Nov. 20, 1956 A. A. KOTTMANN 2,770,934

WRAPPER FEED MECHANISM FOR WRAPPING MACHINES

Filed Oct. 29, 1952 7 Sheets-Sheet 1

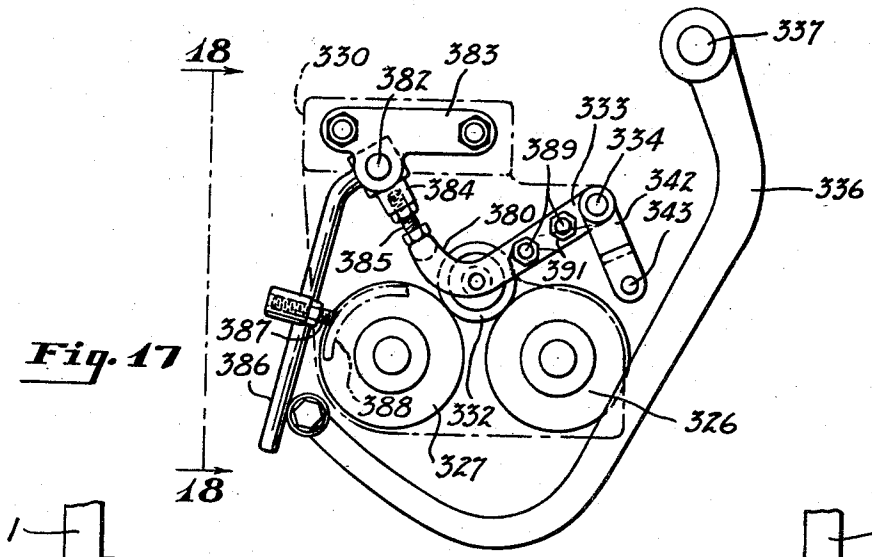


Fig. 17

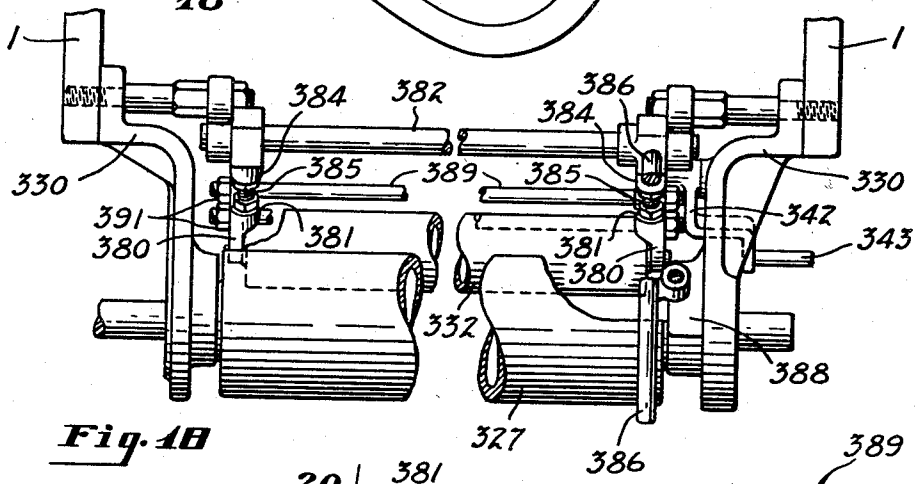


Fig. 18

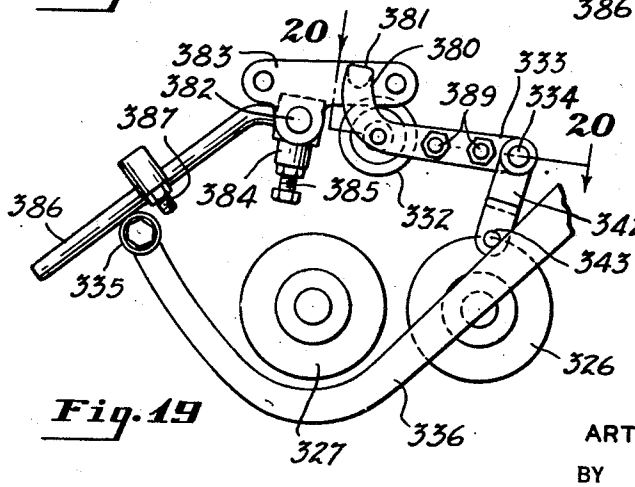


Fig. 19

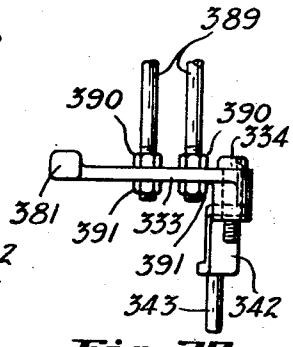


Fig. 20

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WRAPPER FEED MECHANISM FOR WRAPPING MACHINES

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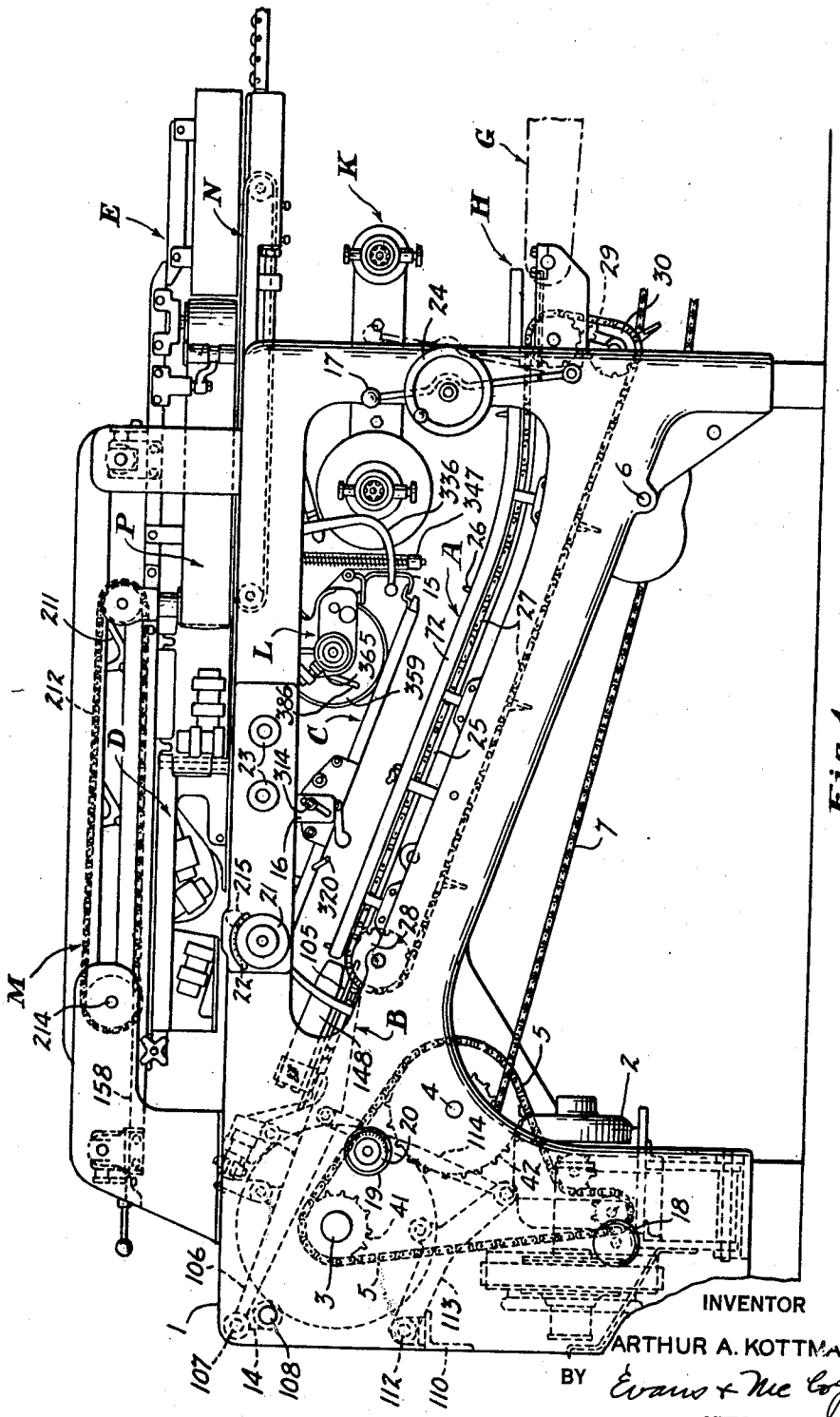


