

Nov. 14, 1944.

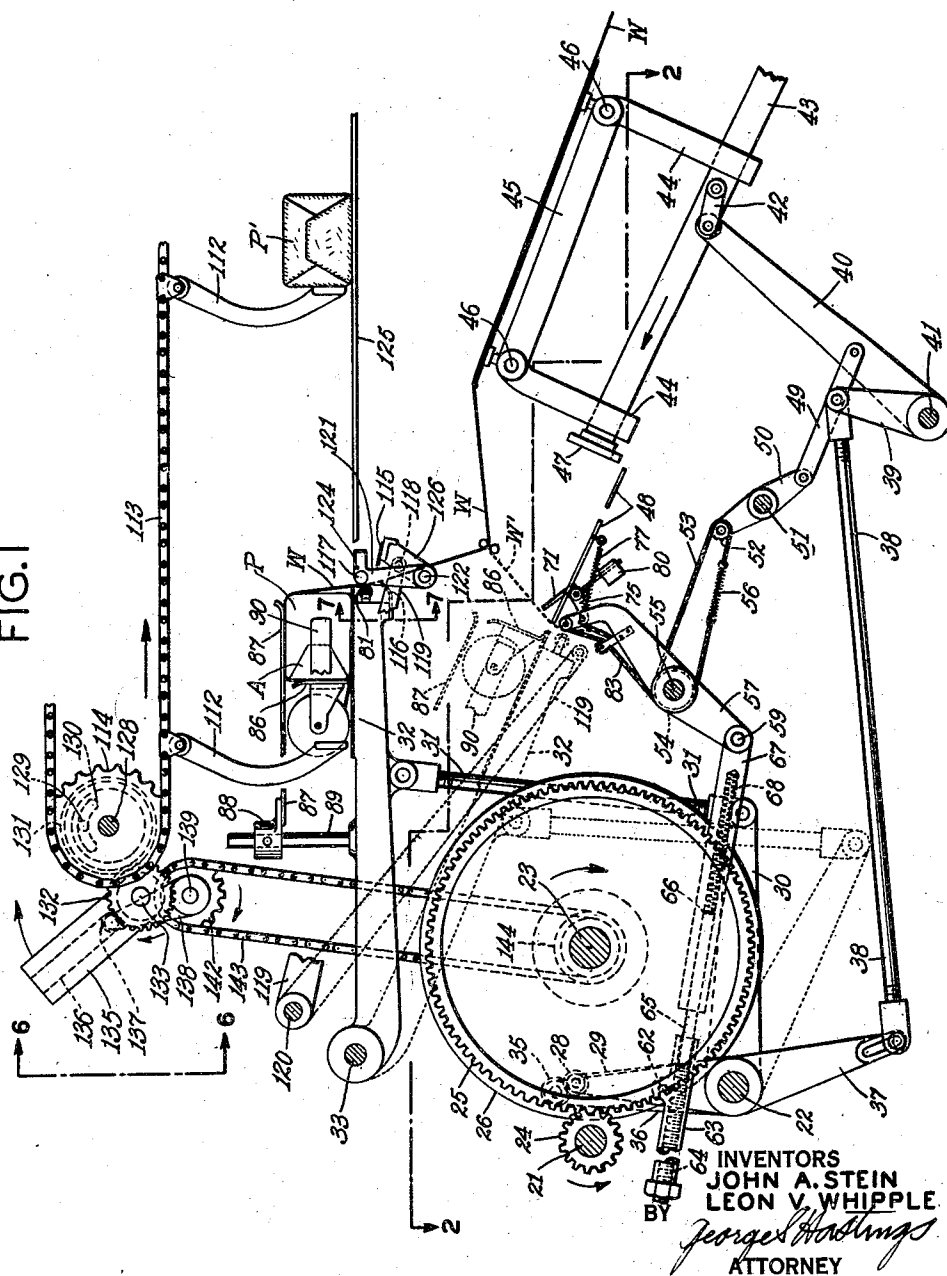
J. A. STEIN ET AL
BREAD WRAPPING MACHINE

2,362,959

Filed Nov. 13, 1941

6 Sheets-Sheet 1

FIG. 1



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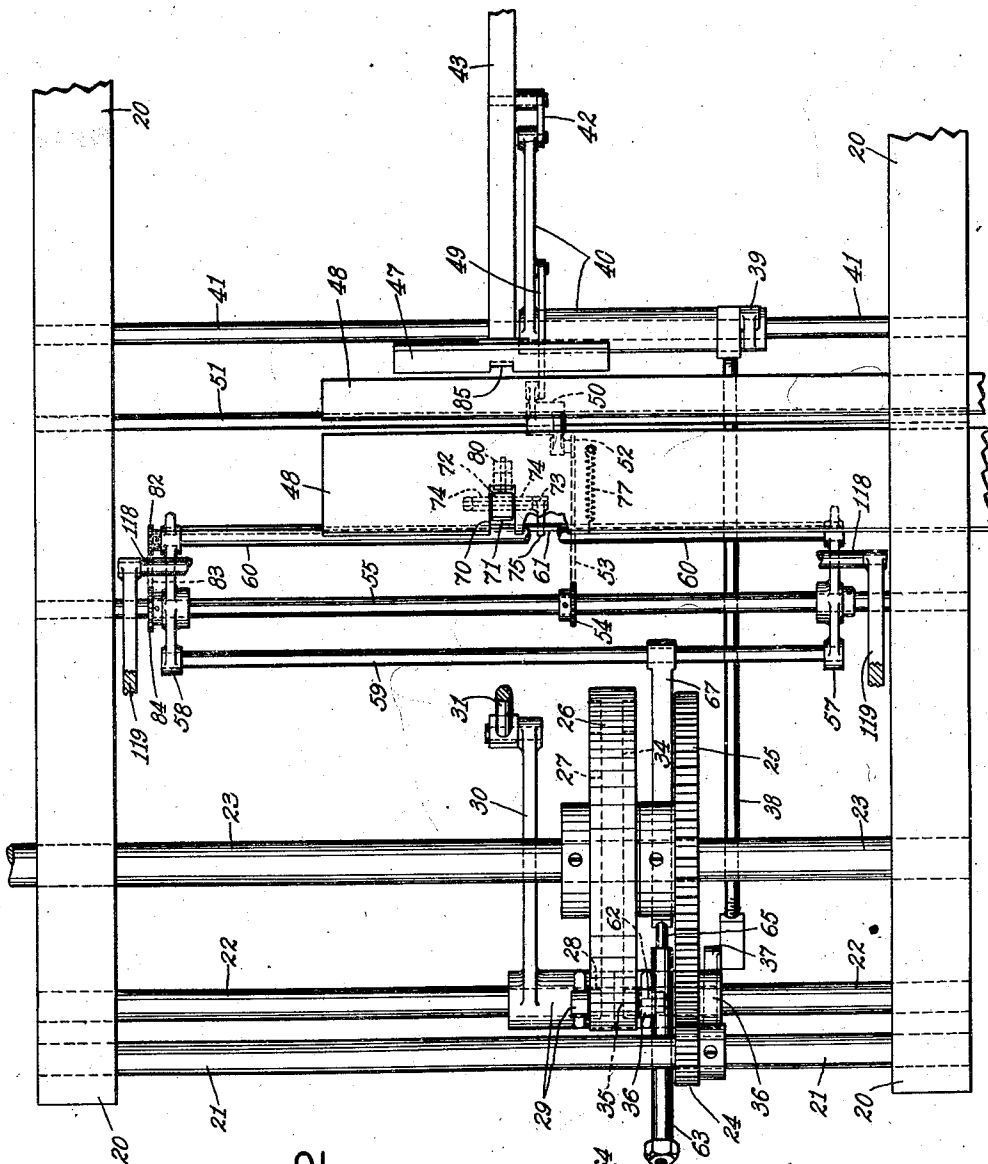


FIG. 2

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FIG. 12

A perspective view of the device from FIG. 10, showing the front cover assembly. The front cover 32 is shown partially open, revealing the internal components. The front cover 32 has a hinge mechanism at the bottom edge, which includes a pivot point 60 and a spring 57. The front cover 32 is connected to the main body 48 via a hinge mechanism 43. The front cover 32 also features a latch mechanism 47. The front cover 32 is shown in a closed position, with the latch mechanism 47 engaged.

