May 2, 1961 J. W. SMITH 2,982,077

WRAPPER FEEDING MECHANISM FOR WRAPPING MACHINES ADAPTED TO HANDLE LIMP FILMS

Filed Oct. 1, 1959 5 Sheets-Sheet 1

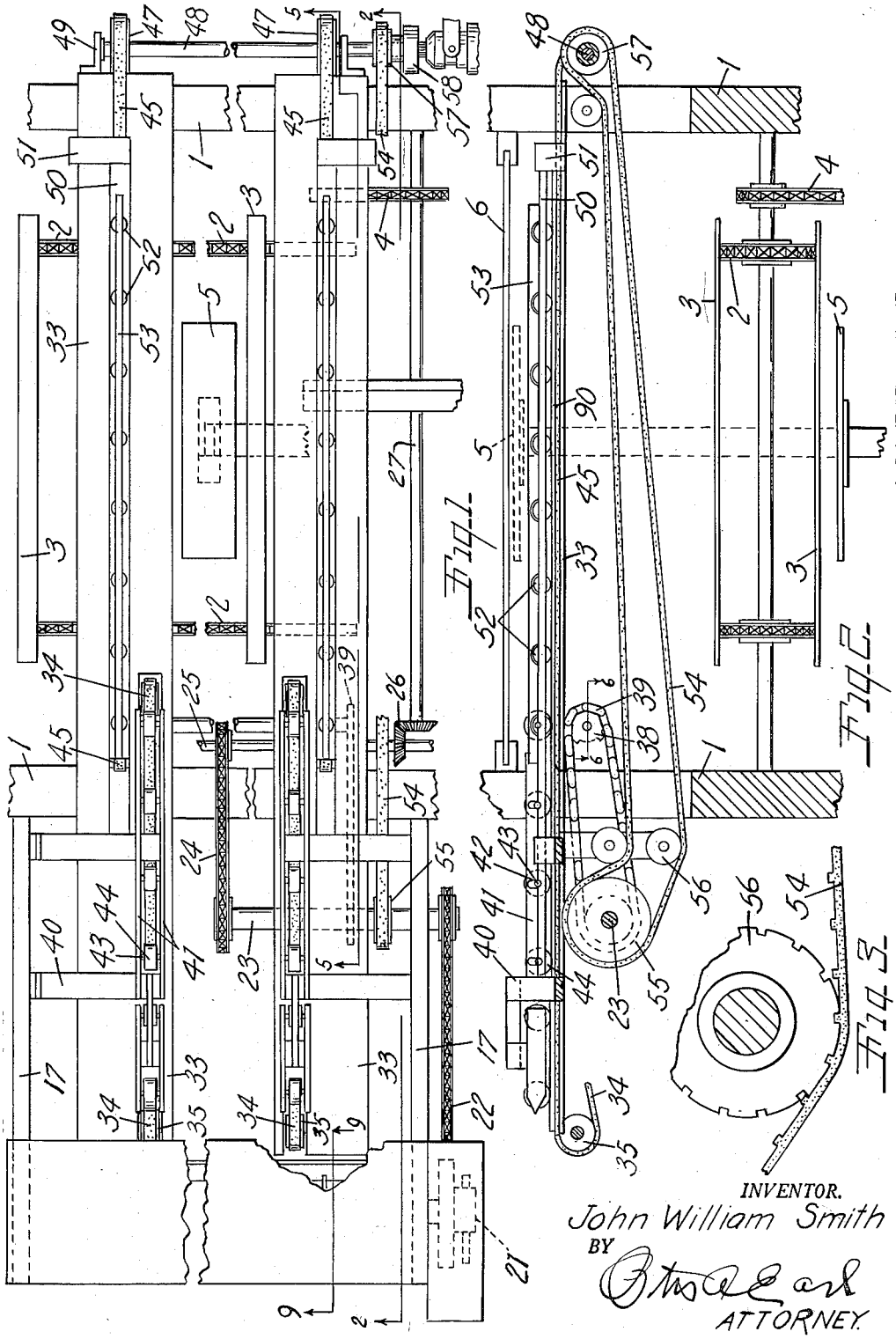


Fig. 1

Fig. 2

Fig. 3

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Filed Oct. 1, 1959 5 Sheets-Sheet 2

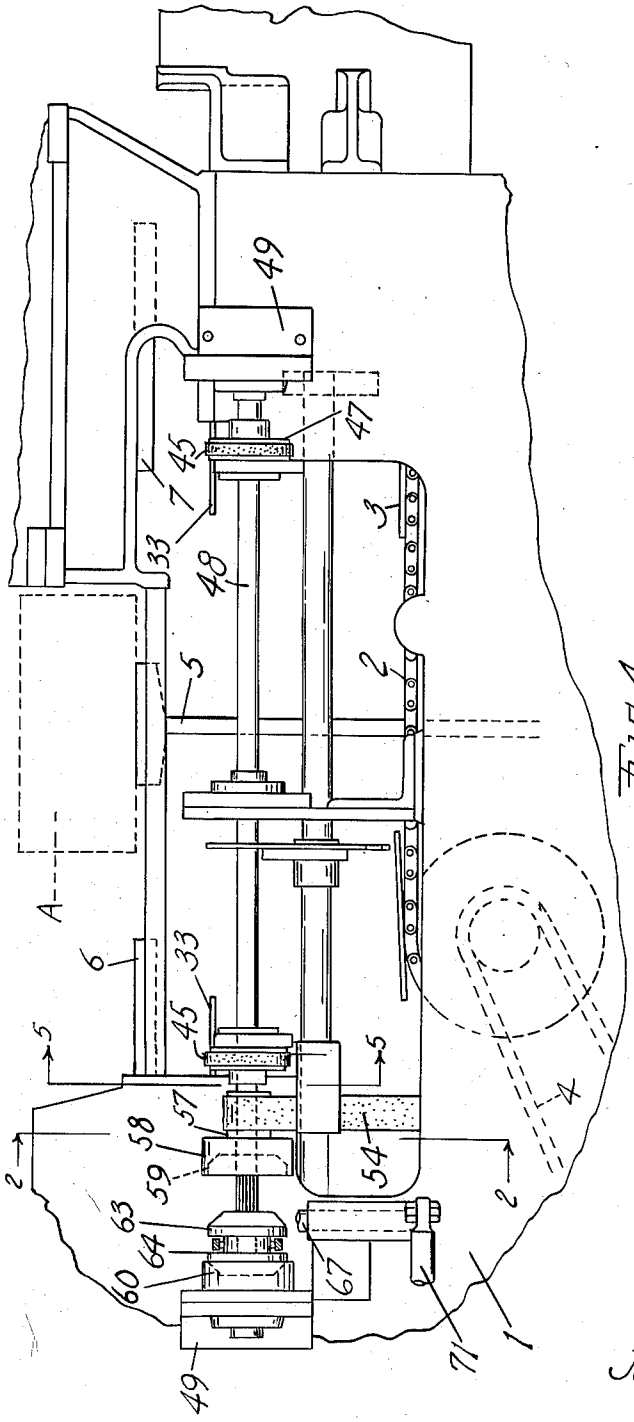


FIG 4

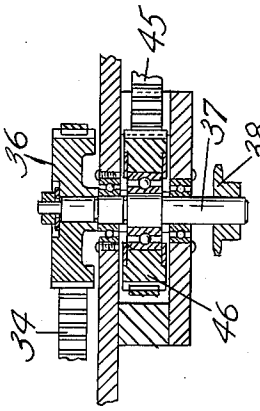


FIG 5

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Filed Oct. 1, 1959 5 Sheets-Sheet 3