Fig. 1

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WRAPPER FEED MECHANISM FOR WRAPPING MACHINES

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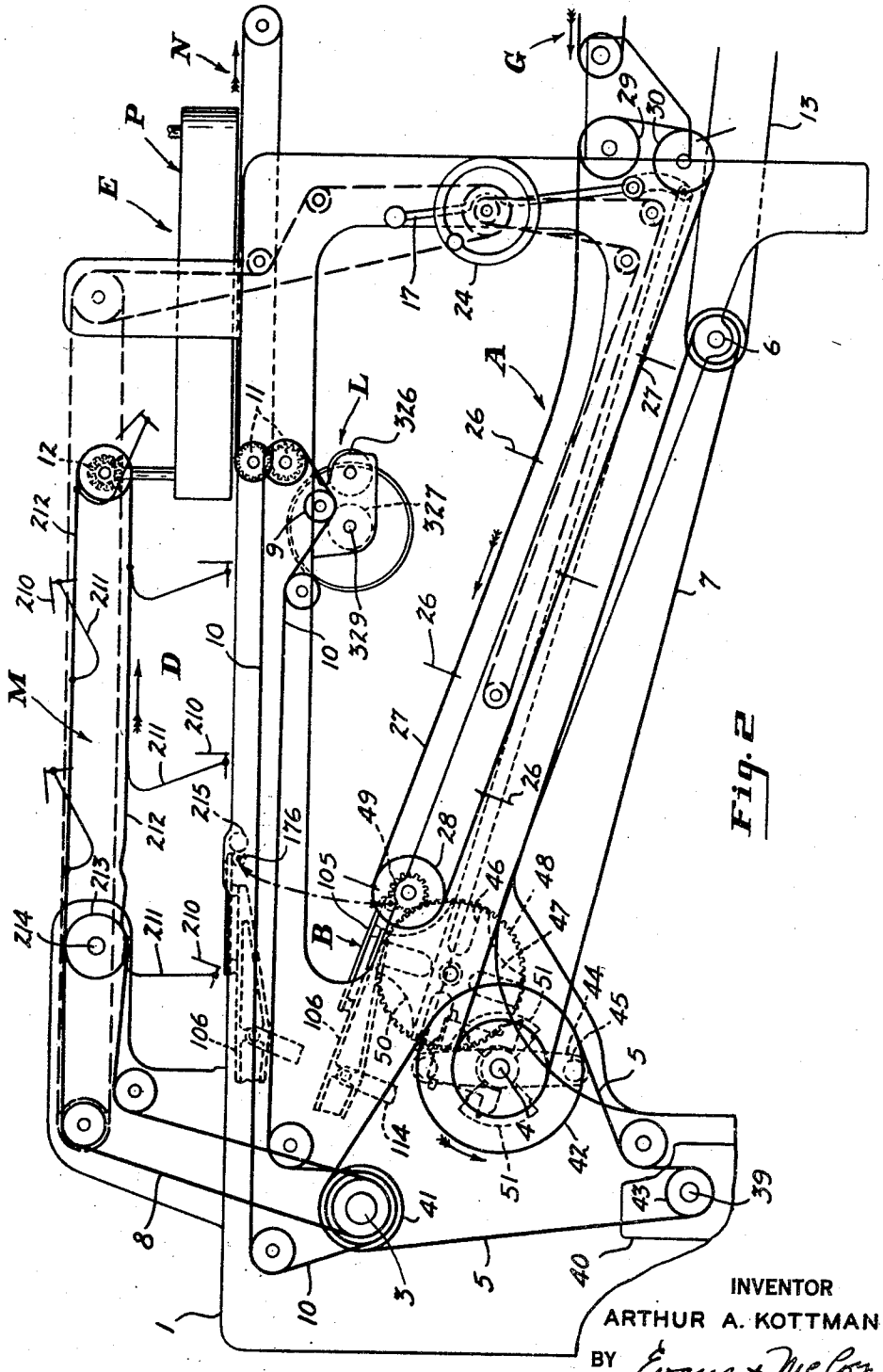


