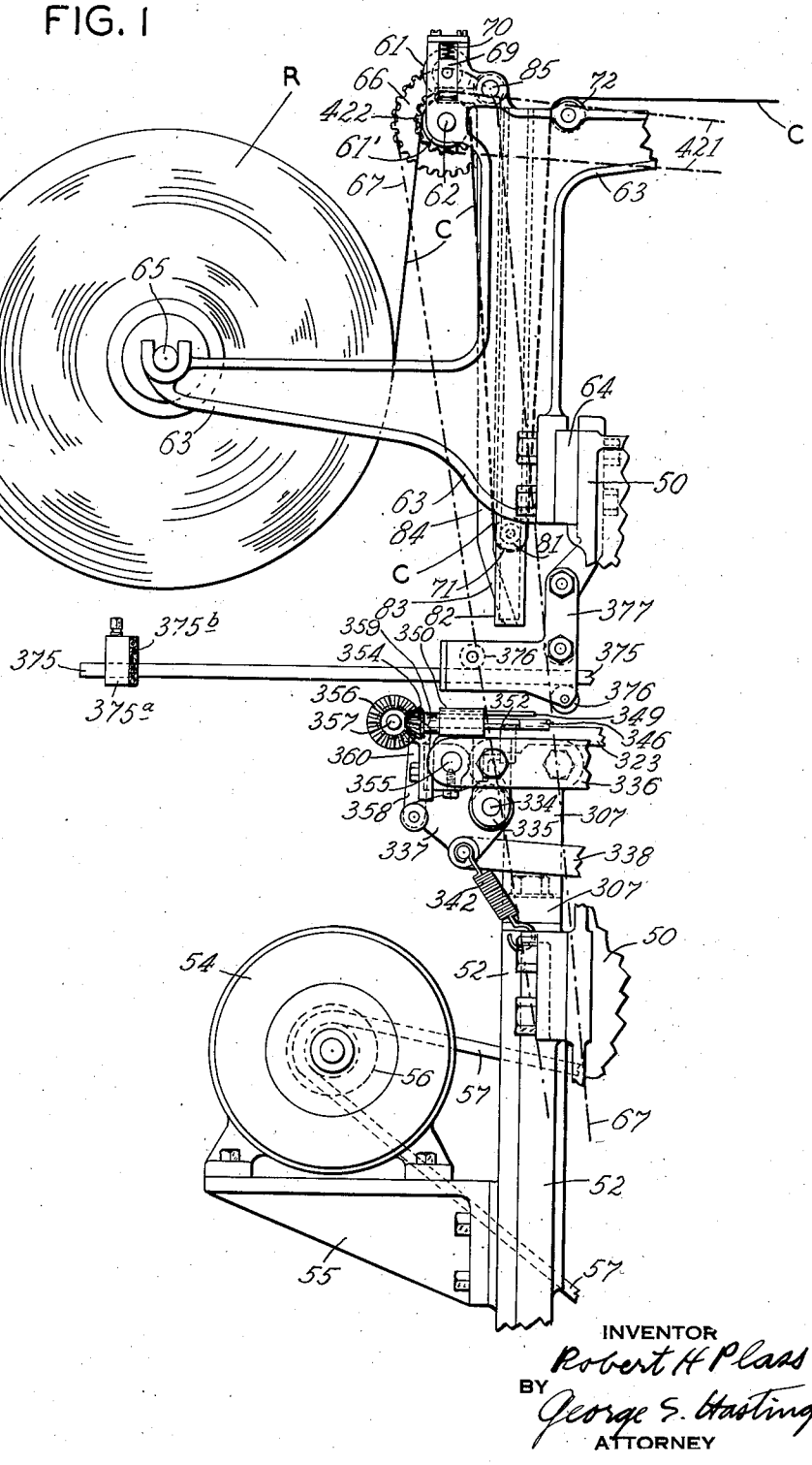
May 2, 1939. R. H. PLASS 2,156,460

SOFT-PACKAGE WRAPPING MACHINE

Filed May 28, 1935 22 Sheets-Sheet 1

FIG. 1



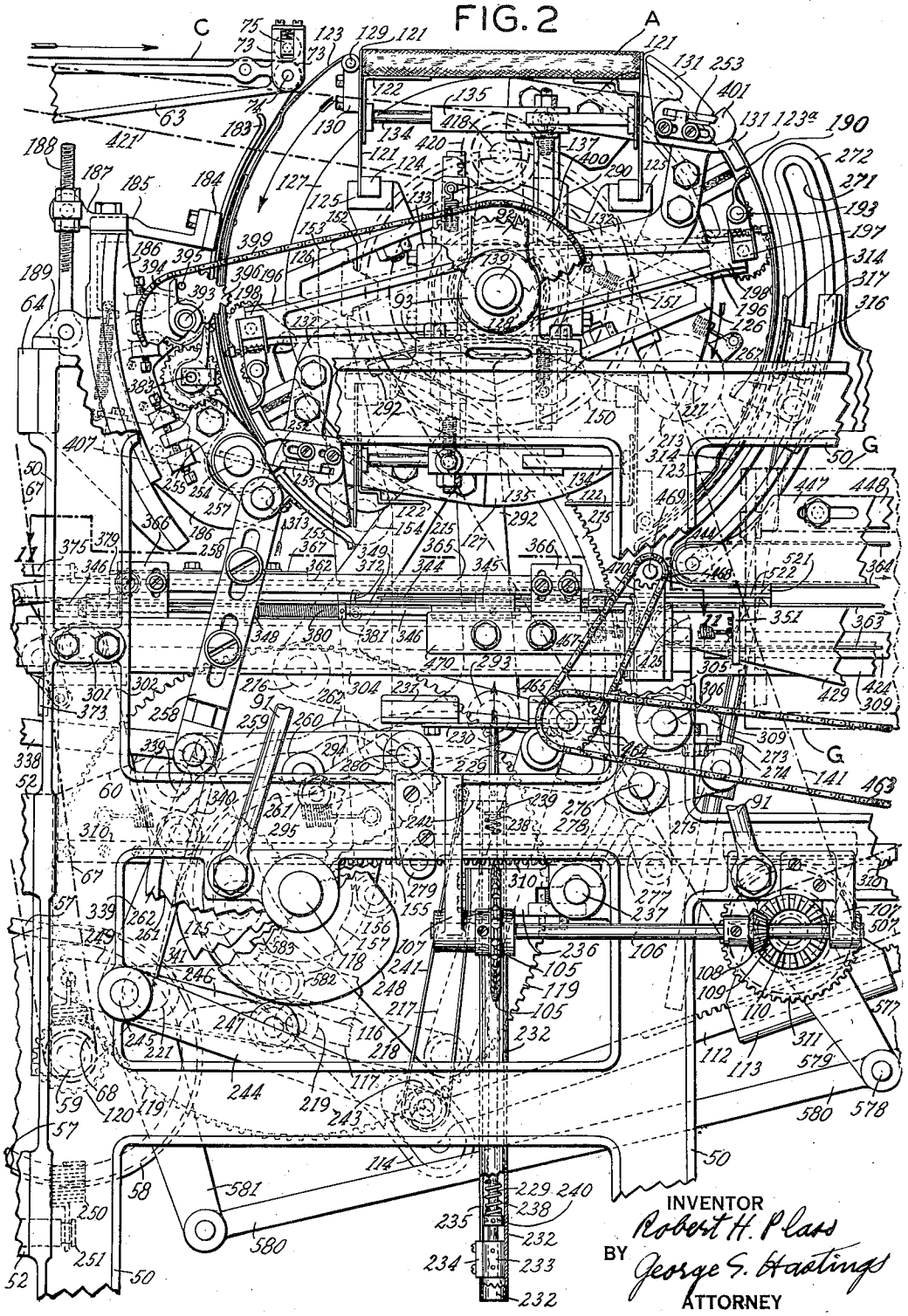
INVENTOR
Robert H Plass
BY
George S. Hastings
ATTORNEY

May 2, 1939. R. H. PLASS 2,156,460

SOFT-PACKAGE WRAPPING MACHINE

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FIG. 2



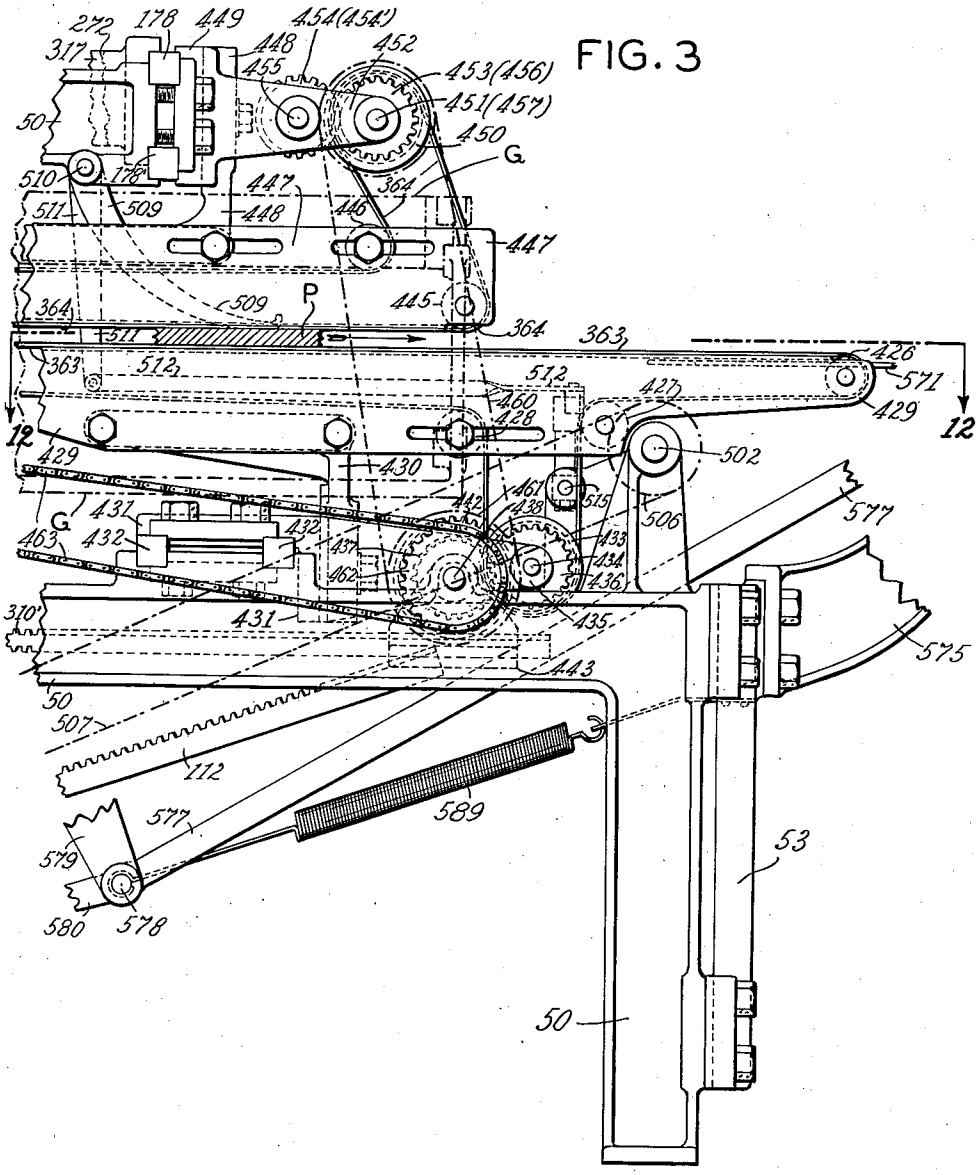
INVENTOR
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SOFT-PACKAGE WRAPPING MACHINE

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FIG. 3



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SOFT-PACKAGE WRAPPING MACHINE

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FIG. 45

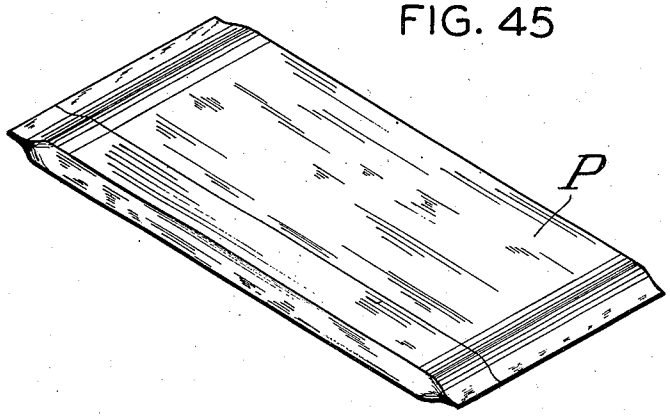
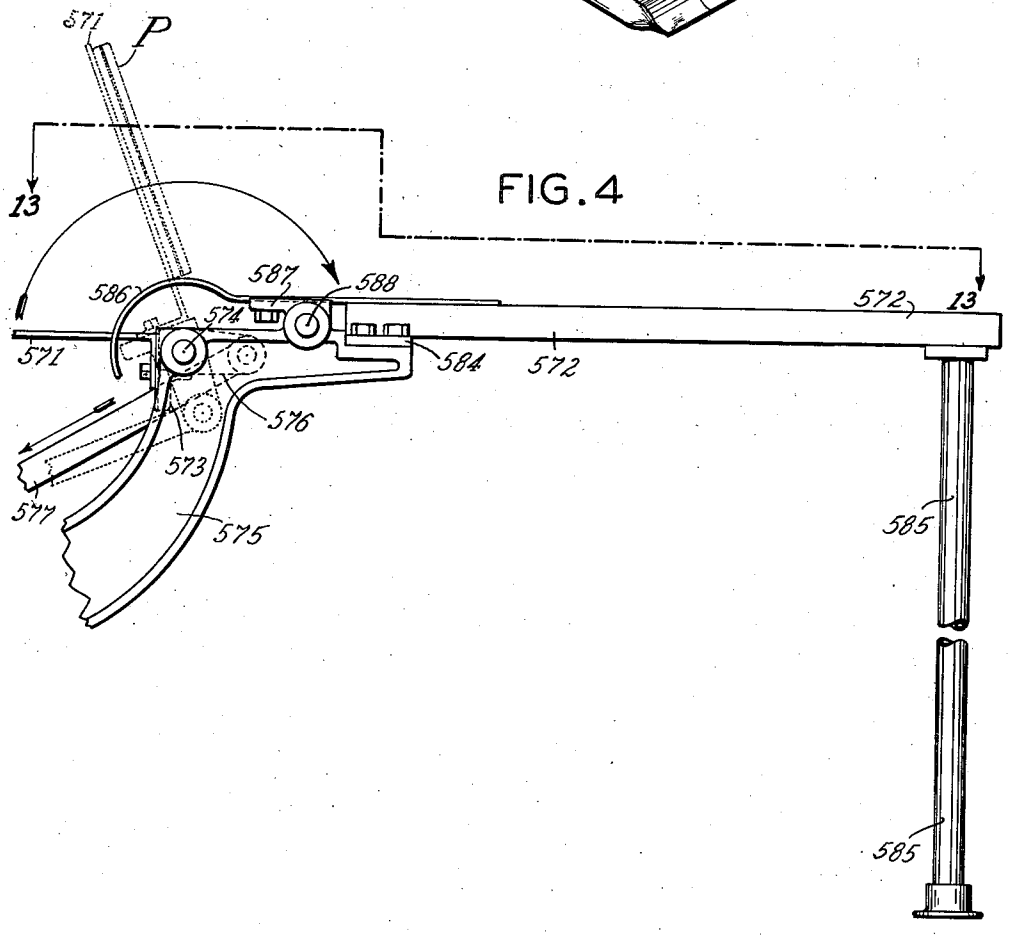


FIG. 4



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SOFT-PACKAGE WRAPPING MACHINE

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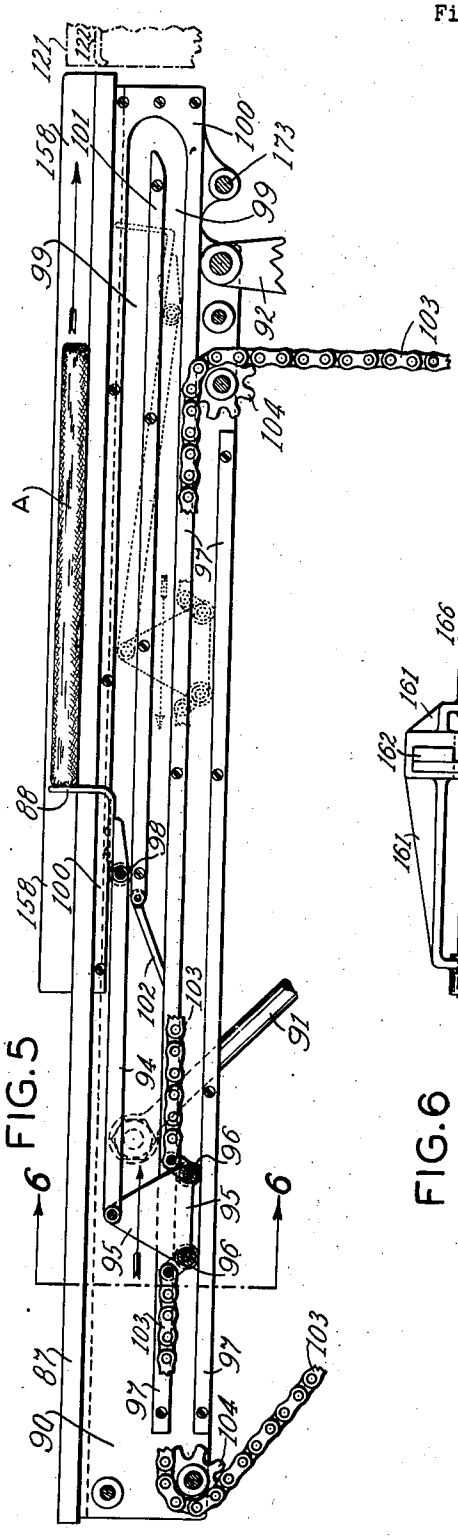


FIG. 5

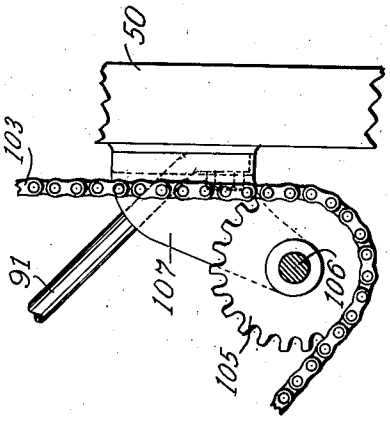


FIG. 7

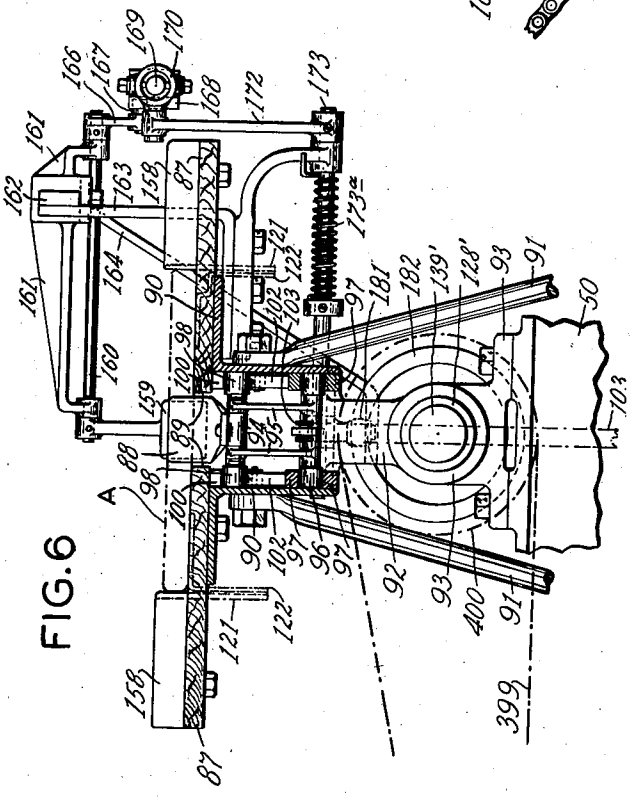


FIG. 6

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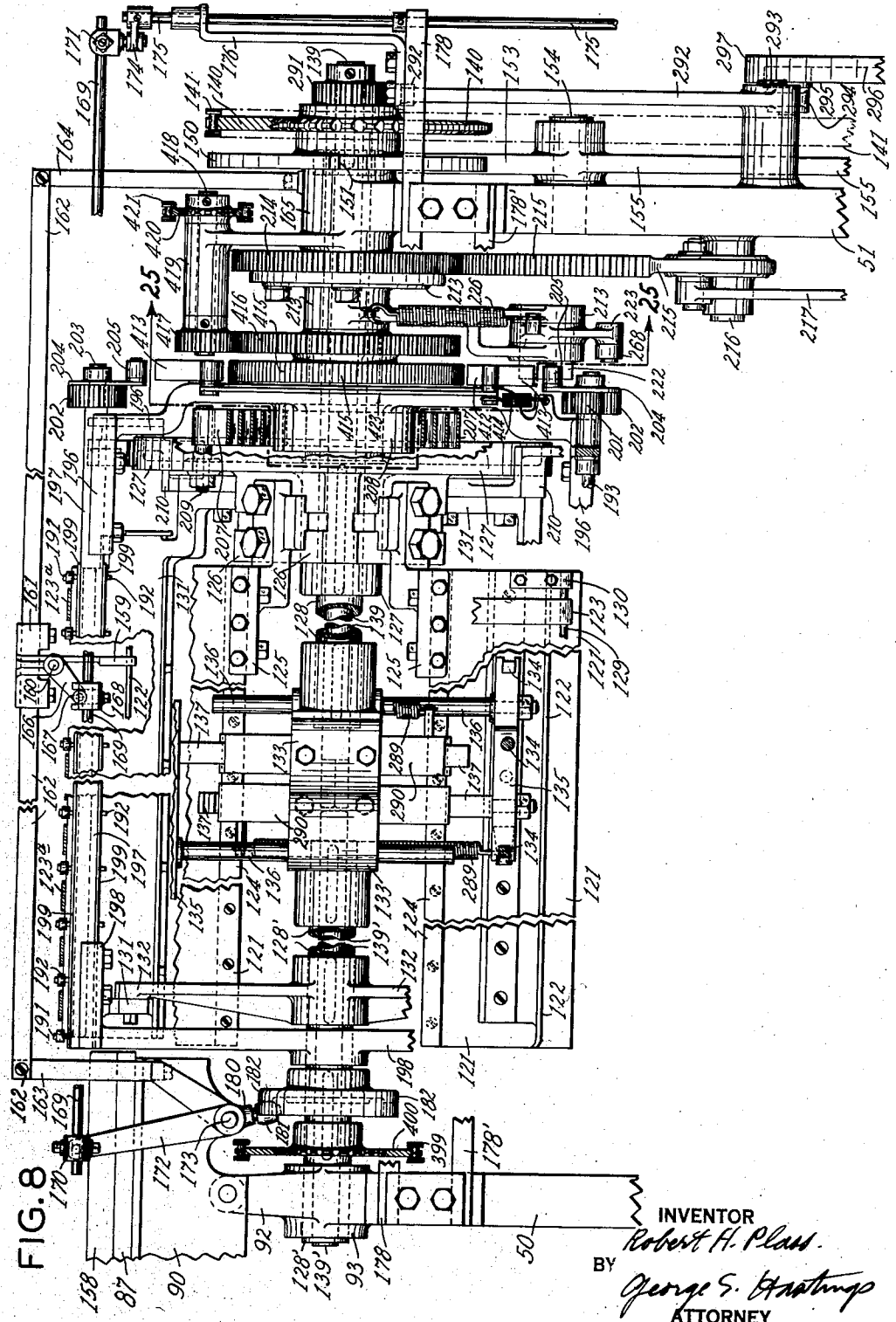