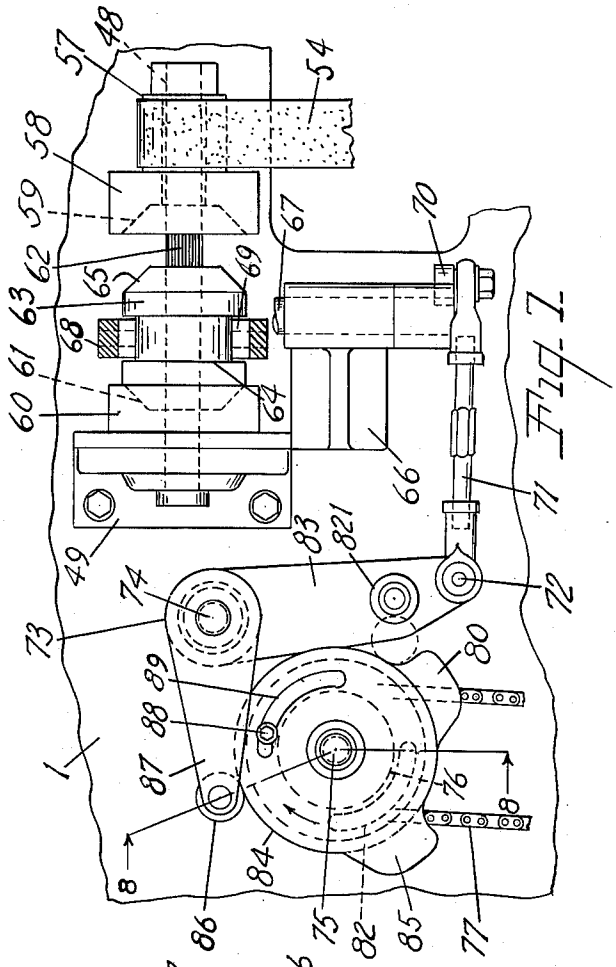


FIG. 1

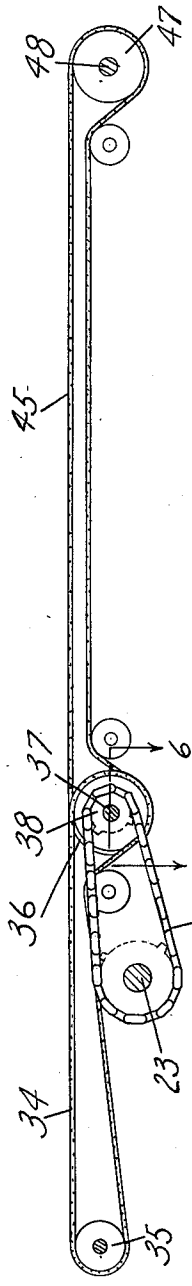


FIG. 5

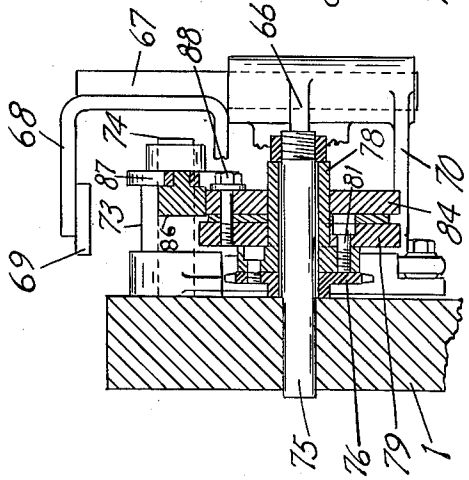


FIG. 8

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WRAPPER FEEDING MECHANISM FOR WRAPPING MACHINES ADAPTED TO HANDLE LIMP FILMS

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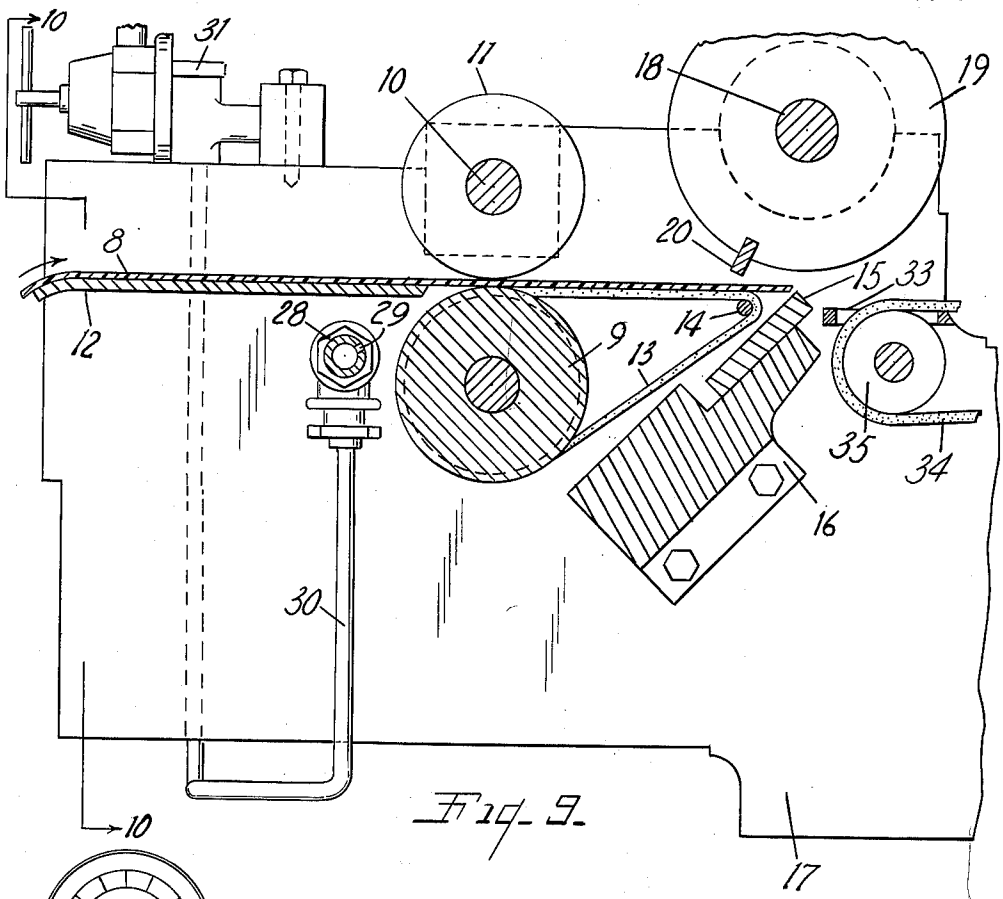


Fig. 9.