Fig. 2

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WRAPPER FEED MECHANISM FOR WRAPPING MACHINES

Filed Oct. 29, 1952

7 Sheets-Sheet 4

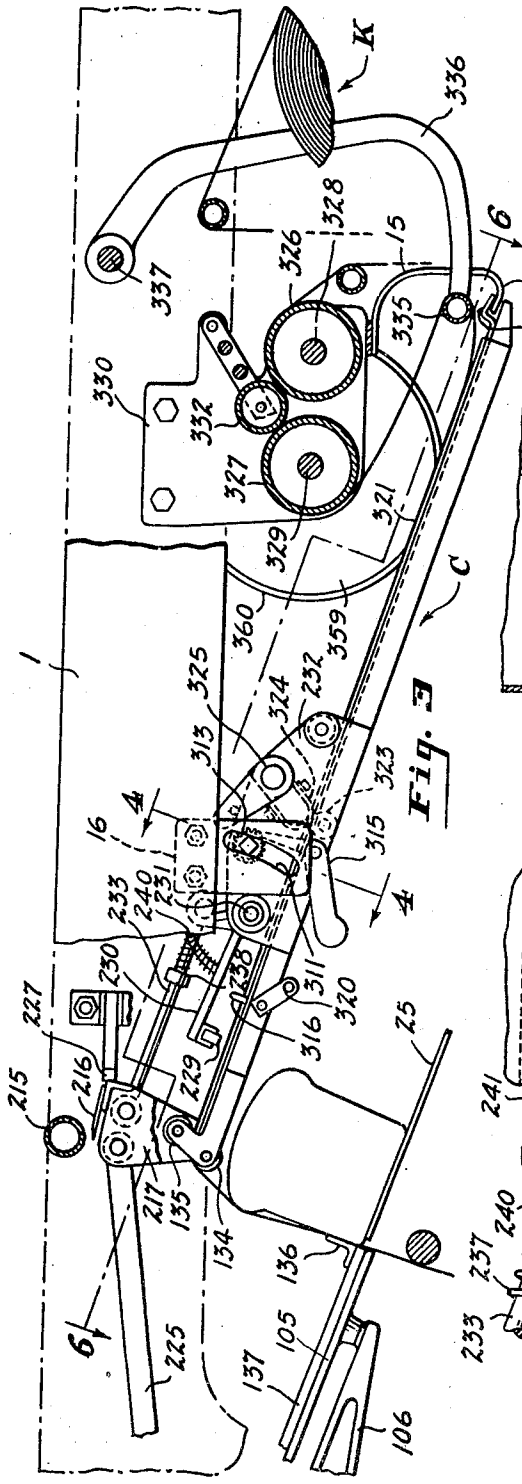


Fig. 3

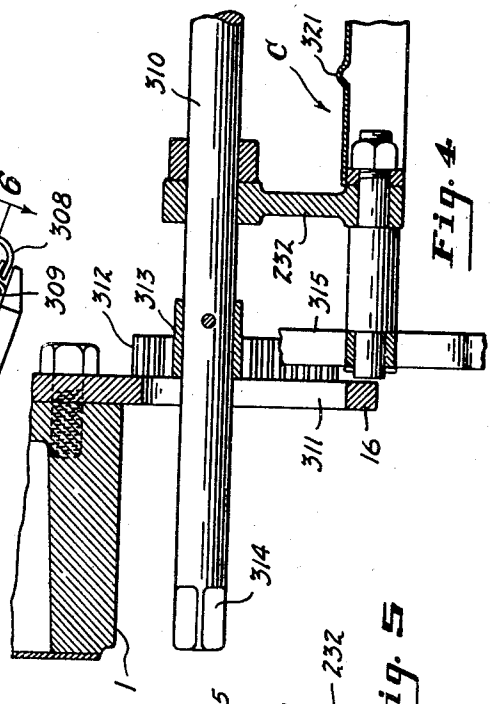


Fig. 4

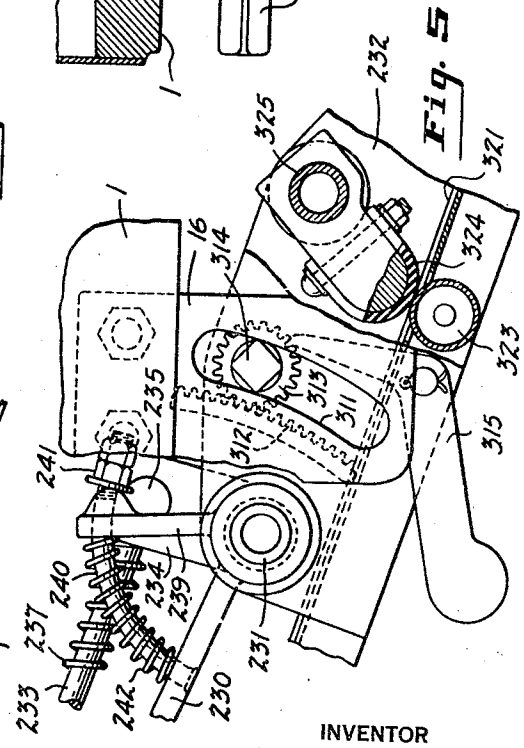


Fig. 5

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WRAPPER FEED MECHANISM FOR WRAPPING MACHINES

Filed Oct. 29, 1952

7 Sheets-Sheet 5

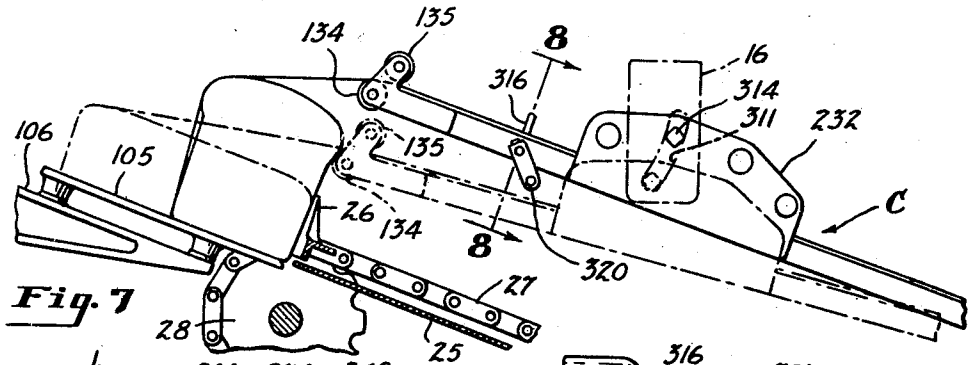


Fig. 7

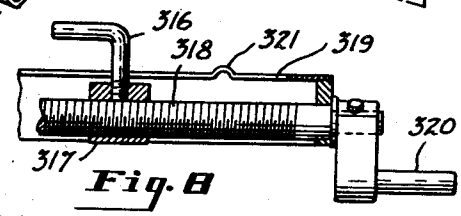


Fig. 8

Fig. 6

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WRAPPER FEED MECHANISM FOR WRAPPING MACHINES

Filed Oct. 29, 1952 7 Sheets-Sheet 6

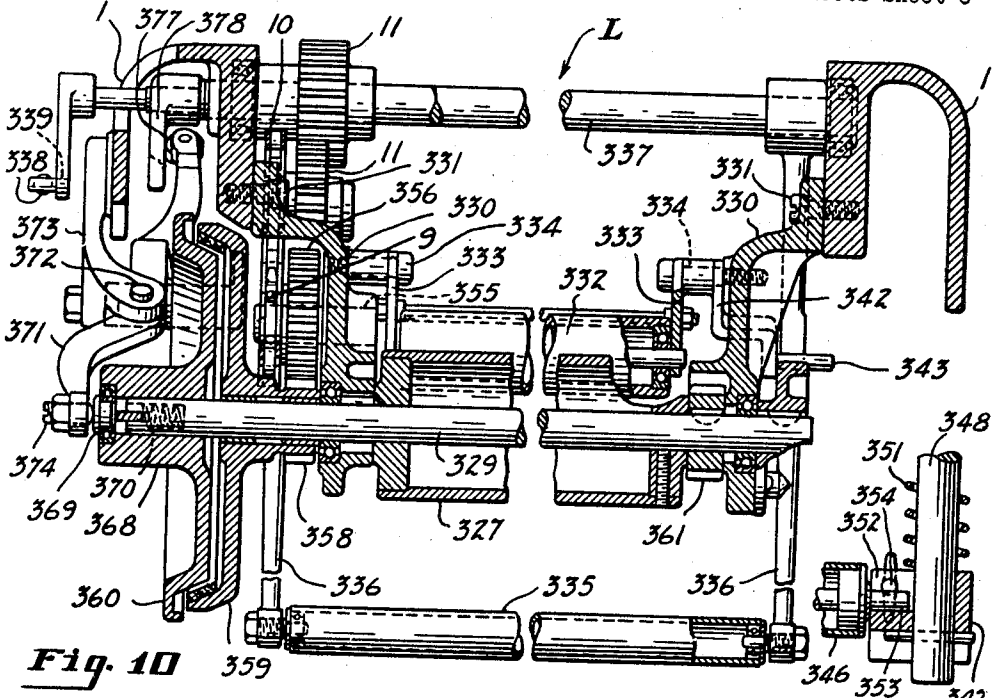


Fig. 10

Fig. 12

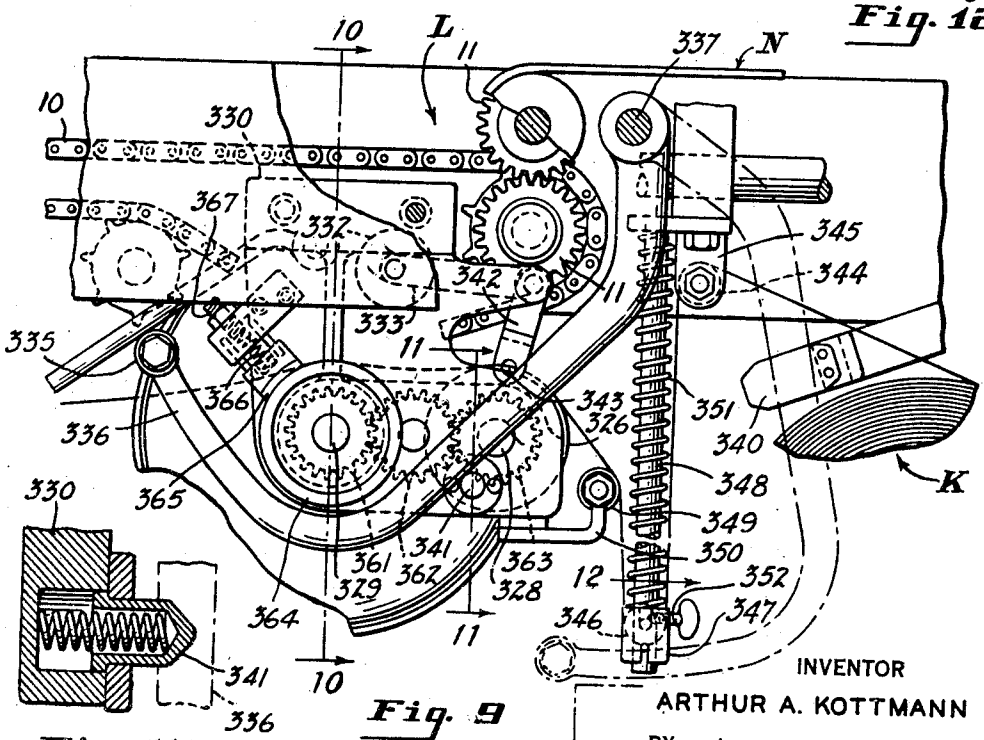


Fig. 9

Fig. 11

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WRAPPER FEED MECHANISM FOR WRAPPING MACHINES

Filed Oct. 29, 1952 7 Sheets-Sheet 7

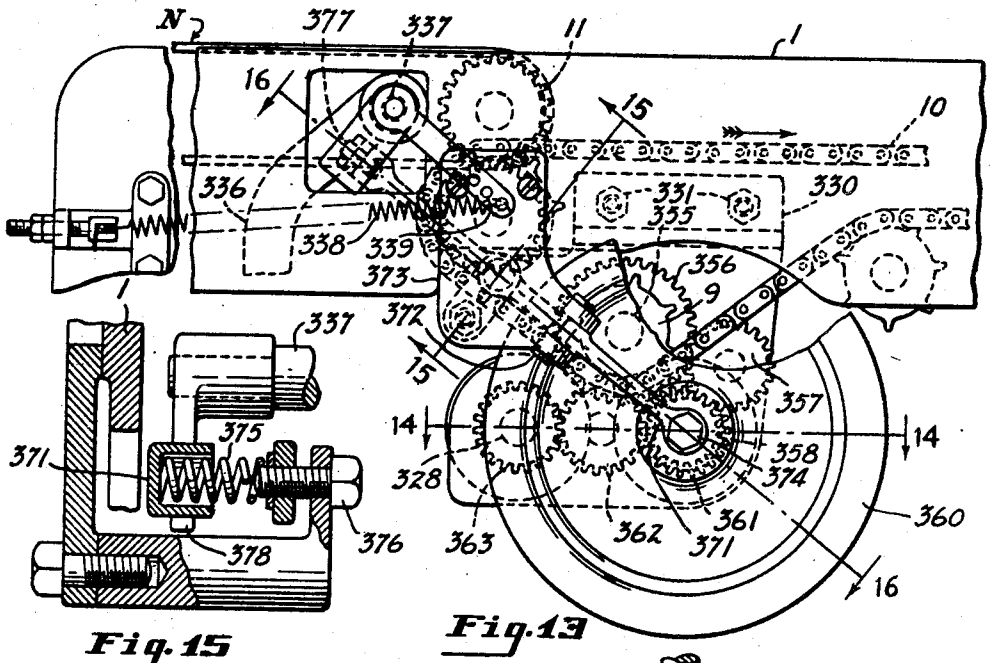


Fig. 15

Fig. 13

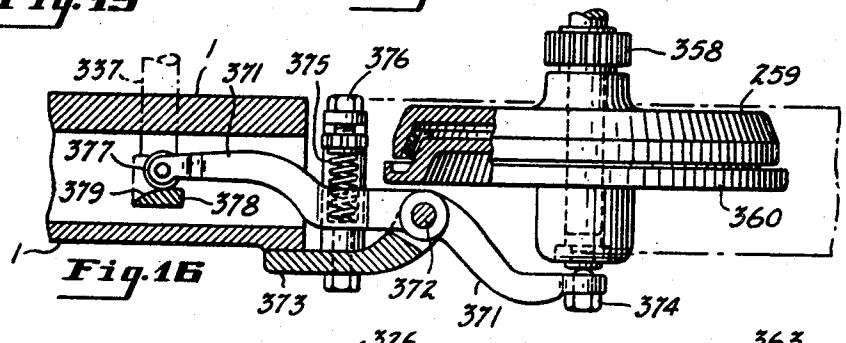


Fig. 16

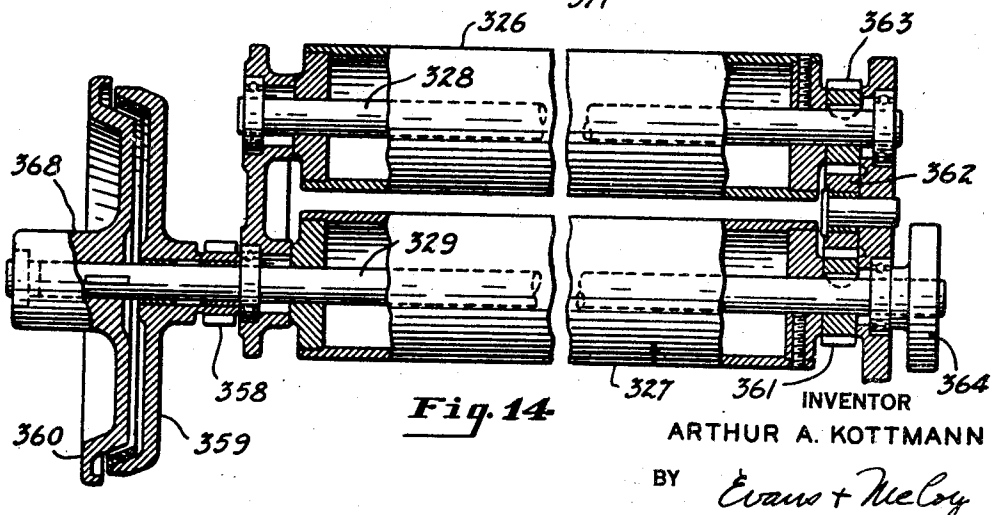


Fig. 14

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ATTORNEYS

United States Patent Office 2,770,934 Patented Nov. 20, 1956

2,770,934

WRAPPER FEED MECHANISM FOR WRAPPING MACHINES

Arthur A. Kottmann, Davenport, Iowa, assignor, by mesne assignments, to American Machine & Foundry Company, New York, N. Y., a corporation of New Jersey

Application October 29, 1952, Serial No. 317,462

20 Claims. (Cl. 53—66)

This invention relates to wrapping machines of the type in which the leading end of a web of wrapping material is applied to an article to be wrapped and in which the web is wound about the article and folded against the ends of the article during movements of the article through the machine and particularly to the mechanism for feeding the web of wrapping material to the article wrapping mechanism, the present application being a continuation in part of my copending application, Serial No. 188,686, filed October 6, 1950.