FIG. 8

INVENTOR
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SOFT-PACKAGE WRAPPING MACHINE

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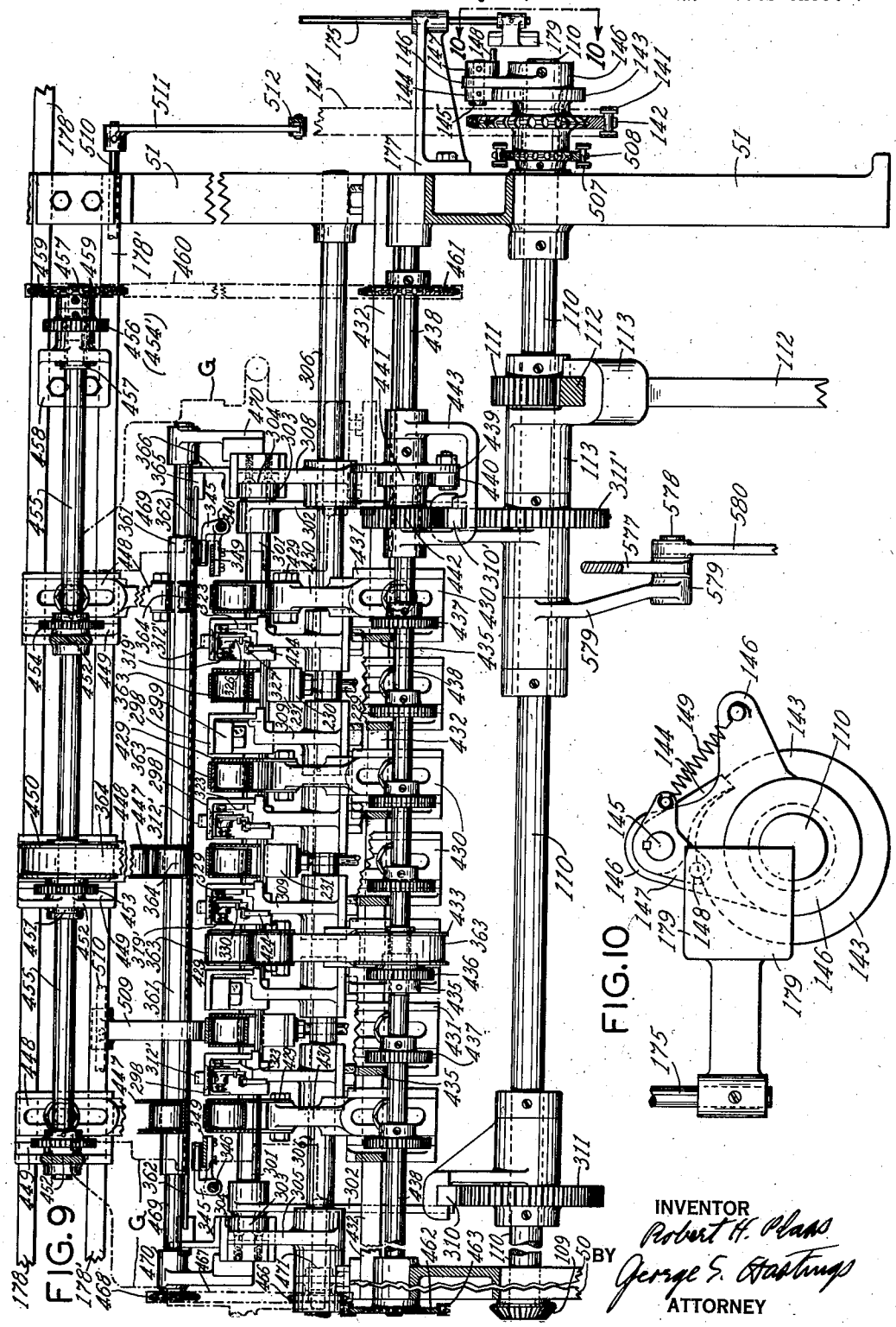


FIG. 9

FIG. 10

INVENTOR
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SOFT-PACKAGE WRAPPING MACHINE

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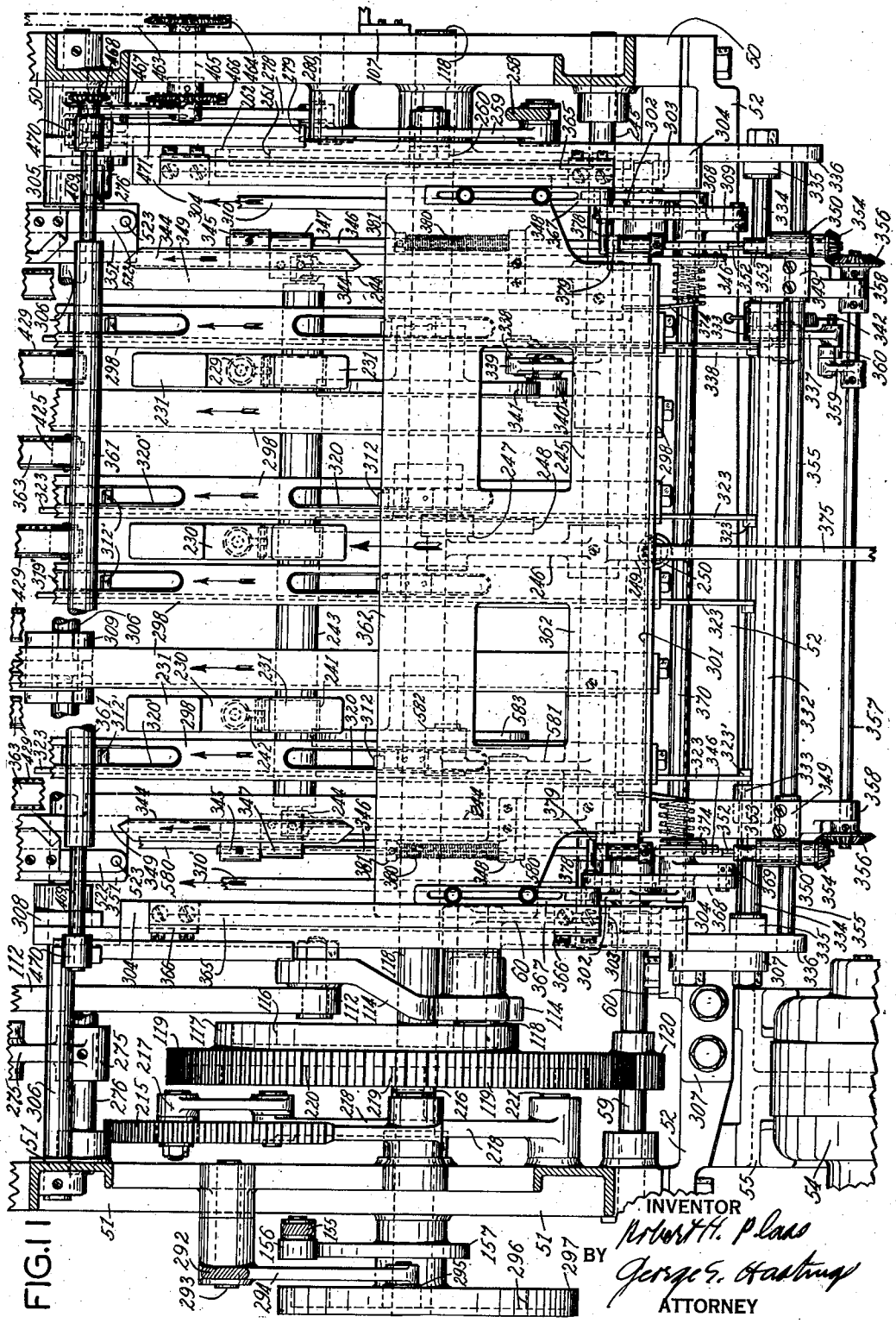


FIG. 11

INVENTOR
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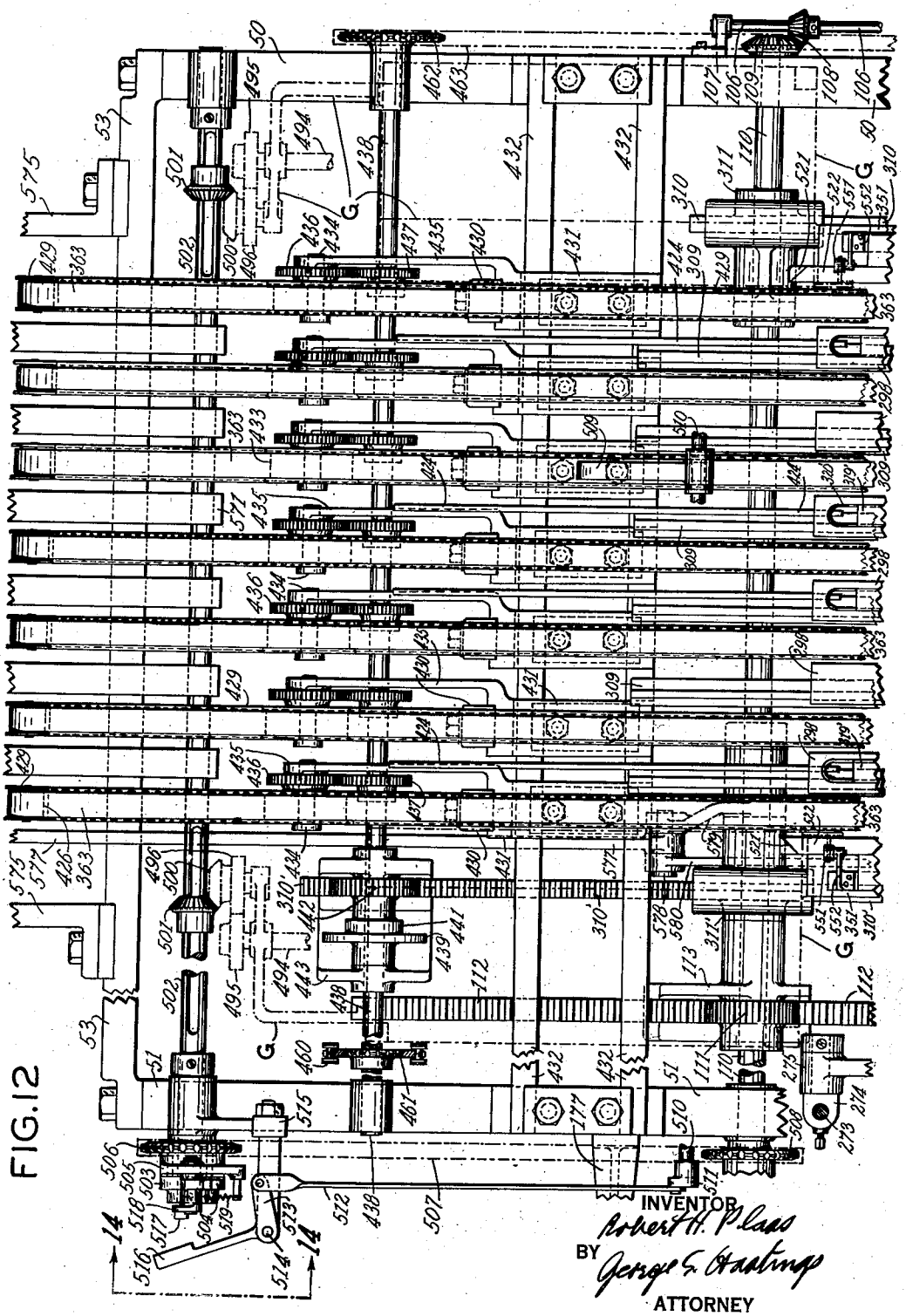


FIG. 12

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May 2, 1939. R. H. PLASS 2,156,460

SOFT-PACKAGE WRAPPING MACHINE

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FIG. 13

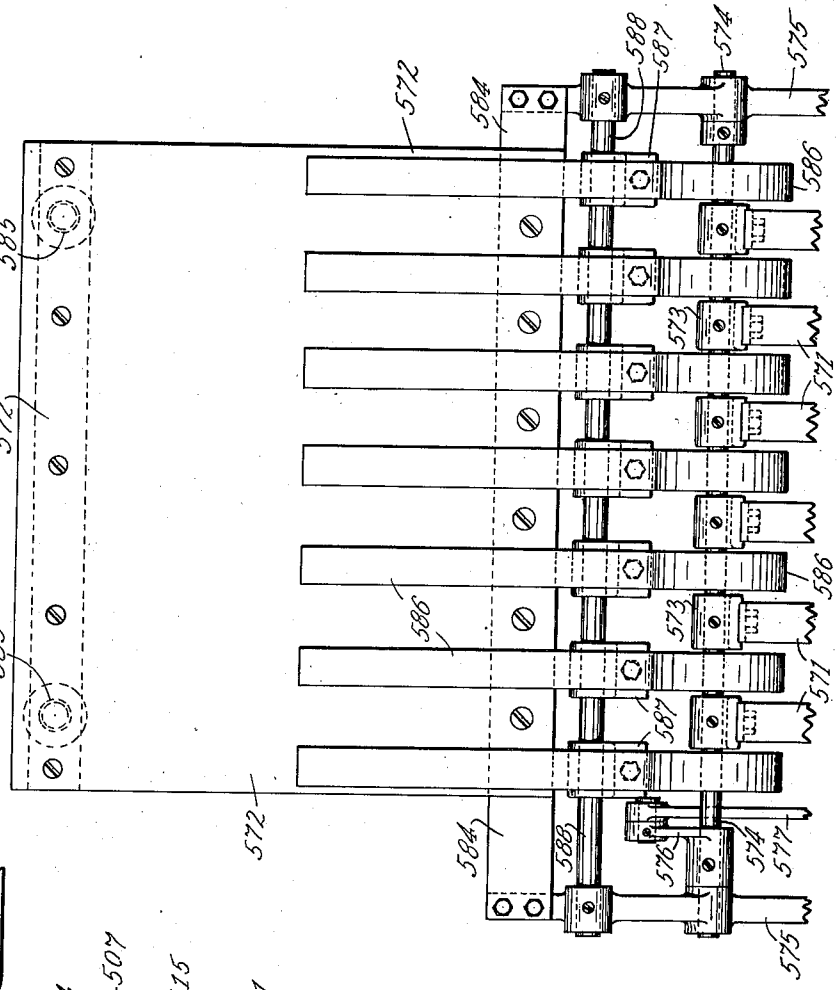
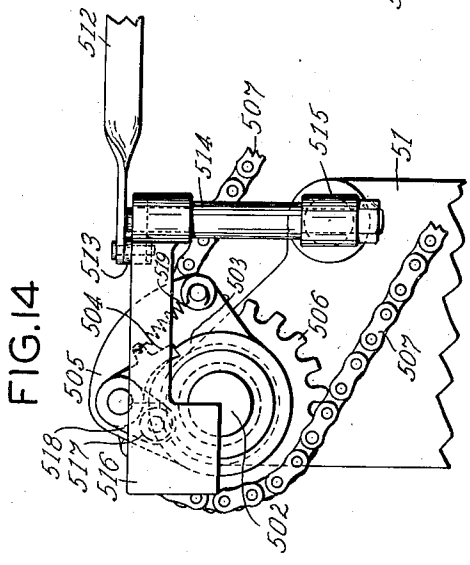


FIG. 14



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SOFT-PACKAGE WRAPPING MACHINE

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FIG.15

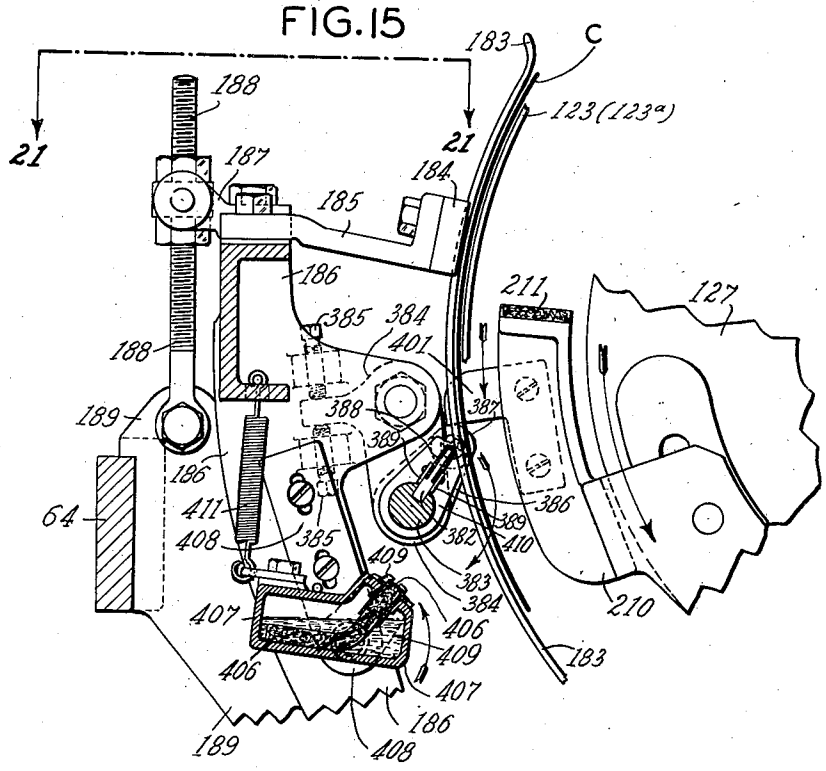


FIG.16

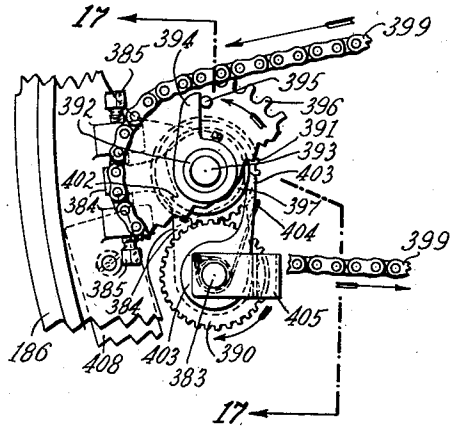
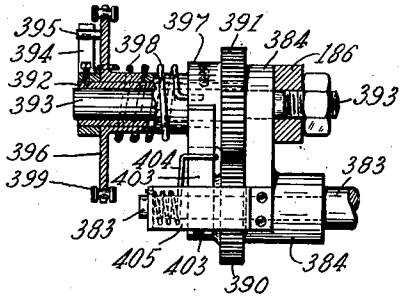


FIG.17



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SOFT-PACKAGE WRAPPING MACHINE