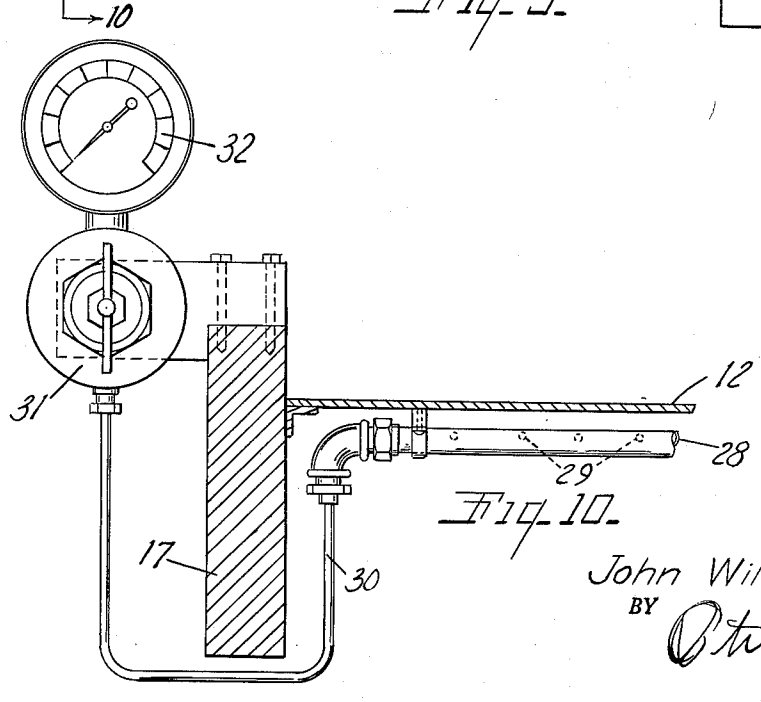


Fig. 10.

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WRAPPER FEEDING MECHANISM FOR WRAPPING MACHINES ADAPTED TO HANDLE LIMP FILMS

Filed Oct. 1, 1959 5 Sheets-Sheet 5

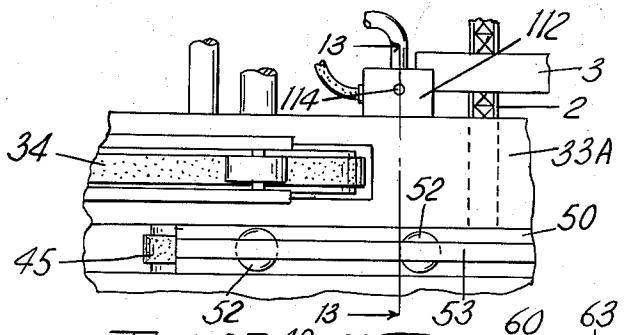


Fig. 12

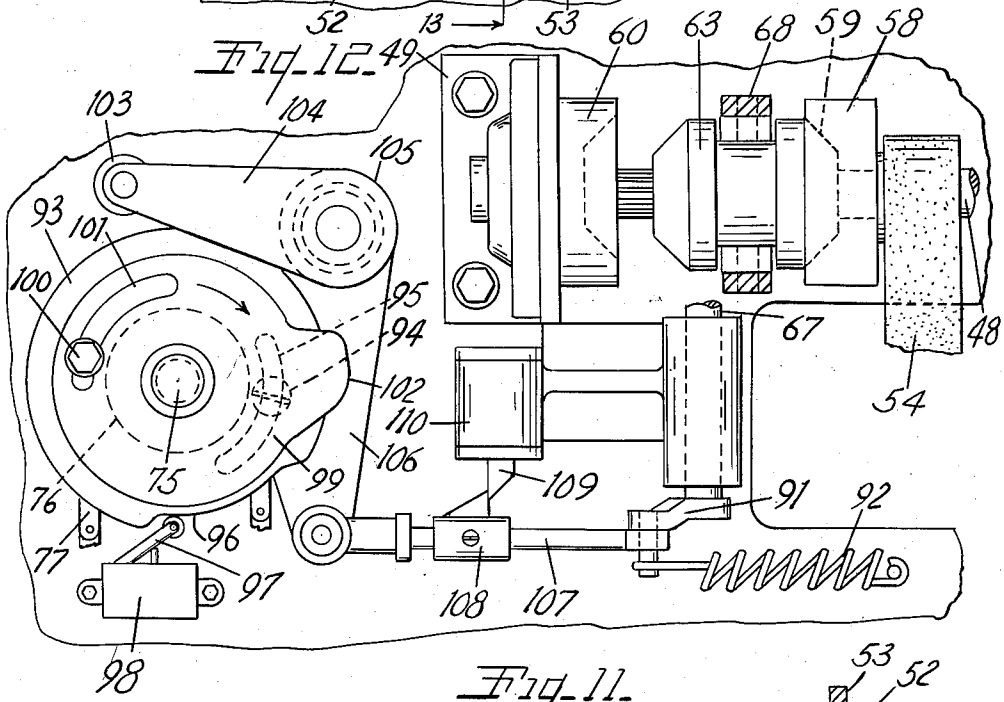


Fig. 11

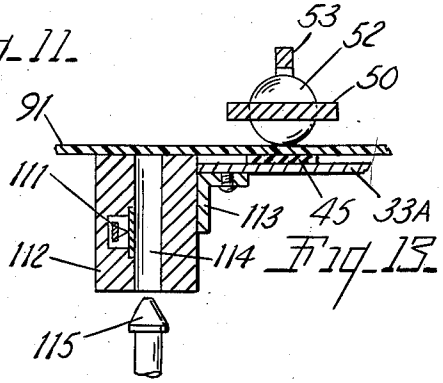


Fig. 13

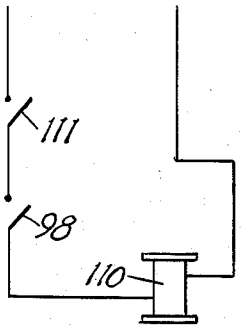


Fig. 14

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United States Patent Office 2,982,077 Patented May 2, 1961

2,982,077

WRAPPER FEEDING MECHANISM FOR WRAPPING MACHINES ADAPTED TO HANDLE LIMP FILMS

John W. Smith, Battle Creek, Mich., assignor to Battle Creek Packaging Machines, Inc., Battle Creek, Mich.

Filed Oct. 1, 1959, Ser. No. 843,731

16 Claims. (Cl. 53—389)

This invention relates to improvements in wrapper feeding mechanism for wrapping machines adapted to handle limp films. The principal objects of this invention are:

First, to provide a novel form of feeding mechanism for accurately advancing wrapping material such as a thin limp film of synthetic polyolefin sheet material, from a supply roll of the material and severing a wrapper sheet from the roll and advancing the sheet to accurately controlled position in a wrapping machine.

Second, to provide mechanism for advancing a limp film from a continuous web of the film, severing a wrapper sheet from the leading end of the web, and advancing the severed sheet to a predetermined position without tangling or wrinkling of the limp sheet due to static electrical attraction between the sheet and the sheet advancing mechanism.