In the machine of the present invention the wrapper web is fed toward the wrapping mechanism by means of a power driven web feeding mechanism that is controlled by the tension applied to the end of the web as it is wrapped about the article, the feeding mechanism being operated during application of tension to the web so as to deliver to the wrapping means the length of web required to wrap the article.

The web feeding mechanism is controlled by a slack take-up member between the web feeding and article wrapping mechanisms, the slack take-up member being moved when a pull is exerted on the web by the article wrapping mechanism, and serving to start and stop the web feeding mechanism. The web feeding mechanism is preferably maintained in driving engagement with the paper web and is driven through a clutch that is operated by a member that moves in response to changes in tension on the web between the web feeding mechanism and the wrapping mechanism.

The invention has for an object to provide a simple and highly sensitive control for the web feeding mechanism by which the correct length of wrapper web is fed to each article and by which the tension applied to the web by the article being wrapped is limited.

A further object of the invention is to provide web feeding and tension operated control members so mounted that they may be readily positioned to provide a clear path for threading the web of wrapping material through the feed mechanism.

An additional object of the invention is to so connect the intermittently operated web feeding mechanism to the web supply reel that the supply reel may be intermittently rotated by pulls exerted on the web without subjecting the web to excessive tension.

Reference should be had to the accompanying drawings forming a part of this specification, in which:

Figure 1 is a side elevation of the wrapping machine embodying the invention;

Fig. 2 is a diagrammatic side elevation showing the moving parts of the machine and the driving mechanism;

Fig. 3 is a side elevation of the drape table;

Fig. 4 is a fragmentary section taken on the line indicated at 4—4 in Fig. 3;

Fig. 5 is a fragmentary side elevation on an enlarged scale showing the drape table and adjusting mechanism;

Fig. 6 is a top plan view of the drape table viewed as indicated at 6—6 in Fig. 3;

Fig. 7 is a diagrammatic side elevation showing adjustments of the drape table;

Fig. 8 is a section taken on the line indicated at 8—8 in Fig. 7;

Fig. 9 is a side elevation on an enlarged scale showing the web feed mechanism as viewed from the front of the machine;

Fig. 10 is a vertical section taken on the line indicated at 10—10 in Fig. 9;

Fig. 11 is a fragmentary section on an enlarged scale taken on the line indicated at 11—11 in Fig. 9, showing the latch for releasably holding certain of the web engaging rollers in position clear of the web to facilitate threading of the web through the feed mechanism;

Fig. 12 is a fragmentary sectional view showing the quickly detachable mounting of one of the slack take-up rollers;

Fig. 13 is a side elevation of the web feed mechanism viewed from the back of the machine;

Fig. 14 is a horizontal section taken on the line indicated at 14—14 in Fig. 13;

Fig. 15 is a section taken on the line indicated at 15—15 in Fig. 13;

Fig. 16 is a section taken on the line indicated at 16—16 in Fig. 13;

Fig. 17 is a side elevation of the paper feed rollers with parts omitted to more clearly show the web gripping roller and its positioning and holding members;

Fig. 18 is a front elevation of the paper feed rollers viewed as indicated at 18—18 in Fig. 17;

Fig. 19 is a side elevation of the paper feed rollers showing the web gripping roller in elevated position; and

Fig. 20 is a fragmentary elevation of one of the adjustable roller supporting arms viewed as indicated at 20—20 in Fig. 19.

The invention is shown applied to a wrapping machine in which the articles to be wrapped are delivered to the wrapping mechanism by means of an endless pusher flight conveyor A which delivers to a vertically swinging elevator or transfer platform B. The infeed conveyor A delivers the articles to be wrapped onto the elevator B and in passing from the conveyor A to the elevator B the articles engage with the leading end of a web of wrapping material which is suspended from a drape table C over which the wrapping material is fed.

The feed conveyor A is mounted in an inclined position and delivers the articles from its upper end to the elevator B which moves from an inclined receiving position in alinement with the conveyor A to an upper horizontal position in alinement with a discharge runway which includes the usual folding and heating section D and cooling section E to complete the wrapping of the article and seal the folds of the wrapper.

The wrapping machine may be conveniently operated in tandem with a bread slicing machine, the delivery conveyor G of which delivers the sliced loaves to the infeed conveyor A of the wrapping machine by means of a suitable shuttle mechanism H interposed between the conveyors G and A.

A web of wrapping material is fed to the drape table C from a reel K through a tension controlled web feed mechanism L. During each wrapping cycle the leading end of the web of wrapping material is suspended between the delivery end of the feed conveyor A and the elevator B where it is engaged by the article to be wrapped as it moves onto the elevator and then clamped between the article and elevator so that a pull is exerted on the web during movement of the article onto the elevator and during subsequent movement of the elevator, the tension on the web causing actuation of the feed

mechanism to supply the length of web needed for wrapping the article.

The article being wrapped is discharged from the elevator and moved through the folding and sealing sections of the discharge runway by means of an overhead endless pusher conveyor M. The bottom of the cooling section E is formed by an endless belt N and the sides by two endless belts P which grip and travel with the wrapped article during cooling so that lapping portions of the wrapper are held against relative movement while the wax or other adhesive is setting.

The feed conveyor A is intermittently driven with a dwell during upward movement of the elevator B and the elevator is reciprocated with a dwell at its upper and lower limits of movement. The overhead pusher conveyor M and conveyors N and P are continuously driven.

The machine has a frame 1, the top of which is horizontal to provide a support for the article discharge runway.

The machine is driven by an electric motor 2 which continuously drives a main cam shaft 3 and a feed conveyor driving shaft 4 through a sprocket chain 5. A shaft 6 which drives the shuttle mechanism H is driven from the shaft 4 through a sprocket chain 7. The overhead pusher conveyor M is driven from the shaft 3 through a sprocket chain 8 and a sprocket 9 that operates the web feed mechanism L is driven from the shaft 3 through a sprocket chain 10. The belt N is driven by the sprocket chain 10 through gears 11 and the belts P are driven by the endless pusher conveyor M through bevel gears 12. When the wrapping machine is operated in tandem with a slicing machine the slicing machine and its discharge conveyor G are driven from the shaft 6 by a sprocket chain 13.

In order to avoid slack between the article being wrapped and the web feed mechanism and in order to reduce slack and obtain more uniform control of the web feed to articles varying in height, the drape table C is adjustably mounted so that its upper end can be positioned at different distances above the discharge end of the infeed conveyor A so as to obtain a more direct pull on the paper and a better regulation of the web feed and also to avoid delivery of an excess amount of wrapping material to low articles.

The table C, which is mounted directly above the conveyor A, is pivotally and slidably supported at its lower end on a bracket 15 carried by the frame of the machine, and is adjustably supported intermediate its ends upon brackets 16 attached to the top portions of the frame 1, the table adjusting mechanism being so designed that an operating connection between the web cutoff mechanism carried by the main frame and paper clamping mechanism carried by the table C is not disturbed by the adjustment.

The machine is so designed that all manually operable adjusting and controlling elements are mounted on the front side of the machine in positions conveniently accessible to an operator standing at the front of the machine. A hand lever 17 mounted on the front end of the frame controls the operation of the feed conveyor A. A handwheel 18 adjacent the rear end of the machine controls the speed of operation of the machine. A handwheel 19 associated with a dial 20 may be adjusted to control the amount of wrapper web drawn out from the drape table prior to the web cutoff to vary the length of the end of the web depending from the upper end of the drape table C and vary the amount of underlap of the paper at the bottom of the article being wrapped. A handwheel 21 associated with a dial 22 may be adjusted to control the tightness with which the paper is wrapped about an article. Heater control elements 23 are mounted on the top portion of the frame forwardly of the tight-loose wrap control. Adjacent the rear end of the machine a handwheel 24 is provided for adjusting the width of the discharge channel of the machine and simultaneously adjusting other parts of the machine for accommodating articles of different widths.

The feed conveyor A has a bed 25 over which articles are pushed by flights 26 carried by endless sprocket chains 27 that run over upper and lower pairs of sprockets 28 and 28 and over tightening sprockets 30 beneath the sprockets 29.

The conveyor A is driven intermittently and the chains 27 are moved a distance corresponding to the space between successive flights 26 on each actuation, the driving mechanism being so adjusted that the conveyor stops with a flight 26 in substantially vertical position at the discharge end of the conveyor, in which position the article being pushed by the flight at the discharge end of the conveyor has been transferred from the bed 25 to the elevator B, and the flight 26 at the discharge end of the conveyor remains stationary during the initial upward movement of the elevator so that it does not interfere with the movement of the article with the elevator.

The infeed conveyor A is intermittently driven from the shaft 4 through a Geneva type gearing which includes a drive wheel 44 fixed to the shaft 4 and having two driving pins in the form of rollers 45 which are diametrically opposite each other and at equal distances from the axis of the shaft 4. The rollers 45 engage in radial slots 46 in a Geneva gear 47 to which is attached a spur gear 48 which meshes with a gear 49 on the shaft of the sprockets 28. The gear 47 is provided with four radial slots 46 and is given a quarter turn upon each half revolution of the shaft 4. The gear 47 is provided with peripheral recesses 50 intermediate the slots 46 which are of arcuate contour to receive cylindrical locking segments 51 carried by the drive wheel 44 to lock the gear 47 against turning movements during intervals between actuations thereof by the pins 45.

The sprocket 42 on the shaft 4 is twice the diameter of the sprocket 41 on the shaft 3 so that the shaft 4 rotates at half the speed of the shaft 3. The shaft 3 rotates once during each cycle of operation of the machine and the shaft 4 makes a one-half revolution and imparts a movement to the conveyor A during each cycle of operation.