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FIG. 18

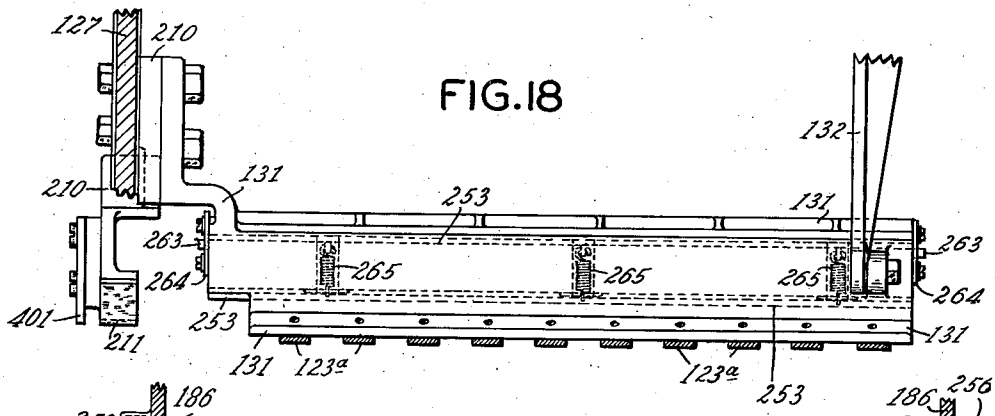


FIG. 19

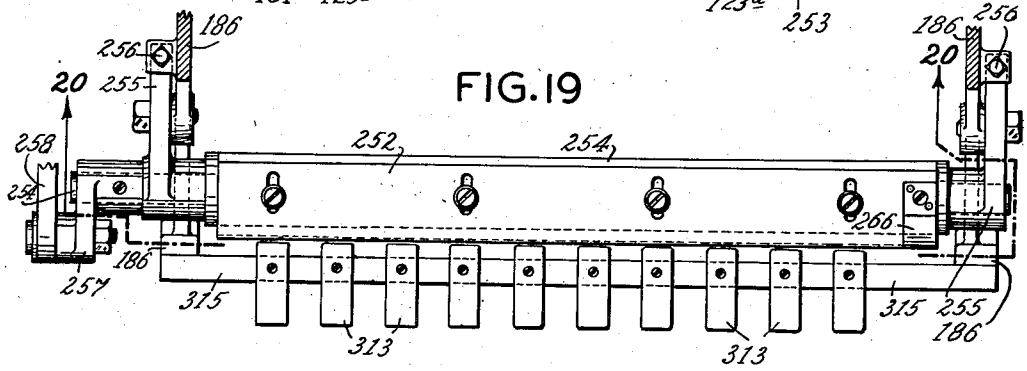


FIG. 20

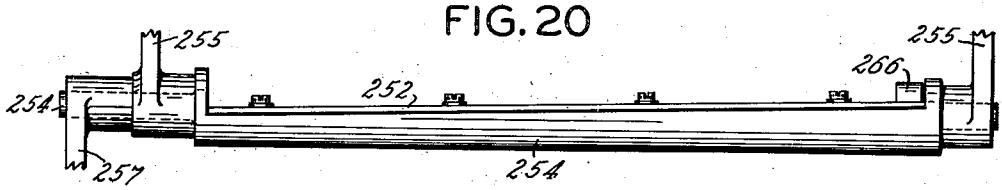
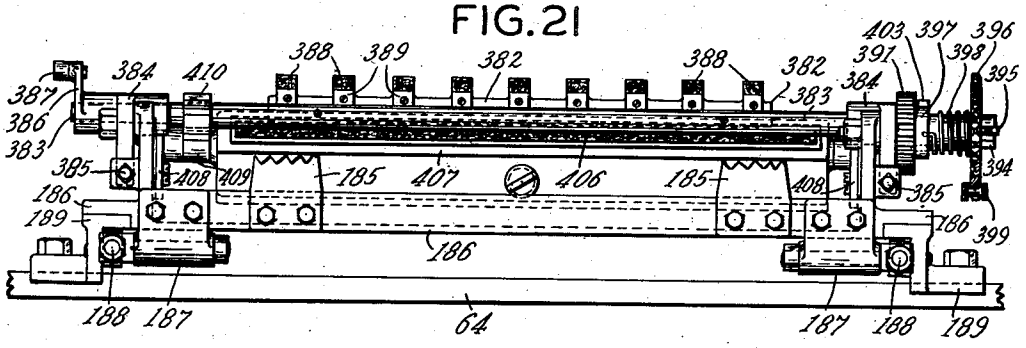


FIG. 21



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FIG. 22

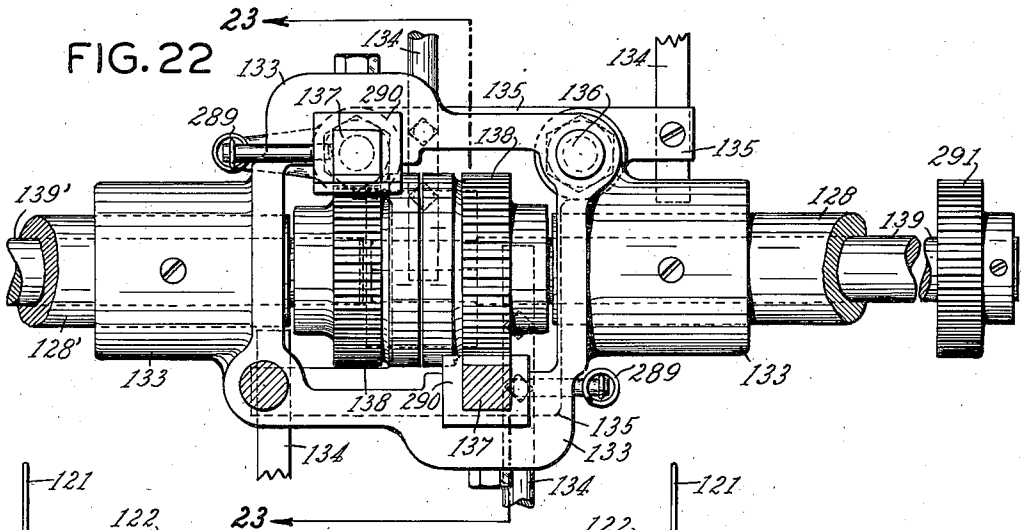


FIG. 23

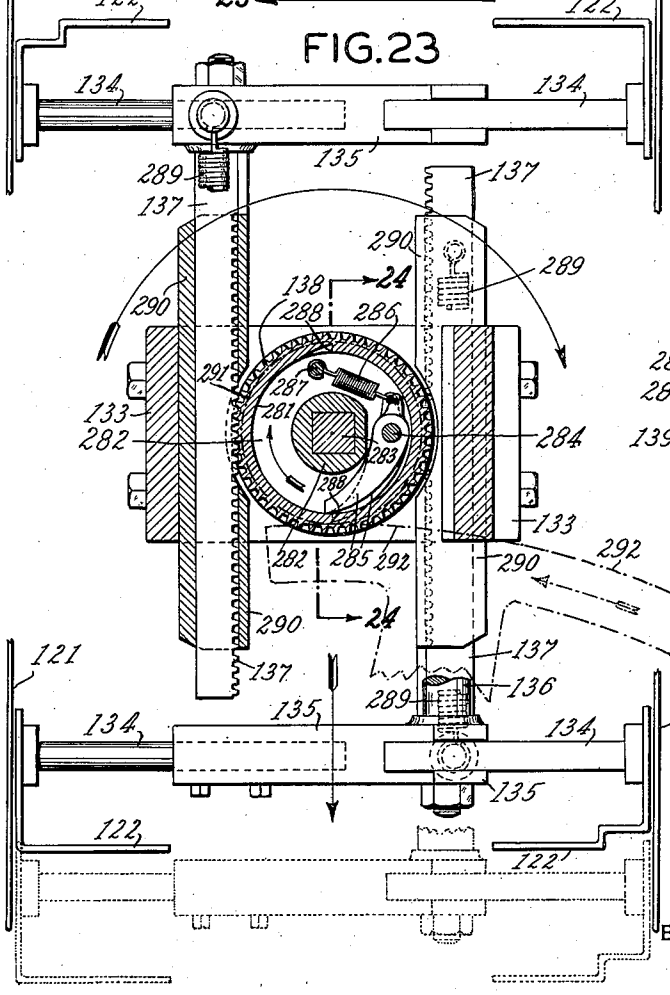
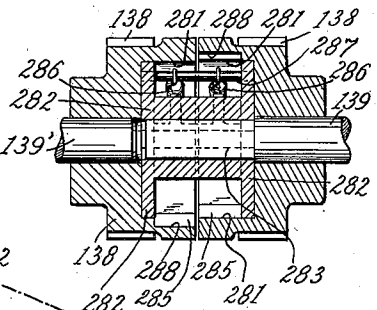


FIG. 24



INVENTOR
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SOFT-PACKAGE WRAPPING MACHINE

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FIG. 25

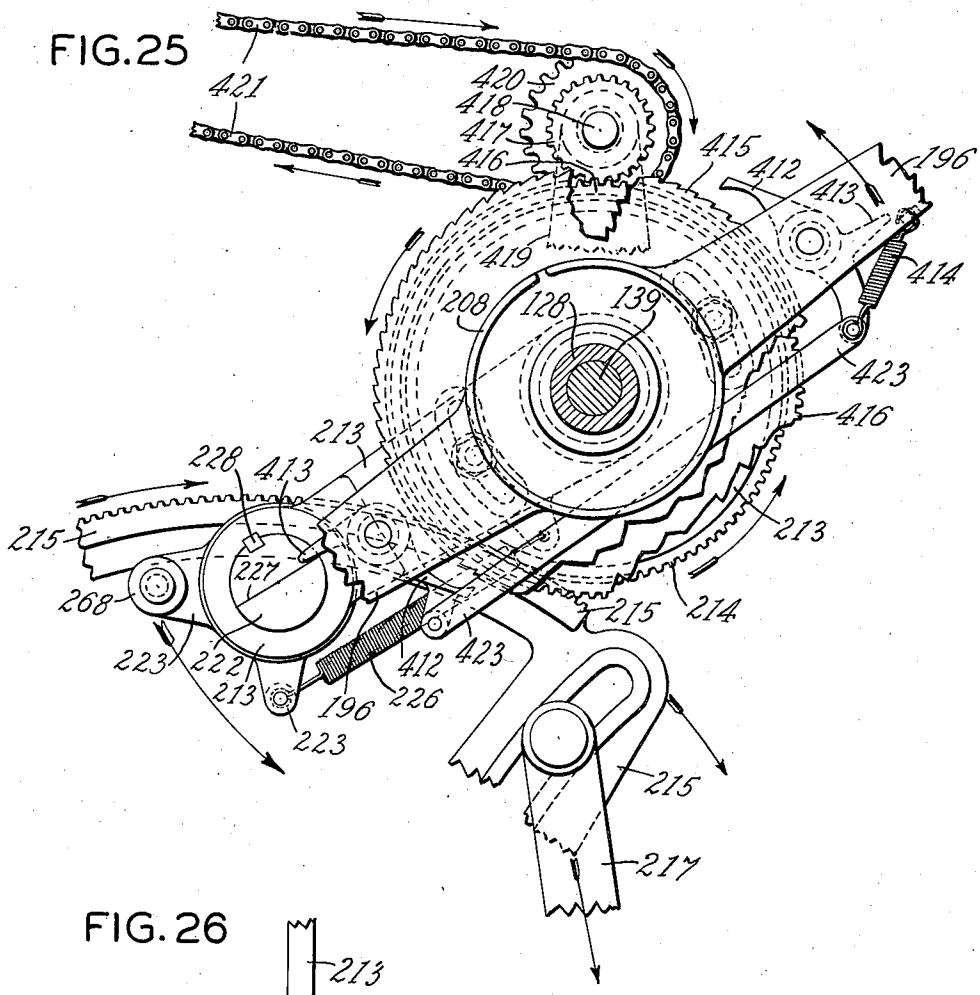


FIG. 26

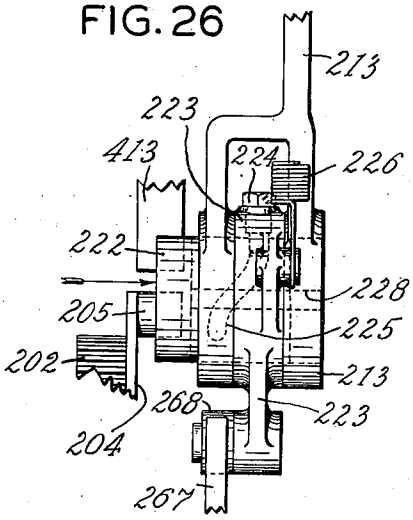
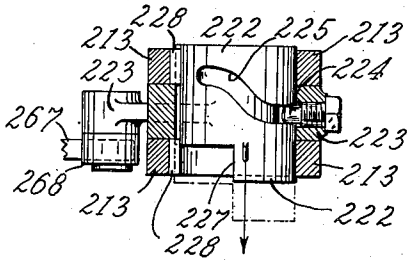


FIG. 27



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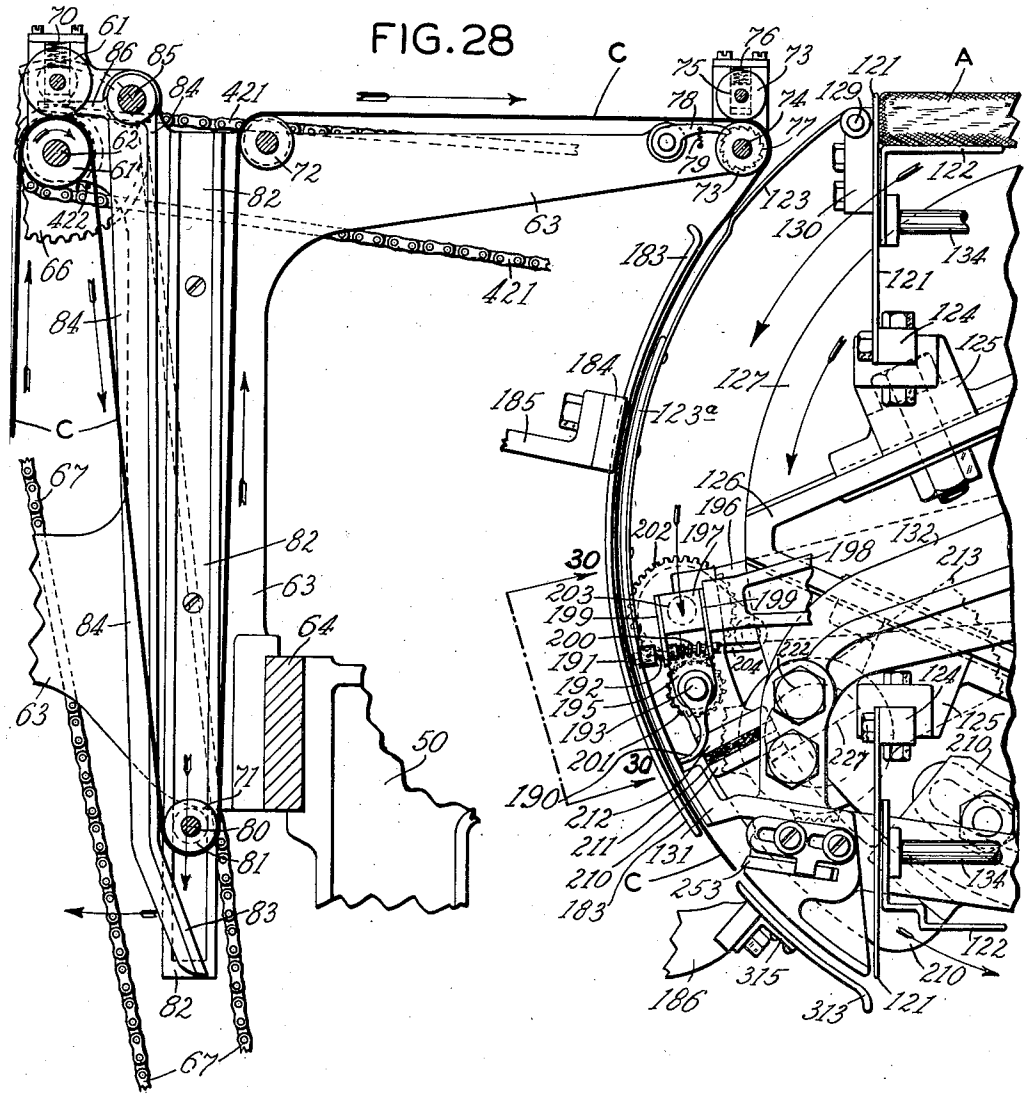
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SOFT-PACKAGE WRAPPING MACHINE

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FIG. 28



INVENTOR
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SOFT-PACKAGE WRAPPING MACHINE

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FIG. 29

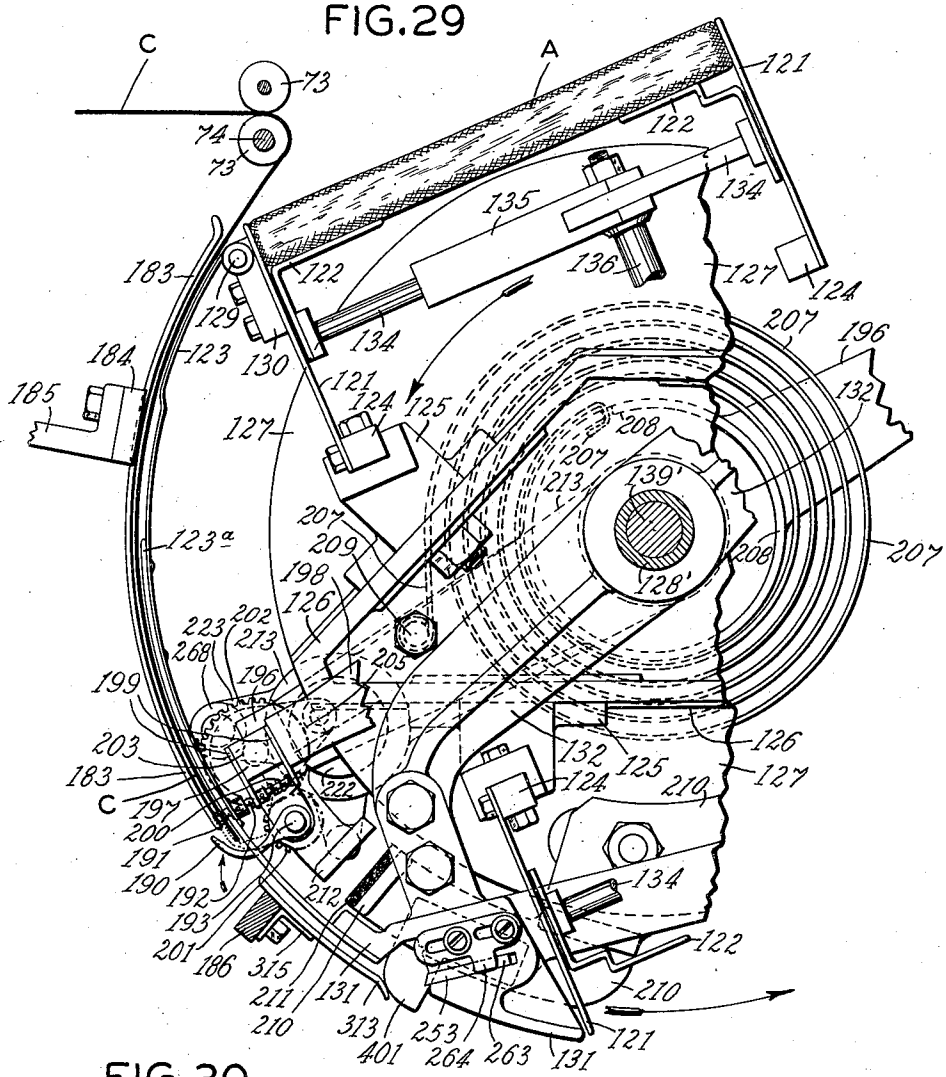
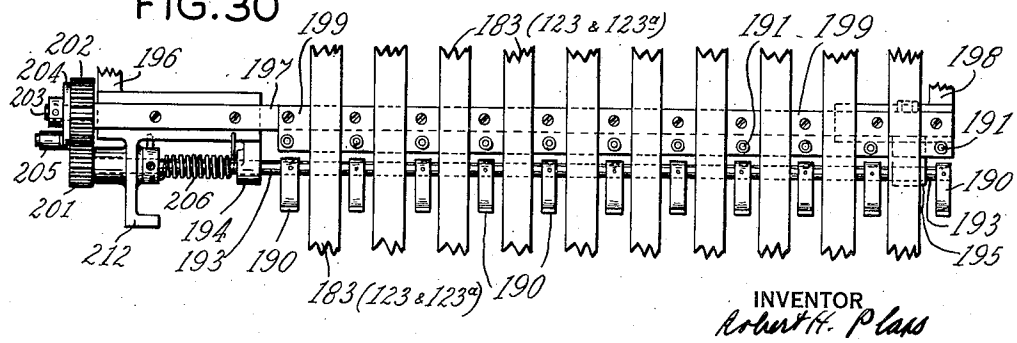


FIG. 30



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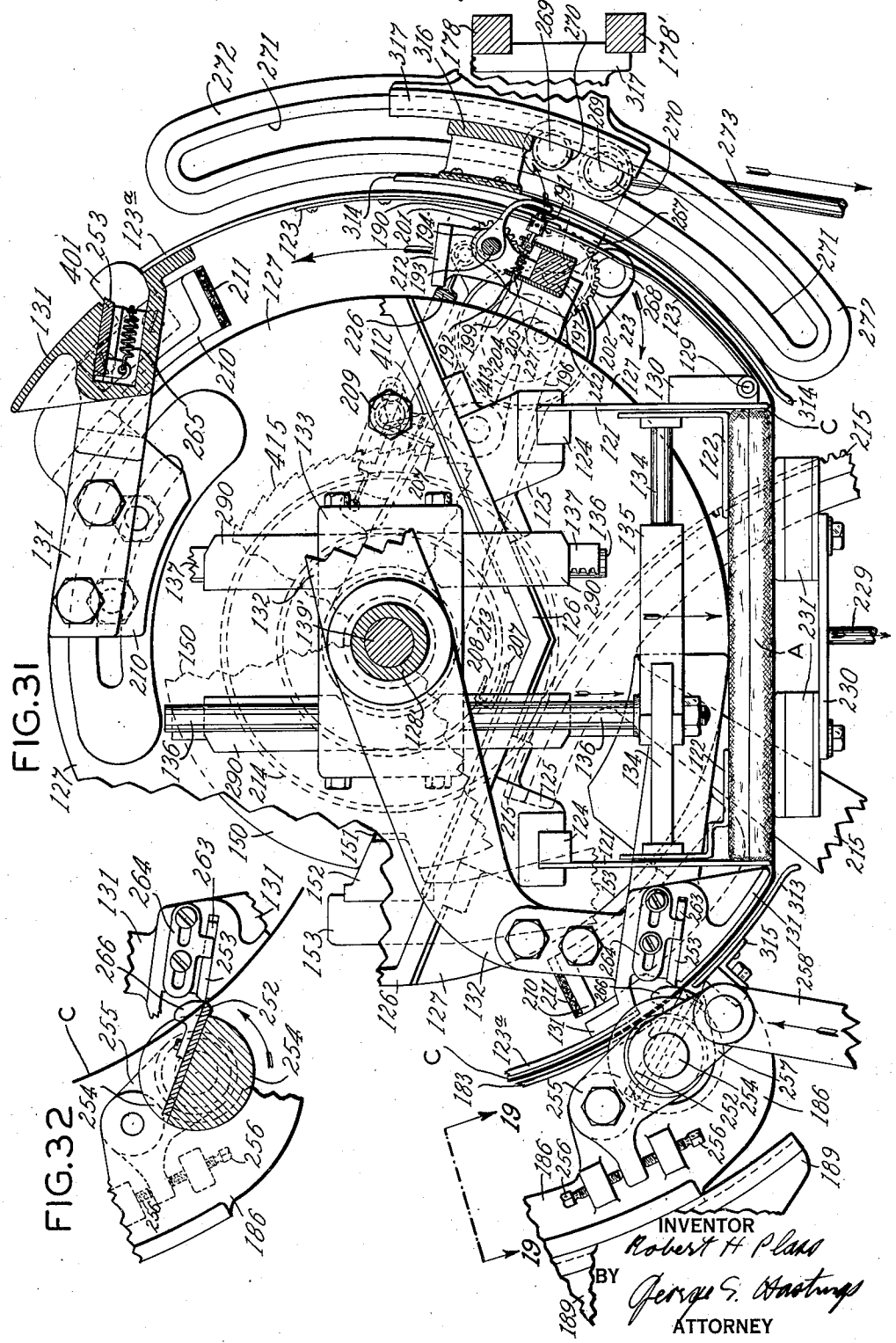


