike and ride up on the initial cam face 132 and then ride up on cam face 131 out of engagement with the newly positioned wrapper which remains in place under the pressure of fingers 127.

The wrapping mechanism

Immediately upon the centering of a wrapper on table 126 beneath cup 56, ram 59 descends and pushes the piece of fruit therein through resilient members 58 and through a wiper opening 140. Opening 140 is large enough to accommodate the largest size of fruit or the like which will be wrapped on the machine. Positioned substantially entirely across opening 140 are a series of wiper blades 134. Each of these blades comprises a sector of two or more layers of fibrous material 135 such as leather. These layers are joined by an adhesive and between such layers in each sector there is at least one thin flexible strip 136 of metal or other resilient material. Since each sector is approximately a quadrant, four such in lateral relation to each other will extend around the entire periphery of opening 140 as shown in Figure 11. By positioning a second series of such wiping blades immediately beneath the first but rotated about 45° in a horizontal plane therefrom, an efficient wiping orifice is obtained, the center 136a of which is left open and is smaller than any piece wrapped by the machine.

The wiping blades 134 are fastened around opening 140 by a ring 137 fitting into a corresponding recess in table 126 to which it is screwed in such fashion that it is flush with the top surface of table 126. Thus, as ram 59 continues its descent, wiping blades 134 cause the wrapper being pushed through wiping opening 140 by the piece of fruit, to substantially and closely envelop the bottom and sides of that piece.

The partially enveloped piece continues to descend under the force of the descending ram 59 and passes through the clamping mechanism and into a twisting drum 141 where the piece and its wrapper are held by flexible longitudinal bands 142 spaced around the inner periphery of the said drum. Bands 142 are bowed inwardly to effect a gripping action on various sizes and types of fruits and vegetables to be wrapped. In this position the corners and sides of the wrapper extend upwardly between the open pairs of opposed clamping jaws respectively numbered 143 and 144.

Each of the jaws 143 of the upper pair is slidably mounted in guide blocks 145 on table 146 positioned beneath table 126 and immediately above twisting drum 141. Each jaw 143 has a rearward extension 147 sliding in said guide blocks 145 and pivoted at 148 to link 148' which is pivotally connected in turn to an oscillating link 149. Link 149 rotates about a pivotal bearing 150 fixed relative to table 146. The upper end of bearing 150 rotatably supports a grooved roller 151 which supportably engages the outer edge of a cam ring 152. The outer end of link 149 is pivotally connected to a link 153 pivoted at 154 to cam ring 152. The movement of the other jaw 143 and of the lower pair of jaws 144 is correspondingly arranged with the exception that jaws 143, upon movement of cam ring 152 in a clockwise direction as seen in Figure 5, do not completely close but are slightly open at the extreme inner end of their respective movement. Jaws 144, on the other hand, are so linked to the actuating cam ring that they effect a tighter closure. Jaws 144 also carry resiliently supported extensions 155 for slidable engagement across the top of jaws 143. These extensions are slidably bolted to jaws 144 by bolts 156 through brackets 157 to compress springs 158.

The cam ring 152 is operated by an arm 159 connected by a hooked rod 160 to an oscillating lever 161 rotating about a pivot 162. Lever 161 is rocked in synchronism with the other operations of the machine by a threaded connecting rod 163. Connecting rod 163 is slidably pivoted to lever 161 by a clevis bracket 164. The outer end of connecting rod 163 is threaded for the reception of adjusting nuts 165 and has thereon a sleeve 166, the position of which determines the extent of the opening of clamping jaws 143 and 144. Between clevis 164 and the other end of rod 163 there is a spring 167 which effects spring clamping closure and prevents overactuation of the said jaws during the closure movement. The lower end of connecting rod 163 is pivotally connected to the outer end of a crank 168 keyed to a shaft 169.

Each rotation of shaft 169 effects one complete closing and opening cycle of clamping jaws 143 and 144 to bunch or gather the ends and edges of the wrapper protruding upwardly therethrough and to hold the wrapper sufficiently tightly for the succeeding twisting operation. As the jaws close, a cam 170 on shaft 169 turns and causes its lateral rise portion to move a cam follower 171. Follower 171 is journaled in the lower end of a bell crank lever 172 which in turn is pivoted to the frame of the machine at 173 held against the cam by a spring 185. The upper end 174 of lever 172 is adapted to swing a hinge plate 175 inwardly toward the center of the machine through the medium of a spring bolt connection 176. A constant speed electric motor 177 is fastened directly to plate 175 under table 146 with its driving shaft in a vertical position. The upper end of this shaft carries an inverted V-shaped driving wheel 178 made of leather, steel or other frictional composition. Inward movement of hinge plate 175 by lever 172 is sufficient to bring drive wheel 178 into driving engagement with a corresponding pulley surface 179 surrounding and integral with the periphery of twisting drum 141. Drum 141 is suspended in place by means of depending rollers 180 suspended in turn from the underpart of table 146 and engaging a flange 181 around the upper edge of the twisting drum 141.

