June 2, 1931. H. A. SÉVIGNÉ 1,808,181

CONVERTIBLE WRAPPING MACHINE

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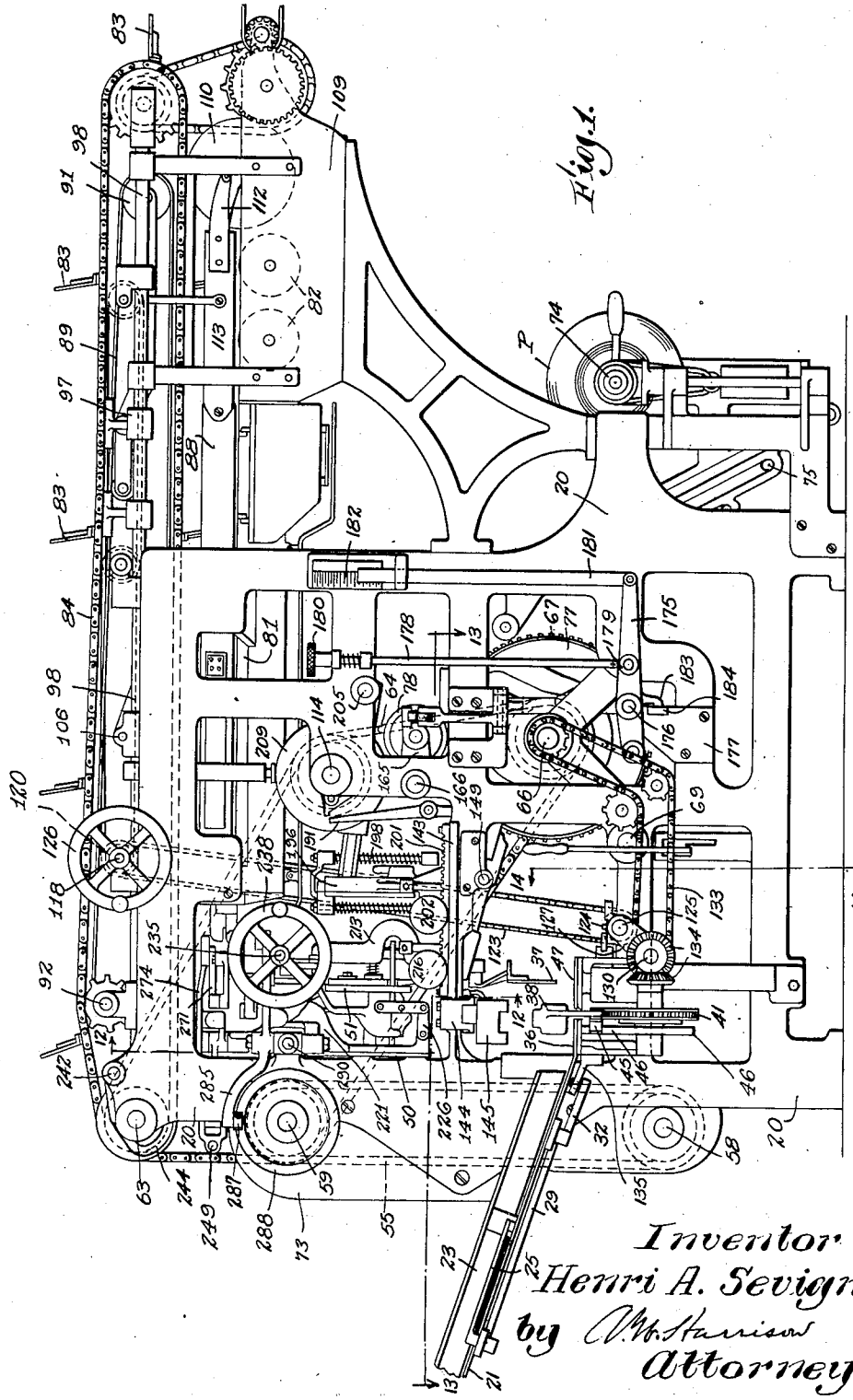


Fig. 1.