FIG. 31

FIG. 32

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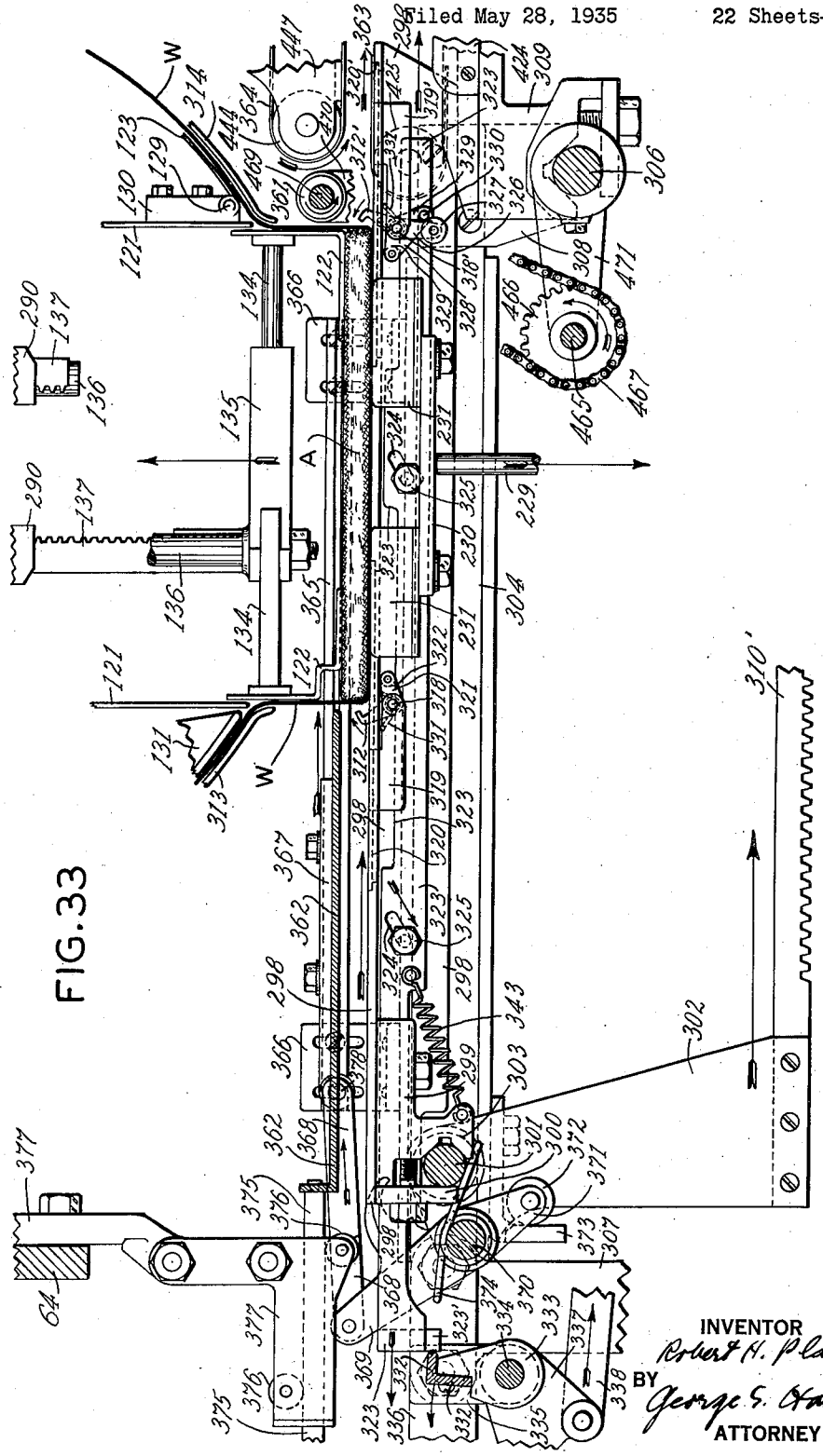


FIG. 33

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FIG. 34

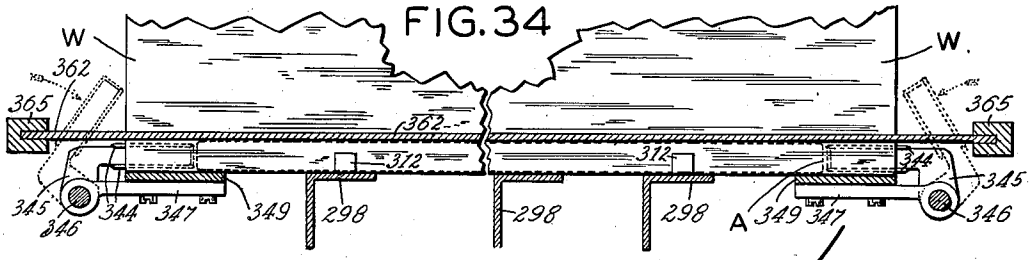


FIG. 35

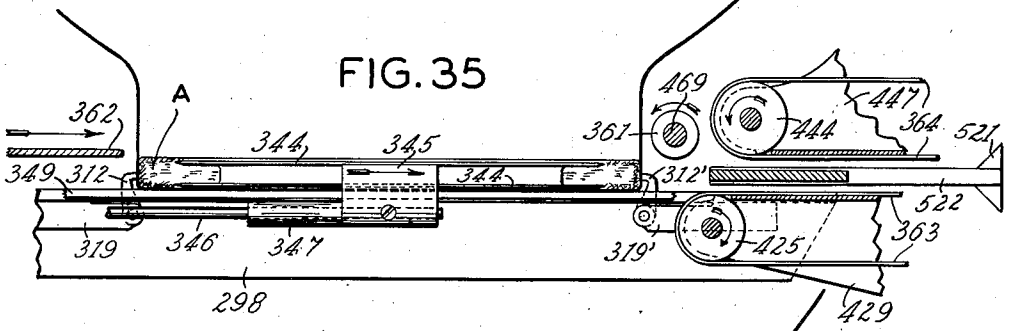


FIG. 36

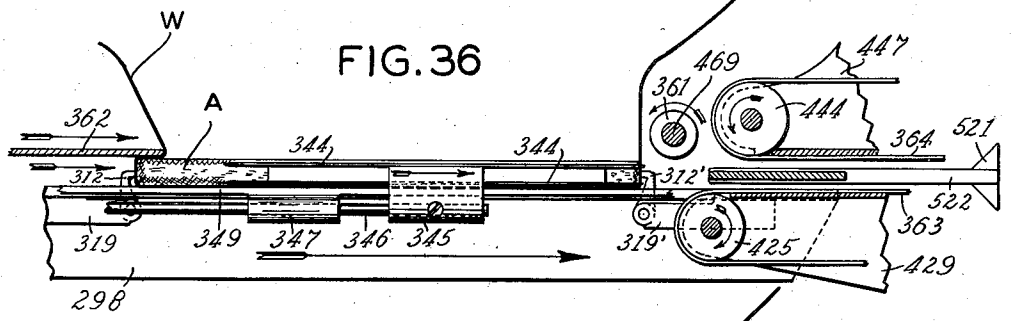
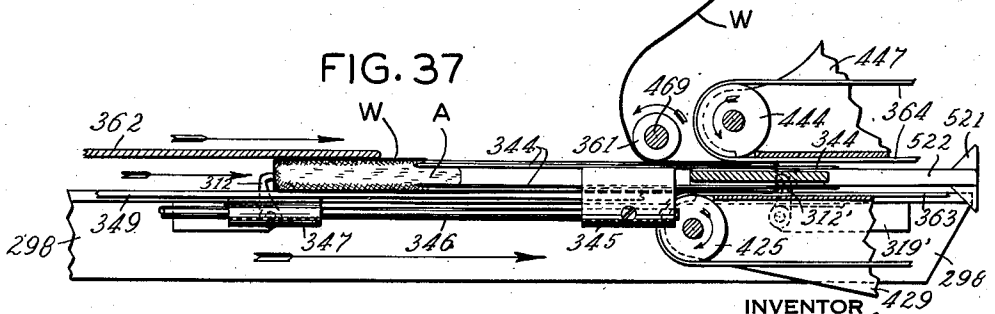


FIG. 37



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BY George S. Hastings
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SOFT-PACKAGE WRAPPING MACHINE

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FIG. 38

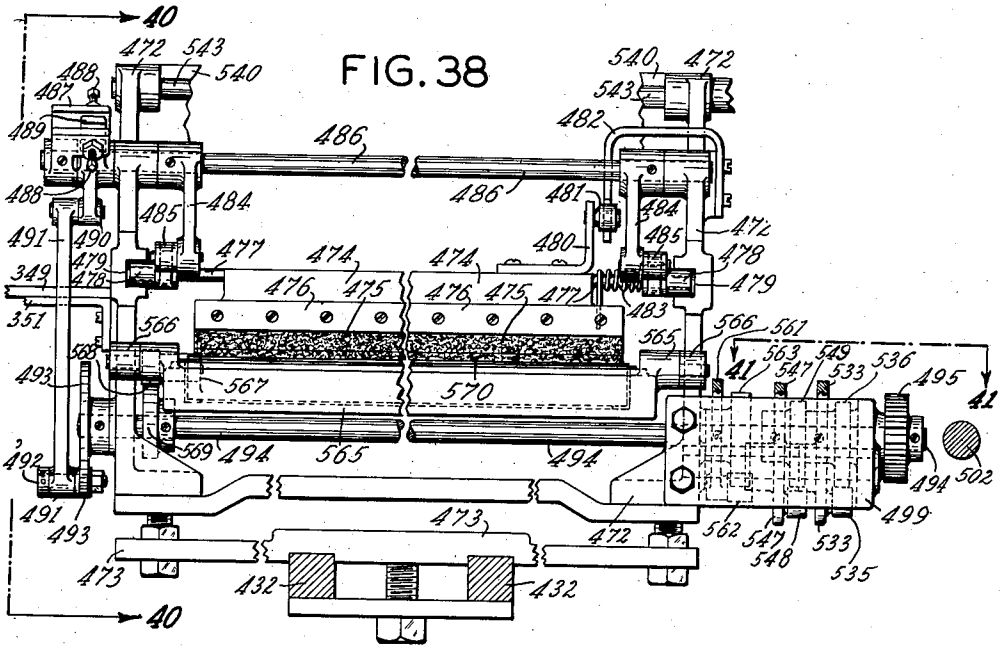
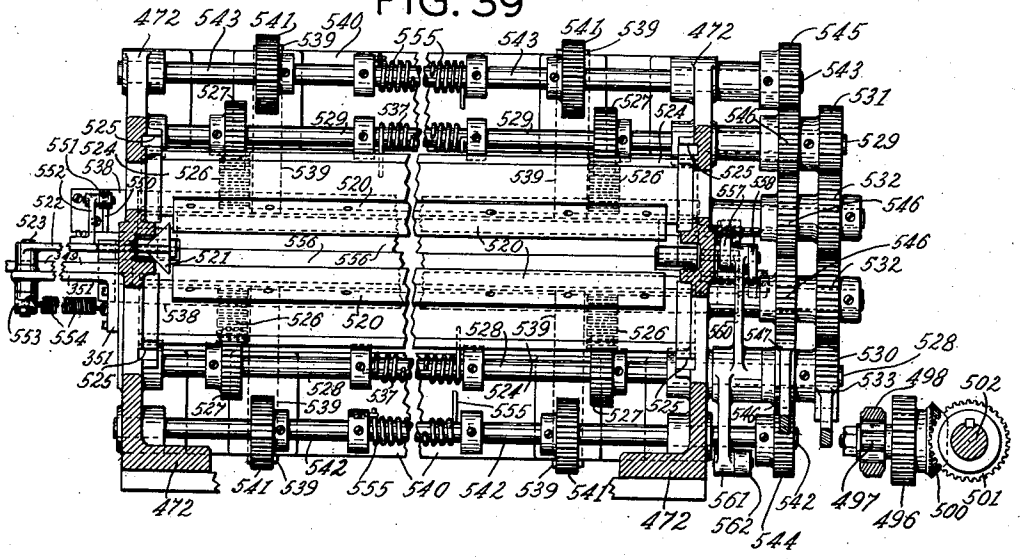


FIG. 39



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SOFT-PACKAGE WRAPPING MACHINE

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FIG. 40

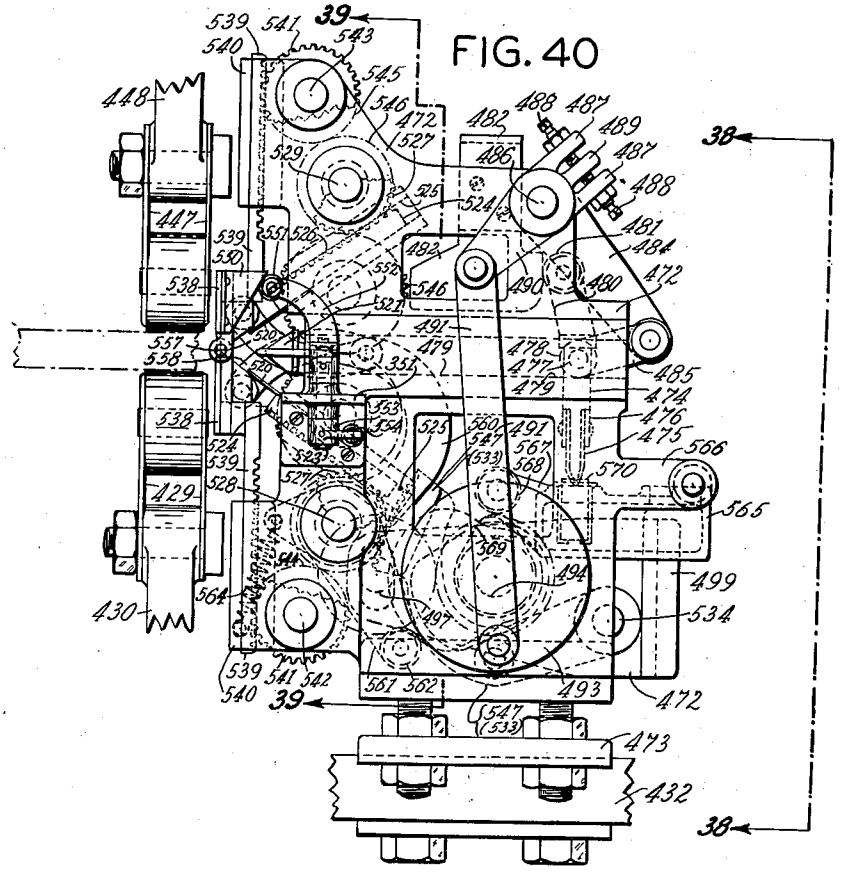
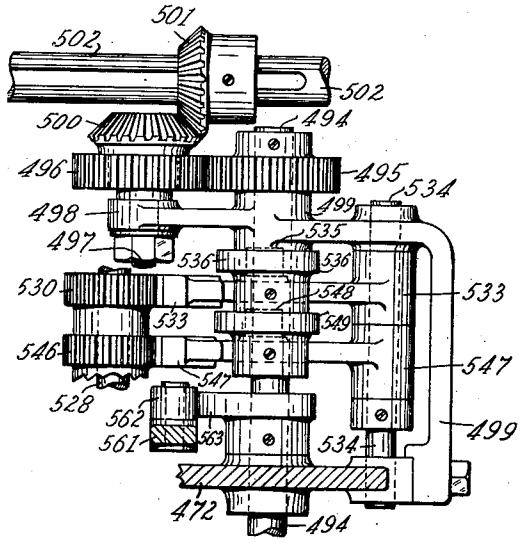


FIG. 41



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SOFT-PACKAGE WRAPPING MACHINE

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FIG. 42

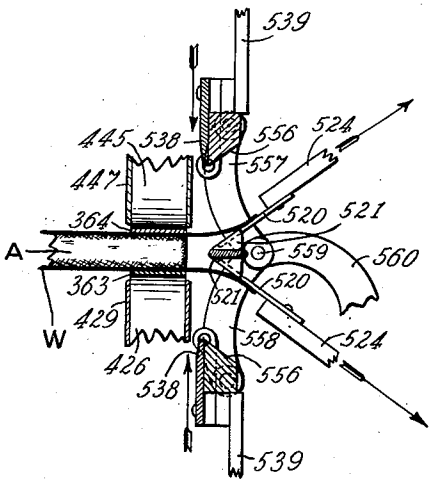


FIG. 44

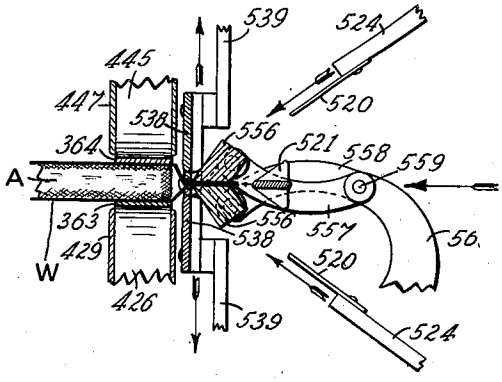
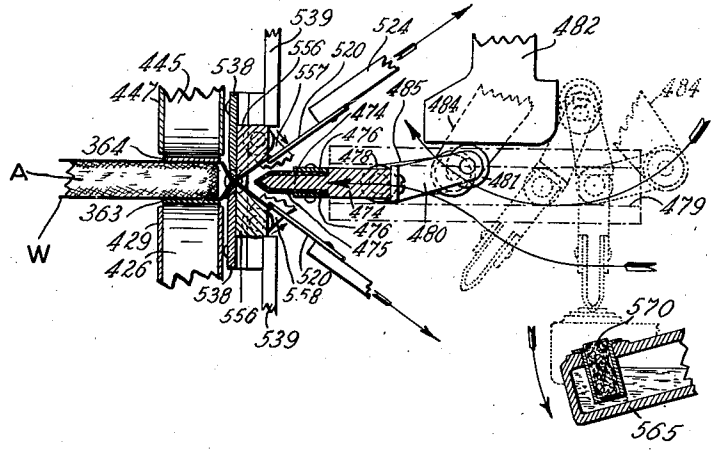


FIG. 43



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ATTORNEY

Patented May 2, 1939 2,156,460

UNITED STATES PATENT OFFICE

2,156,460

SOFT-PACKAGE WRAPPING MACHINE

Robert H. Plass, Upper Montclair, N. J., assignor to American Machine & Foundry Company, a corporation of New Jersey

Application May 28, 1935, Serial No. 23,836

46 Claims. (Cl. 93—2)

This invention relates to automatic wrapping machines, more particularly to machines for wrapping soft and flexible articles, such as shirts, towels, pajamas, underwear, etc.

While in ordinary wrapping machines the article itself is used as a core to shape the wrapper, the main object of the present invention, however, is to make a package without relying on the article for shaping the wrapper.

Another object of the invention is to form the package differently from the usual procedure followed in wrapping articles heretofore, so that they may be wrapped at higher speed. To this end there is provided an intermittently moving endless carrier having a plurality of pockets into which the articles are successively inserted, and there is also provided a set of grippers supported from an arm mounted on the axis of said carrier and moving therewith to draw the desired length of wrapping material over the filled pocket. When the carrier comes to rest the web of wrapping material is pressed against the article, in the pocket and the web is severed to provide the required length of wrapping material for the wrapper. Thereupon the article is ejected from the pocket by an ejecting plunger forming the bottom thereof and the article is enfolded in the severed wrapper, the ends of the wrapper being then suitably sealed.

A further object of the invention, therefore, is to provide a novel web-feeding mechanism which will draw the wrapping material over the filled pocket while the same is moving. Still another object of the invention is to partially enfold the article in the wrapper while it is being ejected from the pocket, and to complete its enfoldment while it is advancing to the mechanism for sealing the ends of the wrapper.

Other objects of the invention are to provide a novel mechanism for sealing the ends of the wrapper, this mechanism operating to adhesively unite the end flaps; and to provide devices for incapacitating the web-feed when no article is delivered to the pocket of the carrier and incapacitating the sealing mechanism when no package is being conveyed thereto.

While it is not essential to the operation of the machine, there is provided mechanism for slitting the portions of the wrapper overhanging the article enfolded therein. One of the objects of the invention therefore, is to provide novel mechanism for so slitting the wrapper after enfoldment of the article therein and while the same is being advanced to the end-sealing mechanism.

Since the flexibility of the article being wrapped requires that it be supported while being ejected from the pocket, a still further object is to provide a device for performing this function. In the operation of this device the wrapping material, while being severed, is held pressed against the article in the pocket, thereby holding the web taut while it is being severed.

Another object of the invention is to provide a device simple in construction for severing the web of wrapping material. In this connection, it also is a further object of the invention to provide novel mechanism for actuating the grippers, which draw the web over the filled pocket, to nip and release the leading edge of the web at the proper time; and the grippers may be so controlled that they will not release the web until it has been severed, in order to assure a square cut across the wrapping material.

To adapt the machine for articles of widely varying width and thickness, a further object of the invention is to provide a novel type of carrier comprising a turret on which the walls of the pockets are adjustable without obstructing the rotation thereof.