The gears 48 and 49 are so proportioned that a movement is imparted to the infeed conveyor A to move the flights a distance exactly equal to the length of the space between them upon each actuation of the conveyor, and the infeed conveyor has one movement during each wrapping cycle to deliver an article to the elevator B each time that the elevator is lowered to a position in alinement with the conveyor.

The sliced loaves of bread or other articles to be wrapped are delivered from the feed conveyor A to a platform 105 on the elevator B, the platform 105 being attached to the forward ends of elongated supporting arms 106 that are connected at their rear ends by pivots 107 to the rocker arms 14 which provide a movable support to which the elevator is pivoted. The arms 106 are connected to the upper ends of the rocker arms 14 and the lower ends of the arms 14 are attached to a horizontal rock shaft 108 journaled in the side members of the frame. During operation of the machine the elevator platform moves from a lower inclined position in alinement with the bed 25 of the infeed conveyor to an upper horizontal position in alinement with the discharge runway. The elevator dwells in its lowermost position until an article is transferred thereto by the infeed conveyor, and moves upwardly during the dwell of the infeed conveyor to deliver the loaf to the discharge runway. The elevator has intermittent oscillating movement timed with respect to the movement of the infeed conveyor flights 26 so that the elevator is positioned to receive articles pushed by the flights 26 upon each advancing movement of the feed conveyor.

A horizontal crossbar 110 at the rear end of the frame 1 provides support for a pivot shaft 112 which supports a cam lever 113 that is connected to the arms 106 by links 114. During each complete revolution of the cam

shaft 3 the elevator is moved up and down by the cam lever 113 and the infeed conveyor is operated in timed relation to the movements of the elevator.

As shown in Fig. 3, the drape table C is provided with a pair of web guiding rollers 134 and 135 at the rear end thereof. The leading end of the web is fed over the lower roller 134 to a position where it hangs across the upper end of the bed 25 of the infeed conveyor while the elevator is in its uppermost position, so that the end of the wrapping paper web will hang in the space between the elevator platform and bed 25 of the infeed conveyor when the elevator platform is returned to its lowermost position. As the infeed conveyor moves the article to be wrapped across the gap between the bed 25 and the platform 105 the article is pushed into the depending end of the wrapper web and the portion of the web depending below the elevator platform is drawn onto the platform between the bottom of the article and the surface of the platform.

In order to clamp the leading end of the web to the article being wrapped, a follower 136 is provided on the elevator platform which is mounted on a slide 137 to move forwardly and rearwardly on the platform. The forward article engaging end of the follower 136 extends transversely across the elevator platform and slides rearwardly on the platform as an article is pushed onto the platform by a flight 26.

As the article to be wrapped is transferred to the elevator platform from the bed 25 the wrapper web is folded against the ends of the article by means of tucker plates 148 which are mounted on the elevator and which engage with the opposite edge portions of the web to fold the web over the ends of the article during movement of the article onto the elevator. The tucker plates 148 are mounted for lateral swinging movements and are so operated that they close upon the ends of the article being wrapped during movement of the article onto the elevator as is common practice in the art.

As shown in Fig. 2, the elevator platform 105 is alined with the discharge runway D when the elevator is in its uppermost position, and the article on the elevator is moved from the elevator platform onto the discharge runway by means of the endless conveyor M which has pusher plates 210 carried by arms 211 that are suspended from endless sprocket chains 212 mounted above and parallel to the discharge runway. The sprocket chains 212 run over rear sprockets 213 that are positioned directly above the elevator, the sprockets 213 being attached to a horizontal cross shaft 214 that is driven from the cam shaft 3 by the sprocket chain 8. The endless pusher conveyor M above the discharge runway is thus continuously driven during the operation of the machine and the movement of the pushers is timed with respect to the operation of the elevator so as to discharge each article from the elevator to the discharge runway during the dwell of the elevator in its uppermost position.

When the elevator B is in its uppermost position the wrapper web is gripped between rollers 176 on the elevator and a roller 215 journaled in the frame 1 which may be driven to advance the web during discharge of the article from the elevator.

During the transfer of the article to be wrapped from the feed conveyor to the elevator platform and during upward movement of the elevator, a tension is exerted upon the wrapper web, which, after the slack is taken up, starts the web feed mechanism to feed the web to the wrapping mechanism and relieve the tension on the web.

During the upward movement of the elevator the web is pulled over the top of the article while the paper is guided by the upper guide roller 135 at the delivery end of the drape table C. While the article is being transferred from the elevator platform to the discharge runway, the paper web is severed below the roller 215 and the free end of the severed wrapper is folded against the bottom of the article during passage of the article over the roller 215.

Immediately prior to the severing of the paper web an additional length of wrapper web sufficient to provide the drape for the next article to be wrapped is caused to be fed by a suitable tension applying means (not shown) that is of a type commonly employed for the purpose and that acts upon the web between the rollers 135 and 215.

For severing the paper a rearwardly moving knife blade 216 is mounted on pivoted arms 217 and is actuated by a link 225 to swing the blade rearwardly to sever the web at the proper time during each cycle of operation of the machine, the arm 217 being normally held in its forward position against a stop 227.

In order to enable the blade 216 to have effective cutting action, means is provided for automatically clamping the web to the drape table C during the cutting operation. The web clamping device comprises a transversely extending shoe or pad 229 carried by a longitudinally extending arm 230 mounted on a transverse shaft 231 journaled in brackets 232 attached to opposite sides of the drape table C. One of the blade supporting arms 217 is connected to the shaft 231 to impart an oscillating movement thereto as the blade 216 is reciprocated by means of a connecting rod 233 acting on an arm 234 attached to the shaft 231. In order to permit satisfactory operation of the web clamp by the movable knife in various positions of vertical adjustment of the drap table, yielding connections are provided between the rod 233 and arm 234 and between the shaft 231 and the clamp arm 230.

The rod 233 slidably fits in a pivot block 235 rotatably mounted in the arm 234 and has a stop nut 236 at its forward end that engages with the block 235 during the rearward cutting stroke of the blade to turn the shaft 231 in a direction to apply the clamp. A coil spring 237 on the rod 233 and interposed between the pivot block 235 and a stop collar 238 adjustably mounted on the rod 233 applies pressure to the arm 234 to release the clamp when the knife 216 is moved to its forward position.

The clamping arm 230 is moved to clamping position and clamping pressure is applied thereto by means of an arm 239 fixed to the shaft 231 overlying the arm 230. An arcuate tie rod 240 connects the arms 230 and 239 and the relative angular movement of the arms is limited by a nut 241 on the rod 240. Downward clamping pressure is applied to the arm 230 through a coil spring 242 on the rod 240. The spring 242 permits considerable variation in the angular movement of the shaft 231 in applying clamping pressure and the yielding connection between the rod 233 and arm 234 maintains an operating connection between the cutter and clamp in the various positions of vertical adjustment of the table.

In order to insure smooth and quiet operation of the clamping mechanism in various positions of adjustment of the drape table C, means is provided for adjustably connecting the arm 234 to the shaft 231 and an adjustable stop is provided for limiting the turning movement of the shaft in a direction to lift the clamp. Suitable means such as a screw 244 on a collar 248 fixed to the shaft 231 is provided to adjust the arm 234 on the shaft 231 and a screw stop 250 carried by the arm and engageable with the top edge of the bracket 232 limits the swinging movement of the arm.

The bracket 15 supporting the forward end of the drape table is provided with a rearwardly projecting flange 308 which engages in a forwardly facing channel formed by a flanged plate 309 extending transversely across the forward edge of the table C. The brackets 232 on the table C are positioned between the supporting brackets 16 and in the brackets 232 there is journaled a horizontal transverse shaft 310 that projects at its ends past the brackets 232 and engages in curved slots 311 formed in the brackets 16. Each of the brackets 16 car-

ries a curved rack **312** disposed alongside and parallel to the slot **311**.

The cross shaft **310** has pinions **313** attached thereto which mesh with the racks **312**. At the front of the machine the shaft **310** has a squared end **314** adapted to receive a crank by which the shaft may be turned to cause the pinions **313** to travel up or down the racks **312** and rise or lower the rear end of the drape table. A manually operable pawl **315** engages the pinion at the front of the machine to lock the shaft **310** against turning movement and hold the drape table C in adjusted position. The forward portion of the drape table is of a width to receive the widest web of wrapping paper that is used in the machine and, to keep the paper web properly centered at the delivery end of the drape table, web guide pins **316** are provided near the delivery end of the table and these pins are carried by nuts **317** that travel on right and left hand screws carried by a transverse shaft **318**. The pins **316** travel in slots **319** in the table C and the screw shaft **318** can be turned to adjust the pins **316** by means of a hand crank **320** at the edge of the drape table that is disposed at the front of the machine.

In order to reduce the friction between the drape table and the web of wrapping material that is fed over it, the top face of the table, except along the central portion which is flat, is provided with longitudinal supporting ribs **321**. The portion of table against which the web is clamped by the shoe **229** may have a plate **322** attached thereto to provide a clamping surface of the same height as the ribs **321**.

A roller **323** is mounted in the table with its top flush with the ribs **321** and directly over the roller **323** there is a swinging brake shoe **324** loosely pivoted on a cross rod **325**. The brake shoe **324** is supported in a forwardly inclined position with its lower end resting upon the top of the roller **323**. The brake shoe **324** permits the paper to pass freely over the roller toward the upper delivery end of the drape table, but is drawn into clamping engagement with the roller **323** upon reverse movement of the paper web, the brake **324** thus serving to prevent reverse movement of the paper web.

The curved slots **311** and curved racks **312** cause the drape table to be moved in such a manner that the vertical adjustment thereof does not materially alter the spacing of the clamp actuating arm **230** with respect to the knife supporting arm **217** so that adjustments of the drape table do not interfere with the automatic clamping of the paper web during the paper cut-off. Also, the rear end of the drape table C is guided by the slots **311** so that it moves rearwardly as the table is moved upwardly so that the guide roller **134** is near the vertical plane of the discharge end of the feed conveyor in all positions of adjustment of the drape table.