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FIG. 4

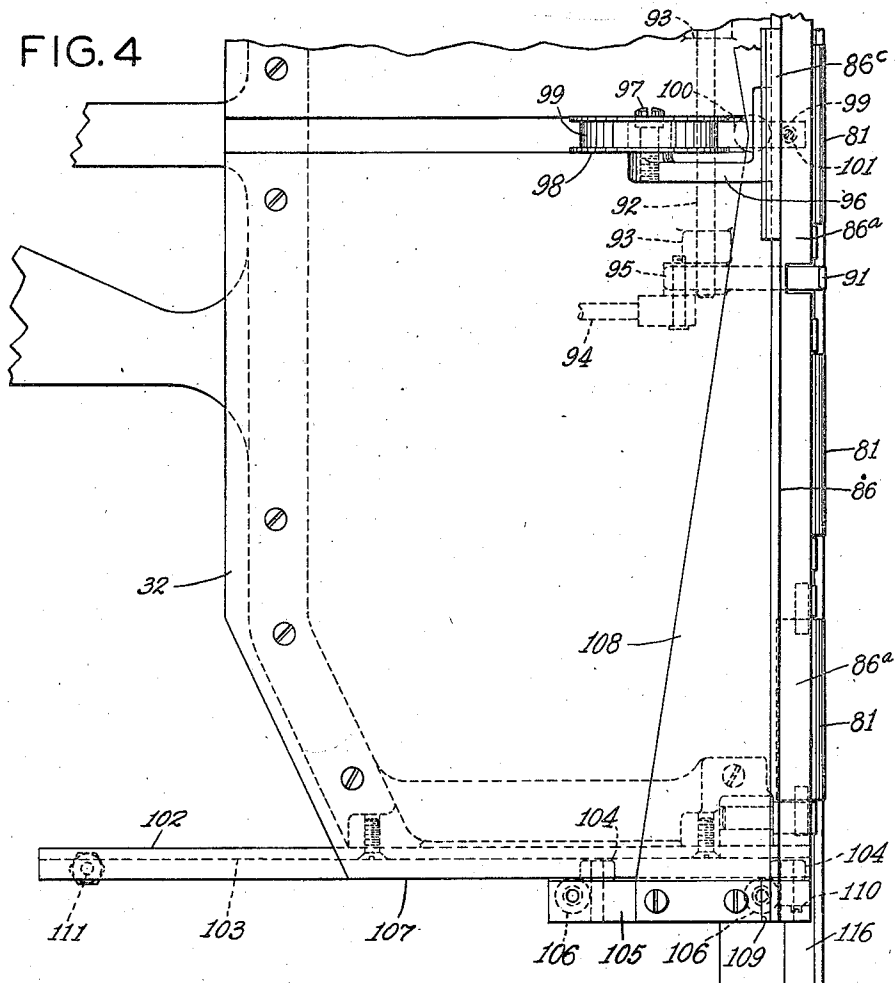
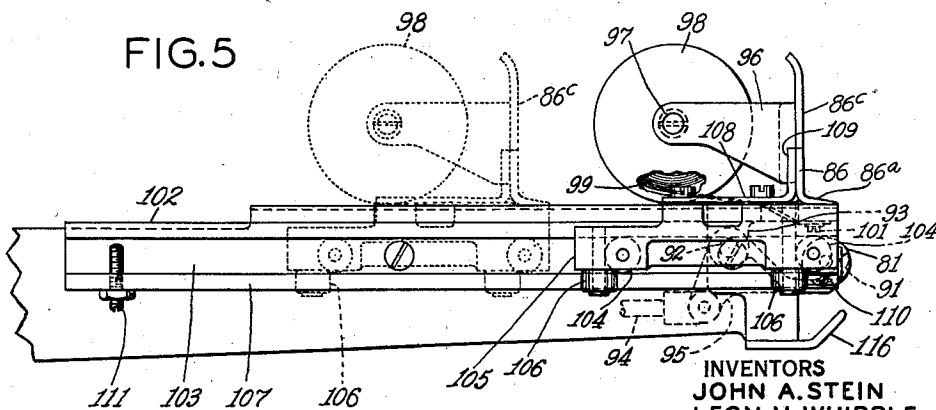


FIG.5



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FIG. 6

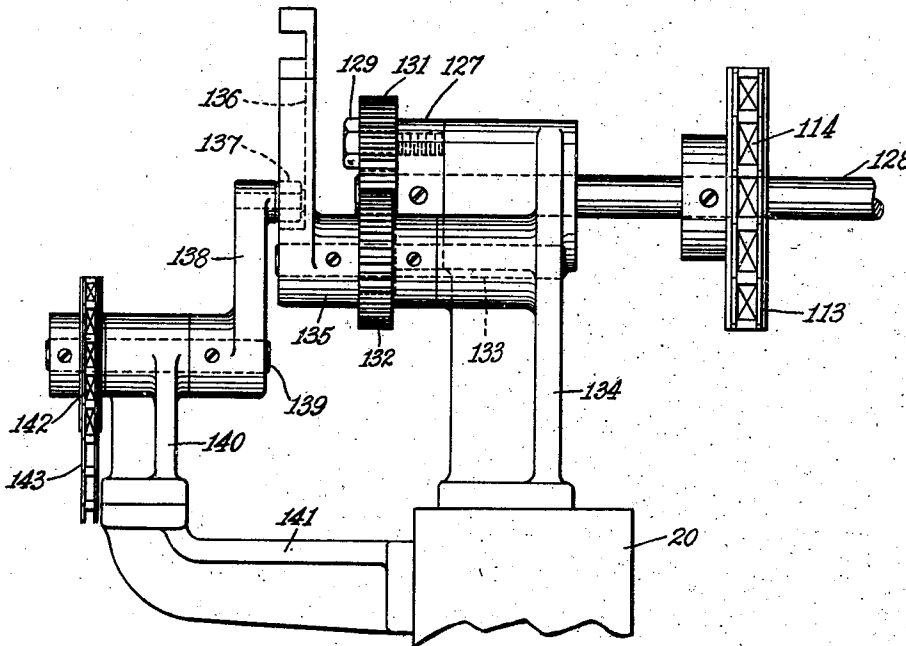
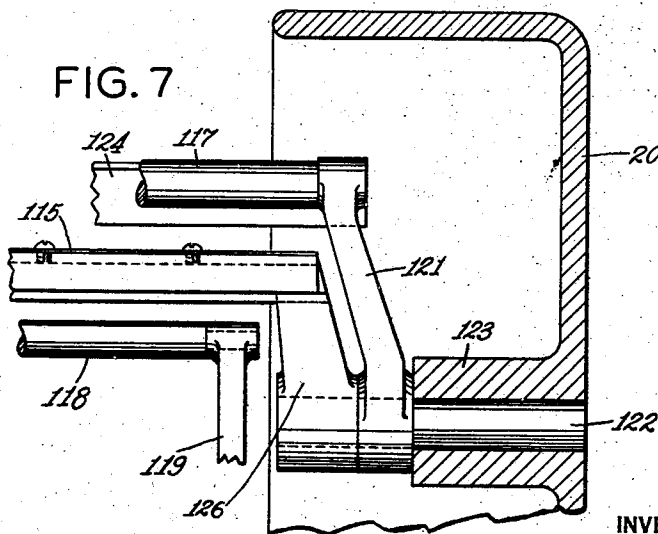