With these and other objects not specifically mentioned in view the invention consists in certain constructions and combinations hereinafter fully described and then specifically 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:

Fig. 1 is a side elevation of the mechanism for guiding the web of wrapping material as it is drawn off the roll, and the adjacent end of the machine;

Fig. 2 is a fragmentary side elevation of the central part of the machine, showing the article carrier and a portion of the wrapper folding mechanisms and their respective drives;

Fig. 3 is a side elevation of the delivery end of the machine, showing the mechanism for conveying the enfolded article to the delivery table;

Fig. 4 is a side elevation of the delivery table of the machine; (Figs. 1 to 4 when assembled form a complete side elevation of the machine);

Fig. 5 is a detail side elevation of the mechanism for inserting the article to be wrapped into the pockets of the carrier;

Fig. 6 is a sectional end elevation of this mechanism taken on line 6—6 of Fig. 5;

Fig. 7 is a detail view of the sprocket drive of this mechanism;

Fig. 8 is a sectional end elevation of the turret or carrier, as seen from the delivery end of the machine;

Fig. 9 is a sectional end elevation of the mechanism for conveying the enfolded package to the sealing means, as seen from the delivery end of the machine;

Fig. 10 is a detail view of the turret control mechanism taken on line 10—10 of Fig. 9;

Fig. 11 is a fragmentary plan view of the central portion of the machine taken on line 11—11 of Fig. 2;

Fig. 12 is a fragmentary plan view of the conveyor mechanism portion of the machine taken on line 12—12 of Fig. 3;

Fig. 13 is a plan view of the delivery table of the machine taken on line 13—13 of Fig. 4; (Figs. 11 to 13 when laid end to end form a complete sectional plan view of the machine).

Fig. 14 is a detail side elevation of the wrapper gluing unit control mechanism as viewed from line 14—14 of Fig. 12;

Fig. 15 is a sectional side elevation of the top fold glue applying mechanism;

Fig. 16 is a detail side view of the same, showing the driving mechanism;

Fig. 17 is a detail sectional view of the glue applying driving mechanism taken on line 17—17 of Fig. 16;

Fig. 18 is a detail plan view of the web-severing mechanism;

Fig. 19 is a plan view of the web-severing knife taken on line 19—19 of Fig. 31;

Fig. 20 is an end elevation of the knife taken on line 20—20 of Fig. 19;

Fig. 21 is a plan view of the top fold glue applying mechanism taken on line 21—21 of Fig. 15;

Fig. 22 is a sectional plan view of the mechanism for ejecting the articles from the pockets of the turret;

Fig. 23 is a sectional side elevation of the same taken on line 23—23 of Fig. 22;

Fig. 24 is a cross-section taken on line 24—24 of Fig. 23;

Fig. 25 is a sectional side elevation of the control and operating mechanisms for the web-feeding arms, taken on line 25—25 of Fig. 8;

Fig. 26 is a partial end elevation of this control mechanism;

Fig. 27 is a detail sectional view of the same showing the control plunger thereof in retracted position;

Fig. 28 is a detail side elevation of the web-feeding mechanism and the web guide strips of the turret;

Fig. 29 is a sectional side elevation illustrating the mechanism on the feeding arm for clamping and feeding the web of wrapping material;

Fig. 30 is an end elevation of the web-feeding arm and its web-gripping mechanism, taken on line 30—30 of Fig. 28;

Fig. 31 is a sectional side elevation showing how the web is drawn over the article to be wrapped the latter being carried in one of the pockets of the carrier turret;

Fig. 32 is a detail sectional view of the web-severing knife in engagement with the shearing-plate;

Fig. 33 is a sectional side elevation illustrating the delivery of the article and wrapper blank from the turret onto the slidable transfer table; (Figs. 28, 29, 31 and 33 illustrate the successive steps and movement of the article and wrapper up to the time of their removal from the turret);

Fig. 34 is a sectional end elevation showing how the article and wrapper blank are positioned upon the slidable transfer table;

Figs. 35 to 37 are sectional side elevations showing the successive steps of the top folding operation, and the slitting operation performed on the wrapper ends;

Fig. 38 is a side elevation of one of the wrapper gluing units, taken on line 38—38 of Fig. 40;

Fig. 39 is a sectional side elevation of the same taken on line 39—39 of Fig. 40;

Fig. 40 is an end elevation of the gluing unit taken on line 40—40 of Fig. 38;

Fig. 41 is a fragmentary plan view of the driving mechanism of the gluing unit, taken on line 41—41 of Fig. 38;

Figs. 42 to 44 are sectional views illustrating the successive steps of the operation of the gluing unit in sealing the ends of the package; and

Fig. 45 is a perspective view of the finished package produced by the machine disclosed herein.

In carrying the invention into effect there is provided a traveling carrier having a plurality of pockets, a device for inserting articles into said pockets successively, mechanism for feeding a web of wrapping material across each pocket while it is traveling after it is filled and then severing a wrapper blank from the web, means for ejecting the article from each filled pocket and partially enfolding it in the severed wrapper blank with the latter overhanging the ends of the article, means for completing the enfoldment of the article in the wrapper, means for slitting the portions of the wrapper overhanging the article, and means for adhesively uniting the separated flaps formed by the slitting operation. In the best constructions contemplated there is also provided mechanism for applying adhesive to the web of wrapping material at sections which subsequently form one margin of the wrappers severed therefrom, in order that the seam formed by overlapping the margins of the wrapper during the enfoldment of the article in the wrapper may be sealed during the enfolding operation; means for incapacitating the web-feeding mechanism when said device fails to deliver an article to the carrier pockets; means for conveying the completely enfolded packages past the flap-uniting means; and means for incapacitating the flap-uniting means and adhesive applying mechanism when there is no package in the conveying means. These various means and parts may be widely varied in construction for the particular machine selected to illustrate the invention is but one of many possible concrete embodiments of the same. The invention, therefore, is not to be restricted to the specific construction shown and described.

The entire machine is supported by two main frames, namely a front frame 50 and a rear frame 51. Frames 50 and 51 are connected to each other by means of an end frame 52, (Fig. 1) and an end frame 53 (Fig. 3). The entire machine is driven by means of an electric motor 54 mounted on a bracket 55 attached to the end frame 52. The shaft of the motor 54 is equipped with a pulley 56 driving, by means of a belt 57 (Fig. 1), a pulley 58 (Fig. 2) mounted on the main drive shaft 59 which is supported in bearings of the rear frame 51 and a bearing bracket 60 (Fig. 2) attached to end frame 52.

The wrapping material, which may be in the form of a web C of "Cellophane" or other suitable type of regenerated cellulose, or cellulosic material such as paper, is pulled from a roll R (Fig. 1) by a pair of feed rollers 61 and 61'. The

lower feed roller 61 is mounted on a shaft 62 supported in bearings provided in a pair of feed brackets 63 secured to a horizontal tie-bar 64 fastened at its ends to frames 50 and 51. Roll R is supported on a shaft 65 loosely supported in bearings of feed bracket 63. To shaft 62 is attached a sprocket 66 constantly driven by means of a chain 67 (Figs. 1 and 28), from a sprocket 68 (Fig. 2) mounted on the main drive shaft 59. The upper feed roller 61 is journaled in vertically slidable bearings 69 and yieldingly pressed down on the lower feed roller by compression springs 70 seated in brackets 63.

From the feed rollers 61 the web of wrapping material C is guided over a floating roller 71 and a guide roller 72 (Figs. 1 and 28) and through a pair of tension rollers 73 (Figs. 2 and 28).

The lower tension-roller is mounted on a shaft 74 supported in bearings of brackets 63, and the upper tension-roller 73 is journaled in vertically slidable bearings 75 (Fig. 28) and yieldingly held down on the lower tension-roller by compression springs 76 seated against the brackets 63. These tension-rollers 73 are not driven in any way, but on shaft 74, carrying the lower tension-roller, is mounted a ratchet 77 (Fig. 28), engaged by a pawl 78 pivoted on the inner side of one of the brackets 63. To assure constant engagement of pawl 78 with the ratchet 77, a tension spring 79 is connected to the pawl. This pawl-and-ratchet arrangement is employed for the purpose of allowing the tension-roller 73 to turn only in the direction in which the wrapper web C is fed through the machine, thus preventing the web C from slipping backward therebetween under the weight of the floating roller 71 upon the same.

Each end of the floating roller 71 is equipped with studs 80 on which are pivoted guide rollers 81 engaging in vertical guide rails 82 fastened to the inner side of each of the two brackets 63. Thus, the floating roller 71, in a well known manner, provides a constant supply of wrapping material and also maintains a constant tension on the same, although the wrapping material is advanced only intermittently by the machine. An extra supply of wrapping material is thereby stored in the form of a loop, doubled back over the floating roller 71 while the latter descends in the guide rails, as will be presently described. When enough wrapping material has been stored in this loop the roller 71 during its downward movement comes in contact with the bent end 83 (Fig. 28) of a control lever 84, thereby swinging said lever 84 on its fulcrum 85 and causing nose 86 extending from its hub to lift the upper feed roller 61 from the lower continuously driven feed roller 61 and thereby stop the feeding of the web C.

An article A to be wrapped is placed, (see Fig. 5), by the attendant upon a feed table 87 from which it is pushed endwise by an intermittently reciprocating pusher plate 88, into one of the pockets 121 of a carrier described hereinafter. The feed table 87, which is provided with a longitudinal slot 89, is mounted on a pair of supporting members such as angle-irons 90. These members are supported at one end by a pair of rods 91 (Figs. 5, 6 and 7), fastened at their lower ends to the front frame 50 (Fig. 2). At their other ends the members 90 are supported by a vertical lug 92 extending from a pedestal 93 attached to front frame 50 (Fig. 6). Pusher plate 88 is mounted on an arm 94 pivoted on a sliding block 95 (Figs. 5 and 6) equipped with guide rollers 96 engaging between guide rails 97 attached to the supporting members 90. To the free end of the arm 94 are pivoted a pair of cam rollers 98 engaging in loop-shaped cam tracks 99 formed by a main member 100 and a central dividing rail 101, attached to each of the angle-irons 90. During the reciprocating motion imparted to arm 94 from sliding block 95 the position of the free end of arm 94 to which the pusher plate 88 is fastened, is controlled by the cam rollers 98 as they move along in the loop track 99 (Fig. 5). While the arm 94 is moving forward its cam rollers 98 run in the upper portion of track 99, causing the pusher plate 88 to engage with the article A to be wrapped and pushes the same into one of the pockets of the carrier. Upon the backward motion of arm 94 the rollers 98 drop into the lower portion of loop track 99 (see dotted position of plate 88 and arm 94 in Fig. 5) and allows the plate 88 to pass underneath the succeeding article which, in the meantime, is placed on the feed table 87 by the operator. In order to return the rollers 98 to the upper portion of loop track 99, a bridge plate 102 is loosely hinged to each central dividing rail 101, thus allowing rollers 98 to pass below plate 102 during their backward motion but guiding the same into the upper portion of loop track 99 on their forward motion.

Blocks 95 are operated by means of chains 103 guided over sets of idler sprockets 104 pivoted on the supporting members 90 (Fig. 5), and driven by oscillating sprockets 105 (Fig. 7) mounted on a shaft 106 supported by bearing brackets 107 attached to front frame 50 (Figs. 2 and 7). A bevel gear 108 fast on shaft 106 is driven by a bevel gear 109 (Figs. 2, 9 and 12) mounted on an oscillating cross-shaft 110 supported in bearings of front frame 50 and rear frame 51. To the cross-shaft 110 is fastened a pinion 111 oscillated by means of a reciprocating gear rack 112 (Figs. 2, 9 and 12) sliding in a pendent bracket 113 loosely mounted on the cross-shaft 110. Gear rack 112 is pivotally connected by an adjustable stud to a cam lever 114 (Figs. 2 and 11) equipped with a cam roller 115 engaging in a cam track 116 of a face cam 117 mounted on the main cam shaft 118. On the latter is mounted a gear wheel 119 meshing with and driven from a pinion 120 mounted on the main drive shaft 59.

The carrier into which the article to be wrapped is inserted by the pusher plate 88 may consist of a turret provided with a plurality of pockets (the illustrated embodiment of the invention being equipped with two pockets) formed by adjustable side plates 121 and adjustable bottom plates 122 (Figs. 2 and 8). A number of arcuate guide strips 123 extend between said pockets, and the side plates 121 are mounted on horizontal bars 124 supported from one end by brackets 125 adjustably mounted on the diamond-shaped hub 126 of the turret 127 which is fastened on a sleeve 128 (Fig. 8). These brackets 125 are provided with tongues fitted into grooves in the alternate faces of the diamond-shaped hub 126, whereby adjustment thereof permits the use of the same side plates 121 for articles of varying width and thickness. With this arrangement for adjusting the side plates 121 the distance therebetween may be increased without causing them to protrude sufficiently to obstruct the rotation of the turret, thus assuring that the outer ends of the side plates 121 and the guides 123 will remain in nearly the same position at all settings of the brackets 125.

Guide strips 123, together with their adjustable

extensions 123a, are of arcuate shape and are disposed in spaced relation in the gaps between the pockets. One end of each series of guide strips 123 is fastened to a rod 129 which is held by its ends in brackets 130 attached to one of the side plates 121 of each pocket. The extensions 123a adjustably secured to each series of guides 123 are fastened to brackets 131 (Figs. 8, 18 and 29) adjustably fastened at one end on the turret 127 and adjustably mounted at their other end on a supporting arm 132 attached to a sleeve 128'.

Sleeves 128 and 128' are connected by a coupling 133 (Figs. 8 and 22). Each of the bottom plates 122 of the pockets (Figs. 2, 8, 22 and 23) is fastened to sets of adjustable rods 134 clamped to heads 135 fastened to guide rods 136 and gear racks 137 slidably supported in the coupling 133. These gear racks 137 mesh with pinions 138, one of which is loosely mounted on shaft 139 and the other on shaft 139'. The latter shaft is supported within the sleeve 128', and the shaft 139 is supported within the sleeve 128. Sleeves 128 and 128' together constitute the turret operating shaft, and are driven intermittently by a sprocket 140 mounted on sleeve 128, (Fig. 3), the sprocket 140 being driven by a chain 141 running over a drive sprocket 142 (Fig. 9) loosely mounted on the oscillating shaft 110. To sprocket 142 is attached a ratchet 143 (Figs. 9 and 10) operated by means of a pawl 144 mounted on a shaft 145 loosely supported in a driver 146 fast on oscillating shaft 110. To the shaft 145 is furthermore keyed a bell crank lever 147 which may carry a control stud 148 on one of its arms and has its other arm connected by a tension spring 149 to a projecting lug of the driver 146. As the driver 146 oscillates with the shaft 110 the pawl 144 drives with ratchet 143 only during its forward motion, thus imparting an intermittent motion to the shaft 110 which, through sprocket 142 and chain 141, is transmitted to the sleeve 128.

In order to lock the sleeve 128 and the carrier in the desired position while their rotation is interrupted, the sleeve 128 also carries a disk 150 (Figs. 2, 3 and 31) provided with diametrically opposite notches 151 which successively receive a locking lug 152 mounted on a cam lever 153 fulcrumed on a stud 154 (Figs. 2 and 3) set in the rear frame 51. Cam lever 153 has an arm 155 carrying a cam roller 156 (Figs. 2 and 11), engaging the plate cam 157 mounted on cam shaft 118. As soon as one of the pockets formed by the plates 121 and 122 of the turret moves into alignment with the article guides 158 (Figs. 5 and 6) attached to feed table 37, the rotation of the turret is stopped and the article A to be wrapped is advanced by pusher plate 38 into said pocket. Of course the turret is locked during this operation, but resumes its rotation as soon as the article A has been inserted.

A turret control mechanism is provided in case of failure of the delivery of an article into the pocket, the said mechanism (Figs. 6, 8 and 9) preventing the turret from turning as long as no article is placed into the pocket. This turret control mechanism consists of a feeler plate 159 (Figs. 6 and 8) extending downwardly between bottom plates 122 of the turret pocket when the latter is in receiving position. Feeler plate 159 is mounted on a shaft 160 supported by a bearing bracket 161 attached to a horizontal bar 162 supported at each end by members 163 and 164. Member 163 is attached to one of the angle-irons 90, while member 164 is fastened to the top of the bearing 165 (Fig. 8) in which the sleeve 128 is supported. Sleeve 128' is supported by the bearing 93. Bearing 165 is mounted to rear frame 51. On the shaft 160 is fulcrumed an operating lever 166 carrying a roller 167 engaging in the vertical track of a block 168 attached to a horizontal operating rod 169 supported from its ends by swivels 170 and 171. Swivel 170 is mounted on a lever 172 fulcrumed on a horizontal shaft 173 supported in bearings provided in the members 90. Swivel 171 is pivoted in an arm 174 (Fig. 8) fastened on a vertical slide-rod 175 supported by a pedestal 176 and bearing bracket 177. Pedestal 176 is supported by a horizontal cross-bar 178 connecting the front frame 50 and rear frame 51. Bracket 177 (Fig. 9) is attached to the lower portion of the rear frame 51. Affixed to the lower end of the slide-rod 175 is a control arm 179, the movement and position of which is determined by the action of the feeler plate 159, as will now be described.

When no article is fed into the pocket, the control arm 179 will stay in the path of the oscillating control stud 148, thereby swinging the bell crank lever 147 upwardly on the shaft 145 during the backward motion of the driver 146 and preventing engagement of the pawl 144 with the ratchet-wheel 143, during the forward motion of the driver and thus arresting and incapacitating the turret driving mechanism. When an article A is inserted into the pocket it will engage and lift the feeler plate 159, thus causing the control arm 179 to swing out of the way of the oscillating control stud 148. Pawl 144 can now engage with ratchet 143 during the forward motion of the driver 146 and transmit intermittent motion to the turret sleeve shaft 128.

In order to keep the feeler plate 159 out of the way of the turret during rotation of the latter, shaft 173 (Fig. 8) on which lever 172 is mounted, carries a cam lever 180 equipped with a cam bowl 181 engaging with a cam 182 mounted on sleeve shaft 128' and timed to intermittently reciprocate the rod 169 and swing the feeler 159 in and out of package-engaging position. Cam 182 thus serves the purpose of keeping the feeler plate 159 in a horizontal position and out of the way of the turret after plate 159 has been lifted by the inserted article. In order to keep cam bowl 181 in constant contact with cam 182, shaft 173 is equipped with a torsion spring 173a (Fig. 6). During each stoppage of the turret, feeler plate 159 will again drop to a vertical position crossing the path of the article to be inserted into the pocket.

The web of wrapping material C is guided from the tension-rollers 73 (Fig. 29) on to the arcuate guide strips 123 of the turret and their extensions 123a by means of stationary arcuate web guides 183 which are spaced to correspond with the guide strips 123 and are mounted on a cross bar 184 which is supported from its ends by brackets 185 (Figs. 2 and 15) fastened to a hanger 186. The latter is adjustably supported by means of nuts swiveled on the lugs 187 of the brackets 185, into which are threaded screws 188 pivotally adjustable on and fastened to a supporting bracket 189 attached to the horizontal supporting bar 64.

The web of wrapping material C is pulled through the machine by means of a plurality of sets of grippers 190 (Fig. 29) successively operating to nip the web against the tips 191 of opposed sets of gripper plungers 192. Grippers 190 are mounted in sets on shafts 193 and are so disposed as to operate freely in the spaces be-

tween the extensions 123a of the guide strips 123, as well as the web guides 183 (Fig. 30). Shafts 193 are supported in bearing lugs 194 and 195. Lugs 194 project from the ends of a diametral web-feeding arm 196 loosely mounted on sleeve 128; and the lugs 195 are formed on the supporting bars 197 which are attached to the ends of the feeding arm 196 and the supporting arm 198 (Figs. 8, 29 and 30), the latter being loosely mounted on the sleeve 128'.

On each bar 197 is mounted a pair of guide plates 199 in which the aforesaid gripper plungers 192 are slidably supported and normally urged outwardly by compression springs 200. A pinion 201 on the oscillating shaft 193 meshes with a gear 202 loosely mounted on a stud 203 set in the bar 197. To the hub of the gear 202 is fastened a crank 204 which carries a control roller 205 (Figs. 8 and 30). Shaft 193 is provided with a torsion spring 206 (Fig. 30) acting to keep the grippers 190 separated from the gripper plungers 192. A spiral spring 207 (Figs. 8 and 29) is connected to the hub 208 of the arm 196 and to a stud 209 in the turret 127, and, therefore, when the turret 127 starts to turn the spring 207 will be tensioned and the arm 196 will thereby be turned in the same direction. On the turret 127 is fastened a bracket 210 equipped with a rubber bumper 211 against which, when the turret 127 starts to turn, a lug 212 (Fig. 28) of arm 196 is held by the spiral spring 207 as the latter is wound up by the rotation of the turret 127. Although the arm 196 is driven from the turret 127 by means of spiral spring 207, the latter permits the arm 196 as well as the web-gripping mechanism carried by it, to be controlled in a manner presently described, by means of an independently driven oscillating control arm 213 (Figs. 25 and 29) adjustably mounted on the hub of a gear 214 (Figs. 8 and 25) loosely mounted on sleeve 128. Gear 214 is driven by a gear segment 215 (Figs. 2, 8 and 25) pivoted to a stud 216 mounted on rear frame 51. Gear segment 215 is intermittently oscillated by a link 217 adjustably connected thereto by a stud passing through an arcuate slot in the gear segment, the link 217 being fastened to the free end of a cam lever 218 (Figs. 2 and 11) carrying a cam roller 219 engaging in a cam track 220 (Fig. 11) of gearwheel 119. Cam lever 218 is fulcrumed on a stud 221 mounted on rear frame 51.

Control arm 213, in its forked end, carries a control stud 222 slidable transversely thereof (Figs. 25, 26 and 27). On the stud 222 is loosely supported a bell-crank lever 223 the hub of which is equipped with a pin 224 projecting into a cam groove 225 (Figs. 26 and 27) of control stud 222. One arm of the bell-crank lever 223 is connected by a tension spring 226 to the hub of the arm 213. The function of the spring 226 is to keep the control lever 223 in such a position that the half-round end 227 of control stud 222 protrudes from the forked end of arm 213 (Figs. 8 and 26). From what has been said above it will be apparent that the turning of the lever 223 on the control stud 222 will move the latter axially due to the engagement of the pin 224 with groove 225 of the stud, this movement being guided by keys 228 (Figs. 25, 26 and 27), and that the spring 226 will normally hold the lever 223 in the position required to maintain the half-round end of the stud 222 protruding from the arm 213.