The machine of the present invention is particularly designed for use in wrapping bakery products of various kinds, and such articles vary considerably in height. For example, a box of doughnuts may be only a small fraction of the height of a large loaf of bread. Also, the weight of the articles being wrapped varies greatly, and in the wrapping of lighter articles it is very important that the pull exerted on the paper web by article in moving from the bed of the feed conveyor onto the elevator platform be exerted in such manner that the position of the article being wrapped on the elevator is not disturbed.

The drape table C is adjusted so that the guide roller **134** is positioned close to the top of the articles being wrapped so that the portion of the paper web extending from the roller **134** to the article after it is transferred onto the elevator platform has only a slight angle of inclination to the portion of the paper web on the drape table. By so disposing the drape table a more direct pull is exerted by the article being wrapped on the paper web and more paper is drawn from the drape table by the upward movement of the article with the elevator. Because of the short length of paper between the article being wrapped and the drape table, there is little slackening of the tension of the wrapping web during the upward movement of the elevator, and a more snug engagement between the article being wrapped and the web of wrapping paper is maintained during the wrapping operation, which results in more accurate folding and better sealing. Also, the feed of the paper which is controlled by the tension on the web is more uniform and is more accurately regulated.

The web of paper or other wrapping material is fed from the reel K as shown in Figs. 3 and 9, over a pair of feed rollers **326** and **327** which are driven in a direction to advance the papers toward the wrapping mechanism under the control of the paper tension between these rollers and the wrapping mechanism, as will be explained. The feed rollers **326** and **327** are spaced a short distance apart and mounted on parallel transverse shafts **328** and **329** that are journaled in brackets **330** that are attached to the front and back of the machine frame **1** by bolts **331**. A gravity web gripping roller **332** is supported in the bight of the rollers **326** and **327** and presses the paper web against the peripheries of the rollers **326** and **327** to create friction between the web and the rollers **326** and **327** sufficient to cause the web to be fed by the feed rollers. The gravity roller **332** is supported on arms **333** that swing about alined pivots **334** attached to the brackets **330**. The paper web passes over the tops of the rollers **326** and **327** and then under a slack take-up roller **335** that is carried by the lower ends of arms **336** that are attached at their upper ends to a rock shaft **337** journaled in the front and back members of the frame **1**.

As shown in Fig. 13, a spring **338** is connected to the shaft **337** and maintains a thrust thereon that tends to move the arms **336** rearwardly. A series of spaced holes **339** in which the spring **338** may be engaged provide the desired leverage. Forward movement of the slack roller supporting arms **336** is limited by a snubber stop plate **340** which has frictional engagement with the arm with which it engages to cushion the impact of the arm.

The front bracket **330** has a spring actuated detent **341** that projects into the path of the front arm **336** to support the arms in the position shown in full lines in Fig. 9 where the roller **335** is to the rear of and above the tops of the rollers **326** and **327** to permit a paper web to be pulled from the reel K directly across the tops of the rollers **326** and **327** and over the drape table C to position the web for the wrapping of the first article to be wrapped.

The front arm **333** has a downwardly projecting arm **342** attached thereto. This arm has a laterally projecting pin **343** in the path of the front slack roller supporting arm **336**. When the slack roller is swung to the position shown in full lines in Fig. 9, the front slack roller supporting arm engages the pin **343**, swings the arm **342** rearwardly and lifts the gravity roller **332** to a position clear of the rollers **326** and **327** so that a space is provided above the rollers **326** and **327** for threading the paper web.

A slack take-up is preferably provided between the reel K and the feed roller **326**. The paper from the reel K passes over a guide roller **344** carried by a supporting bracket **345** and under a slack take-up roller **346** mounted in slide bearings **347** that are mounted on vertical posts **348** attached to the bracket **345** and over a roller **349** that is mounted on brackets **350** attached to the feed roll supporting brackets **330**. The take-up roller **346** is pressed downwardly by springs **351** on the posts **348** that act upon the slide bearings **347**. The take-up roller is so mounted in the slide bearings **347** that it can be quickly and easily detached while the leading end of a wrapper web is being threaded through the feed rollers and over the drape table. As shown in Fig. 12, the slide bearings **347** have open top slots **352** which

receive the projecting ends 353 of the take-up roller shaft and are provided with screws 354 that can be readily turned to retain or release the shaft ends 353. After the web threading operation, the take-up roller can be placed upon the web and lowered into engagement with the bearings 347.

The paper feed rollers 326 and 327 are driven by the sprocket chain 10 that is continuously driven from the cam shaft 3. The sprocket chain 10 underruns the web feed driving sprocket 9 which is mounted on a stub shaft 355 in the back bracket 330. A gear 356 attached to the sprocket 9 meshes with an idler gear 357 which drives a gear 358 attached to a cone clutch member 359 that is rotatably mounted on the shaft 329 of the rear paper feed roller 327. A mating cone clutch member 360 is slidably keyed to the shaft 329 and is engageable with the cone clutch member 359 to establish a driving connection between the sprocket chain 10 and the shaft 329. A gear 361 attached to the shaft 329 at the front end of the feed roller 327 drives an idler gear 362 which meshes with a gear 363 fixed to the shaft 328 of the forward feed roller. The paper feed rollers 326 and 327 are fixed to the shafts 328 and 329 and are rotated in the same direction at equal speeds through the clutch members 359 and 360 and the gears 361, 362 and 363 when the clutch members are engaged.

The shaft 329 has a brake drum 364 attached to its front end and this brake drum is engaged by a brake shoe 365 that is pressed lightly toward the drum 364 by a spring 366. The brake shoe 365 exerts sufficient friction on the drum 364 to prevent excessive overrun when the feed rollers are disconnected from the driving means by separation of the clutch members 359 and 360. The spring 366 is backed by a tension adjusting screw 367 so that the pressure exerted by the spring on the brake shoe 365 can be regulated. If desired, the pressure on the shoe 365 may be adjusted to permit a slight overrun due to the momentum of the driving rollers and to the tension applied to the web by the slack roller 335. The amount of overrun permitted can be quite accurately regulated by adjusting the tension adjusting screw 367.

The axially movable clutch member 360 has an outwardly projecting hub 368 the outer end of which is closed by an abutment plug 369. A spring 370 is interposed between the shaft 329 and the plug 369 to normally exert a pressure on the clutch member 359 tending to move the same to its disengaged position. Means is provided for actuating the clutch member 360 that is controlled by the slack roller 335 when the slack roller is moved rearwardly by tension applied to the paper web during the wrapping operation. The clutch actuating mechanism includes a lever 371 pivoted intermediate its ends to swing about a pivot 372 mounted in a bracket 373 attached to the frame 1. The lever 371 extends upwardly and forwardly at an inclination, its lower end being opposite the end of the hub 368 and its upper end adjacent the rock shaft 337 to which the slack roller supporting arms 336 are attached. At its lower end the lever 371 carries an adjustable abutment member in the form of a screw 374 that engages the abutment plug 369 at the outer end of the hub 368 of the clutch member 360.

Above the pivot 372 the lever 371 is engaged by a spring 375 that exerts an outward pressure on the lever 371 sufficient to move the clutch member 360 into engagement with the clutch member 359 against the action of the spring 370. The spring 375 is backed by a tension adjusting screw 376 by means of which the pressure exerted by the spring on the lever 371 may be varied. At its upper end the lever 371 carries a roller 377 which is positioned for engagement with an arm 378 attached to the shaft 337 to which the slack roller supporting arms are fixed. The arm 378 has a cam face 379 that engages with the roller 377 to move the same inwardly and swing the lower end of the lever outwardly to permit the spring 370 to disengage the clutch member 360. In the forward position of the arms 336 the roller 377 engages the arm 378 and the clutch member 360 is held out of engagement with the clutch member 359. When the slack roller 335 is moved rearwardly by tension exerted on the paper web the roller 377 rides off the arm 378 and the spring 375 shifts the clutch member 360 into engaging position.

In order to prevent movements of the web gripping roller 332 due to the lifting action of the wrapper web when subjected to tension, positive stops are provided which hold the roller 332 in engagement with the web on the rollers 326 and 327 during operation of the machine. As shown in Figs. 17 to 20, the arms 333 have curved extensions 380 at their forward ends that extend upwardly past the periphery of the roller 332 and that have flat stop engaging abutments 381. A cross shaft 382 is supported above the roller 327 by brackets 383 and carries two stop arms 384 that are alined with the abutments 381 of the arms 333 and that are movable into engaging position with said abutments 381 when the roller 332 is supported on the rollers 326 and 327. Each arm 384 has an adjustable abutment engaging portion in the form of a screw 385. The screws 385 are so mounted in the arms 384 that they extend radially with respect to the shafts 382 and are adjustable to engage with the abutments 381 when the arms 384 are in engaging position and the roller 332 is in web gripping position. The shaft 382 has an arm 386 adjacent its front end which extends down into the path of the slack roller 335 and that carries an adjustable screw threaded stop pin 387 that engages with a fixed arcuate stop member 388 attached to the front bracket 330 to support the stop arms 384 in engaging position. By properly adjusting the screws 385 and 387 the roller 332 may be positively held in web gripping position during operation of the machine.

The lower end of the arm 386 is in the path of the slack roller 335 so that when the slack roller is moved forwardly and upwardly out of its paper engaging position it will swing the arm inwardly and move the stop arms 384 out of engaging position to permit the roller 332 to be lifted clear of the feed rollers 326 and 327. The arm 386 is so positioned with respect to the pin 343 that the roller 335 engages the arm 386 and shifts the stop arms 384 forwardly out of the path of the arms 333 before the arm 336 engages the pin 343 so that the roller 332 is first released and then lifted by the slack roller supporting arm to the position shown in Fig. 19 where the slack roller and web gripping roller are supported by the latch 341 to permit the wrapper strip to be threaded over the rollers 326 and 327 and beneath the rollers 332 and 335.