FIG. 7



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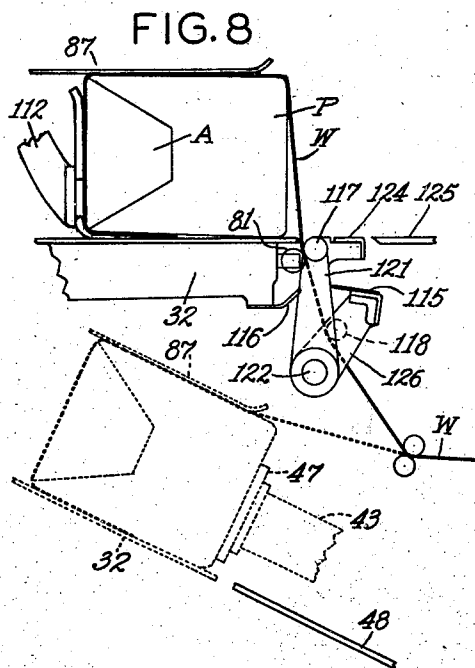
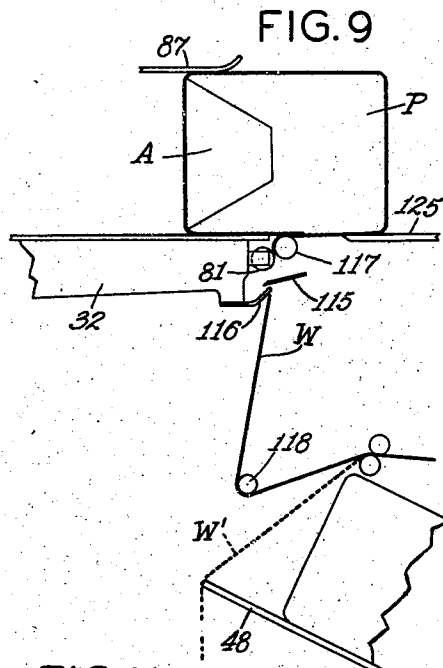
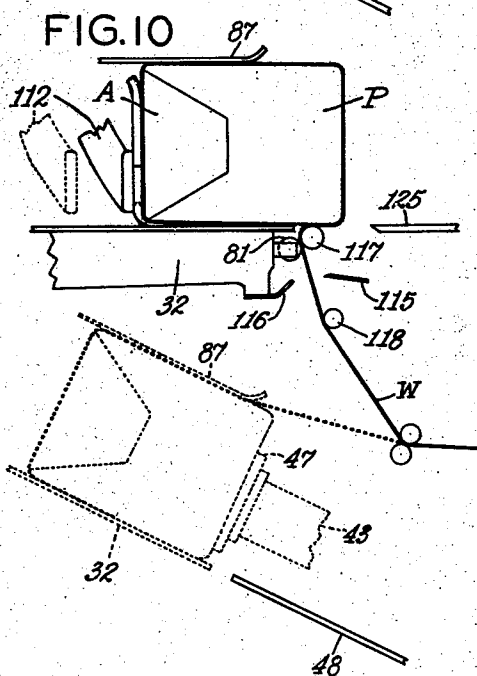
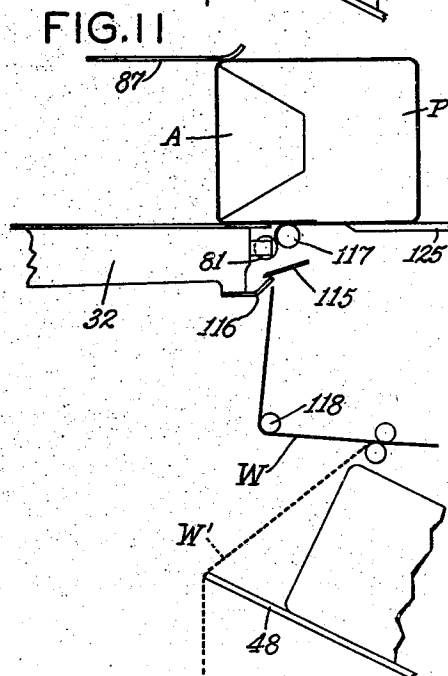
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UNITED STATES PATENT OFFICE

2,362,959

BREAD WRAPPING MACHINE

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Application November 13, 1941, Serial No. 418,880

37 Claims. (Cl. 93—2)

This invention relates to wrapping machines, suitable for wrapping any article, such as bread, and consists chiefly in improvements in the mechanism for encircling such articles in a wrapper, and mechanism for advancing articles along the folding passage for completing the wrapping operations.

The subject matter of this invention relates primarily to wrapping machines of the general type shown in Schmitt patent, No. 1,851,295, granted March 29, 1932, in which articles being wrapped are moved against a draped wrapper onto a lifter table, raised, and transported through the machine, although the mechanism shown and described is readily adaptable for use with other machines.

In wrapping machines, and in bread wrapping machines in particular, there is usually some difficulty in properly associating the wrapper with the article so that the least amount of wrapper will be used per loaf. This is due in part to the fact that there is usually some variation in every loaf which makes it relatively impossible to set the machine for all loaves and not waste paper to some extent. This unsatisfactory condition has been especially noticeable in machines operating at high speeds so that more wrapper per loaf has in many instances been used, because it has been necessary to make an allowance in order to compensate for variations in loaf sizes and the speed of the machine.

This invention has for one of its objects the saving of paper through better control of the position of the laps of paper, that is, the inner lap and the outer lap so designated because they lie along one side thereof and extend in the direction of the longitudinal axis of the article. If the laps can be controlled and their positions determined with a degree of accuracy before wrapping begins and also during wrapping, paper will be saved, and it will be possible to obtain a more efficient wrapping result with a more presentable package formation.

This invention, therefore, includes mechanisms coacting with the article infeed conveyor and lifter table, both at the infeed station and the discharge station, which mechanisms exert a control on the wrapper being encircled about the article. Usually in the type of machine shown in the Schmitt patent, mentioned above, a wrapper is draped in the path of the oncoming article, such as a loaf of bread, so that as it moves with the wrapper onto the lifter table, the inner lap will be formed upon the bottom of the loaf. A

back tension plate is employed to assist in the wrapping operation in which the plate applies a force sufficient to clamp the wrapper between the plate and side of the loaf while the loaf pulls added wrapper from the supply. In this operation, therefore, there is danger that the wrapper will slip relative to the loaf so that additional wrapper is generally furnished initially to compensate for this slippage, otherwise it is possible that the inner lap will be insufficient and will not be covered by the overlap later folded against the bottom of the loaf.

This invention provides mechanism for holding the end of the draped wrapper while the loaf is moving forward onto the lifter table and does not depend upon any pressure which may be exerted by the back support plate for holding the wrapper against slippage. In fact, the lap roller, which is of a type well known in the art, is usually set to pull a set quantity of web from the supply so that when the novel gripping rollers, operative beneath the lifter table, hold the free end of the wrapper, the danger of wrapper slippage is substantially eliminated and the need for allowing an extra length for that purpose is obviated. The mechanism which grips the free end of the wrapper is also active in feeding it upward in the direction of movement of the article moving into the lifter table and at substantially the same rate of speed so that the position of the inner lap can be determined well in advance of wrapping.