When the turret 127 is periodically turned by means hereinbefore described, the feeding arm 196 of course will follow the same when the spiral spring 207 connecting the arm 196 with stud 209 of the turret 127 is sufficiently tensioned. While the latter is moving, the control arm 213 is at rest and the half-round end 227 of control stud 222 protrudes into the path of the rollers 205 which are carried by the cranks 204 on the gears 202 supported from the feeding arm 196. As soon as either roller 205 engages the half-round end 227 of the control stud 222, the respective gear 202 will be turned, thereby actuating the respective gear 201 and its shaft 193 and causing the gripper fingers 190 to close upon and clamp the free hanging end of the web of wrapping material C against the tips 191 of gripper plungers 192 (Fig. 29).

During this operation the arm 196 as well as the arm 198, which together carry the gripper mechanism, are temporarily held back by the control stud 222 of control arm 213 while the turret 127 continues its rotation, whereby the lug 212 of the arm 196 is disengaged from the bracket 210 of the turret 127. Spiral spring 207, constituting the only connection between the arm 196 and the turret 127, is of course further wound up at this time. As soon as the web C is clamped between grippers 190 and the tips 191, the control arm 213 starts to move and, while the tension of spiral spring 207 holds the arm 196 against the same, the entire gripping mechanism supported on arms 196 and 198 moves therewith, thereby pulling the wrapper web C over the guide strips 123 and their extensions 123a.

The movement of the arm 213 is so timed that, when the turret 127 halts while carrying in either of its attached pockets an article A to be wrapped, the arm 213 and likewise the arms 196 and 198 also, halt after having pulled over the filled pocket the length of wrapping material required. It will be evident, therefore, that the said length of wrapping material may be varied within the range of adjustment of the link 217 on the gear segment 215 for one article (Fig. 31). In Figs. 28, 29 and 31 these successive steps of the movement of the web of the wrapping material, gripper mechanism, the control mechanism and the carrier turret are illustrated.

As soon as the turret and the web of wrapping material, which now completely covers the pocket containing the article A to be wrapped, come to rest, a number of supporting plungers ascend and press the web C against the article A in the pocket (Fig. 31). Each supporting plunger consists of a vertical slide-rod 229 (Figs. 2, 11 and 31) on the upper end of which is fastened a plate 230 carrying a pair of cushions 231. Each slide-rod 229 is slidably supported in a vertical guide tube 232, a collar 233 on the rod 229 carrying a key 234 projecting into a slot 235 of tube 232 (Fig. 2), in order to prevent the rod 229 from turning. Tube 232 is fastened to a bracket 236 attached to a cross-shaft 237 journaled in bearing lugs of front frame 50 and rear frame 51. Within the tube 232 is located a tension spring 238 anchored at its upper end to the top plug 239 of tube 232 and attached at its lower end to a collar 240 fastened to vertical guide rod 229. Spring 238 therefore tends to push the rod 229 upward at all times. The ascending and descending motion of the supporting plungers just mentioned is controlled by a flexible strap 241 which is fastened at one end to the stationary bracket 236 and attached at its other end to a collar 242 fastened on the upper end of the vertical rod 229. The flexible strap 241 is looped

about and actuated by a roller 243 (Figs. 2 and 11) carried by an operating arm 244 (Fig. 11) mounted on a rocker-shaft 245 supported in bearings of front frame 50 and bearing bracket 60. Shaft 245 is intermittently rocked by means of a cam lever 246 carrying a cam roller 247 engaging with a plate cam 248 mounted on the main cam shaft 118. Cam lever 246 is equipped with a tail 249 to which is connected a tension spring 250 anchored to a stud 251 mounted on end frame 52.

Immediately after the cushions 231 of the ascending supporting plungers press the web C of wrapping material against the article A in the turret pocket, the web is cut by an oscillating shearing-blade 252 coacting with a ledger blade 253 (Figs. 31 and 32), the wrapper blank W thus cut being of sufficient length to be enfolded about the article in the manner presently to be described. The shearing-blade 252 is adjustably mounted on a shaft 254 (Figs. 19 and 20) which is journaled in bearings 255 and cut away to provide a longitudinally inclined supporting surface to which the knife 252 is secured at an angle to the shaft axis (Fig. 20), in order to permit the web C to be severed with a draw cut. Bearing lugs 255 are adjustably attached to the hanger 186 and are held in the desired position by means of adjusting screws 256. On one end of knife shaft 254 is mounted an oscillating operating lever 257 which is actuated by means of an adjustable connecting link 258 from a cam lever 259 (Figs. 2 and 11) fulcrumed on front frame 50 and carrying a cam roller 260 engaging in a cam track 261 of a cam 262 mounted on the main cam shaft 118. Ledger-blade 253 is slidably supported in a slot of the bracket 131 with its shearing edge protruding from the same, and is provided at its ends with stop lugs 263 engaging with control plates 264 adjustably mounted at each side of the bracket 131 (Figs. 18, 31 and 32). To assure accurate contact of the edge of the ledger-blade 253 against the edge of the shearing-blade 252 during cutting action, the plate 253 is provided with a number of tension springs 265 located and anchored in slots of supporting bracket 131 and fastened to lugs on the bottom of the blade 253 (Figs. 18 and 31). To prevent jamming of ledger-blade 253 and knife 252 when the latter contacts the former, the knife 252 carries a guide nose 266 which is set with the lower portion of its outer face at the same radius as the cutting edge of knife 252, and serves to push back the ledger-blade until the cutting edge of the latter registers with the cutting edge of the knife, thereby preventing possible injury to the cutting edges thereof (Fig. 32).

As soon as the web C is cut, the end of the portion severed from the same, which is held between gripper fingers 190 and tips 191, is released. Although the web may be released before it is severed, I prefer to sever the same before it is released as I have found that I can obtain a squarer cut thereby. This portion so cut from the web C is of sufficient length to provide a wrapper blank W in which the article A is to be wrapped. The release of the severed wrapper blank W is effected by the withdrawal of the control stud 222 through the engagement of a nose 267 (Fig. 31) with a roller 268 pivoted on one of the lugs projecting from the forked end of the control lever 223, thereby causing the latter to swing in such a manner that stud 224 thereof engaging the groove 225 will retract the control stud 222 (Fig. 27) and thus release the roller 205 with which it is then in engagement and the crank 204 carrying the same. Thereupon the torsion spring 206 on shaft 193 is free to turn the said shaft with its pinion 201 and thus turn the gear 202 to return the crank 204 thereon to its initial position, this movement of shaft 193 swinging the grippers 190 away from the web C.

On pintles 269 of the nose 267 are pivoted rollers 270 (Fig. 31), engaging with an arcuate track 271 of a bracket 272 mounted on the horizontal cross-bars 178 and 178' fastened to front frame 50 and rear frame 51. Nose 267 is operated by means of a pusher rod 273 pivotally connected to one of the studs 269 (Figs. 2 and 12) and adjustably mounted at its lower end in a collar 274 swiveled to an operating arm 275 (Figs. 2, 11 and 12) mounted on a shaft 276 supported in bearings of front frame 50 and rear frame 51. Shaft 276 is oscillated by means of a lever 277 fastened thereon and connected by a coupling rod 278 (Figs. 2 and 11) to the arm 279 of the cam lever 259 which operates the web-cutting mechanism described above and is fulcrumed on a stud 280 fixed in front frame 50.

After the wrapper blank W has been cut and released, the article A with the wrapper blank W thereon is then pushed out of the pocket of the turret by the bottom plates 122 and thereby pressed against the supporting plungers while the latter descend and deposit the article A and wrapper blank W upon a horizontally reciprocating folding table (Fig. 33). To this end the bottom plates 122 are supported on the heads 135 carried on the outer ends of guide rods 136 and gear racks 137 meshing with pinions 138 in a manner described heretofore (Figs. 22 and 23). Each pinion 138 is provided in its web with a chamber 281 which receive the flanges of a roller 282 mounted on the square end 283 of oscillating shaft 139, but free to revolve with respect to gears 138. On a pin 284 extending between the flanges of the roller 282 are loosely mounted a pair of pawls 285 (Figs. 23 and 24) each equipped with a tension spring 286 anchored to a pin 287 also fixed in the flanges of roller 283. Tension springs 286 act to press the pawls 285 against the circumferential walls of the chambers 281 while the flanged roller 282 is oscillating with the shaft 139. Each pawl 285 of course contacts only one chamber 281 of its respective gear 138, and each chamber 281 is provided with a notch 288 with which its respective pawl 285 engages during the forward movement of roller 282. As soon as either pawl 285 engages with a notch 288, then of course motion is transmitted to the respective gear 138 which, acting upon its respective gear rack 137, causes the head 135 and the bottom plates 122 mounted thereon to move outwardly of the turret and push the article A out of the pocket (see Fig. 33 and the dotted position of the bottom plates in Fig. 23). A tension spring 289 attached to each head 135 and anchored to the guides 290 of racks 137 assures the return of bottom plates 122 to their position within the pockets during the return motion of the oscillating pawl 285. The notches 288 in the two gear chambers 281 are so set diametrically opposite each other that the bottom plates 122 are operated only when facing the supporting plungers at the proper stage of the cycle of operations. To impart an oscillatory motion to the flanged roller 282 and the pawls 285 thereon, the shaft 139 carries a gear 291 which is rocked by a gear sector 292 (Figs. 2 and 8) pivoted to a stud 293

mounted in rear frame 51. Gear sector 292 is oscillated by a cam lever 294 (Figs. 2, 8 and 11) carrying a cam roller 295 engaging in a cam groove 296 of a cam 297 mounted on the main cam shaft 118.

The horizontally reciprocating transfer table to which the article A and the wrapper blank W are delivered (Fig. 33), comprises a number of spaced supporting members such as angle-irons 298 (Figs. 9, 11, 12 and 33) which, by means of brackets 299 and plates 300 (Fig. 33) at one end thereof are clamped to a cross-bar 301 carrying operating plates 302. On each end of bar 301 are mounted guide rollers 303 running over guide rails 304, whereby bar 301 is supported and guided during its reciprocating motion. One of the guide rails 304 is supported by the front frame 50 and a bracket 305 (Figs. 2 and 11) attached to a stationary supporting cross-bar 306 connecting the front frame 50 and the rear frame 51. The ends of the other guide rail 304 is fastened to a bracket 307 and to a bracket 308. Bracket 307 is mounted on end frame 52 while bracket 308 is attached to the cross-bar 306. The free ends of supporting members 298 rest on brackets 309 fastened to shaft 306 and are slidable thereon. The reciprocation of members 298 is effected by the movement imparted to the bar 303 which is periodically reciprocated by means of the operating plates 302 which are fastened to gear racks 310 and 310', respectively, meshing with gears 311 and 311', respectively, mounted on the rock shaft 110 (Fig. 9).

A few of the supporting members 298 are equipped with oppositely facing sets of folder fingers 312 and 312' adjacent the sides of the article A deposited thereon (Fig. 33). When the article A and the wrapper blank W are being deposited on the members 298 the ends of blank W are held more or less upright by means of guides 313 and 314 aligned with the guide strips 123 (Fig. 33), and the article is thereby partially enfolded in the wrapper. Guides 313 are adjustably attached to a cross-bar 315 mounted on hangers 186 (Fig. 31) and guides 314 are fastened to a cross-member 316 supported from its ends by a pair of brackets 317 mounted on horizontal cross bars 178 and 178'.

Folder fingers 312 and 312' (Fig. 33) are mounted on pins 318 and 318' respectively, which are loosely held in blocks 319 and 319' respectively, which in turn are adjustably supported in slots 320 and 320' of the supporting members 298 (Figs. 11 and 12) to accommodate articles of varying widths therebetween. On the pins 318 (Fig. 33) are also mounted control levers 321 carrying rollers 322 engaging with cam rails 323 provided with inclined slots 324 through which pass studs 325 which are set in the members 298. Folder fingers 312' are equipped with control arms 326 carrying at their lower ends rollers 327. On pins 318' are also fulcrumed the bell cranks 328 carrying on one of their ends rollers 329 engaging with the cam rails 323. On their other ends the bell cranks 328 are provided with pins 330 which engage with the arms 326 of the folder fingers 312'. Each folder finger 312 and 312' is equipped with a torsion spring 331 normally urging the same into a vertical position in which it presses the wrapper blank W against the sides of the article A on the transfer table. The opening and closing of the fingers 312 and 312' is controlled by means of the cam rails 323 which are actuated by an operating bar 332 (Figs. 11 and 33) fastened at its ends to oscillating operating levers 333 mounted on shaft 334 supported in bearing lugs 335 attached to extensions 336 of guide rails 304. One of the operating levers 333 is equipped with an operating arm 337 (Figs. 1, 11 and 33) which, through a connecting link 338, is actuated by a cam lever 339 (Figs. 2 and 11) carrying a cam follower 340 engaging with a plate cam 341 mounted on cam shaft 118. Cam lever 339 is loosely mounted on shaft 245, and the operating arm 337 is provided with a tension spring 342 (Figs. 1 and 11) anchored to the end frame 52. Each cam rail 323 is also equipped with a tension spring 343 (Fig. 33) anchored to bracket 299 and serving to pull the rails to their lowest position.

When the wrapper blank W and the article A are transferred on to the supporting members 298, in between the gripper fingers 312 and 312', the latter are in an open position (Fig. 33) but close as soon as the wrapper blank W and article A are placed on the transfer table formed by these supporting members 298. The closing of gripper fingers 312 and 312' is effected when the operating bar 332 disengages from the hooked ends 323' of the cam rails 323, thus permitting the springs 343 to pull the cam plates 323 downward. Thereupon the springs 331 turn the fingers 312 and 312' until the limit of the downward movement of the cam rails 323 is reached, the control rollers 322 on fingers 312 and the control rollers 329 on fingers 312' bearing on the cam rails during this movement thereof. Springs 331 assure that fingers 312 and 312' will hold the wrapper blank W firmly against the side contours of the article, a feature which is particularly important in the wrapping of soft articles. As soon as the wrapper blank W and article A are placed upon the transfer table, the supporting plungers continue to descend and move out of the way while bottom plates 122 ascend and move back into the pocket of the turret.

Although it is not essential to the production of perfect packages, the machine may be equipped with a slitting device consisting of two pairs of slitting knife blades 344, one pair of which is located at each side of the reciprocating transfer table (Figs. 11 and 34). Each pair of blades 344 is mounted on an operating arm 345 (Figs. 11, 34, 35, 36 and 37) fastened to a slide-rod 346 supported in bearings 347 and 348 (Figs. 2 and 11) fastened to supporting rails 349 (Figs. 11 and 34) which are secured at one end to bearing brackets 350 (Figs. 1 and 11) and fastened at their other ends to supporting brackets 351 (Figs. 2 and 11). Slide-rods 346 are provided with square ends 352 (Figs. 1 and 11) sliding in hubs 353 (Fig. 11) of bevel gears 354 supported by the bearing bracket 350 mounted on a stationary cross-bar 355 (Figs. 1 and 11) fixed extensions 336 of guide rails 304.

In order to swing the knife blades 344 out of the way of the descending article A and wrapper blank W (see dotted position of blades 344 in Fig. 34), the slide-rods are rocked at this time by the bevel gears 354 which mesh with bevel gears 356 mounted on a shaft 357 supported in bearings of lugs 358 adjustably mounted on brackets 350 (Fig. 1). Shaft 357 is oscillated by means of an arm 359 (Figs. 1 and 11) connected by a link 360 to the operating lug 337 which also operates fingers 312 and 312', thus assuring that the latter are in open and the blades 344 at inoperative transfer position when article A and wrapper blank W are deposited

upon the transfer table, whereupon fingers 312 and 312' will close and the knife blades 344 swing into a horizontal or operative position (Fig. 34), thereby entering into the open end of the wrapper blank W which now partially enfolds the article A.

Immediately after the wraper blank W and article A are placed on the transfer table and clamped in between fingers 312 and 312' (Fig. 35), the supporting members 298 start to move with the same in the direction indicated by the arrow in Fig. 36, towards a rotary top folding roller 361. At the same time a top folder plate 362 moves toward and over the article, thereby laying the trailing end of the wrapper blank W over the article. The movement of the top folding plate 362 is so timed that it moves at a substantially greater speed than the advancing supporting members 298, thus assuring that the trailing margin of the wrapper blank W is laid smoothly over the article before the other margin is lapped thereover by the folding roller 361. Figs. 35, 36 and 37 illustrate the successive steps in making the top folds. Supporting members 298 then move the completely enfolded article between sets of guide belts 363 and 364, whereupon the members 298 and the folder plate 362 retreat to their initial position.

The top folder plate 362 is slidably supported at its two side edges in guide rails 365 (Figs. 11, 33 and 34) adjustably attached to brackets 366 mounted on guide rails 304. On each side edge of the folder plate 362 is adjustably mounted an operating lug 367 (Figs. 11 and 33) which, through a link 368 is connected with an operating lever 369. Both operating levers 369 are mounted on a shaft 370 which is supported in bearings of the operating plate 302. One of the levers 369 is equipped with a control lever 371 (Fig. 33) carrying a roller 372 engaging with a hooked control lug 373 mounted on the guide rail 304. Both levers 369 are equipped with torsion springs 374 which serve to push levers 369 and thereby the link 368 and folding plate 362, in a forward direction as soon as the plate 302 on the transfer table starts to move, the throw of the levers 369 being of sufficient extent to lay the trailing wrapper margin. This arrangement assures a faster motion of plate 362 than that of the supporting members 298 right from the start and permits the same to be completed before the transfer table reaches the limit of its forward stroke. To folder plate 362 is furthermore attached a guide and control bar 375 (Figs. 2, 11 and 33) guided and supported by means of a pair of guide rollers 376 (Figs. 1 and 33) pivoted to a guide bracket 377 adjustably mounted on the horizontal supporting bar 64. To control bar 375 is adjustably attached a stop lug 375a equipped with a rubber bumper 375b. The studs by which links 368 are pivoted to lugs 367 of folding plate 362, are provided with extension pins 378 (Figs. 11 and 33), each of which engages with a collar 379 (Figs. 2 and 11), mounted on the slide-rods 346 which carry and operate the slitting knives 344. These collars 379 are held in engagement with the extension 378 by means of a compression spring 380 located between the bearing lug 348 and a collar 381 mounted on shaft 346. The object of connecting the shaft 346 and folder plate 362 in this manner is to advance the knife blades 344 with the same quick action as the plate 362, thereby causing the sharp points of blades 344 to pierce and slit the leading side of the portions of the wrapper W projecting from the article A being wrapped (Figs. 36 and 37). The trailing side of the wrapper is similarly slit upon being advanced into engagement with the knife blades 344, whereupon the latter and the folding plate 362 return to their starting position. Shafts 346 during their reciprocating motion are guided by the bearing lugs 347 and 348 and the square ends 352 of shafts 346 slide within the hubs 353 of bevel gears 354, thereby always remaining in engagement with the same. The sides of the wrapper W are slit for the purpose of providing at each end of the package two separated end flaps which, when adhesively united by glue or paste, will assure perfect end seals of the package.

In order to seal the top seam formed by the overlapped edges of the wrapper, spots of glue are applied to that section of the web C which subsequently forms the first top fold or inner seam edge of the wrapper W, this gluing action taking place while the web C passes the paper guides 183 (Fig. 15). The other edge of the wrapper blank W is then folded over the glued edge of the wrapper as the package is advanced under the folding roller 361.

The glue-applying mechanism for this operation is illustrated in Figs. 15, 16, 17 and 21 and consists of a comb-like dauber 382 attached to a shaft 383 supported by bearings 384 pivoted on the frame bracket 186 and held in the desired position by adjusting screws 385. To one end of shaft 383 is attached an operating arm 386 carrying a roller 387. The prongs of the comb-like dauber 382 are covered with felt strips 388 held thereon by plates 389 (Fig. 15). To the other end of shaft 383 is fastened a gear 390 (Figs. 16 and 17) meshing with a gear 391 mounted on a sleeve 392 loosely supported by a stud 393 supported by one of the bearing lugs 384 and clamped to hanger 186. On sleeve 392 is also fastened a driving lug 394 engaging with a pin 395 fixed in a sprocket 396 loosely mounted on sleeve 392. The hub 397 of gear 391 is connected with sprocket 396 by means of a torsion spring 398. Sprocket 396 is driven intermittently by means of a chain 399 from a sprocket 400 mounted on the intermittently rotating turret sleeve 128' (Figs. 2 and 8).

In order to prevent a wiping action of the dauber 382 while it is applying the glue spots to the wrapper web C, the dauber 382, during its contact with the web C, has to travel at the same speed as the turret. This object is achieved with a cam lug 401 mounted on the bracket 210 of the turret 127 (Fig. 15). When cam lug 401 passes the gluing mechanism it engages with the roller 387 on arm 386 mounted on the dauber shaft 383 thereby swinging the dauber 382 at the same speed as the turret while contacting the wrapper web C. This movement of the dauber shaft 383 of course is transmitted to gear 390 and gear 391, causing the driving lug 394 to disengage from and run ahead of the pin 395 of the slower moving sprocket 396. As soon as lug 401 disengages from the roller 387, dauber 382 has the tendency to swing back due to the action of torsion spring 398. In order to prevent this, which would otherwise swing the dauber back into engagement with the web, hub 397 of gear 391 is provided with a notch 402 (Fig. 16) into which a pawl 403 drops at this moment. The latter is pivoted to the shaft 383 and is equipped with a leaf spring 404 holding pawl 403 constantly in contact with hub 397.

Spring 404 is anchored to a supporting plate 405 fastened to one of the bearing lugs 384 (Figs. 16 and 17). Pawl 403 stays in engagement with the notch 402 of hub 397 until pin 395 reaches the driving lug 394 again and the slow motion of the dauber 382 is resumed.

The felt strips 388 of dauber 382 are supplied with glue by contacting a wick 406 (Figs. 15 and 21) partially submerged in a reservoir 407 filled with glue or other suitable adhesive. Reservoir 407 is trunnioned in a pair of supporting lugs 408 adjustably mounted on the hanger 186. One of the trunnions of the reservoir 407 carries a gear sector 409 which periodically meshes with a gear sector 410 mounted on dauber shaft 383, thus temporarily moving the reservoir along with the dauber and assuring a longer contact of the wick 406 with the passing felt strips 388 of the dauber 382 to secure the absorption of a sufficient amount of glue by the felt strips 388. Receptacle 407 is held in balance by means of a tension spring 411 anchored to the frame bracket 186.