Third, to provide a novel system of successively operative film advancing belts for accurately locating and supporting the side edges of a limp wrapper sheet and advancing the sheet to a position to be wrapped around an article or package.

Fourth, to provide a sheet feeding apparatus for a wrapping machine which positively holds and controls the edges of a limp wrapper sheet while advancing the sheet to wrapping position, and which can be readily adjusted for handling wrapper sheets of different dimensions.

Other objects and advantages of the invention will be apparent from a consideration of the following description and claims. The drawings, of which there are five sheets, illustrate a highly practical form of the web and sheet advancing mechanism and two practical forms of controls for successively actuating the sheet advancing belts of the mechanism.

Fig. 1 is a fragmentary top plan view of the sheet feeding mechanism of the invention with parts broken away to illustrate subadjacent structure.

Fig. 2 is a fragmentary vertical cross-sectional view taken along the plane of the line 2—2 in Figs. 1 and 4.

Fig. 3 is a fragmentary enlarged elevational view of one of the belts and guide pulleys therefor illustrating the toothed character of the belts and pulleys which is not illustrated in the other figures due to their small scale.

Fig. 4 is a fragmentary end elevational view of the sheet feeding conveyor and mechanism viewed from the right end of Figs. 1 and 2 and illustrating the relation of the wrapper sheet feeding mechanism to the article advancing and wrapping mechanism with which the sheet feeder cooperates.

Fig. 5 is a fragmentary side elevational view of the wrapper sheet feeding belts and the drive connections thereto. The supporting structure of the machine is eliminated from this view for the purpose of clarity, and the view is taken along a plane corresponding to the line 5—5 in Figs. 1 and 4.

Fig. 6 is a fragmentary horizontal cross-sectional view through the drive connection to the sheet forwarding belts and is taken along the plane of the line 6—6 in Figs. 2 and 5.

Fig. 7 is an enlarged end elevational view consisting of a continuation of the left end of Fig. 4 and illustrating the control mechanism for actuating the wrapper sheet feeding belts.

Fig. 8 is a fragmentary cross-sectional view taken along the plane of the broken line 8—8 in Fig. 7.

Fig. 9 is a fragmentary enlarged cross-sectional view through the web feeding and sheet cutoff mechanism taken along the plane of the line 9—9 in Fig. 1 with the hood and guard of Fig. 1 removed.

Fig. 10 is a fragmentary view taken cross-sectionally across the web feeding mechanism at the plane of the line 10—10 in Fig. 9.

Fig. 11 is a fragmentary end elevational view similar to Fig. 6 but illustrating a modified form of control for the sheet feeding belts.

Fig. 12 is a fragmentary enlarged plan view of the sheet feeding belts with modified control mechanism cooperative with the controls in Fig. 11 attached to the belt supporting structure.

Fig. 13 is a fragmentary vertical cross-sectional view taken along the plane of the line 13—13 in Fig. 12.

Fig. 14 is a schematic wiring diagram of the controls illustrated in Figs. 11 to 13.

The web and sheet advancing mechanism of this invention is designed to function in cooperation with the wrapping and sealing mechanism disclosed and claimed more fully in my copending application Serial No. 800,815, filed March 20, 1959, for "Machines for Sealing Wrappings of Polyolefin Sheet Material Around Packages." So far as the broad or general function of the combined sheet feeding and wrapping mechanism is concerned, the machine consists of suitable main side frame members indicated generally and collectively at 1 and supporting an article delivery conveyor 2 having article supporting flights or cross bars 3 for delivering a series of articles to be wrapped successively to the delivery end of the sheet feeding mechanism of the present invention. The article conveyor 2 is driven from a power source (not illustrated) by the chain 4, and a vertically reciprocable elevator 5 is actuated in timed relation with the conveyor 2 to lift articles off of the conveyor 2 and elevate them to the wrapping position indicated by the dotted representation of an article at A in Fig. 4. In so advancing the article vertically it is passed upwardly from below a sheet of wrapping material causing the material to drape over the sides of the article after which reciprocable bottom folding plates 6 and 7 are reciprocated to underneath the article to fold the wrapper sheet underneath the article and support the partially wrapped article while the elevator descends. From this point or phase in the cycle of operation of the machine, the wrapping operation is continued by mechanism which is not important to the present invention.

As stated in the objects of the invention, the wrapping material feeding mechanism is designed to handle limp synthetic films such as polyolefin which are relatively tough and pliable but which have practically no resistance to folding and therefore cannot be positioned or fed ahead of a feed roll. These polyolefin films are also characterized by being very sensitive to static electricity and liable to adhere to structure which they touch and to overlapped portions of themselves so that the films are liable to crumple, roll, twist and stick and are generally difficult to handle and maintain in flat extended position. A web of the polyolefin wrapping material is illustrated at 8 in Fig. 9 as being drawn in from a suitable supply roll (not illustrated) by a feed roll 9 and a suitable top pressure roll 10 having film contacting disks or ribs 11. The film 8 is drawn in over a supporting table 12 and after passing the feed rolls 9 and 10 is supported upon spaced

support belts 13 trained in spaced relation around the feed roll 9 and a small idler roll or shaft 14. The belts 13 deliver the web to a fixed knife 15 supported on a carrier 16 secured in turn to the wrapper feed side frame members 17. A cutoff shaft 18 rotatably mounted over the fixed knife 15 has a plurality of circular disks 19 which carry a rotating blade 20 in coacting shearing relation to the fixed knife 15. The feed roll 9 and cutoff shaft 18 are driven by rack and gear mechanism indicated conventionally at 21 in Fig. 1 by a chain 22. The details of the mechanism 21 by which the rate and time of feeding the wrapper web may be controlled is an old mechanism shown more clearly in Patent No. 2,507,683, and will not be described in greater detail. It is sufficient to the purpose of this invention to point out that the chain 22 is driven from the shaft 23 which is in turn driven by the chain 24 and drive shaft 25, all illustrated in Fig. 1 as being connected through the bevel gears 26 to the shaft 27 and chain 4 so that the article feeding conveyor and wrapper web feeding and severing mechanism are all driven in timed relation to each other.

In order to facilitate the advancing motion of the infeeding web 8 and to insure its delivery in flat unwrinkled position to and beyond the knives 15 and 20, a tubular manifold 28 is supported underneath the plate 12 and provided with a plurality of upwardly and inwardly directed ports 29 directed to the bight of the feed rolls 9 and 10 and underneath the infeeding web 8. The manifold 28 is supplied with air under pressure through the conduit 30 from a regulating valve 31. The pressure of the air is controlled to a relatively small value such as four pounds per square inch as indicated by a gauge 32 so as to create a gentle relatively continuous curtain of air which supports the bottom of the infeeding web and travels along the web until the leading end of the web is severed into a separate wrapper sheet. Particularly under hot humid conditions when the problem of static electricity tends to be most troublesome the curtain of air greatly facilitates the movement of the wrapper web into the machine.