Inventor
Henri A. Sevigné
by A. W. Harrison
Attorney

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CONVERTIBLE WRAPPING MACHINE

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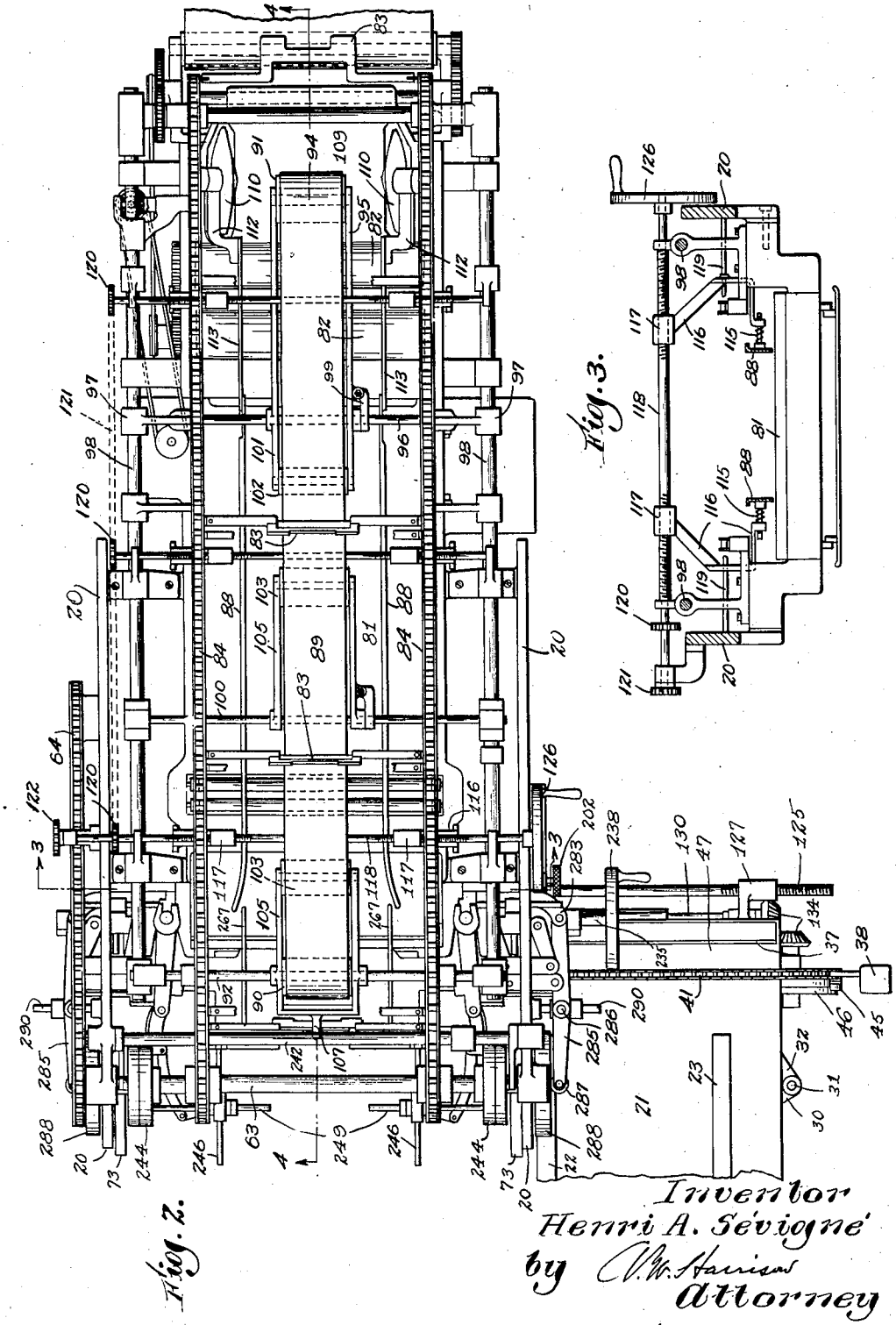


Fig. 2.

Fig. 3.