To effect the disengagement of gripper fingers 190 from the end of wrapper web C (Fig. 31) after the cutting of the wrapper blank W, control stud 222 is retracted in the manner heretofore described. The retreat of the control stud 222 also terminates the engagement of the arm 196 with control arm 213 and permits the spiral spring 207 to turn the arm 196 in a forward direction. In order to prevent the sudden impact with which lug 212 of arm 196 would meet bracket 210 on turret disk 127, both ends of the feeding arm 196 are equipped with pawls 412 (Figs. 8 and 25), each of which is provided with a lug 413, which successively engages with the half-round end 227 of control stud 222 during the same interval that the respective roller 205 contacts the latter. Therefore, the retreat of the control stud 222 also releases the lug 413 and pawl 412 which is immediately pulled by the tension spring 414 into engagement with a ratchet 415 (Figs. 8 and 25) loosely mounted on sleeve 128. To ratchet 415 is attached a gear-wheel 416 continuously driven by a pinion 417 mounted on a shaft 418 supported by a bearing lug 419 of bearing 165 (Fig. 8). Shaft 418 carries a sprocket 420 which is driven by means of a chain 421 from a sprocket 422 (Figs. 1 and 28) mounted on the continuously rotating web-feed drive shaft 62. Gear 416 and therefore ratchet 415 are driven at a greater speed than the turret 127, so lug 212 of arm 196 can catch up with bracket 210 of turret disk 127 and yet reengage the same gently (Fig. 29). In order to keep the pawls 412 working in proper synchronism, the latter are connected to each other by means of a link 423 (Fig. 25).

Guide belts 363 and 364, (Fig. 33), in between which the article A, now completely enfolded in its wrapper W, is delivered by the supporting members 298 of the reciprocating transfer table, form a conveyor serving to hold together the folds of the top seam made previously and advance the package into a position wherein, and support the same, and the slit end flaps of the wrapper W are provided with glue and then sealed by means of two gluing and sealing devices G, each of which takes care of one end of the package P, as will be described more at length. These belts 363 and 364 are, of course, driven intermittently and travel at the same speed as the advancing transfer table, coming to rest when the package is brought into the range of action of the gluing and sealing devices G.

While on the supporting members 298, the enfolded article delivered to the guide belts 363 and 364 is held between the folder fingers 312 and 312' which, after delivering the package, retreat with the supporting members 298 in a manner described heretofore. In order to cause the fingers 312' to pass beneath the package A during their retreat, each control roller 327 of the fingers 312' (Fig. 33) engages during the forward motion of the transfer table with stationary cam plates 424 mounted on the guide bracket 309, and the fingers 312' are thus swung below the package.

The lower guide belts 363 are led over idler pulleys 425 and 426 and guide pulleys 427 and 428 (Figs. 2 and 3), all of which are supported in channel-shaped supporting members 429, the webs of which support the upper runs of the belts 363 extending between pulleys 425 and 426. Each channel 429 is attached to its respective supporting arm 430 (Figs. 3 and 9) adjustably mounted on a bracket 431 fastened to a pair of supporting cross-bars 432 fastened at their ends in frame 50 and rear frame 51. Each belt 363 is driven by its pulley 433 (Figs. 3 and 9) loosely mounted on a stud 434 held by a lug 435 of the bracket 431. To the pulleys 433 are attached gears 436 meshing with a series of gears 437 mounted on an intermittently driven shaft 438 supported in bearings of front frame 50 and rear frame 51. On shaft 438 is mounted a disk 439 (Fig. 9) to which is pivoted a spring-pawl 440 engaging with a ratchet 441 attached to a gear 442 loosely mounted on shaft 438. Gear 442 is actuated by means of rack teeth formed on the upper face of one of the reciprocating gear racks 310'. The latter is held in mesh with the gear 442 by supporting bracket 443 loosely mounted on shaft 438.

The upper guide belts 364 are led over idler pulleys 444, 445 and 446 (Figs. 2 and 3) all of which are pivoted to channel-shaped supporting members 447 adjustably attached to supporting arms 448 adjustably mounted on bearing brackets 449 fastened to the horizontal cross bars 178 and 178'. Each belt 364 is driven by its respective pulley 450 (Figs. 3 and 9) mounted on a stud 451 held by a lug 452 of the bearing bracket 449. To the pulleys 450 are attached gears 453 meshing with pinions 454 mounted on an intermittently driven shaft 455 supported by bearing brackets 449. On shaft 455 is fastened a gear 454' meshing with a gear 456 (Fig. 3) mounted on a shaft 457 supported by a bearing bracket 458 (Fig. 9) which is also attached to the horizontal cross-bars 178 and 178'. Shaft 457 carries a sprocket 459 driven intermittently by means of a chain 460 from a sprocket 461 mounted on the intermittently rotating shaft 438. To the latter is attached a second sprocket 462 (Figs. 3 and 9) which by means of a chain 463 drives a sprocket 464 (Figs. 2 and 11) mounted on a shaft 465 carrying another sprocket 466 (Fig. 11) driving, by means of a chain 467 (Figs. 2, 9 and 11), a sprocket 468 mounted on the folder roller shaft 469 supported in bearing lugs 470 attached to guide rails 304. Shaft 465 is supported by a bearing 471 mounted on the cross-bar 306.

During the stoppages of the intermittently moving guide belts 363 and 364, the slit ends of the wrapper W, which protrude into the gluing and sealing devices G, are glued and sealed by the latter. The machine is equipped with two identical gluing and sealing devices G, (indicated in dotted lines in Figs. 9, 11 and 12) one at each end of the package.

One of the gluing and sealing devices G is sep-

arately illustrated in Figs. 38, 39, 40 and 41 and consists of a frame 472 adjustably attached to a supporting plate 473 adjustably mounted on the horizontal cross-bars 432. The glue is applied to the inner faces of the slip ends of the wrapper web W by a dauber 474 (Figs. 38, 40 and 43) equipped with a felt cover 475 attached to the latter by means of plates 476. Each end of the dauber 474 is provided with a stud 477 carrying a roller 478 engaging in a track 479 on frame 472. A bent bar 480 (Figs. 38, 40 and 43) attached to the dauber 474 carries a roller 481 engaging with a stationary cam plate 482 attached to one side of the frame 472 (Fig. 38). A tension spring 483 anchored to one of the studs 477 assures constant contact of roller 481 with the cam plate 482.

The dauber 474 is actuated by means of a pair of swinging arms 484 each of which is connected with one of the studs 477 by a link 485. Both arms 484 are mounted on a rocker-shaft 486 supported in bearings of the frame 472. Shaft 486 carries a forked lever 487 provided with adjusting screws 488 which engage with a lug 489 of an arm 490. The latter is operated by means of a connecting rod 491 (Figs. 38 and 40) pivoted to a crank pin 492 mounted on a crank disk 493 attached to an intermittently rotating shaft 494 supported in bearings of the frame 472. Shaft 494 carries a gear 495 (Figs. 38, 40 and 41) driven by a gear 496 revolving on a stud 497 adjustably mounted on a lug 498 (Fig. 41) of a bearing bracket 499 fastened to the frame 472. To the hub of gear 496 is attached a bevel gear 500 driven by a bevel gear 501 splined on an intermittently rotating cross-shaft 502 supported in bearings of front frame 50 and rear frame 51 (Fig. 12). It should be understood that the shaft 502 carries two bevel gears 501, each driving one complete gluing and sealing device G at one side of the machine. On shaft 502 is mounted a ratchet 503 (Figs. 12 and 14) which is actuated by means of an oscillating pawl 504 pivoted to a flanged hub 505 loosely mounted on shaft 502. To the flanged hub is attached an oscillating sprocket 506 driven by means of a chain 507 from a sprocket 508 (Figs. 9 and 12) mounted on the oscillating cross-shaft 110.

In order to prevent the operation of the gluing and sealing devices G in case no package P passes through the same, the machine is equipped with a feeler arm 509 (Figs. 3, 9 and 12) projecting into the path of the package P traveling between the guide belts 363 and 364. Feeler arm 509 is attached to a cross-shaft 510 supported in bearings of the front frame 50 and the rear frame 51. To shaft 510 is fastened a lever 511 which, through a link 512, is connected with a control lever 513 (Figs. 12 and 14) loosely mounted on a vertical shaft 514 held by a bearing lug 515. Control lever 513 is equipped with a control arm 516, the free end of which extends into the path of an oscillating control stud 517 in case no package P passes through belts 363 and 364. Control stud 517 is fastened to a trip 518 which is attached to the pawl 504, the latter being normally held in engagement with the ratchet 503 by a tension spring 519.

In case no package passes through the belts 363 and 364, the feeler arm 509 will not be raised and therefore control arm 516 remains in the path of the oscillating control stud 517 and engages with the same, thus causing the disengagement of pawl 504 from the ratchet disk 503 and the arrest of shaft 502. As soon as a package lifts the feeler arm 509, the control arm 516 swings out of the way of the control stud 517 and spring 519 effects the engagement of pawl 504 with the ratchet 503, whereupon the intermittent motion of shaft 502 is resumed.

In order to properly apply the glue to the inner faces of the slit end flaps, the latter, during the gluing operation, are held open by a pair of end flap supporting plates 520, after being spread and guided thereon by means of wedge-shaped tuckers 521 (Fig. 42) when the package flaps enter the gluing and sealing devices G. Each tucker 521 is attached to an arm 522 (Figs. 2, 12, 39 and 40) mounted on a vertical shaft 523 supported in a bearing of the supporting bracket 351, which is fastened to one end of the frame 472; and acts to fold in the forward margins of the slit flaps and fold outwardly the trailing margins thereof. Each supporting plate 520 is on an operating plate 524 slidably supported in vertically inclined grooves 525 (Figs. 39 and 40) of frame 472. Each operating plate 524 is provided with a pair of gear racks 526 each of which engages with a pinion 527. The pinions 527 which operate the lower plates 524 are mounted on stub-shafts 528 while the gears 527 which operate the upper plates 524 are mounted on stub-shafts 529. The latter as well as shafts 528 are supported in bearings of each frame 472. Shafts 528 carry gears 530 which oscillate the shaft 528, and shaft 529 is oscillated by means of a gear 531. Gears 530 and 531 of each gluing and sealing unit are connected to each other by a gear train 532 (Fig. 39) oscillating the shafts 528 and 529 in opposite directions, and thus causing approaching and separation of the upper and lower end flap supporting plates 520. The driver of this gear train consists of a gear sector 533 meshing with the first gear 530 of the gear train (Figs. 39 and 41). Gear sector 533 is loosely mounted on a shaft 534 (Fig. 41) supported by bearing bracket 499 and carries a cam roller 535 (Figs. 38 and 41) engaging with a cam 536 mounted on the intermittently rotating shaft 494. Shafts 528 and 529 are equipped with torsion springs 537 (Fig. 39) having the tendency to bring the upper and lower supporting plates 520 together.

In order to protect the article from the glue while the latter is being applied to the end flaps of its wrapper, a pair of vertically reciprocating co-acting protector plates 538 pinch together the base of the flaps at each end of the package while the edges of the end flaps are held apart from each other by the end flap supporting plates 520, described heretofore. Each protector plate 538 is attached to and operated by a pair of gear racks 539 slidably supported by vertical guide plates 540 fastened to the frame 472 (see Fig. 40). Each gear rack 539 meshes with a pinion 541, the gears operating the lower protector plates 538 being fastened to shaft 542, while those operating the upper protector plates 538 are mounted on shaft 543. The latter as well as the shaft 542 is supported in bearings of the frame 472 (Figs. 39 and 40). Shaft 542 carries a second gear 544, and shaft 543 carries gears 545 fastened thereon. Gears 544 and 545 are driven by a gear train 546 which, by means of a gear sector 547, is actuated in such a manner as to oscillate the shafts 542 and 543 in opposite directions, thus causing the lower and upper protector plates 538 to engage with the package flaps or move away from each other. Gear sector 547 is pivoted to shaft 534 and carries a cam roller 548 engaging with a cam 549 (Fig. 41) mounted on the intermittently rotating shaft 494.

In order to move the tuckers 521 out of the way when the upper and lower protector plates 538 come together to pinch the end flaps, the upper protector plates 538 carry cam-pieces 550 (Figs. 39 and 40) which, upon descending with the plates 538 engage with cam rollers 551 pivoted to lugs 552 attached to arms 522, thereby moving the latter and thus swinging the tuckers 521 out of the path of the co-acting plates 538. Shaft 523 on which arm 522 is mounted, on its lower portion carries a lug 553 which is provided with a tension spring 554 (Fig. 39) anchored to the supporting bracket 351. Shafts 542 and 543 are also equipped with torsion springs 555 (Fig. 39) for the purpose of securing a tight pinch of the protector plates 538 on the end flaps.

To each protector plate 538 is hinged a sealer bar 556, (see Fig. 42), which ascends and descends with its respective protector plate. To the end of the upper sealer bar 556 is pivoted a link 557, while to the lower sealer bar 556 is pivoted a link 558. Both links 557 and 558 are pivoted by means of a stud 559 to an operating lever 560 loosely mounted on shaft 528. Operating lever 560 is equipped with an arm 561, (see Fig. 40), carrying a cam roller 562 engaging with a cam 563 (Fig. 41) mounted on the intermittently rotating shaft 494. After the end flaps of the wrapper blank W are pinched together by the protector plates 538 and the glue is applied to the inner faces of the end flaps by means of the dauber 474 (Fig. 43), the latter as well as the flap supporting plates 520 retreat; and operating lever 560, through links 557 and 558, pulls the upper and lower sealer bars together so that the latter squeeze the glued end flaps together and seal the same (Fig. 44), thus assuring an even and tight seal of the end flaps. Upon completion of this operation the sealer bars 556 release the end flaps and swing back on to their respective protector plates 538 which thereupon retreat. The hub of the operating lever 560 is equipped with a tension spring 564 (Fig. 40) which holds the roller 562 on arm 561 in contact with the cam 563.

The adhesive supplied to the dauber 474 is stored in a reservoir 565 (Figs. 38 and 40) supported by trunnions in a pair of lugs 566 of frame 472. Reservoir 565 is furthermore equipped with a lug 567 carrying a roller 568 engaging with a cam 569 whereby the reservoir 565 is intermittently oscillated, the cam 569 being mounted on the intermittently rotating shaft 494. The reservoir 565 is also equipped with a wick 570 projecting from the same and partially submerged in the adhesive therein (Fig. 43). The reservoir 565 is oscillated in synchronism with the movement of the dauber 474, the felt covering 475 of the latter contacting the wick 570 when the dauber 474 is in its rearmost vertical position (see dotted position of dauber 474 and receptacle 565 in Fig. 43). In order to properly apply the adhesive to the inner sides of the end flaps, the dauber 474, in approaching the same, swings into a horizontal position and then enters between the spread end flaps of the wrapper blank W (Fig. 43).

After the gluing and sealing of the package is completed guide belts 363 and 364 resume their intermittent motion and guide the now finished package P (Fig. 45) away from the gluing and sealing devices G, whereupon a series of oscillating transfer arms 571 (Figs. 3 and 12) transfer the package P on to a delivery table 572 (Figs. 4 and 13). Transfer arms 571 are adjustably mounted on collars 573 fastened to a shaft 574 supported in bearings of a pair of supporting brackets 575 attached to the end frame 53. To shaft 574 is attached an operating arm 576 which is oscillated by means of a link 577 pivoted to a stud 578 (Figs. 2, 3, 9 and 12) held by a support-arm arm 579 loosely mounted on shaft 110. To stud 578 is pivoted furthermore one end of another link 580, the other end of which is pivoted to a cam lever 581 (Figs. 2 and 11) carrying a cam roller 582 engaging with a cam 583 mounted on the main cam shaft 118. Supporting brackets 575 are connected to each other by means of a cross-bar 584 to which one end of the delivery table 572 is fastened, while the other end of said table is supported by means of a pair of posts 585.

As the package P is transferred from the guide belts 363 on to the delivery table 572 the package is turned and one side edge of the same slides along a series of arcuate guide bars 586 (see dotted position of package and transfer arms in Fig. 4), adjustably attached to supporting lugs 587 mounted on a cross-rod 588 held at its ends by the supporting brackets 575. The package P is turned over in this manner so that its weight will rest upon the freshly made top seam, thus preventing the same from opening up while drying. In order to keep roller 582 of cam lever 581 in constant contact with cam 583, a tension spring 589 is attached to stud 578 and anchored to end frame 53.

Since the operation of the machine has been fully described above in the description of its various parts, a detailed repetition of the same is deemed unnecessary and omitted in the interest of brevity.

What is claimed is:

1. In a wrapping machine, the combination with a traveling carrier having a plurality of pockets, of a device for inserting articles into said pockets successively, mechanism for feeding a web of wrapping material across each pocket, means for severing a wrapper blank from the web, means for enfolding the article in the severed wrapper blank with the latter projecting beyond the ends of the article, means for adhesively uniting projecting portions of the wrapper, means for conveying the enfolded packages past said uniting means, and means for incapacitating said uniting means when there is no package in said conveying means.

2. In a wrapping machine, the combination with a travelling carrier having a plurality of pockets, of a device for inserting articles into said pockets successively, mechanism for feeding a web of wrapping material across each pocket after it is filled and then severing a wrapping blank from the web, means for ejecting the article from each filled pocket to assemble it with the severed wrapper blank, mechanism for enfolding the ejected article in the severed wrapper blank with the latter projecting beyond the ends of the article, means for slitting the projecting wrapper ends, means for adhesively uniting the separated flaps formed by slitting the projecting end portions of the wrapper, and mechanism actuated by said carrier for applying adhesive to the web of wrapping material at sections which subsequently form one margin of the wrapper blanks severed therefrom, in order that the seam formed by overlapping the margins of the wrapper during the enfoldment of the article in the wrapper may be sealed.

3. In a wrapping machine, the combination with a feed table provided with longitudinal guides spaced to receive an article therebetween, of mechanism for advancing along said table endwise an article placed manually between said guides, a turret provided with a plurality of pockets and mounted adjacent one end of said table with its uppermost pocket in horizontal and vertical alignment with the table, and means for intermittently turning said turret to bring the pockets successively into alignment with said guides to receive an article advanced along said table, said mechanism including a pusher plate and means for moving said pusher plate over said table to push an article endwise therealong and then move said pusher plate back under said table whereby an article may be placed on the feed table during the retreating movement of the pusher plate.

4. The combination with an intermittently traveling carrier provided with a plurality of pockets each adapted to receive an article which is to be wrapped, of mechanism for feeding a web of wrapping material across each pocket successively while said carrier is traveling, and mechanism actuated by said carrier for applying adhesive to a predetermined section of said web while the same is being fed.

5. In a wrapping machine, the combination with a traveling carrier having a plurality of pockets, of a device for inserting articles into said pockets successively, said carrier including an intermittently rotating turret, having a hexagonal hub, brackets adjustably mounted on opposed pairs of adjacent faces of said hexagonal hub, side plates carried by each of said brackets, and bottom plates intermediate each pair of adjacent side plates and adjustable radially of said turret, whereby said side and bottom plates may be relatively adjusted to accommodate articles of varying width and thickness.

6. In a wrapping machine, the combination with a traveling carrier having a plurality of pockets, of a device for inserting articles into said pockets successively, mechanism for feeding a web of wrapping material across each pocket after it is filled, said carrier including a turret provided with diametrically opposed pockets each adapted to receive an article to be wrapped, and means for intermittently rotating said turret 180 degrees, and said web-feeding mechanism including an arm loosely mounted on the axis of said turret, a spiral spring connecting said arm to said turret to cause it to revolve with the turret, shafts loosely supported from the ends of said arm in positions adjacent said turret, sets of gripper plungers supported from said arm, sets of grippers mounted on said shafts to coact with said plungers to nip the leading edge of the web of wrapping material, and means for successively actuating the sets of grippers to nip the web against the coacting plungers and thus draw the web over one of said pockets and thereafter release the web.

7. In a wrapping machine, the combination with a traveling carrier having a plurality of pockets, of a device for inserting articles into said pockets successively, mechanism for feeding a web of wrapping material across each pocket after it is filled, means for then severing a wrapper blank from the web after it has been drawn over a filled pocket, and means for ejecting the article from each filled pocket, said article-ejecting means including a number of vertically movable supporting plungers adapted to press the web against the article therein, after the web has been drawn over the respective pocket, and said web-severing means including a shear-plate mounted on said carrier, a knife mounted to revolve about a stationary axis and inclined longitudinally thereof, and a device for periodically revolving said knife about its axis to sever the web along said shear-plate with a draw cut after said plungers have pressed the web against the article in the pocket.

8. In a wrapping machine, the combination with a traveling carrier having a plurality of pockets, of mechanism for feeding a web of wrapping material across each pocket and mechanism for severing a wrapper blank from the web, said web-severing mechanism including a yieldingly mounted shear-plate on said carrier, a knife revolving about a stationary axis and inclined longitudinally thereof to sever the web along the shear-plate with a draw cut, and a device revolving with said knife to engage and depress said plate so that it will register with said knife during the severing of the web to sever the web along said shear-plate with a draw cut.

9. In a wrapping machine, the combination with a traveling carrier having a plurality of pockets, of a device for inserting articles into said pockets successively, mechanism for feeding a web of wrapping material across each pocket after it is filled, mechanism for severing a wrapper blank from the web after it has been drawn across a filled pocket, and means for ejecting the article from each filled pocket, said carrier including an intermittently rotating turret provided with diametrically opposite pockets each adapted to receive an article to be wrapped and provided with bottom plates movable radially of the turret, and said article-ejecting means including devices for moving said bottom plates radially outward of the turret to eject the article, supporting plungers, and mechanism for actuating said supporting plungers to press the web against the article in the respective pocket while the web is being severed and press the severed wrapper blank against the article while the latter is being ejected from the pocket.