Positioned to the right or inner side of the cutoff knife 15 and closely adjacent thereto is a pair of laterally spaced support plates 33 which extend completely across the side frame members 1 of the wrapping machine and support the wrapper sheet feeding mechanism of the invention. A pair of feeding belts 34 mounted one on each of the plates 33 and supported at their left ends by idler rolls 35 is positioned closely adjacent to the knife 15 and receives and advances the leading edge of the wrapper web as it is delivered over the knife 15 by the belts 13. The belts 34 are spaced apart to engage the side edges of the advancing wrapper web and mechanism (not illustrated) may be provided for adjusting the spacing of the belts to accommodate webs and wrappers of varying width. The right or inner ends of the belts 34 are supported as is shown most clearly in Figs. 5 and 6 by drive rolls 36 supported on a shaft 37. The shaft 37 is provided with a sprocket 38 driven by the chain 39 from the previously mentioned shaft 23 so that whenever the web feeding mechanism is actuated to deliver the wrapper web, the feeding belts 34 are simultaneously driven to pick up and forward the leading end of the web.

In order to hold the advancing web in flat unwrinkled contact with the belts 34, the frame members 17 are provided with support arms 40 (see Fig. 1) and supporting rails 41 in spaced relationship above the belts 34. The rails 41 have vertical slots 42 formed therein receiving the spindles 43 of small pressure rollers 44 which are thus supported and guided over the belts 34 to rollingly engage and hold the side edges of the web of wrapper material in contact with the belts.

The belts 34 advance the leading edge of the wrapper web 8 and the sheets cut therefrom to beyond the longitudinally overlapped trailing or entrance ends of a pair of delivery belts 45. The delivery belts 45 have their left or trailing ends trained around idler pulleys 46. As is best illustrated in Fig. 6, the pulleys 46 are rotatably and drivingly unconnectedly mounted on the previously described shafts 37 so that the feeding belts 34 may be driven independently of the delivery belts 45. The upper reaches of the delivery belts 45 are trained along the supporting surface of the plates 33 and extend to drive pulleys 47 mounted on a drive shaft 48. The shaft 48 is rotatably supported by the brackets 49 on the right frame member 1 of the wrapping machine. In order to hold the side edges of the severed wrapper sheet in driving contact with the belts 45 a longitudinal guide rail 50 is supported over each belt by support arms 51 carried by the plates 33. The guide rails 50 define a series of circular openings receiving weighted balls 52 weight biased toward the delivery belt. Hold down bars 53 having notches in their lower edges are supported over the balls to retain them in free rolling engagement with the belts 45. The balls 52 function to hold the side edges of the wrapper sheet in laterally stretched driving engagement with the belts as the sheet is moved transversely across the wrapping machine to over the elevator 5. The spherical shape of the balls 52 then permits upward motion of the article being wrapped against the under side of the wrapper sheet to pull the sheet freely from underneath the balls and transversely off of the belts 45.

In order to accurately control the position to which the wrapper sheets will be advanced by the delivery belts 45, a drive belt 54 is trained around a drive pulley 55 on the previously mentioned shaft 23 and guided over suitable guide pulleys 56 to a toothed pulley 57 which is freely rotatably mounted on the shaft 48. Secured to the side of the pulley 57 and rotatable therewith is a clutch element 58 having a cone shaped recess and face 59 in its side. The forward bracket 49 which rotatably supports the forward end of the shaft 48 has a fixed bearing block 60 secured thereto with a cone shaped brake recess and surface 61 formed therein coaxial with the shaft 48. Between the clutch 58 and brake block 60 the shaft 48 is splined as at 62 to slidably and drivingly engage a shiftable clutch spool 63 having a fork groove 64 formed around its periphery. The opposite ends of the clutch spool 63 have cone shaped faces 65 cooperative with the clutch face 59 and the brake surface 61. It is thus apparent that shifting the clutch spool 63 to the right or left, as shown in Figs. 4 and 7, will alternatively and selectively drive the shaft 48 from the pulley 57 or positively stop and lock the shaft to the fixed brake block 60.

The mechanism for shifting the clutch spool 63 appears most clearly in Figs. 4, 7 and 8. As there shown a bracket 66 secured to the side frame 1 of the wrapping machine supports an upright rock shaft 67 having a laterally extending fork 68 on its upper end. The arms of the fork 68 support slide blocks 69 disposed on the fork groove 64 in the clutch spool. Oscillation of the shaft 67 will thus shift the clutch spool axially on the splines 62. It is pointed out that Fig. 8 omits the bearing bracket 49 and the clutch spool 63 to better illustrate the clutch fork 68 and shoe 69. The lower end of the rock shaft 67 carries a laterally projecting arm 70 to which the push rod 71 is pivotally connected. The push rod 71 extends forwardly or to the left as shown in Figs. 4 and 7, and is pivotally connected as at 72 to the lower end of an actuating bell crank 73 pivotally supported on the side of the machine on a stub shaft 74.

A stub shaft 75 secured to the side frame of the machine forwardly of the bell crank 73 rotatably carries a sprocket 76 which is driven by a chain 77 that extends downwardly for driving connection to a driven part of the machine such as the cross-shaft 27 in Fig. 1. The pulley 76 carries a sleeve 78 on which is angularly and adjustably mounted a first cam disk 79 having a lift or riser 80 on its periphery. The disk 79 and its lift 80 are angularly adjustably clamped to the sprocket 76 by

a headed screw 81 passed through the arcuate slot 82 in the cam disk and engaged with the hub of the sleeve 78. The lift 80 of the cam 79 coacts with and engages a follower roll 821 mounted on the depending arm 83 of the bell crank 73. As the sprocket 76 and cam lift 80 rotate in a clockwise direction, as shown in Fig. 7, the lift 80 engages the follower 821 and shifts the arm 83 and push rod 71 to the position illustrated in Fig. 7 in which the clutch sleeve 63 is engaged with the brake surface 61 so that the delivery belts 45 are stationary.

Angularly adjustably mounted on the sleeve 78 is an outer cam disk 84 having a cam lift 85 engageable with the follower roll 86 on the forwardly projecting arm 87 of the bell crank 73. The cam disk 84 is secured in adjusted position to the first cam disk 79 by a headed bolt 88 passed through the slot 89 in the outer cam plate. As the cam plate 84 and its lift 85 are rotated in timed relation to the other elements of the machine, the lift 85 comes into contact with the follower 86 and raises the arm 87 to pull the push rod 71 forwardly and shift the clutch spool 63 rearwardly into driving engagement with the clutch block 58.

It will thus be seen that the cam plate 79 and lift 80 can be angularly adjusted in an advancing or retracting direction relative to the cycle of rotation of the sprocket 79 and the other mechanism of the machine, so that the clutch spool 63 will be stopped and the delivery belts 45 held stationary after the severed wrapping sheet has been advanced to the desired position and while the elevator 5 is raised to press the article being wrapped upwardly against the under side of the stationary wrapper sheet. The wrapper sheet is shown in exaggerated thickness under the balls 52 as at 90 in Fig. 2. After one wrapper sheet has been engaged and carried away by a first article and the wrapper web feeding mechanism has been started in timed relationship with the rest of the machine by the feed mechanism 21, the delivery belts 45 are started in correct timed relation to pick up the leading edge of the severed wrapper sheet from the forwarding belts 34 by angularly adjusting the cam plate 84 and its lift 85. It will be noted that the distance to which the delivery belts 45 will advance the wrapper sheet can be adjusted for handling relatively long or relatively short wrapper sheets by adjusting the cam disk 79 so that the mechanism is adjustable for wrapping articles of varying widths.