It is an object of our invention, therefore, to furnish novel mechanisms for controlling the position of the inner lap of a wrapper about an article, and feed a free end portion of the wrapper being applied in the direction of movement of the article for positioning it upon the underside of said article.

The invention is further characterized by the provision of coacting rollers mounted beneath an article lifter table which cooperate to control the disposition of a part of a wrapper being wrapped about the article to form the inner lap.

This invention is also characterized by the provision of mechanism operative in a wrapping machine in which the article being wrapped measures the wrapper length by mechanism for effecting a control of the wrapper length and limiting the quantity to effect a positive control of the position of the inner and outer laps of the wrapper applied to the bottom of the article.

It is also an object of our invention to provide the lifter table with a roller which coacts with a

booster roller mounted beneath the infeed runway to form an auxiliary feed so that when a wrapper has been draped in the path of an article, the rollers will grip and feed the free end of the wrapper upward and in the direction of movement of the article and thereby properly dispose the inner lap of the wrapper upon the bottom of the article.

It is an added object of our invention to provide mechanism for incapacitating the auxiliary wrapper feed mechanism which is responsible for feeding the free end of the draped wrapper upwardly and in the direction of movement of the article being wrapped in order to prevent the improper feed of a wrapper whenever an article is not forwarded for wrapping.

It is a further object of our invention to provide a wrapping machine having auxiliary web feeding rollers located beneath the lifter table which coast with the infeed pusher to feed a portion of the wrapper upwardly in the direction of movement of the article being wrapped, one of which rollers is driven in synchronism with the infeed pusher at a peripheral speed approximating the speed of the pusher in order to effect a gripping of the wrapper end and a backward feeding thereof adjacent the front end of the advancing article as it moves onto the lifter table to prevent slippage of the wrapper relative to the article and at the same time control the length of the paper relative to the article.

Our invention also takes into consideration the fact that often there is a difference in the amount of paper required for a given run which results in a longer or a shorter over or outer lap of wrapper and thereby results in a waste of paper if the over-lap is unnecessarily large. We have, therefore, provided mechanism which will compensate for variations in article size, and particularly changes in the sizes of a run of articles being progressed through the machine, without requiring a resetting of the time of cutting the wrapper in the machine cycle, which is a time consuming task. Accordingly, it is an object of our invention to provide means for adjusting the flights of the conveyor which travel articles past the final folding mechanism such that they can be moved relative to the article dependent upon the size of the succession of articles passing through the machine. This makes it possible to shift the flights backward or forward relative to the final position of an article on the lifter table and the timing of the lifter table.

It is a further object of our invention to provide an adjustable article conveyor provided with a series of spaced flights which can be advanced or retarded in order to control the movement of a partially wrapped article from the lifter table so that the movement of such article can be expedited in advance of the normal operating cycle of the wrapper cutting knife and the amount of wrapper required for a given succession of articles be controlled thereby while at the same time the position of the outer lap of wrapper about the article can also be controlled, and advanced or retracted relative to the inner lap.

It is an added object of our invention to provide coating mechanisms which act to control the inner lap and the outer lap of a wrapper encircled about an article being wrapped and to provide also means for shifting the position of said inner and outer laps to any desired position on the article.

It is a further object of our invention to pro-

vide a lifter table having movably mounted thereon improved mechanism in the form of an article back-up plate for assisting in the proper disposition of a wrapper about an article which reduces to a minimum the danger of distortion of an article and assists materially in the positioning of the inner lap of a wrapper about the bottom edge of an article being wrapped.

With these and other objects not specifically mentioned in view, the invention consists in certain combinations and constructions which will be hereinafter fully described, and then set forth in the claims hereunto appended.

In the accompanying drawings which form a part of this specification, and in which like characters of reference indicate the same or like parts:

Figure 1 is a partial side elevation of the improved wrapping machine;

Figure 2 is a plan view of the same taken from line 2—2 of Figure 1;

Figure 3 is an enlarged detail view of the wrapper control mechanism;

Figure 4 is a plan view of a portion of the improved lifter table of the machine;

Figure 5 is a side elevation of the same;

Figure 6 is an end view taken from line 6—6 of Figure 1 of the variable speed transfer finger mechanism;

Figure 7 is a partial sectional end view taken from line 7—7 of Figure 1, showing the relation of the clamp bar, knife and lap roller;

Figures 8 and 9 are detail views illustrating the position of the package and wrapping material when set for normal wrapping;

Figures 10 and 11 are detail views illustrating the position of the package and wrapping material when the transfer fingers are adjusted to engage the package earlier, thus changing the position of the over-lap on the package;

Figure 12 is a diagrammatic view showing the inner lap control mechanism at the instant the conveyor advances an article into engagement with a draped wrapper; and

Figure 13 shows the same mechanism in an advanced position.

Referring to the drawings which show a preferred embodiment of our invention, the side frames 20 of the wrapping machine support cross shafts 21, 22 and 23, shaft 21 being equipped with a pinion 24 suitably driven from a motor (not shown) on the machine. The pinion 24 drives a gear 25 which is secured to shaft 23, which shaft also carries a double-faced cam 26 provided with two cam tracks 27 and 34. Cam track 27 (Figure 2) of cam 26 is tracked by a cam follower 28 provided at the upper end of a cam lever 29 loosely mounted on shaft 22, and an extending arm 30 of lever 29 supports one end of a rod 31 connected to the lifter table 32 mounted on a cross shaft 33 supported by the side frames 20.

Cam track 34 of cam 26 is tracked by a cam follower 35 provided at the upper end of cam lever 36 loosely mounted on shaft 22. A depending arm 37 of lever 36 carries one end of a rod 38 connected to an arm 39 which is part of a lever 40 mounted on a cross-shaft 41 supported by the side frames 20. The upper end of lever 40 supports one end of a link 42 connected to a reciprocating plunger 43 which is guided in members 44 of a bracket 45 carried by cross rods 46 of the machine. Plunger 43 at its inner end is provided with a pusher plate 47 adapted to

engage the article to be wrapped and propel it across the inclined runway bottom plate 48 and deliver the article onto the lifter table 32 when the same is in its lowermost position, as indicated by dotted lines in Figure 1.

Operating in conjunction with the package pusher lever 40 is a link 49 connected to an arm 50 (Figures 1, 2 and 3) mounted on a cross shaft 51 carried by the side frames 20. The upper end of arm 50 is provided with a sprocket 52, non-rotatably mounted on arm 50, engaging a chain 53 running over a sprocket 54 secured on a shaft 55 carried by the side frames of the machine. The ends of the chain 53 are connected by a tension spring 56. The shaft 55 is equipped with levers 57 and 58 supporting a rod 59, feed roller 60 and a latch rod 61.

The cam lever 36 is provided with a stud 62 (Figure 1), supporting a head or cylindrical housing 63 having a threaded bore adapted to receive the threaded portion 64 of a plunger 65 which is slidably mounted in an aperture or axial bore 66 provided in an arm 67 connecting with the rod 59 carried by levers 57 and 58. The inner end of plunger 65 bears against the end of a compression spring 68 which is inserted in bore 66. The end of plunger 65 is equipped with a knob 69 (Figure 2), providing means for adjusting its position in housing 63 and hence controlling the tension of spring 68 for reasons to be hereinafter described.