To maintain uniform pressure of the roller 332 against the rollers 326 and 327 throughout its length, a connection is provided between the roller supporting arms 333 which is adjustable to position the roller 332 in exact parallelism with the rollers 326 and 327. This connection comprises two cross rods 389 parallel to the pivotal axis of the arms 333 that are adjustably connected at their ends to the arms 333 by inner and outer nuts 390 and 391. By loosening the nuts 390 and 391 the roller 332 may be permitted to assume a position on the rollers 326 and 327 in which it bears uniformly throughout its length on said rollers, and, by tightening the nuts with the roller 332 so positioned, the arms 333 may be rigidly connected for simultaneous movement when actuated by the slack roller supporting arm 336 engaging the pin 343.

When the end of the paper web hanging across the delivery end of the feed conveyor is engaged between the article being wrapped and the follower 136 on the elevator 4, a pull is exerted on the paper web which pulls the slack roller 335 rearwardly, releasing the lever 371 which is then actuated by the spring 375 to engage the friction clutch members 359 and 360. A slackening of the wrapping paper web will permit the arms 336 to be swung rearwardly by the spring 338 to move the arm 378 into engagement with the roller 377 and disengage the paper

feed clutch. The forward feed of the paper web by the feed rollers **326** and **327** being controlled by the tension of the web, the tension exerted upon the web during the wrapping operation can be held to a predetermined maximum so that there is no danger of damage to soft products being wrapped due to excessive pull on the wrapping paper and the delivery of an excessive amount of paper to the wrapping mechanism is avoided.

The drape table C underlies the paper feed mechanism and slack roller **335** as shown in Fig. 3, so that any excess slack is supported on the drape table and is prevented from falling into the path of articles on the feed conveyor.

The wrapping machine may be connected in tandem with a slicing machine and the sliced loaves to be wrapped may be transfered one at a time in front of each flight of the feed conveyor by the shuttle mechanism H. When desired, articles to be wrapped may be placed on the feed conveyor either at its forward end or intermediate the ends thereof. Since there is no feed of the wrapping paper except when pull is exerted upon the wrapping paper web by an article delivered to the elevator B, the feed conveyor elevator and discharge runway can operate with or without the delivery of articles to the wrapping mechanism, and any article delivered to the wrapping mechanism will be wrapped, sealed and delivered from the discharge end of the machine regardless of whether any other articles are being fed to the machine.

While an article is being pushed by a flight **26** onto the elevator platform **105** the draped end of the wrapper web is clamped between the article being wrapped and the follower **136** so that a pull is exerted on the web which acts on the slack roller **335** to pull it rearwardly to clutch the feed rollers **326** and **327** to the driving mechanism to positively advance the web in the direction in which it is being pulled by the article as it moves onto the elevator.

The pull on the web is continued during upward movement of the elevator and, by adjusting the drape table C to so position the drape roller **134** so that there is small clearance between the top of the article and the roller **134** as the article is fed to the elevator, a more direct pull may be applied to the web during movement of the article over the elevator. Such adjustment of the drape table also decreases the amount of slackening of the wrapper web during the initial portion of the upward movement of the elevator so as to provide a more uniform feed of the wrapper web during the wrapping operation. Very little tension on the wrapping paper web is necessary to start the paper feed, the tensioning being only that required to stretch the spring **338** and move the supporting arms **336** in opposition to the spring, the clutch controlling cam **379** being so formed that the pressure of the roller **377** thereon will not resist withdrawal of the cam **379** from engagement with the roller **377**.

Very little force is required to disengage the paper feed clutch because of the great length of the lever arm **336** as compared to that of the lever arm **378**. The spring **338**, therefore, is required to exert only a very small pull on the arm **336** in the rearmost position of the arm, thereby providing a very sensitive tension operated control of the web feed mechanism. By reason of the rapid action of the spring-actuated clutch lever **371** the paper feed mechanism is instantaneously responsive to application of tension to start the feed of the wrapper web upon engagement of the article to be wrapped with the web. Rapid starting of the paper supply reel, particularly a full reel, would result in the exertion of an objectionably high tension on the paper web if the web were passed directly from the reel to the paper feed rollers. To prevent exertion of such tensions on the paper web, the spring actuated slack take-up roller **346** is provided.

When the feed roller **326** and **327** are started into operation, the pull on the wrapper web lifts the take-up roller **346** against the action of the springs **348** and causes a gradually increasing torsional thrust to be exerted on the paper supply reel so that the inertia of the supply reel is gradually overcome and development of excessive tension in the web is prevented. Thus, an intermittently operable web feed is provided which is capable of instantly supplying the length of web required for wrapping each article without subjecting any portion of the web to jerks.

The slack take-up roller **335** moves substantially parallel to the drape table C above the same so that if excessive paper is fed into the slack loop the under side of the slack loop will rest on the drape table. If for any reason the control lever **336** should fail to move rearwardly when tension on the web is released and the feed mechanism should continue to operate after the completion of a wrapping operation, there would be no immediate harmful effect since a considerably quantity of paper can pile up on the drape table C without interfering with the action of other parts of the machine. If the failure of the feed mechanism to stop is noticed immediately the operator can actuate the arm **336** manually to stop the feed and the excess paper on the drape table will then be drawn directly into the wrapping mechanism before the paper feed is again started. If a considerable excess of paper has been fed onto the table C the excess paper can be wound back onto the supply reel by reversibly rotating the reel after stopping the machine and lifting the roller **332** free of the paper web.

It is to be understood that in accordance with the provisions of the patent statutes, variations and modifications of the specific devices herein shown and described may be made without departing from the spirit of the invention.

What I claim is:

1. In a wrapping machine, a feed mechanism for advancing articles to be wrapped, means for supporting a web of wrapping material with an end thereof suspended in the path of an article advanced by said feed mechanism, a wrapping mechanism including means for clamping the web to said article and for moving said article to wind the web about the article and to exert a pull on said web, mechanism for feeding said web toward the wrapping mechanism, means for driving said web feeding mechanism comprising a continuously driven shaft and a driving connection including a clutch between said shaft and web feeding mechanism that is movable into and out of engaging position and that is biased toward engaging position, clutch releasing and holding means normally positioned to hold said clutch in disengaged position, and means movable in response to a predetermined tension applied to the portion of the web being wound about an article by said wrapping mechanism for shifting said holding means to release said clutch and permit it to move to engaging position.

2. In a wrapping machine, a feed mechanism for advancing articles to be wrapped, means for supporting a web of wrapping material with an end thereof suspended in the path of an article advanced by said feed mechanism, a wrapping mechanism including means for clamping the web to said article and for moving said article to wind the web about the article and to exert a pull on said web, mechanism for feeding said web toward the wrapping mechanism, means for driving said web feeding mechanism comprising a continuously driven shaft and a driving connection including a clutch between said shaft and web feeding mechanism, means normally holding said clutch in disengaged position, a movable slack take-up member that engages said web between said web feeding mechanism and an article to which the web is clamped, and means operated by said member when it is moved by tension exerted on the portion of the web being wound about an article by

said wrapping mechanism for shifting said clutch to engaging position.

3. In a wrapping machine, a wrapping mechanism including an elevator movable from an article receiving position to an article discharging position, a continuously driven mechanism for moving the elevator up and down with a dwell at each of said positions, means for supporting a web of wrapping material with an end thereof suspended in front of the elevator at the receiving position thereof, means for feeding an article to be wrapped against the suspended end of the web and onto said elevator, means carried by said elevator for clamping said web to said article, mechanism including web gripping rollers for feeding said web toward the wrapping mechanism, means for driving said web feeding mechanism comprising a continuously driven shaft and a driving connection from said shaft to one of said rollers including a normally disengaged clutch, and means movable in response to a predetermined tension exerted on the portion of said web being wound about an article during the wrapping operation and including a movable slack take-up member that engages said web between said web feed mechanism and an article on the elevator about which the web is being wound for moving said clutch to engaging position.

4. In a wrapping machine having a wrapping mechanism for winding the leading end of a wrapper web about successive articles, a web feeding mechanism comprising two parallel closely spaced but separated horizontal web feeding rollers, means for driving said rollers at equal peripheral speeds in the direction to advance a web of flexible wrapping material engaging the tops thereof toward the wrapping mechanism, a freely rotatable web gripping roller having an arcuate bottom portion to which said flexible web conforms that is disposed between said spaced rollers and that forms a bight with each of said spaced rollers in which said flexible web is gripped, and means for lifting said web gripping roller to a position clear of the web and spaced rollers, to permit the leading end of a wrapper web to be threaded between said driven rollers and said gripping roller.

5. In a wrapping machine having a wrapping mechanism for winding the leading end of a wrapper web about successive articles, a web feeding mechanism comprising two parallel closely spaced but separated horizontal web feeding rollers, means for driving said rollers at equal peripheral speeds in the direction to advance a web of flexible wrapping material engaging the tops thereof toward the wrapping mechanism, a freely rotatable web gripping roller having an arcuate bottom portion to which said flexible web conforms that is disposed between said spaced rollers and that forms a bight with each of said spaced rollers in which said flexible web is gripped, a slack take up roller engaging the web between said web feeding rollers and said wrapping mechanism and movable by tension applied to the portion of said web being wound about an article by the wrapping mechanism, a clutch controlling said driving means, and means controlled by movements of said slack take up roller for engaging and disengaging said clutch.

6. In a wrapping machine having a wrapping mechanism for winding the leading end of a wrapper web about successive articles, a web feeding mechanism comprising two parallel closely spaced but separated horizontal web feeding rollers, means for driving said rollers at equal peripheral speeds in the direction to advance a web engaging the tops thereof toward the wrapping mechanism, a freely rotatable web gripping roller in the bight of said spaced rollers pressing the web against the spaced rollers, a slack take up roller engageable with the web between said rollers and the wrapping mechanism, said slack take up roller being movable from a position below said web feeding rollers to a position above the tops thereof, and means connecting said slack take up roller to the web gripping roller to lift the same clear of the web feeding rollers when said slack take up roller is moved to its uppermost position to permit the leading end of a wrapper web to be threaded over said driven rollers and beneath the web gripping and slack take up rollers.