Figs. 11 through 14 illustrate a modified form of control mechanism for effecting the starting and stopping of the delivery belts 45. The same clutch and brake mechanism and clutch spool is provided on the shaft 48 and the same shaft fork 68 for the clutch spool is mounted on a rock shaft 67 for actuating the clutch, but the crank arm 91 on the rock shaft 67 is biased to brake engaging position by a spring 92. The same drive sprocket 76 driven by the chain 77 carries a first or inner cam disk 93 that is angularly adjustable on the sprocket by a screw 94 passed through the segmental slot 95. The cam disk 93 is provided with a radially depressed actuating portion 96 in its periphery which coacts with and actuates the actuating arm 97 of an electrical switch 98. A second or outer cam disk 99 adjustably secured to the side of the inner disk by a bolt 100 passed through the slot 101 is provided with a raised actuating portion or lift 102 which engages and coacts with a follower 103 on the upper arm 104 of a bell crank 105. The depending arm 106 of the bell crank is pivotally connected to the push rod 107 which actuates the shift fork. Adjustably mounted on the push rod 107 is a catch 108 which is engageable behind a latch bolt 109 operated by an electrical solenoid 110. Rotation of the sprocket 76 and the cam plate 99 in the clockwise direction indicated by the arrow in Fig. 11 causes the cam lift 102 to raise the follower 103 and actuate the rock shaft 67 to engage the clutch 63 as illustrated in Fig. 11. The clutch is held engaged by gravity engagement of the latch bolt 109 with the catch 108 until the sonlenoid 110 is energized.

The mechanism and circuit for energizing the solenoid 110 includes the previously described switch 98 which is held open during the major portion of the rotation of the cam disk 93 and permitted to close only during a relatively short interval by the depressed actuating portion 96. A switch 98 is connected in electrical series with the solenoid 110 and a switch 111. The switch 111 is a pressure sensitive switch mounted in a block 112 secured to the side of the plate 33A and adjustable therealong by the bracket 113 (see Figs. 12 and 13). The block 112 defines a vertical bore 114 and the pressure sensitive switch 111 is arranged to sense the pressure in this bore. A compressed air conduit with a nozzle 115 is positioned to discharge upwardly through the bore 114 at all times and when the top of the bore is open to the atmosphere the pressure on the switch 111 will be such as to close the switch. However, when the edge of a wrapper sheet 91 is translated over the upper end of the bore 114 as in Fig. 13 the resultant increase of pressure in the bore will open the switch 111. With this arrangement, the block 112 can be adjusted along the plate 33A to a position corresponding to the desired location of the trailing edge of a wrapper sheet advanced by the delivery belts 45. As the leading portions of the sheet 91 are advanced over the bore 114 the switch 111 is held open. The switch 98 is also mechanically held open by the cam disk 93 in order to prevent false signals or pressure fluctuations from the switch 111 from energizing the solenoid 110. However, as the sheet approaches its desired position the switch 98 is closed and as the trailing edge of the wrapper sheet clears the bore 114, both switches are closed in series and the solenoid 110 is energized to retract the latch 109 and permit the spring 92 to disengage the clutch and stop the delivery belts 45 in the desired position.

The foregoing description explains the function of the separately controlled forwarding and delivery belts for keeping the side edges of a wrapper web and wrapper sheet of limp material under positive control during all feeding motions of the wrapper sheet. Two practical forms of regulating the stopping position of the wrapper sheet have been explained. Other variations and combinations of the elements of the wrapper feeding mechanism such as are included in the following claims may be made without departing from the theory of the invention.

What is claimed as new is:

1. In a packaging machine having elevator means for advancing successive articles to be wrapped vertically between oppositely reciprocable bottom folding plates, means for advancing a sheet of limp synthetic wrapping film in flat relation to a centered position transverse to the path of movement of said articles in the general plane of said plates comprising a feeding and cutting mechanism driven in timed relation to said elevator to advance and sever a wrapper sheet from a web of the wrapping material, means for delivering a flat stream of moving air under said web to support the leading edge thereof through and beyond said severing means, a pair of spaced forwarding belts driven in timed relation to said elevator and positioned to receive the leading edge of said web from said feeding and cutting mechanism, retaining rollers fixedly guided over and freely rotatably supported on said forwarding belts, a pair of spaced delivery belts having one end longitudinally overlapped alongside the delivery ends of said forwarding belts and extending on opposite sides of the path of advance of said articles, retaining balls fixedly guided over and rotatably supported on said delivery belts, a pulley constantly driven in timed relation with said elevator and with said forwarding belts, a shaft supporting said pulley and having drive pulleys for said delivery belts connected thereto, a clutch member splined to said shaft and drivingly engageable with said first pulley, a fixed brake member engageable with said clutch member, clutch shift mechanism connected to shift said clutch

member between engagement with said first pulley and said brake member, and a pair of cams driven in timed relation to said elevator and angularly adjustable with respect to each other and with respect to the cycle of operation of said elevator, said cams being positioned to oppositely actuate said clutch shift mechanism, said belts and pulleys having coacting teeth preventing slippage of the belts.

2. In a packaging machine having elevator means for advancing successive articles to be wrapped vertically between oppositely reciprocable bottom folding plates, means for advancing a sheet of limp synthetic wrapping film in flat relation to a centered position transverse to the path of movement of said articles in the general plane of said plates comprising a feeding and cutting mechanism driven in timed relation to said elevator to advance and sever a wrapper sheet from a web of the wrapping material, a pair of spaced forwarding belts driven in timed relation to said elevator and positioned to receive the leading edge of said web from said feeding and cutting mechanism, retaining rollers fixedly guided over and freely rotatably supported on said forwarding belts, a pair of spaced delivery belts having one end longitudinally overlapped alongside the delivery ends of said forwarding belts and extending on opposite sides of the path of advance of said articles, retaining balls fixedly guided over and rotatably supported on said delivery belts, a pulley constantly driven in timed relation with said elevator, a shaft supporting said pulley and having drive pulleys for said delivery belts connected thereto, a clutch member splined to said shaft and drivingly engageable with said first pulley, a fixed brake member engageable with said clutch member, clutch shift mechanism connected to shift said clutch member between engagement with said first pulley and said brake member, and a pair of cams driven in timed relation to said elevator and angularly adjustable with respect to each other and with respect to the cycle of operation of said elevator, said cams being positioned to oppositely actuate said clutch shift mechanism.