In order to control the inner lap of the wrapper to keep it from slipping relative to the back tension plate 86 and to make uniform the position of the end of the draped web relative to loaves fed forward by pusher 47a, runway plate 48 preferably is provided with a cut-out 70 (Figure 2) to receive a trip plate 71 having a lug 72 through which passes a stud 73 pivotally mounted in blocks 74 secured to the bottom of runway 48. A latch arm 75 mounted on stud 73 has a rounded portion 76 (Figure 3) provided to engage rod 61 and normally hold levers 57 and 58 in non-operative position in order to prevent movement of the draped end portion E of the wrapper web W' until an article is moved forward for wrapping. A tension spring 77 having one end looped around rod 61 and its other end looped through an eye 78 carried by runway 48, aids in holding latch arm 75 in its locked position.

The lug 72 supports a rod 79 carrying an adjustably mounted weight 80 providing means for normally maintaining the latch plate 71 in an inclined position to be acted upon by the article being propelled across runway 48.

With the pusher plate 47 moving inward to propel the article to be wrapped across runway 48 and deliver the same onto table 32, the article will engage and depress plate 71, whereby latch arm 75 is moved away from rod 61 which releases levers 57 and 58 for movement under the action of arm 67. The head 63, which operates in unison with pusher 47, in the meantime has advanced plunger 65 and compressed spring 68, thereby causing levers 57 and 58 to move the feed or booster roller 60 into a position for coaction with a series of rollers 81 mounted beneath and adjacent the front edge of the lifter table 32. The wrapper web is fed by means of lap roller 118 and its length is measured by the size of article being wrapped in the same general manner as shown and described in the Schmitt patent, referred to hereinabove. Other mechanism

is provided, however, for further controlling the amount of wrapper and portion of the longitudinal laps. When the wrapping material W' shown in dotted lines Figures 1 and 3, has been draped in the path of an article between the rollers 60 and 81, roller 60 is driven in synchronism with the movement of pusher 47 in a clockwise direction at a peripheral speed approximating the speed of the package pusher. From the above it follows that whenever lever 50 is rocked by link 49 sprocket 52 coacting with chain 53 rotates sprocket 54 on shaft 55. The roller 60 is rotated by a sprocket 82 which derives motion from a chain 83 running over a sprocket 84 of Figure 2 secured on shaft 55.

The coaction of rollers 60 and 81 effects a gripping of the draped end portion E of the wrapper end and causes a backward feeding of the wrapper W' adjacent the front of the article as it moves onto the lifter table 32, thereby preventing any slipping relative to the article, which results in a control of the length of the wrapper at all times relative to the article being wrapped and also the position of the inner lap of the wrapper, or that portion which lies longitudinally along the bottom of the article being wrapped. This mechanism, therefore, reduces the length of wrapper because it eliminates the necessity of overfeeding in order to allow for slippage, and reduces the danger of deforming articles, such as loaves of bread, due to pressure exerted by the back supporting plate 86 and opposed infeed pusher 47.

The wrapping material is fed from a suitable supply (not shown) by means of lap roller 118 in a manner similar to that shown in the Schmitt patent referred to hereinabove. In moving to its lowered position, lap roller 118 pulls off a fixed quantity of paper determined by its adjustment for the particular run of articles, such as loaves being wrapped. This web is draped in the usual manner in the path of the article being advanced by pusher 47 with end portion E disposed between rollers 60, 81. When, therefore, the front of an article moves into engagement with the positioned wrapper, the booster roller operating mechanism is so timed that roller 60 is moved into operative position (Figure 12), and the free end portion E begins to move upward and travel beneath the moving article (Figure 13) to form the inner lap, while at the same time portion E is gripped by rollers 60, 81 and held thereby against slippage and fed upward, as to position E', in the direction of movement of the article. Our wrapper control mechanism is readily adapted for use with the web feeding unit shown and described in co-pending application, Serial No. 420,636 filed November 27, 1941 by Charles Arelt for Bread wrapping machine, although it finds ready application in a machine of the type shown in the above mentioned Schmitt patent, or any other machine in which the length of wrapper is determined by the size of article.

The pusher 47 upon concluding its infeed operation, retreats to its starting position and in so doing resets levers 57 and 58 and arm 50, levers 57 and 58 being returned by the tension spring 77 to their latched position. If a skip occurs in advancing articles into the range of action of the pusher 47, the pusher will be advanced in the usual manner but the latch plate 71 will not be tripped as pusher 47 is provided with a cut-out portion 85 (Figure 2) permitting the same to pass by plate 71. This feature pre-

vents the wrapping material from being advanced by rollers 60 and 81 and becoming wedged on the lifter table, thus overcoming the possibilities of improperly wrapping the succeeding article.

The plunger 65 is adjustable to take care of different widths of articles, and when wide articles are being wrapped it will be seen that the plate 71 is tripped earlier than when narrow articles are wrapped. For wide articles, the plunger 65 is adjusted inwardly within arm 67 so that when latch arm 75 is released the pressure of spring 68 is great enough to swing the levers 57 and 58, thus bringing feed roller 60 into engagement with rollers 81 and to feed back the wrapping material. For narrower articles the plunger 65 is retracted so as to permit greater movement of the plunger before compressing the spring 68 to the pressure required to swing levers 57 and 58 when they are unlatched.

The article lifter table 32 is provided with a back supporting plate 86 against which an article is pushed as it moves onto the table. With the lifter table 32 in its lowermost position as shown in dotted lines in Figure 1, the back supporting plate is in its forward position adjacent the edge of the table. The oncoming article advanced by the pusher 47 causes the back supporting plate 86 to move rearwardly on the table and bear against the forward side of the now partially wrapped article. The article moves under an adjustably mounted top tension plate 87 secured to a hub 88 attached to a bar 89 carried by the lifter table. The article also enters between a pair of spaced end tucker plates 90 mounted on table 32 which encounter the overhanging web portion A of the wrapping material W and fold it against the ends of the package (see Figures 8-11). The operation of the tuckers 90 is well known to those skilled in the art and, therefore, a more complete showing of the same is omitted in the interest of brevity.

With the partially wrapped article thus located on the lifter table, a pair of cam actuated retaining finger 91 (Figures 4 and 5) are raised to bear against the rear side of the partially wrapped article and hold the same from slipping when the table is raised to its up position. Fingers 91 are mounted on a pivoted shaft 92 supported in lugs 93 provided on table 32 and are operated by a cam actuated rod 94 connected to a depending arm 95 of one of the fingers 91.

Referring to Figures 4 and 5, the back supporting plate 86 is equipped with a bracket 96 carrying a stud 97 supporting a turnably mounted spool 98 around which is wound a resilient band 99. The free end of band 99 passes through an aperture 100 provided in the table 32 and is secured to the under side of the table by a screw 101, this band tending to normally hold the back supporting plate 86 in alignment with the forward edge of the table. The band 99 also serves to absorb the shock as the article is advanced from the runway onto the table, and in this manner assists in keeping the wrapper in proper position on the loaf. Back supporting plate 86 extends substantially the full width of the lifter table and consists of an upright portion rising from a substantially horizontal ledge 86a upon which the front bottom part of an article being wrapped is moved by pusher 47. The partly wrapped article with the inner wrapper lap resting on ledge 86a remains in that position on the table 32 until it is transferred therefrom in known manner by one set of

pushers 112. Preferably the mid-portion 80c of the back supporting plate extends upward to a height sufficient to give partial support to an article when transfer pushers 112, which moves past both ends of upright portion 80a, convey the partially wrapped article from the table 32.

To assure easy movement of the back supporting plate 86, each end of the table 32 is equipped with a bar 102 having a track 103 adapted to receive rollers 104 carried by a carriage 105. Carriage 105 is also provided with rollers 106 which ride along the lower edge 107 of the bar 102. A plate 108 ties the carriages 105 together and each end of the plate is turned up forming a wall 109 thus supporting the back supporting plate 86.