10. In a wrapping machine, the combination with a traveling carrier having a plurality of pockets, of a device for inserting articles into said pockets successively, mechanism for feeding a web of wrapping material across each pocket, mechanism for severing a wrapper blank from the web, means for ejecting the article from each filled pocket and means for partially enfolding it in the severed wrapper blank, said means for partially enfolding the article in the severed wrapper blank including a horizontally reciprocating transfer table on which the article is deposited with the severed wrapper when ejected from the carrier, folder fingers adapted to press the wrapper blank against the sides of the article deposited on said table, and mechanism for actuating said folder fingers.

11. In a wrapping machine, the combination with a traveling carrier having a plurality of pockets, of a device for inserting articles into said pockets successively, mechanism for feeding wrapping material across each pocket after it is filled, means for ejecting the article from each filled pocket and means for partially enfolding it in the wrapping material, and means for completing the enfoldment of the article in the wrapper, said means for parially enfolding the article in the wrapping material including a hor-

izontally reciprocating transfer table on which the article is deposited with the wrapping material when ejected from the carrier, folder fingers adapted to press the wrapping material against the sides of the article deposited on said table, mechanism for actuating said folder fingers, and said means for completing the enfoldment of the article in the wrapping material including a reciprocating folder plate advancing at a speed substantially greater than that of the folding table to lay the trailing margin of the wrapping material over the top of the article, a roller under which the article is advanced on said table to lap the leading margin of the wrapping material over the trailing margin laid by said folder plate, and mechanism for actuating said folder plate.

12. In a wrapping machine, the combination with a traveling carrier having a plurality of pockets, of a device for inserting articles into said pockets successively, mechanism for feeding a wrapping material across each pocket after it is filled, means for ejecting the article from each filled pocket and means for partially enfolding it in the wrapping material with the latter projecting beyond the ends of the article, and means for slitting the portions of the wrapping material projecting over the ends of the article, said means for partially enfolding the article in the wrapping material including a horizontally reciprocating transfer table on which the article is deposited with the wrapping material when ejected from the carrier, folder fingers adapted to press the wrapping material against the sides of the article deposited on said table, and mechanism for actuating said folder fingers, and said slitting means including spring-pressed slide-rods controlled by the mechanism for actuating said fingers, slitting knives carried by said slide-rods, and mechanism for actuating said slide-rods to swing the slitting knives in and out of slitting position.

13. In a wrapping machine, the combination with a traveling carrier having a plurality of pockets, of a device for inserting articles into said pockets successively, mechanism for feeding wrapping material across each pocket after it is filled, means for ejecting the article from each filled pocket, means for partially enfolding it in the wrapping material with the latter projecting beyond the ends of the article, means for completing the enfoldment of the article in the wrapping material, and means for slitting the portions of the wrapper projecting beyond the article, said slitting means including slitting knives and mechanism for actuating said slitting means to swing the slitting knives into slitting position after the article has been partially enfolded, and out of slitting position after the enfoldment of the article has been completed.

14. In a wrapping machine, the combination with a traveling carrier having a plurality of pockets, of a device for inserting articles into said pockets successively, mechanism for feeding wrapping material across each pocket after it is filled, means for ejecting the article from each filled pocket, means for enfolding it in the wrapping material with the latter projecting beyond the ends of the article, means for slitting the portions of the wrapping material projecting over the ends of the article, means for adhesively uniting the separated flaps formed by slitting the projecting portions of the wrapping material, said flap-uniting means including means for spreading the separated flaps formed by slitting the overhanging portions of the wrapping material, a device for pinching said flaps together adjacent their bases to prevent application of adhesive to the enfolded article, a dauber for applying adhesive to the interior of the spread and pinched flaps, and mechanism for pressing the adhesive-coated flaps together to unite and seal the same.

15. The combination with a traveling carrier having a plurality of pockets, of a device for inserting articles into said pockets successively, mechanism for feeding a web of wrapping material across each filled pocket while it is traveling, means for severing a wrapper blank from the web, means for ejecting the article from each filled pocket, mechanism for partially enfolding it in the severed wrapper blank with the latter projecting beyond the ends of the article, and means for slitting the portions of the wrapper projecting from the article.

16. The combination with an intermittently traveling carrier having a plurality of pockets, of a device for inserting articles into said pockets successively while said carrier is at rest, mechanism for intermittently feeding a web of wrapping material across each pocket thereof while it is traveling, means for severing a wrapper blank from the web, and mechanism for incapacitating said web-feeding mechanism when said device fails to deliver an article to the carrier pockets, said web-feeding mechanism being adjustable to start the feeding of the web sooner or later after the movement of the carrier has begun in order to feed a greater or lesser length of web over the traveling pocket.

17. The combination with a traveling carrier provided with a plurality of pockets, of mechanism for feeding a web of wrapping material across each pocket successively while said carrier is traveling, said carrier including an intermittently rotating turret on which said pockets are mounted and each of which is adapted to receive an article from said device, and said web-feeding mechanism including devices supported adjacent said turret to grip the leading edge of the web of wrapping material and draw the web over each pocket successively during the rotation of the turret, and means for actuating said devices to grip the web and then release it after drawing the same over the pocket.

18. The combination with a traveling carrier provided with a plurality of pockets, of mechanism for feeding a web of wrapping material across each pocket successively while said carrier is traveling, said carrier including a turret provided with diametrically opposed pockets, and means for intermittently rotating said turret 180 degrees, and said web-feeding mechanism including arms loosely mounted on the axis of said turret, a spiral spring connecting said arm to said turret to cause it to revolve with the turret, shafts loosely supported from the ends of said arm in positions adjacent said turret, sets of gripper plungers supported from said arms, sets of grippers mounted on said shafts to coact with said plungers to nip the leading edge of the web of wrapping material, and means for successively actuating said shafts to cause the sets of grippers to nip the web against the coacting plungers, and thus draw the web over one of said pockets and thereafter release the web.

19. The combination with mechanism for enfolding an article in a wrapper with the latter projecting beyond the article, of means for slitting the projecting portions of the wrapper, and

means for adhesively uniting the separated flaps formed by slitting the projecting portions of the wrapper.

20. The combination with a traveling carrier provided with a pocket adjustable to receive articles of varying size, of means for drawing a web of wrapping material across said pocket while said carrier is traveling, said web-drawing means being adjustable to vary the length of wrapping material drawn over the pocket.

21. The combination with a traveling carrier provided with a plurality of pockets adjustable to receive articles of varying size, of means for drawing a web of wrapping material across each pocket successively while said carrier is traveling, said web-drawing means being adjustable to vary the length of wrapping material drawn over the pockets, said carrier including a turret on which said pockets are mounted, and means for rotating said turret step by step, and said web-drawing means including a web-feeding arm loosely mounted on the axis of said turret, a spiral spring connecting said web-feeding arm to said turret to cause it to revolve with the turret, shafts loosely supported from the ends of said web-feeding arm in positions adjacent the turret, sets of gripper plungers supported from the ends of said arm, sets of grippers mounted on said shafts to coact with said plungers to nip the leading edge of the web of wrapping material, mechanism supported from the ends of said web-feeding arm for turning said shafts to cause the sets of grippers to nip the web against the coacting plungers, a control arm pivoted on the axis of said turret, devices on the ends of said control arm for actuating said mechanism and obstructing the movement of said web-feeding arm imparted from the turret, and adjustable means for turning said control arm step by step to permit said web-feeding arm to follow the movement of said turret and draw the nipped web over one of said pockets, whereby adjustment of the means for turning the control arm will vary the length of wrapping material drawn over the pockets.

22. The combination with a traveling carrier provided with a plurality of pockets adjustable to receive articles of varying size, of means for drawing a web of wrapping material across each pocket succcssively while said carrier is traveling, said web-drawing means being adjustable to vary the length of wrapping materail drawn over the pockets, said carrier including a turret on which said pockets are mounted, a lug on said turret, and means for rotating said turret step by step, and said web-feeding means including a feeding arm loosely mounted on the axis of said turret, a spiral spring connecting said feeding arm to said turret and pressing it against said turret lug to cause it to revolve with said turret, means supported from the ends of said arm to nip and draw the web over the pockets successively, a control arm pivoted on the axis of the turret, devices on the ends of said control arm for obstructing the movement of the feeding arm imparted from the turret and actuating said web-nipping means, adjustable means for turning said control arm step by step to permit said feeding arm to follow the movement of the turret and draw the nipped web over one of the pockets, whereby adjustment of the means for turning the control arm will vary the length of wrapping material drawn over the pockets, and means for successively disengaging said devices from the feeding arm when the control arm comes to rest to permit the feeding arm to re-engage the turret lug and turn with the turret.

23. The combination with a traveling carrier provided with a plurality of pockets adjustable to receive articles of varying size, of means for drawing a web of wrapping material across each pocket successively while said carrier is traveling, said web-drawing means being adjustable to vary the length of wrapping material drawn over the pockets, said carrier including a turret on which said pockets are mounted, a lug on said turret, and means for rotating said turret step by step, and said web-feeding means including a feeding arm loosely mounted on the axis of said turret, a spiral spring connecting said feeding arm to said turret and pressing it against said turret lug to cause it to revolve with said turret, means supported from the ends of said arm to nip and draw the web over the pockets successively, a control arm pivoted on the axis of the turret, devices on the ends of said control arm for obstructing the movement of the feeding arm imparted from the turret and actuating said web-nipping means, adjustable means for turning said control arm step by step to permit said feeding arm to follow the movement of the turret and draw the nipped web over one of the pockets, whereby adjustment of the means for turning the control arm will vary the length of wrapping material drawn over the pockets, means for successively disengaging said devices from the feeding arm when the control arm comes to rest to permit the feeding arm to re-engage the turret lug and turn with the turret, and means for turning said feeding arm after it has been disengaged by said device to cause it to gently re-engage with the turret lug.

24. The combination with a traveling carrier provided with a plurality of pockets adjustable to receive articles of varying size, of means for drawing a web of wrapping material across each pocket successively while said carrier is traveling, said means being adjustable to vary the length of wrapping material drawn over the pockets, and mechanism for severing a wrapper blank from the leading end of the web after the same has been drawn over the pocket.

25. The combination with a traveling carrier provided with a plurality of pockets adjustable to receive articles of varying size, of means for drawing a web of wrapping material across each pocket successively while said carrier is traveling, said mechanism being adjustable to vary the length of wrapping material drawn over the pockets, mechanism for severing a wrapper blank from the leading end of the web after the same has been drawn over the pocket, said carrier including a turret on which said pockets are mounted, and means for rotating said turret step by step, and said web-feeding means including a feeding arm loosely mounted on the axis of said turret, a spiral spring connecting said feeding arm to said turret to cause it to revolve with the turret, means supported from the ends of said arm to nip and draw the web over the pockets successively, a control arm pivoted on the axis of the turret, devices on the ends of said control arm successively obstructing the movement of the feeding arm imparted from the turret and actuating said web-nipping means, and means for turning said control arm step by step to permit said feeding arm to follow the movement of the turret and draw the nipped web over one of the pockets, and means for successively disengaging said devices from the feeding arm when

the control arm comes to rest and the severing mechanism has cut a wrapper blank from the web.

26. The combination with a traveling carrier provided with a plurality of pockets adjustable to receive articles of varying size, of means for drawing a web of wrapping material across each pocket successively while said carrier is traveling, said mechanism being adjustable to vary the length of wrapping material drawn over the pockets, mechanism for severing a wrapper blank from the leading end of the web after the same has been drawn over the pocket, said severing mechanism including shear-plates mounted on said carrier, and a stationary rotary knife coacting with said shear-plates successively to cut a wrapper blank from the web after it has been drawn over one of the pockets.

27. The combination with a traveling carrier provided with a plurality of pockets adjustable to receive articles of varying size, of means for drawing a web of wrapping material across each pocket successively while said carrier is traveling, said mechanism being adjustable to vary the length of wrapping material drawn over the pockets, mechanism for severing a wrapper blank from the leading end of the web after the same has been drawn over the pocket, said carrier including a turret on which said pockets are mounted, a lug on said turret, and means for rotating said turret step by step, and said web-feeding means including a feeding arm loosely mounted on the axis of the turret, a spiral spring connecting said feeding arm to said turret and pressing it against said turret lug to cause it to revolve with said turret, means supported from the ends of said arm to nip and draw the web over the pockets successively, a control arm pivoted on the axis of the turret, devices on the ends of said control arm for obstructing the movement of the feeding arm imparted from the turret and actuating said web-nipping means, adjustable means for turning said control arm step by step to permit said feeding arm to follow the movement of the turret and draw the nipped web over one of the pockets, whereby adjustment of the means for turning the control arm will vary the length of wrapping material drawn over the pockets, and means for successively disengaging said devices from the feeding arm when the control arm comes to rest and the wrapper blank has been severed from the web drawn over the pocket, to permit the feeding arm to reengage the turret lug and turn with the turret.

28. The combination with a traveling carrier provided with a plurality of pockets adjustable to receive articles of varying size, of means for drawing a web of wrapping material across each pocket successively while said carrier is traveling, said mechanism being adjustable to vary the length of wrapping material drawn over the pockets, mechanism for severing a wrapper blank from the leading end of the web after the same has been drawn over the pocket, and means for ejecting the article from each pocket successively and enfolding it in the severed wrapper.

29. The combination with an intermittently traveling carrier provided with a plurality of pockets, of intermittently operating mechanism synchronized with said carrier for feeding a web of wrapping material across each pocket successively while said carrier is traveling, and means for applying adhesive to a predetermined section of said web while the same is being fed, said carrier and web-feeding mechanism moving constantly in the same direction, and said web-feeding mechanism operating to feed said web at a speed greater than that of the carrier.

30. The combination with an intermittently traveling carrier provided with a plurality of pockets, of intermittently operating mechanism synchronized with said carrier for feeding a web of wrapping material across each pocket successively while said carrier is traveling, means for applying adhesive to a predetermined section of said web while the same is traveling, and mechanism for severing a wrapper from the web after adhesive has been applied thereto, to provide a wrapper having a pasted margin, said carrier and web-feeding mechanism moving constantly in the same direction, and said web-feeding mechanism operating to feed said web at a speed greater than that of the carrier.

31. The combination with a traveling carrier provided with a pocket adapted to receive an article to be wrapped, of mechanism for feeding a web of wrapping material across said pocket while said carrier is traveling, said mechanism including a member traveling with said carrier but at a different speed and devices on said member for gripping said web and drawing it over said pocket.

32. In a wrapping machine intended for wrapping articles characterized by soft structure and considerable lateral extent, the combination with a traveling member having a plurality of folders spaced apart sufficiently to admit therebetween an article in horizontal position, of a device for inserting such articles edgewise between said folders in horizontal position, mechanism for feeding wrapping material above said member and folders before an article is deposited between the folders, mechanism for severing a wrapper blank from the web, mechanism for ejecting said articles substantially at right angles to the path of insertion, means for actuating said folders to press the wrapping material against the sides of the article inserted therebetween, mechanism for completing the enfoldment of the article in the wrapping material with the latter projecting beyond the ends of the article and means for sealing the projecting portions of the wrapper.

33. In a wrapping machine intended for wrapping articles characterized by soft structure and considerable lateral extent, the combination with a traveling member having a plurality of folders spaced apart sufficiently to admit freely therebetween an article in horizontal position, of a device for inserting such articles edgewise between said folders in horizontal position, mechanism for feeding a web of wrapping material above said member and folders before the article is deposited between the latter, mechanism for severing a wrapper blank from the web, mechanism for ejecting said articles substantially at right angles to the path of insertion, means for actuating said folders to press the wrapper against the sides of the article inserted therebetween, mechanism for completely enfolding the article in the wrapper, and mechanism for applying adhesive to the web of wrapping material at sections which subsequently form one margin of the wrapper blanks severed therefrom, in order that the seams formed by overlapping the margins of the wrapper during the enfoldment of the article may be sealed during said enfolding operation.

34. In a wrapping machine intended for wrapping articles characterized by soft structure and considerable lateral extent, the combination with

a traveling carrier having a plurality of pockets, of a device for inserting such articles edgewise into said pockets successively, mechanism for feeding a web of wrapping material above said carrier, a plurality of folders interposed between said pockets and the path of said web so disposed as to admit said article freely therebetween in a horizontal position, mechanism for ejecting said articles substantially at right angles to the path of insertion, means for severing a wrapper blank from the web, means for enfolding the deposited article in the severed wrapper blank, and means for incapacitating said web feeding mechanism when said device fails to deliver an article to the carrier pockets.

35. In a wrapping machine intended for wrapping articles characterized by soft structure and considerable lateral extent, the combination with a traveling member having a plurality of folders spaced apart sufficiently to admit freely therebetween an article in a horizontal position, of a device for inserting such articles edgewise between said folders in a horizontal position, mechanism for feeding a web of wrapping material above said member and folders before an article is deposited between the latter, mechanism for ejecting said articles substantially at right angles to the path of insertion, means for severing a wrapper blank from the web, means for actuating said folders to press the severed wrapper against the side of the article deposited therebetween, mechanism for completely enfolding the article in the wrapper blank with the latter projecting beyond the ends of the article, means for sealing the projecting end portions of the wrapper, means for conveying the enfolded packages past said end sealing means, and means for incapacitating said end sealing means when there is no package in said conveying means.

36. The combination with an intermittently traveling carrier moving constantly in one direction and having a plurality of pockets, of mechanism for intermittently feeding wrapping material across each pocket while it is traveling, said mechanism being adjustable to start feeding sooner or later after the movement of said carrier has begun, in order to feed a greater or less length, respectively, of wrapping material across the traveling pocket.

37. The combination with an intermittently traveling carrier moving constantly in one direction and provided with a plurality of pockets each adapted to receive an article, of mechanism for gripping the leading end of a web of wrapping material and drawing the web across each pocket successively while said carrier is traveling, and means for severing said web to provide the desired lengths of wrapping material for the articles, said web-feeding mechanism including a member moving contantly in the direction of movement of said carrier and grippers on said member coacting to intermittently seize the leading end of said web and release it after drawing the web across the traveling pockets.

38. The combination with a traveling carrier provided with a pocket adapted to receive an article to be wrapped, of mechanism for feeding a web of wrapping material across said pocket while said carrier is traveling, said mechanism including a member traveling with said carrier, but at a higher rate of speed, and devices on said member for gripping said web and drawing it over said pocket.

39. The combination with a traveling carrier provided with a pocket adapted to receive an article to be wrapped, of mechanism for feeding wrapping material across said pocket while said carrier is traveling, said mechanism including a member traveling with said carrier, but at a higher rate of speed, and means operating at coordinated relatively high speed for folding said wrapper partially about said article.

40. The combination with a traveling carrier provided with a pocket adapted to receive an article to be wrapped, of mechanism for feeding wrapping material across said pocket while said carrier is traveling, said mechanism including a member traveling with said carrier, but at a higher rate of speed, means operating at coordinated relatively high speed for folding said wrapper partially about said article, and devices operating at coordinated relatively high speed for slitting said wrapper concurrently with the phase of joint forward travel of said article, wrapping means and slitting devices.

41. The combination with a traveling carrier provided with a pocket adapted to receive an article to be wrapped, of mechanism for feeding wrapping material across said pocket while said carrier is traveling, said mechanism including a member traveling with said carrier, but at a higher rate of speed, means operating at coordinated relatively high speed for folding said wrapper partially about said article, and devices operating at coordinated relatively high speed for slitting said wrapper concurrently with the phase of joint forward travel of said article, wrapping means and slitting devices, the travel of said carrier being unidirectional, while said member, said wrapping means and said slitting devices have a harmonic motion respectively.

42. The combination with a carrier having a unidirectional travel and provided with a plurality of pockets each adapted to receive an article to be wrapped, of mechanism for feeding successive supplies of wrapping material across each pocket in turn while said carrier is traveling, said mechanism including a reciprocating member traveling with said carrier in one direction only, and at a higher rate of speed, for drawing an individual supply of wrapping material over each article in turn, reciprocating means operating at coordinated relatively high speed for folding each wrapper about its corresponding article, and reciprocating slitting devices for slitting said wrapper concurrently with the phase of joint advance of said article, wrapping means and slitting means.

43. In a wrapping machine, the combination with an intermittently traveling carrier having a plurality of pockets, of a device for inserting articles of soft structure and considerable lateral extent into said pockets edgewise while said carrier is at rest, mechanism traveling with said carrier and operating to feed wrapping material across each pocket after it has been filled, means for holding the wrapping material to an article, means for ejecting the article from each filled pocket to assemble it with the wrapping material, while the latter is so held to the article, mechanism for partially enfolding the article in the wrapping material with the latter projecting beyond the ends of the article, pressers for compressing the wrapper's ends, means for sealing the projecting portions of the wrapping material in outstanding relation to the article enfolded therein, and mechanism for completing the enfoldment of the article in the wrapping material, said sealing means including daubers operating to apply adhesive to the interior face of the pro-

jecting portions of the partially folded wrapping material, and means to withdraw said daubers to permit said presses to compress the wrapper's ends to set the end seals.

44. In a wrapping machine, the combination with an intermittently traveling endless carrier moving constantly in one direction and having a plurality of pockets, of a device for inserting articles into said pockets successively while said carrier is at rest, mechanism traveling in the same direction constantly with said carrier and operating to feed a web of wrapping material at a speed greater than that of the carrier across each pocket after it has been filled, means for severing a wrapper blank from the web of wrapping material after the latter has been drawn across the filled pocket, means for ejecting the article from each pocket to assemble it with the severed wrapper, and means for folding the wrapper about the article assembled therewith.

45. In a wrapping machine, the combination with a traveling carrier having a plurality of pockets each adapted to receive an article characterized by a soft structure and considerable lateral extent, of mechanism for feeding wrapping material across each pocket after it has been filled, means for ejecting each article in turn from its filled pocket, means for enfolding the ejected article in the wrapping material with the latter projecting beyond the ends of the article, and means for sealing the lengthwise seam and transverse end seams in continuation of each other with said projecting end portions of the wrapping material in outstanding relation to the article enfolded therein.

46. The combination with mechanism for enfolding an article in a wrapper with the latter projecting beyond the ends of the article, of means for sealing the projecting portions of the wrapper in outstanding relation to the article, said means operating to adhesively unite said outstanding portions and including members for applying adhesive to the interior face of the projecting portions of the wrapper.

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