3. In a packaging machine having elevator means for advancing successive articles to be wrapped vertically between oppositely reciprocable bottom folding plates, means for advancing a sheet of limp wrapping film in flat relation to a centered position transverse to the path of movement of said articles in the general plane of said plates comprising a feeding and cutting mechanism driven in timed relation to said elevator to advance and sever a wrapper sheet from a web of the wrapping material, a pair of spaced forwarding belts positioned to receive the leading edge of said web from said feeding and cutting mechanism, retaining elements fixedly guided over and freely rotatably supported on said forwarding belts, a pair of spaced delivery belts having one end longitudinally overlapped alongside the delivery ends of said forwarding belts and extending on opposite sides of the path of advance of said articles, retaining balls fixedly guided over and rotatably supported on said delivery belts, a pulley constantly driven in timed relation with said feeding and cutting mechanism, a shaft supporting said pulley and having drive pulleys for said delivery belts connected thereto, a clutch member splined to said shaft and drivingly engageable with said first pulley, a fixed brake member engageable with said clutch member, clutch shift mechanism connected to shift said clutch member between engagement with said first pulley and said brake member, and a pair of cams driven in timed relation to said feeding and cutting mechanism and angularly adjustable with respect to each other and with respect to the cycle of operation of said feeding and cutting mechanism, said cams being positioned to oppositely actuate said clutch shift mechanism.

4. In a packaging machine having elevator means for advancing successive articles to be wrapped between oppositely reciprocable folding plates, means for advancing a sheet of limp wrapping film in flat relation to a centered position transverse to the path of movement of said articles in the general plane of said plates comprising a feeding and cutting mechanism driven in timed relation to said article advancing means to advance and sever a wrapper sheet from a web of the wrapping material, a pair of spaced forwarding belts positioned to receive the leading edge of said web from said feeding and cutting mechanism, retaining elements fixedly guided and rotatably supported against said forwarding belts, a pair of spaced delivery belts having one end longitudinally overlapped alongside the delivery ends of said forwarding belts and extending on opposite sides of the path of advance of said articles, retaining balls fixedly guided and rotatably supported against said delivery belts, a pulley constantly driven in timed relation with said feeding and cutting mechanism, a shaft supporting said pulley and having drive pulleys for said delivery belts connected thereto, a clutch member splined to said shaft and drivingly engageable with said first pulley, a fixed brake member engageable with said clutch member, clutch shift mechanism connected to shift said clutch member between engagement with said first pulley and said brake member, and a pair of cams driven in timed relation to said feeding and cutting mechanism and angularly adjustable with respect to each other and with respect to the cycle of operation of said feeding and cutting mechanism, said cams being positioned to oppositely actuate said clutch shift mechanism.

5. In a packaging machine having elevator means for advancing successive articles to be wrapped vertically between oppositely reciprocable bottom folding plates, means for advancing a sheet of limp wrapping film in flat relation to a centered position transverse to the path of movement of said articles in the general plane of said plates comprising a feeding and cutting mechanism driven in timed relation to said elevator to advance and sever a wrapper sheet from a web of the wrapping material, means for delivering a flat stream of moving air under said web to support the leading edge thereof through and beyond said severing means, a pair of spaced forwarding belts driven in timed relation to said elevator and positioned to receive the leading edge of said web from said feeding and cutting mechanism, a pair of spaced delivery belts having one end longitudinally overlapped alongside the delivery ends of said forwarding belts and extending on opposite sides of the path of advance of said articles, rolling retaining elements fixedly guided over and rotatably supported on said belts, a pulley constantly driven in timed relation with said elevator, a shaft supporting said pulley and having drive pulleys for said delivery belts connected thereto, a clutch member splined to said shaft and drivingly engageable with said first pulley, a fixed brake member engageable with said clutch member, clutch shift mechanism connected to shift said clutch member between engagement with said first pulley and said brake member, and control means driven in timed relation to said elevator and angularly adjustable with respect to the cycle of operation of said elevator and connected to oppositely actuate said clutch shift mechanism, said belts and pulleys having coacting teeth preventing slippage of the belts.

6. In a packaging machine having elevator means for advancing successive articles to be wrapped vertically between oppositely reciprocable bottom folding plates, means for advancing a sheet of limp wrapping film in flat relation to a centered position transverse to the path of movement of said articles in the general plane of said plates comprising a feeding and cutting mechanism driven in timed relation to said elevator to advance and sever a wrapper sheet from a web of the wrapping material, a pair of spaced forwarding belts driven in timed relation to said elevator and positioned to receive the leading edge of said web from said feeding and cutting mechanism, a pair of spaced delivery belts having one end longitudinal-

ly overlapped alongside the delivery ends of said forwarding belts and extending on opposite sides of the path of advance of said articles, rolling retaining elements fixedly guided over and rotatably supported on said belts, a pulley constantly driven in timed relation with said elevator, a shaft supporting said pulley and having drive pulleys for said delivery belts connected thereto, a clutch member splined to said shaft and drivingly engageable with said first pulley, a fixed brake member engageable with said clutch member, clutch shift mechanism connected to shift said clutch member between engagement with said first pulley and said brake member, and control means driven in timed relation to said elevator and angularly adjustable with respect to the cycle of operation of said elevator and connected to oppositely actuate said clutch shift mechanism.

7. In a wrapping machine, means for advancing and severing a sheet of limp wrapping material from a web of the material, a first pair of belts positioned to receive and advance the side edges of said sheet from said severing means, a second set of belts arranged in longitudinally overlapping relation to said first pair of belts and arranged to receive and advance said sheet therefrom, sheet retaining elements rollingly engaged and fixedly guided with respect to said belts, said elements being biased into contact with said belts to hold said sheet in driven contact with the belts, first drive means connected to drive said advancing and severing means, second drive means connected to drive said first belts in timed relation to said first drive means, third drive means including a clutch connectable to said second drive means and connected to drive said second belts in timed relation to said advancing and severing means, and adjustable control means connected to said clutch to release the same and stop said second belts, said control means including a cam driven in timed relation to said advancing and severing means and arranged to engage said clutch, a latch engageable with said clutch to hold the clutch engaged, a spring biasing said clutch to disengaged position, a wrapper sheet edge sensing device positioned alongside one of said second belts and adapted to actuate a switch as the trailing edge of a sheet passes the device, and a solenoid mechanically connected to said latch and electrically connected to said switch to release said latch when a sheet passes said device, said sensing device consisting of a body forming a bore arranged to be closed at one end by the passage of said sheet thereacross, a nozzle positioned to direct a jet of air into said bore, and a pressure sensitive element in the wall of said bore connected to said switch to actuate the switch in response to variations of pressure in said bore.

8. In a wrapping machine, means for advancing and severing a sheet of limp wrapping material from a web of the material, a first pair of belts positioned to receive and advance the side edges of said sheet from said severing means, a second set of belts arranged in longitudinally overlapping relation to said first pair of belts and arranged to receive and advance said sheet therefrom, sheet retaining elements rollingly engaged and fixedly guided with respect to said belts, said elements being biased toward said belts to hold said sheet in driven contact with the belts, first drive means connected to drive said advancing and severing means, second drive means connected to drive said first belts in timed relation to said first drive means, third drive means connectable to drive sad second belts in timed relation to said advancing and severing means, and adjustable control means connected to said third drive means to actuate the same and stop said second belts, said control means including a cam driven in timed relation to said advancing and severing means and arranged to engage said third drive means, a latch engageable with said third drive means to hold the same engaged, a spring biasing said third drive means to disengaged position, a wrapper sheet edge sensing device positioned alongside one of said second belts and adapted to actuate a switch as the trailing edge of a sheet passes the device, and a solenoid mechanically connected to said latch and electrically connected to said switch to release said latch when a sheet passes said device.