The forward end of bar 102 carries a slotted block 110 acting as a stop for the leading roller 106 to permit band 99 to return the back tension plate to its starting position. The rear end of bar 102 carries a stop screw 111 provided to prevent accidental pulling of the carriages 105 from their runways.

With the lifter table in its up-position, the wrapper W is partly formed around the package P with the end hanging down from the rear side of the partially wrapped article, as seen in Figure 1. The article is now acted upon by suitable transfer fingers 112 carried by endless chains 113 running over driven sprockets 114 and over idler sprockets (not shown). The fingers 112 engage the back supporting plate 86 and advance it and the article being wrapped along the table. Having advanced a slight distance, a cam actuated knife 115 moves toward a ledger plate 116 carried by the table and severs the wrapper W. The continued movement of the fingers 112 advances the articles from the table and a cam actuated clamp bar 117 aids in completing the bottom lap of the wrapper about the article. Shortly before the partly wrapped article leaves the lifter table, said table begins to descend thus permitting fingers 112 to clear the back supporting plate 86.

A lap roller 118, which may be similar in construction and operation to that shown in the Schmitt patent above referred to, is carried by arms 119 (Figures 1 and 2) mounted on a shaft 120 suitably supported by the side frames 20 operates in conjunction with knife 115, that is, slightly before the knife cuts the wrapper, the lap roller descending and dwelling and in so doing unwinds additional wrapping material from a roll (not shown) to prepare for the succeeding article. The knife 115 now severs the wrapper W and the lap roller 118 descends to its lowermost position as shown in dotted lines in Figure 1, thereby draping the leading end W' of the wrapping material between rollers 60 and 81 in the path of the succeeding article to be wrapped.

The lap roller 118 immediately ascends to its up-position and the table 32 descends to its lowermost position in readiness to receive the next article. The timing of the movement of the table and lap roller may be the same as that disclosed in co-pending Arelt application, above referred to.

Referring to Figures 1 and 7, the clamp bar 117 is carried by arms 121 mounted on studs 122 supported in a hub 123 provided on each of the side frames 20. Arms 121, at their upper end, support a bridge plate 124 spanning the gap between the lifter table and a sealing table 125 of the machine. The knife 115 is attached to arms 126 also mounted on stud 122.

The sprockets 114 are so mounted that they can be adjusted so that the transfer fingers 112 which propel the partly wrapped packages from the table 32 can be moved relative to a partially wrapped article so that regardless of its width 5 said fingers will not move the partially wrapped article from the table until it dwells in its upper position. This is accomplished by means of a spacer 127 secured on sprocket shaft 128 and equipped with a bolt 129 passing through an elongated slot 130 provided in a gear 131. It will be seen that when bolt 129 is loosened the shaft 128 and its attached members can be turned to adjust the fingers 112 to engage the articles earlier or later as required.

Gear 131 is driven by a gear 132 mounted on a shaft 133 carried by a bracket 134 (Figure 6) attached to the side frame 20. Shaft 133 also carries an arm 135 provided with an elongated slot 136 adapted to engage a roller 137 carried by an arm 138 fastened on a shaft 139 supported by a bracket 140 which in turn is attached to a bracket 141 carried by the side frame 20. Shaft 139 also carries a sprocket 142 engaging a chain 143 running over a sprocket 144 which is mounted on the cam shaft 23 as shown in Figure 1. The motion imparted to arm 135 and its coacting members is such that as the fingers 112 engage the package, the conveyor 113 moves rapidly thus advancing the article from the table, but as the fingers continue to advance, the speed of the conveyor gradually decreases, thus translating the article more slowly through the folding zone of the machine (not shown) and over the sealing plate 125 to assure proper sealing of the wrapper. Thus the package moves through the folding and heating section in a series of fast and slow movements.

Referring to Figures 8 and 9, the article P is shown on table 32 in a position for normal wrapping whereby the bottom lap of the article is located more or less in the center of the article P. In Figures 10 and 11 the article is shown in an advanced position on table 32 as the fingers 112 have been adjusted forward from dotted line position corresponding to their position in Figures 8 and 9 to full-line position to engage the package earlier, resulting in forming the bottom lap of the package nearer the front side of the article. By adjusting the fingers 112 to engage the article later, the bottom lap will be formed nearer the rear side of the article. This adjustment results in a control of the position of the overlap of the wrapper due to the fact that the article is moved forward more or less before knife 115 operates. In the case of the overlap in Figures 10 and 11, the article has moved forward before the operation of knife 115 and more wrapper has been fed than in the case shown in Figures 8 and 9. This adjustment, therefore, provides a direct control of the position of the overlap and the wrapper length, without requiring any adjustment in the knife operating mechanism. By this arrangement the position of the bottom lap of the articles can be controlled to suit the demands of the customer.

A further advantage of having the fingers 112 adjustable, is that on said articles the bottoms are more or less curved, thus if the bottom lap is positioned more or less in the center of the package it often happens that the bottom lap is improperly sealed. By the adjustable means described hereinabove, the bottom lap can be controlled so as to be formed near the front or rear

side of the article where the bottom is flat which results in better sealing of the lap.

The invention above described may be varied in construction within the scope of the claims, for the particular device selected to illustrate the invention is but one of many possible concrete embodiments of the same. It is not, therefore, to be restricted to the precise details of the structure shown and described.

What is claimed is:

1. In an article wrapping machine having an article infeed plate over which articles to be wrapped are moved, a lifter table movable to and from alignment with said plate, a roller mounted beneath said table for movement therewith, and a driven booster roller mounted beneath said infeed plate for movement into and out of coaction with said first-named roller to hold the leading end of a wrapper depending therebetween.

2. In an article wrapping machine having a feed plate over which articles to be wrapped are moved, a lifter table, means coacting with said plate and table for gripping the draped end of a wrapper disposed between said plate and table, and mechanism for causing said means to feed a portion of said gripped end of said wrapper in the direction of movement of an article onto said table.

3. In a wrapping machine, the combination with an article infeed conveyor, of a lifter table movable into and out of article receiving position relative to said conveyor, means for moving said conveyor to feed an article against a wrapper draped in the path of movement of said article when said table is in article receiving position, and positively actuated means having a moving surface for gripping the free end of said wrapper beneath said table to hold it against slipping relative to said article while said article is moving onto said table.

4. In a wrapping machine having an article infeed conveyor, and a lifter table onto which said conveyor feeds articles to be wrapped, means for moving said conveyor to advance an article against a wrapper and onto said table, coacting rollers located beneath said table and engaging the free end of said wrapper, and means for rotating one of said rollers to feed said end of said wrapper in the direction of movement of said article onto said table and at a speed substantially that of said article.

5. In a wrapping machine, the combination with an article conveyor, of a lifter table, a carriage movably mounted on said table, a back supporting plate on said carriage provided with a substantially horizontal article edge supporting ledge mounted on said carriage, means for moving said conveyor to feed an article against a wrapper draped in the path of movement of said article, said wrapper having a free end extending below the plane of said table, auxiliary wrapper feeding mechanism for gripping said end of said wrapper, and means for operating said mechanism to feed said free end of said wrapper in the direction of movement of said article to control the formation of the inner lap of the wrapper beneath the edge of the article resting on said ledge of said plate on said carriage.

6. In a wrapping machine the combination with an article infeed conveyor, of a guide plate, a lifter table movable into and out of alignment with said guide plate, a roller mounted beneath said table and movable therewith, a rotating booster roller coacting with said roller, and means for moving said rotating booster roller into en-

gagement with the leading end of a wrapper substantially simultaneously with the movement of said conveyor as it moves a loaf over said plate against said wrapper and onto said table to drape said wrapper upon said loaf.