A brake lever 182 having a brake block 183 at the outer end thereof is riveted to plate 175 in an alternate or bifurcated arrangement relative to wheel 178. Thus, when plate 175 is moved outwardly by engagement of follower 171 with the narrower or recessed portion of cam 170, block 183 moves into immediate engagement with pulley surface 179 to arrest any further rotation of drum 141 and to hold it against further movement. On the other hand, when plate 175 is swung toward the center of the machine to move wheel 178 into engagement with drum 141, block 183 is by that very action moved out of braking engagement with the drum. The use of an independent prime mover to rotate drum 141

eliminates any difficulty arising from the need to replace or adjust pulley belts or other gearing. Moreover, for a given rate of rotation of shaft 169, twisting drum 141 will give each wrapper substantially the same amount of twisting each time wheel 178 moves into engagement with the said drum. Synchronism of such engagement of motor 177 with the balance of the operations of the machine is obtained as a consequence of the action of cam 170.

By the time of the completion of rotation of drum 141 to finish the wrapping operation and the quick braking thereof by brake block 183, the other cooperating mechanisms of the machine have positioned a succeeding wrapper on table 126 and fed a succeeding piece of fruit into cup 56, so that a new wrapping cycle is ready to be begun by the ejector action of ram 59. This action forces the preceding wrapped piece of fruit having a completed wrapping, out of the machine into a chute 190 whence it falls into a basket or other container.

The driving mechanism

A second electric motor 200 is provided for the movements of the machine other than the rotation of the twisting drum. However, both motors will usually be connected to the same electric circuit and operated through a common switch although independent circuits and switches may be used where differing motor characteristics or other circumstances make it desirable. Driving pulley 201 on the shaft of motor 200 turns a driven pulley 202 by means of a belt 203. Pulley 202 in turn is connected to a stud shaft 204 which in turn causes the rotation of grooved pulley 205 by means of belt 206 and pulley 207. As pulley 205 turns, shaft 208 is turned rotating sprockets 209 and 210 linked directly and respectively to driven sprockets 211 and 212 by chains 211' and 212'. Driven sprockets 211 and 212 are of different diameters and rotate freely on a shaft 169 without being movable axially thereof. These driven sprockets also have opposed hubs 214 and 215 thereon which are adapted to be engaged by a clutch 216. Clutch 216 is slidably keyed to shaft 169 as by a spline and splineway (see Figure 14). The outer faces of clutch 216 which surrounds shaft 169 support integral laterally extending pins 217. When clutch 216 is moved to one side or the other by lever 218 about a pivot bearing 219, the pins 217 which extend in the direction in which clutch 216 is being moved engage corresponding recesses in the hub of sprocket 211 or 212 being approached. Thus, movement of clutch 216 to the right, as shown in Figure 2, would engage hub 215. Lever 219 is connected to clutch 216 by a fork 220 encircling a necked portion 220' of the clutch. The upper end of lever 219 is linked to handle 221 which extends laterally of the machine through a slotted guide 222. Notches 223 in the underside of handle 221 enable clutch 216 to be selectively positioned to operate the machine at the slower speed derived from the larger diameter of sprocket 211 or at the faster speed derived from the smaller diameter of sprocket 212 or to stop all movements of the machine while permitting sprockets 211 and 212 to rotate idly about shaft 169 when clutch 216 is midway between them.

When clutch 216 is engaged with the hub of either sprocket, shaft 169 is turned causing the rotation of cam 170 and of driving sprocket gear 224. Gear 224 is connected in turn to driven sprocket 225 by a chain 226. The rotation of

gear 225 turns shaft 113 and thereby actuates the chains 111 of the wrapper-feeding mechanism described earlier. The rotation of sprocket chains 111 rotates shaft 32 which in addition to the driven sprockets 110, has keyed thereto a gear 229 and a sprocket 230. As gear 229 turns, a meshing gear 231 mounted on shaft 50 is also rotated and actuates chain 53 through sprocket 52. The rotation of sprocket 230 turns gear 64 and shaft 63 by means of chain 232. The organization of the driving mechanism and the positioning of the relative parts of the machine driven thereby are such that the sequence of operations is coordinated in speed and timing to achieve an integrated wrapping operation.