7. In a wrapping machine having a wrapping mechanism for winding the leading end of a wrapper web about successive articles, a web feeding mechanism comprising two parallel closely spaced but separated horizontal web feeding rollers, means for driving said rollers at equal peripheral speeds in the direction to advance a web engaging the tops thereof toward the wrapping mechanism, a freely rotatable web gripping roller in the bight of said spaced rollers, releasable means for locking said web gripping roller in web gripping position, and manual means for lifting said web gripping roller to a position clear of the web and spaced rollers to permit the leading end of a wrapper web to be threaded over said driven rollers and beneath the gripping roller.

8. In a wrapping machine having a wrapping mechanism for winding the leading end of a wrapper web about successive articles, a web feeding mechanism comprising two parallel closely spaced but separated horizontal web feeding rollers, means for driving said rollers at equal peripheral speeds in the direction to advance a web engaging the tops thereof toward the wrapping mechanism, a freely rotatable web gripping roller in the bight of said spaced rollers, releasable means for locking said web gripping roller in web gripping position, a slack take up roller engageable with the web between said rollers and said wrapping mechanism, said roller being movable from a position below said web feeding rollers to a position above the same, and means connecting said slack take up roller with said locking means and said web gripping roller to first release said locking means and then lift said web gripping roller when said slack take up roller is moved to a position above said feed rollers to permit the leading end of a wrapper web to be threaded over the driven rollers and beneath the gripping and slack take up rollers.

9. In a wrapping machine having a wrapping mechanism for winding the leading end of a wrapper web about successive articles, a web feeding mechanism comprising two parallel closely spaced but separated horizontal web feeding rollers, means for driving said rollers at equal peripheral speeds in the direction to advance a web engaging the tops thereof toward the wrapping mechanism, a freely rotatable web gripping roller resting in the bight of said spaced rollers, a slack take up roller engageable with the web between said rollers and the wrapping mechanism, said roller being movable from a position below said web feeding rollers to a position above the tops thereof, means connecting said slack take up roller to the web gripping roller to lift the same clear of the web feeding rollers when said slack take up roller is moved to its uppermost position, and a latch for releasably holding said slack take up and web gripping rollers in their elevated position to permit the leading end of a wrapper web to be passed through the space between the driven rollers and the gripping and slack take up rollers.

10. In a wrapping machine having a wrapping mechanism for winding the leading end of a wrapper web about successive articles, a mechanism for feeding a wrapper web to said wrapping mechanism comprising a pair of closely spaced but separated parallel rollers, gearing connecting said rollers for rotation at equal peripheral speeds in the same direction, a freely rotatable web gripping roller resting in the bight of said parallel rollers pressing the wrapper web against the spaced rollers, means for driving said rollers including a normally disengaged clutch, and means controlled by tension applied to the portion of the web being wound about an article by said wrapping mechanism for engaging said clutch.

11. In a wrapping machine having a wrapping mechanism for winding the leading end of a wrapper web about successive articles, a mechanism for feeding a wrapper web to said wrapping mechanism comprising a pair of closely spaced but separated parallel rollers, gearing connecting said rollers for rotation at equal peripheral speeds in the same direction, a freely rotatable web gripping roller resting in the bight of said parallel rollers, means for driving said rollers including a normally disengaged clutch, means controlled by tension applied to the portion of the web being wound about an article by said wrapping mechanism for engaging said clutch, and a friction brake for impeding rotation of said parallel rollers upon release of said clutch.

12. In a wrapping machine having a wrapping mechanism for winding the leading end of a wrapper web about successive articles, a mechanism for feeding a wrapper web to said wrapping mechanism comprising a pair of closely spaced but separated parallel rollers, gearing connecting said rollers for rotation at equal peripheral speeds in the same direction, a freely rotatable web gripping roller resting in the bight of said parallel rollers, means for driving said rollers including a normally disengaged clutch, means controlled by tension applied to the portion of the web being wound about an article by said wrapping mechanism for engaging said clutch, a friction brake for impeding rotation of said parallel rollers upon release of said clutch, said brake comprising a rotatable member having a driving connection to one of said rollers and a shoe engaging said rotatable member, a spring pressing said shoe against said rotatable member, and means for adjusting the tension of said spring to regulate the overrunning of said rollers upon release of the clutch.

13. In a wrapping machine having a wrapping mechanism for winding the leading end of a wrapper web about successive articles, a mechanism for feeding a wrapper web to said wrapping mechanism, means including a clutch for driving said wrapper feed mechanism, a spring normally holding said clutch in disengaged position, a lever for shifting said clutch in opposition to said spring, a spring acting on said lever to engage the clutch in opposition to the first mentioned spring, a movable slack take up device engaging the wrapper web between said web feeding mechanism and the portion of the web being wound about an article by said wrapping mechanism, and means operated by said slack take up device for shifting said lever in opposition to its spring and for holding said lever in clutch releasing position.

14. In a wrapping machine having a wrapping mechanism for winding the leading end of a wrapper web about successive articles, a mechanism for feeding a wrapper web to said wrapping mechanism, means including a clutch for driving said wrapper feed mechanism, a spring normally holding said clutch is disengaged position, a lever for shifting said clutch in opposition to said spring, a spring acting on said lever to engage the clutch in opposition to the first mentioned spring, a movable slack take up roller engaging the web between said web feeding mechanism and the portion of the web being wound about an article by said wrapping mechanism, a swinging arm supporting said roller, and a cam operated by said arm and engageable with said lever to shift the same to clutch releasing position.

15. In a wrapping machine having a wrapping mechanism for winding the leading end of a wrapper web about successive articles, a mechanism for feeding a wrapper web to said wrapping mechanism comprising a pair of closely spaced but separated parallel rollers, gearing connecting said rollers for rotation at equal peripheral speeds in the same direction, a freely rotatable web gripping roller resting in the bight of said parallel rollers, a driving mechanism, a clutch interposed between said mechanism and said parallel rollers, a spring normally holding the clutch in disengaged position, a lever for shifting said clutch in opposition to said spring, a spring acting on said lever to engage the clutch in opposition to the first spring, a movable slack take up roller engaging the wrapper web between the feed mechanism and the portion of the web being wound about an article by the wrapping mechanism, and means operated by said slack take up roller for releasably locking said lever in clutch releasing position.

16. In a wrapping machine having a wrapping mechanism for winding the leading end of a wrapper web about successive articles, a web supply reel, a mechanism for intermittently drawing a wrapper web from said supply reel and feeding the same to said wrapping mechanism, a yieldable slack take up device between said web feed mechanism and said supply reel, a yieldable slack take up device between said web feed mechanism and the portion of the web being wound about an article by said wrapping mechanism and responsive to the tension on the web between the web feed mechanism and the wrapping mechanism, and means operated by the last mentioned slack take up device for controlling said web feed mechanism.

17. In a wrapping machine having a wrapping mechanism for winding the leading end of a wrapper web about successive articles, a web supply reel, a web feed mechanism for drawing a wrapper web from said supply reel and feeding the same to said wrapping mechanism, means including a normally disengaged clutch for driving said web feed mechanism, a yieldable slack take up device between said web feeding mechanism and said supply reel, a yieldable slack take up device between said web feed mechanism and the portion of the web being wound about an article by said wrapping mechanism, and means controlled by the last mentioned slack take up device for shifting said clutch to start and stop said web feeding mechanism.

18. In a wrapping machine having a wrapping mechanism for winding the leading end of a wrapper web about successive articles, a web supply reel, a mechanism for drawing a wrapper web from said supply reel and feeding the same to said wrapping mechanism comprising a pair of closely spaced but separated parallel rollers, gearing connecting said rollers for rotation in the same direction and at equal peripheral speeds, means for driving said rollers, a freely rotatable web gripping roller resting in the bight of said parallel rollers and having an arcuate bottom portion between said spaced rollers to which said wrapper web conforms and which has gripping engagement with portions of the web contacting said spaced rollers, a yieldable slack take up device between said web feeding mechanism and said reel, and means controlled by the tension on the web between said web feed mechanism and the portion of the web being wound about an article by said wrapping mechanism for starting and stopping said web feed mechanism.

19. In a wrapping machine, a feed mechanism for advancing articles to be wrapped, means for supporting a web of wrapping material with an end thereof suspended in the path of an article advanced by said feed mechanism, a wrapping mechanism including means for clamping the web to said article and for moving said article to wind the web about the article and to exert a pull on said web, a web supply reel, mechanism between said reel and said wrapping mechanism for drawing the web from said reel and feeding the same toward said wrapping mechanism, a spring actuated slack take up device between said web feed mechanism and said wrapping mechanism responsive to the tension exerted on the web by the wrapping mechanism, a spring actuated slack take up device between said web feed mechanism and said reel, and means operated by said first mentioned slack take up device upon movement thereof in opposition to its spring for controlling said web feed mechanism.

20. In a wrapping machine, a feed mechanism for ad-

vancing articles to be wrapped, means for supporting a web of wrapping material with an end thereof suspended in the path of an article advanced by said feed mechanism, a wrapping mechanism including means for clamping the web to said article and for moving said article to wind the web about the article and to exert a pull on said web, a web supply reel, mechanism between said reel and said wrapping mechanism for drawing the web from said reel and feeding the same toward said wrapping mechanism, a spring actuated slack take up device between said web feed mechanism and said wrapping mechanism responsive to the tension exerted on the web by the wrapping mechanism, a spring actuated slack take up device between said web feed mechanism and said reel, means for driving said web feeding mechanism including a clutch, means for normally holding said clutch in disengaged position, and means controlled by said first mentioned slack take up device upon a movement thereof in opposition to its spring for engaging said clutch.

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