7. In a wrapping machine having an article infeed conveyor, a guide plate, a lifter table movable into and out of alignment with said plate, means for draping a wrapper in the path of movement of an article, said wrapper having a free end portion disposed between said table and plate, wrapper gripping mechanism located beneath said table and plate for gripping said free end of said wrapper, means for operating said conveyor to move an article against said wrapper and onto said table while said end is held by said mechanism, and means for operating said mechanism to feed said gripped wrapper end in the direction of movement of said article.

8. In a wrapping machine having an article infeed conveyor, a guide plate, a lifter table movable into and out of alignment with said plate, means for draping a wrapper in the path of movement of an article, said wrapper having a free end portion disposed between said table and plate, wrapper gripping mechanism located beneath said table and plate for gripping said free end of said wrapper, means for operating said conveyor to move an article against said wrapper and onto said table while said end is held by said mechanism, means for operating said mechanism to feed said gripped wrapper end in the direction of movement of said article, and a control device for maintaining said last named means inactive whenever said conveyor fails to advance an article from said plate.

9. In a wrapping machine having an article infeed conveyor, a guide plate, a lifter table movable into and out of alignment with said plate, means for draping a wrapper in the path of movement of an article, said wrapper having a free end portion disposed between said table and plate, a roller mounted beneath said table and movable therewith, a booster roller positioned to coact with said roller, means for operating said conveyor for feeding an article onto said table, means for moving said booster roller into operative relationship with said roller to grip said wrapper end portion, and mechanism for rotating said booster roller to feed said wrapper end in the direction of movement of said article.

10. In a wrapping machine having an article infeed conveyor, a guide plate, a lifter table movable into and out of alignment with said plate, means for draping a wrapper in the path of movement of an article, said wrapper having a free end portion disposed between said table and plate, a roller mounted beneath said table and movable therewith, a booster roller positioned to coact with said roller, means for operating said conveyor for feeding an article onto said table, means for moving said booster roller into operative relationship with said roller to grip said wrapper end portion, mechanism for rotating said booster roller to feed said wrapper end in the direction of movement of said article, and means for adjusting the booster roller operating mechanism to control the period of rotation of said booster roller.

11. In a wrapping machine having an article infeed conveyor, a guide plate, a lifter table movable into and out of alignment with said plate, means for draping a wrapper in the path of movement of an article, said wrapper having a free end portion disposed between said table and

plate, a roller mounted beneath said table, a booster roller coacting with said roller for gripping said wrapper end portion, means for moving said conveyor for delivering an article from said plate against said wrapper and onto said table, and means operative substantially simultaneously with the movement of said conveyor for rotating said booster roller to feed the gripped end of said wrapper upwardly and beneath said moving article.

12. In an article wrapping machine having an article feed plate over which articles to be wrapped are moved, a lifter table movable to and from alignment with said plate, a conveyor for advancing articles from said plate to said table, mechanism coacting with said plate and table when in alignment to grip the leading end of a wrapper depending therebetween beneath the plane of said aligned plate and table and position said end for proper disposition about an article, and means operative whenever said conveyor fails to advance an article for incapacitating said mechanism.

13. In a wrapping machine having a lifter table and a conveyor for feeding articles to be wrapped onto said table, and means for draping a wrapper web in the path of said articles, a device normally operative upon movement of said conveyor to grip and hold the advance end of said wrapper, and means for incapacitating said device whenever said conveyor fails to advance an article.

14. In a wrapping machine having a lifter table and a conveyor for feeding articles to be wrapped onto said table, and means for draping a wrapper web in the path of said articles, a web feeding couple located beneath said table and constructed and arranged to hold the free end of said wrapper, means for operating said conveyor to feed an article onto said table, means for operating said couple to feed back the free end of said wrapper in the direction of movement of said article, and means for incapacitating said couple whenever said conveyor fails to advance an article.

15. In a wrapping machine having a lifter table and a conveyor for feeding articles to be wrapped onto said table, and means for draping a wrapper web in the path of said articles, a gripping roller mounted beneath said table, a booster roller positioned to coact with said roller, a swinging frame mounting said booster roller for movement to and from said roller, means for operating said conveyor to advance an article to be wrapped against said draped wrapper, means for moving said frame to cause said rollers to engage the free end portion of said wrapper, and means for rotating said booster roller to feed said free end portion on the direction of movement of said article.

16. In a wrapping machine having a lifter table and a conveyor for feeding articles to be wrapped onto said table, and means for draping a wrapper web in the path of said articles, a gripping roller mounted beneath said table, a booster roller positioned to coact with said roller, a swinging frame mounting said booster roller for movement to and from said roller, means for operating said conveyor to advance an article to be wrapped against said draped wrapper, means for moving said frame to cause said rollers to engage the free end portion of said wrapper, means for rotating said booster roller to feed said free end portion in the direction of movement of said article, mechanism for incapacitating said

booster roller whenever said conveyor fails to advance an article comprising an article trip positioned in the path of an article, a latch on said trip normally locking said frame against movement, and means responsive to the passage of an article for swinging said frame into booster roller operating position.

17. In a wrapping machine having an article infeed pusher, a guide plate, an article lifter table movable into and out of alignment with said plate, and means for positioning a wrapper in the path of an article to be wrapped, a web feeding couple comprising a roller mounted for travel with said table, a booster roller movable into and out of engagement with said first named roller, and mechanism operative substantially simultaneously with the movement of said pusher for operating said couple to grip and feed back a portion of the leading end of the wrapper for positioning the end of said wrapper relative to the article being wrapped.

18. In a wrapping machine having an article infeed pusher, a guide plate, an article lifter table movable into and out of alignment with said plate, and means for positioning a wrapper in the path of an article to be wrapped, a web feeding couple comprising a roller mounted for travel with said table, a booster roller movable into and out of engagement with said first named roller, mechanism operative substantially simultaneously with the movement of said pusher for operating said couple to grip and feed back a portion of the leading end of the wrapper for positioning the end of said wrapper relative to the article being wrapped, and means for adjusting said mechanism to vary the position of the edge of the inner lap of wrapper upon the said article.

19. In a wrapping machine having an article infeed pusher, a guide plate, an article lifter table movable into and out of alignment with said plate, and means for positioning a wrapper in the path of an article to be wrapped, a web feeding couple comprising a roller mounted for travel with said table, a booster roller movable into and out of engagement with said first named roller, mechanism operative substantially simultaneously with the movement of said pusher for operating said couple to grip and feed back a portion of the leading end of the wrapper for positioning the end of said wrapper relative to the article being wrapped, said mechanism including a cam, a lever provided with a cam follower tracking said cam, and means for varying the period of operation of said booster roller.

20. In a wrapping machine having an article infeed pusher, a guide plate, an article lifter table movable into and out of alignment with said plate, and means for positioning a wrapper in the path of an article to be wrapped, a web feeding couple comprising a roller mounted for travel with said table, a booster roller movable into and out of engagement with said first named roller, mechanism operative substantially simultaneously with the movement of said pusher for operating said couple to grip and feed back a portion of the leading end of the wrapper for positioning the end of said wrapper relative to the article being wrapped, said mechanism including a cam, a lever provided with a cam follower tracking said cam, means for varying the period of operation of said booster roller, and common means for rotating said booster roller and moving said pusher.