Although I have illustrated and described but a preferred embodiment of my improvements, it will be understood that changes in the details and arrangements may be made without departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. A machine for wrapping pieces of fruit or the like, comprising, a feeding chute, means for feeding said pieces along said chute in successively spaced fashion, spaced bars connected to said means, a holder for wrappers adjacent said spaced bars, means for periodically restoring the top level of said wrappers in said holder, a table adjacent the top of said holder having an opening therein, gripping means controlled by said spaced bars for feeding the topmost wrapper from said holder and positioning it over said opening when pieces pass along said chute, said chute having its delivery end positioned over said opening, a twisting drum positioned beneath said opening, said drum being adapted to hold said pieces, an ejector adapted to push said successive pieces into a wrapper positioned over said opening and into said twisting drum, opposed clamping jaws for bunching the flaring edges of each wrapper on each successive piece of fruit pushed into said twisting drum, independent means for separately rotating said drum to twist the ends and edges of said bunched wrapper to close the same, brake means to stop the rotation of said drum, said independent means and said brake means being fixed relative each other and swingably mounted relative said drum, actuating means for said first mentioned feeding means, ejector and clamping jaws, a movable clutch mechanism to vary the speed of said actuating means, drive means for said clutch mechanism, and cam means connected to said actuating means for synchronizing the operation of said drum with the operation of the parts moved by said actuating means.

2. A machine for wrapping pieces of fruit or the like, comprising, a feeding chute, means in said chute for intermittently passing a number of said pieces, means for feeding said pieces along said chute in successively spaced fashion, lever means in said chute adapted to be elevated by said pieces, spaced bars linked to said lever means and adapted to be lowered when said lever means are elevated, a holder for wrappers adjacent said spaced bars, means for periodically restoring the top level of said wrappers in said holder, a table adjacent the top of said holder having a wiping opening therein, gripping means for drawing a wrapper from the top of said holder when said spaced bars are lowered and positioning it over said opening, a cup at the delivery end of said chute positioned over said wiping opening, said cup being adapted to yield-

ably hold successive pieces of fruit, a twisting drum positioned beneath said opening constructed to hold said pieces, an ejector adapted to push successive pieces out of said cup into a wrapper positioned over said opening and into said twisting drum, opposed clamping jaws for bunching the flaring edges of each wrapper on each successive piece of fruit pushed into said twisting drum, independent means for separately rotating said drum to twist the ends and edges of said bunched wrapper to close the same, brake means attached to said independent means to stop said drum, actuating means for said ejector and clamping jaws, and means connected to said actuating means for synchronizing said independent means and said actuating means.

3. A machine for wrapping pieces of fruit or the like, comprising, a feeding chute, means in said chute for intermittently passing a number of said pieces, means for moving said pieces along said chute in successively spaced fashion, lever means in said chute adapted to be elevated by said pieces, spaced bars linked to said lever means and adapted to be lowered when said lever means are elevated, a removable holder for wrappers adjacent said spaced bars, a table adjacent the top of said holder having a wiping opening therein, gripping means for drawing a wrapper from the top of said holder when said spaced bars are lowered and positioning it over said wiping opening, a cup at the delivery end of said chute positioned over said wiping opening, said cup being adapted to yieldably hold successive pieces of fruit, a twisting drum positioned beneath said wiping opening, resilient means in said twisting drum to hold said pieces, an ejector adapted to push successive pieces out of said cup into a wrapper and through said wiping opening into said twisting drum, wiping blades positioned around the periphery of said wiping opening and extending inwardly toward the center thereof, opposed clamping jaws for bunching the flaring edges of each wrapper on each successive piece of fruit held in said twisting drum, independent means for separately rotating said drum to twist the ends and edges of said bunched wrapper, brake means attached to said independent means to stop said drum, actuating means for said ejector and clamping jaws, and means connected to said actuating means for synchronizing said independent means and said actuating means.

4. In a machine for wrapping pieces of fruit or the like, in combination, a twisting drum, means for successively feeding said pieces into said drum, an electric motor for driving said drum by direct and intermittent engagement with the periphery of said drum, a plate hinged to the frame of said machine and carrying said motor, said plate having its axis of rotation substantially parallel to the axis of rotation of said drum and of said motor, and a brake carried by said plate and adapted to brake movement of said drum by direct engagement therewith, said motor and said brake being in substantially forked relation to said drum, and cam means connected to said first-mentioned means and engaging said plate to synchronize the action of said first-mentioned means with the engagement between said motor and said drum, whereby engagement between said motor and said drum occasioned by a movement of said plate disengages said brake, and conversely, engagement between said brake and said drum occasioned by another movement of said plate disengages said motor and stops said drum before a successive piece is fed into said drum.