9. In a wrapping machine, means for advancing and severing a sheet of limp wrapping material from a web of the material, a first pair of belts positioned to receive and advance the side edges of said sheet from said severing means, a second set of belts arranged in longitudinally overlapping relation to said first pair of belts and arranged to receive and advance said sheet therefrom, sheet retaining elements rollingly engaged and fixedly guided with respect to said belts, said elements being weight biased toward said belts to hold said sheet in driven contact with the belts, the retaining elements associated with said second belt being balls permitting transverse pulling of said sheet from betwen the second belts and their retaining elements, first drive means connected to drive said advancing and severing means, second drive means connected to drive said first belts in timed relation to said first drive means, third drive means including a clutch connectable to said second drive means and connected to drive said second belts in timed relation to said advancing and severing means, and adjustable control means connected to said clutch to release the same and stop said second belts, said control means being adjustable to stop said second belts at a predetermined position of a wrapper sheet translated by said second belts.

10. In a wrapping machine, means for advancing and severing a sheet of limp wrapping material from a web of the material, a first pair of belts positioned to receive and advance the side edges of said sheet from said severing means, means for delivering an upwardly directed film of air in supporting relation to said web between said severing means and said first belts, a second set of belts arranged in longitudinally overlapping relation to said first pair of belts and arranged to receive and advance said sheet therefrom, sheet retaining elements rollingly engaged and fixedly guided with respect to said belts, said elements being biased toward said belts to hold said sheet in driven contact with the belts, the retaining elements associated with said second belt being balls permitting transverse pulling of said sheet from between the second belts and their retaining elements, first drive means connected to drive said advancing and severing means, second drive means connected to drive said first belts, third drive means including a clutch connectable to said second drive means and connected to drive said second belts in timed relation to said advancing and severing means, and adjustable control means connected to said clutch to release the same and stop said second belts, said control means being adjustable to stop said second belts at a predetermined position of a wrapper sheet translated by said second belts.

11. In a wrapping machine, means for advancing and severing a sheet of limp wrapping material from a web of the material, a first pair of belts positioned to receive and advance the side edges of said sheet from said severing means, a second set of belts arranged in longitudinally overlapping relation to said first pair of belts and arranged to receive and advance said sheet therefrom, sheet retaining elements rollingly engaged and fixedly guided with respect to said belts, said elements being biased toward said belts to hold said sheet in driven contact with the belts, the retaining elements associated with said second belt being balls permitting transverse pulling of said sheet from between the second belts and their retaining elements, first drive means connected to drive said advancing and severing means, second drive means connected to drive said first belts, third drive means including a clutch connected to drive said second belts, and adjustable control means connected to said clutch to release the same and stop said second belts, said control means being adjustable to stop said second

belts at a predetermined position of a wrapper sheet translated by said second belts.

12. In a wrapping machine, means for advancing and severing a sheet of wrapping material from a web of material, a first pair of belts positioned to receive and advance the side edges of said sheet from said severing means, a second set of belts arranged in longitudinally overlapping relation to said first pair of belts and arranged to receive and advance said sheet therefrom, sheet retaining elements rollingly engaged and fixedly guided with respect to said belts, said elements being weight biased toward said belts to hold said sheet in driven contact with the belts, first drive means connected to drive said advancing and severing means, second drive means connected to drive said first belts in timed relation to said first drive means, third drive means including a clutch connected to drive said second belts in timed relation to said advancing and severing means, and adjustable control means connected to said clutch and said first drive means to release the same and stop said second belts at a predetermined point in the cycle of said first drive means.

13. In a wrapping machine, means for advancing and severing a sheet of limp wrapping material from a web of material, a first pair of belts positioned to receive and advance the side edges of said sheet from said severing means, means for delivering an upwardly directed film of air in supporting relation to said web between said advancing means and said first belts, a second set of belts arranged in longitudinally overlapping relation to said first pair of belts and arranged to receive and advance said sheet therefrom, sheet retaining elements rollingly engaged and fixedly guided with respect to said belts, said elements being biased toward said belts to hold said sheet in driven contact with the belts, the retaining elements associated with said second belts being balls, first drive means connected to drive said advancing and severing means, second drive means connected to drive said first belts, third drive means connected to drive said second belts, and adjustable control means connected to said third drive means to release the same and stop said second belts at a predetermined position of a wrapper sheet translated by said second belts.

14. In a wrapping machine, means for advancing and severing a sheet of limp wrapping material from a web of material, a first pair of belts positioned to receive and advance the side edges of said sheet from said severing means, a second set of belts arranged in longitudinally overlapping relation to said first pair of belts and arranged to receive and advance said sheet therefrom, sheet retaining elements rollingly engaged and fixedly guided with respect to said belts, said elements being biased toward said belts to hold said sheet in driven contact with the belts, the retaining elements associated with said second belts being balls, first drive means connected to drive said advancing and severing means, second drive means connected to drive said first belts, third drive means connected to drive said second belts, and adjustable control means connected to said third drive means to release the same and stop said second belts at a predetermined position of a wrapper sheet translated by said second belts.

15. In a packaging machine having an elevator for lifting an article to be packaged, means for delivering a sheet of wrapping material over the lower position of said elevator and an article thereon to be folded over the article upon upward movement of the article comprising means for feeding a web of the material and severing a predetermined length thereof into a sheet, spaced support plates extending longitudinally from said severing means, guide rails supported in spaced relation over said plates, sheet advancing belt loops having their upper reaches trained over and supported by said plates, rollers rotatably positioned by said rails in transverse contacting relation to said belts, other guide rails extending longitudinally over said plates in laterally offset relation to said first rails and extending therebeyond, sheet delivery belt loops having their rear ends longitudinally overlapping the forward ends of said advancing belt loops and having their upper reaches trained over said plates and underneath said other rails, said other rails having holes formed therein with balls of substantial weight rotatably guided therein and supported on said delivery belts, means for advancing the upper reaches of said belts from their rear ends, and means for disconnecting said advancing means from said delivery belts in timed relation to the advance of a sheet thereby, said delivery belts being located on opposite sides of the path of movement of said elevator at approximately the upper limit of movement thereof.

16. In a packaging machine having an elevator for lifting an article to be packaged, means for delivering a sheet of wrapping material over the lower position of said elevator and an article thereon to be folded over the article upon upward movement of the article comprising means for feeding a web of the material and severing a predetermined length thereof into a sheet, spaced sheet advancing belts extending longitudinally from said severing means, guide rails supported in spaced relation over said belts, rollers rotatably positioned by said rails in transverse contacting relation to said belts, other guide rails extending longitudinally in laterally offset relation to said first rails and extending therebeyond, sheet delivery belt loops having their rear ends longitudinally overlapping the forward ends of said advancing belt loops and having their upper reaches trained underneath said other rails, said other rails having balls of substantial weight rotatably guided therein and supported on said delivery belts, means for advancing the upper reaches of said belts, and means for disconnecting said advancing means from said delivery belts in timed relation to the advance of a sheet thereby said delivery belts being located on opposite sides of the path of movement of said elevator.

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