21. In a wrapping machine having an article infeed pusher, a guide plate, an article lifter table movable into and out of alignment with said plate, and means for positioning a wrapper in the path of an article to be wrapped, a web feeding couple comprising a roller mounted for travel with said table, a booster roller movable into and out of engagement with said first-named roller, mechanism operative substantially simultaneously with the movement of said pusher for operating said couple to grip and feed back a portion of the leading end of the wrapper for positioning the end of said wrapper relative to the article being wrapped, said mechanism including a cam, a lever provided with a cam follower tracking said cam, means for varying the period of operation of said booster roller, common means for rotating said booster roller and moving said pusher, and means for maintaining the movement of said pusher substantially constant.

22. In a wrapping machine, mechanism for controlling the position of that portion of a wrapper forming the inner lap extending longitudinally of an article being wrapped, comprising a device for engaging and holding the leading end of a draped wrapper prior to the encirclement of said article in said wrapper, means for moving said article against said wrapper, and means for operating said device while said article is moving to shift said portion of said wrapper in the direction of movement of said article and form said inner lap.

23. In a wrapping machine, mechanism for controlling the position of the inner lap of the longitudinal fold of a wrapper, mechanism co-acting therewith for controlling the position of the outer lap of said longitudinal fold of said wrapper, and means for adjusting either of said mechanisms for varying the position of either the inner or the outer lap of said wrapper.

24. In a wrapping machine, mechanism for controlling the position of the inner lap of the longitudinal fold of a wrapper, mechanism co-acting therewith for controlling the position of the outer lap of said longitudinal fold of said wrapper, means for adjusting said first named mechanism to control the position of the edge of said inner lap on an article, and means for adjusting said second named mechanism for controlling the length of wrapper forming the overlap of wrapper.

25. In a wrapping machine, mechanism for controlling the position of the inner lap of the longitudinal fold of a wrapper, mechanism co-acting therewith for controlling the position of the outer lap of said longitudinal fold of said wrapper, means for adjusting said first named mechanism to control the position of the edge of said inner lap on an article, and readily accessible manually operated means for adjusting said second named mechanism for controlling the length of wrapper forming the overlap in accordance with change in size of articles being wrapped.

26. In a wrapping machine having an article infeed conveyor for projecting an article to be wrapped against a wrapper draped in the path of movement of the article, mechanism for holding the free end of the wrapper, means for operating said mechanism in timed relation to the movement of an article by said conveyor for feeding said end portion of said wrapper in the direction of movement of said article to form the inner lap of the wrapper about said article,

a second conveyor for moving said partially wrapped article to form the outer lap of the wrapper about said article, and means for adjusting the position of said second conveyor relative to said partially wrapped article to control the length and/or position of the outer lap on said article.

27. In a wrapping machine having a lifter table and an infeed conveyor for projecting an article to be wrapped against a draped wrapper located in the path of movement of said article and provided with a free end extending below the plane of movement of said article, mechanism for feeding said free end of said wrapper in the direction of movement of said article and wrapper, as said article moves onto said table, means for moving said table to a point of article discharge, a second conveyor operative to translate said partially wrapped article from said table, and means for adjusting said second conveyor relative to said article to control the encirclement of said wrapper about said article.

28. In a wrapping machine having a lifter table and an infeed conveyor for projecting an article to be wrapped against a draped wrapper located in the path of movement of said article and provided with a free end extending below the plane of movement of said article, mechanism for feeding said free end of said wrapper in the direction of movement of said article and wrapper, as said article moves onto said table, means for moving said table to a point of article discharge, a second conveyor operative to translate said partially wrapped article from said table, spaced flights mounted on said second conveyor constructed and arranged to engage and advance partially wrapped articles from said table, and means for adjusting the position of said flights to or from the rear portion of an article to be removed from said table to control the quantity of wrapper encircled about an article.

29. In a wrapping machine having a lifter table and an infeed conveyor for projecting an article to be wrapped against a draped wrapper located in the path of movement of said article and provided with a free end extending below the plane of movement of said article, mechanism for feeding said free end of said wrapper in the direction of movement of said article and wrapper, as said article moves onto said table, means for moving said table to a point of article discharge, a second conveyor operative to translate said partially wrapped article from said table, spaced flights mounted on said second conveyor, and means for moving said second conveyor with varying speed to translate articles with variable speed from said table.

30. In a wrapping machine having a lifter table and an infeed conveyor for projecting an article to be wrapped against a draped wrapper located in the path of movement of said article and provided with a free end extending below the plane of movement of said article, mechanism for feeding said free end of said wrapper in the direction of movement of said article and wrapper, as said article moves onto said table, means for moving said table to a point of article discharge, a second conveyor operative to translate said partially wrapped article from said table, and means for driving said second conveyor with varying speed to move articles from said table for completion of wrapping.

31. In a wrapping machine having a lifter table and an infeed conveyor for projecting an article to be wrapped against a draped wrapper located

in the path of movement of said article and provided with a free end extending below the plane of movement of said article, mechanism for feeding said free end of said wrapper in the direction of movement of said article and wrapper, as said article moves onto said table, means for moving said table to a point of article discharge, a second conveyor operative to translate said partially wrapped article from said table, a knife operative to cut said wrapper during the movement of said article from said table, and means for controlling the engagement of said partially wrapped article by said second conveyor to advance or retard the movement of said article and control the amount of wrapper encircling said article.

32. An article supporting mechanism for a wrapping machine lifter table comprising a pair of spaced rails mounted on said table, a carriage, an article engaging plate mounted on said carriage, rollers mounted on said carriage and tracking said rails, and resilient means for positioning said plate at the infeed edge of said table.

33. An article supporting mechanism for a wrapping machine lifter table comprising a pair of spaced rails mounted on said table, a carriage, an article engaging plate mounted on said carriage, rollers mounted on said carriage and tracking said rails, resilient means for positioning said plate at the infeed edge of said table, said means comprising a support on said plate, and a resilient band mounted on said support and provided with one end secured to said table.

34. An article supporting plate for a wrapping machine lifter table comprising guides located along the sides of said table, a plate member extending across said guides and above said table, rollers mounted on said member and tracking said guides, an upright article engaging plate mounted on said member and constructed and arranged to bear against an article fed onto said table, and a substantially horizontal ledge mounted on said member and extending into the path of movement of an article onto said table, said ledge being arranged to support the leading edge of an article pressing against said plate.

35. In an article wrapping machine having a lifter table, a support device constructed and arranged to engage a side of an article moved onto said support comprising, spaced supports on said table, a carriage extending across said table, rollers on said carriage running on said supports, a plate mounted on said carriage and extending upwardly therefrom, a substantially horizontal ledge extending forward from said plate and mounted in close proximity to said table for movement thereover with said carriage for supporting the inner lap of a wrapper folded about the bottom front edge of an article moved onto said table, and means for maintaining said plate normally positioned adjacent the front edge of said table.

36. In an article wrapping machine having a lifter table, a support device constructed and arranged to engage a side of an article moved onto said support comprising, spaced supports on said table, a carriage extending across said table, rollers on said carriage running on said supports, a plate mounted on said carriage and extending upwardly therefrom, a substantially horizontal ledge extending forward from said plate and mounted in close proximity to said table for movement thereover with said carriage for supporting the inner lap of a wrapper folded about the bottom front edge of an article moved onto said table, and means coacting with said table for feeding a part of a wrapper being applied to

an article in the direction of movement of said article moved onto said table for controlling the inner lap of the wrapper relative to the underside of an article being wrapped.

37. In a wrapping machine, mechanism for controlling the position of the inner lap of the longitudinal fold of a wrapper on an article, conveying mechanism, including article feeding means constructed and arranged to translate a

partially wrapped article, and means coacting with said conveying mechanism for controlling the time of engagement of said feeding means with said article to control the position of the outer lap of said longitudinal fold of said wrapper on said article.

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