5. In a machine for wrapping pieces of fruit or the like, comprising in combination, mechanism for feeding said pieces in successive fashion, mechanism for feeding wrappers in successive fashion, an ejector mechanism to push each of said pieces into a wrapper, clamping jaws to bunch the open edges of said wrappers, a twisting drum adapted to twist the bunched edges of said wrapper to complete said wrapping, an electric motor to directly and intermittently rotate said twisting drum, a hinged plate supporting said motor, a brake connected to said plate to arrest the rotation of said drum, a second motor to drive said mechanisms, and cam means actuated by said second motor to move said first-named motor into engagement with said drum at predetermined intervals between the aforesaid pushing movements of said ejector mechanism, whereby said drum is operated in sequence with the operation of said mechanisms.

6. In a machine for wrapping pieces of fruit or the like, a driving mechanism comprising a prime mover, fruit feeding and spacing mechanism and wrapper feeding, wiping and clamping mechanism operated by said prime mover, a twisting drum through which said pieces successively move, said twisting drum adapted to be rotated to twist said wrapper when the edges thereof are held by said clamping mechanism to complete said wrapping, a separate prime mover to drive said twisting drum by direct engagement therewith, at least a pair of loosely mounted change speed driven clutch members connected to said mechanisms, a driving clutch member to engage one of said driven clutch members at one time to drive said mechanisms at the selected rate of speed, and cam means driven by said first-named prime mover to correspondingly control the periods of drum rotation by said second-named prime mover in timed relation to the selected rate at which the several other mechanisms are operated.

7. In a machine for wrapping pieces of fruit or the like, in combination, means for feeding said pieces in single file and successively spaced fashion, a table having a wiping opening therein, resilient wiping blades positioned in said opening, means for feeding a wrapper into position over said wiping opening during the feeding of said pieces, a cup positioned above said wiping blades into which said pieces successively pass, an ejector to push said pieces out of said cup and through said wiping opening to wipe a wrapper around said pieces, a twisting drum positioned beneath said wiping opening to successively hold said pieces and rotate them to twist the ends of said wrappers, clamping jaws positioned between said table and said drum to resiliently hold the ends of said wrappers when said pieces are in said drum, resilient means for closing said clamping jaws after each piece has been passed between them by said ejector, a prime mover connected to said ejector, a second prime mover connected to said machine and movable relative to said drum to directly and intermittently engage said drum to rotate it, when said pieces are in said drum and said jaws are resiliently holding the ends of said wrappers, and means to move said second prime mover into engagement with said drum when said ejector is at least above said clamping jaws.

8. In a machine for wrapping pieces of fruit

or the like, in combination, means for feeding said pieces in single file and successively spaced fashion, a table having a wiping opening therein, resilient wiping blades positioned in said opening, means for feeding a wrapper into position over said wiping opening during the feeding of said pieces, a cup positioned above said wiping blades into which said pieces successively pass, an ejector to push said pieces out of said cup and through said wiping opening to wipe a wrapper around said pieces, a twisting drum positioned beneath said wiping opening to successively hold said pieces and rotate them to twist the ends of said wrappers, clamping jaws positioned between said table and said drum to resiliently hold the ends of said wrappers when said pieces are in said drum, resilient means for closing said clamping jaws after each piece has been passed between them by said ejector, a prime mover connected to said ejector, a second prime mover connected to said machine and movable relative to said drum to directly and intermittently engage said drum to rotate it, when said pieces are in said drum and said jaws are resiliently holding the ends of said wrappers, a brake movable directly and intermittently into engagement with said drum, and means to move said second prime mover into such engagement with said drum when said ejector is at least above said clamping jaws and to move said brake into engagement with said drum upon movement of said second prime mover out of said engagement with said drum.

9. In a machine for wrapping pieces of fruit or the like, opposed pairs of opposed clamping jaws to gather and hold the edges of wrappers enveloping said pieces, the jaws in each of said pairs having rearward extensions and being movable toward and away from each other, grooved members connected to said machine, a ring having its periphery engaging said members and guided thereby, links pivotally connected to said rearward extensions respectively, other links pivotally connected to said ring, a connecting link pivotally connecting said first-mentioned links connected to said rearward extensions and said links connected to said ring, a pivotal bearing for each said connecting link fixed relative to said ring, and means for moving said ring in opposite directions to open and close said jaws respectively through the aforesaid linkage.

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