Inventor
Henri A. Sévigné
by A. W. Harrison
Attorney

June 2, 1931. H. A. SÉVIGNÉ 1,808,181

CONVERTIBLE WRAPPING MACHINE

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Fig. 4.

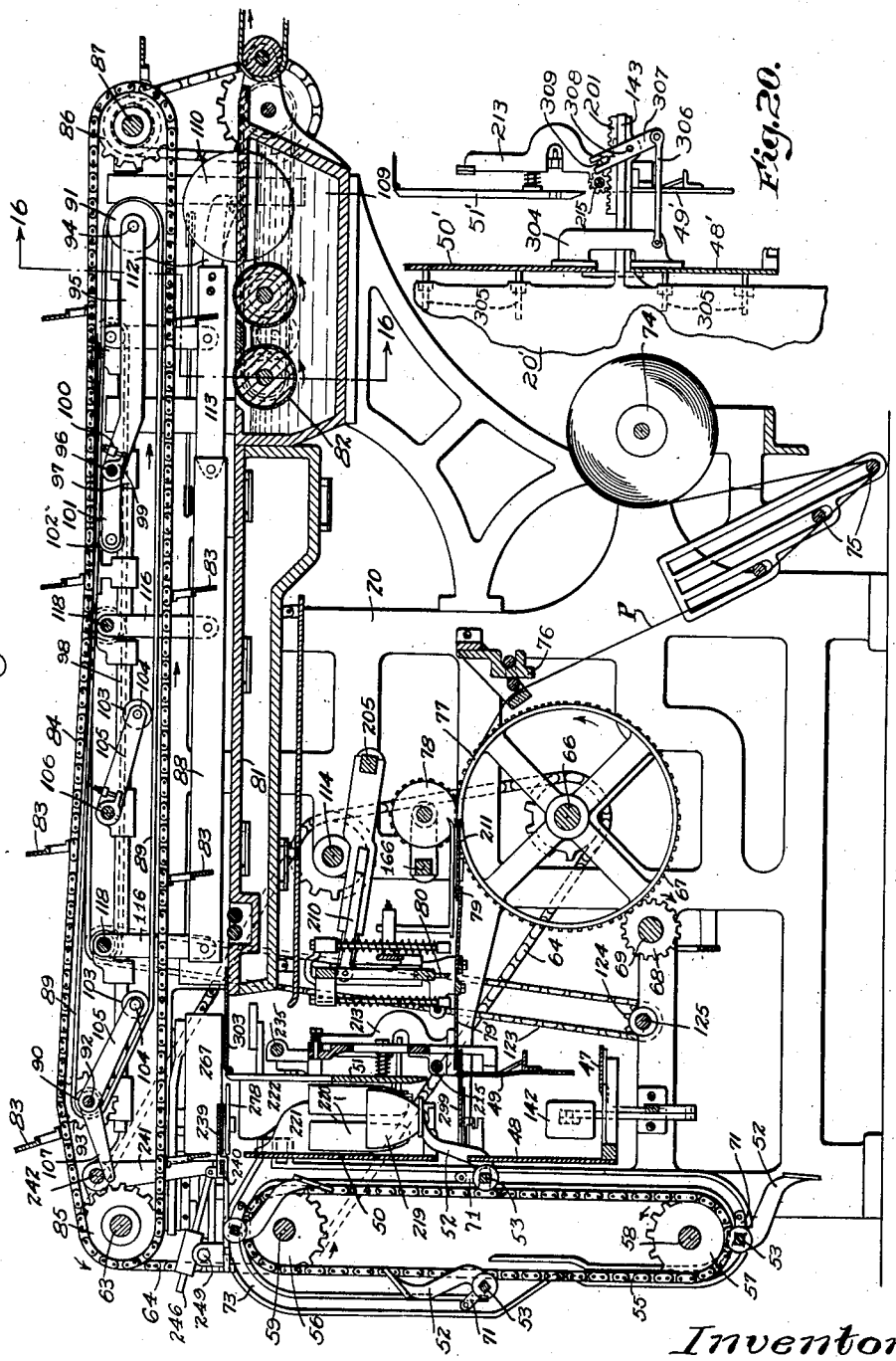


Fig. 20.

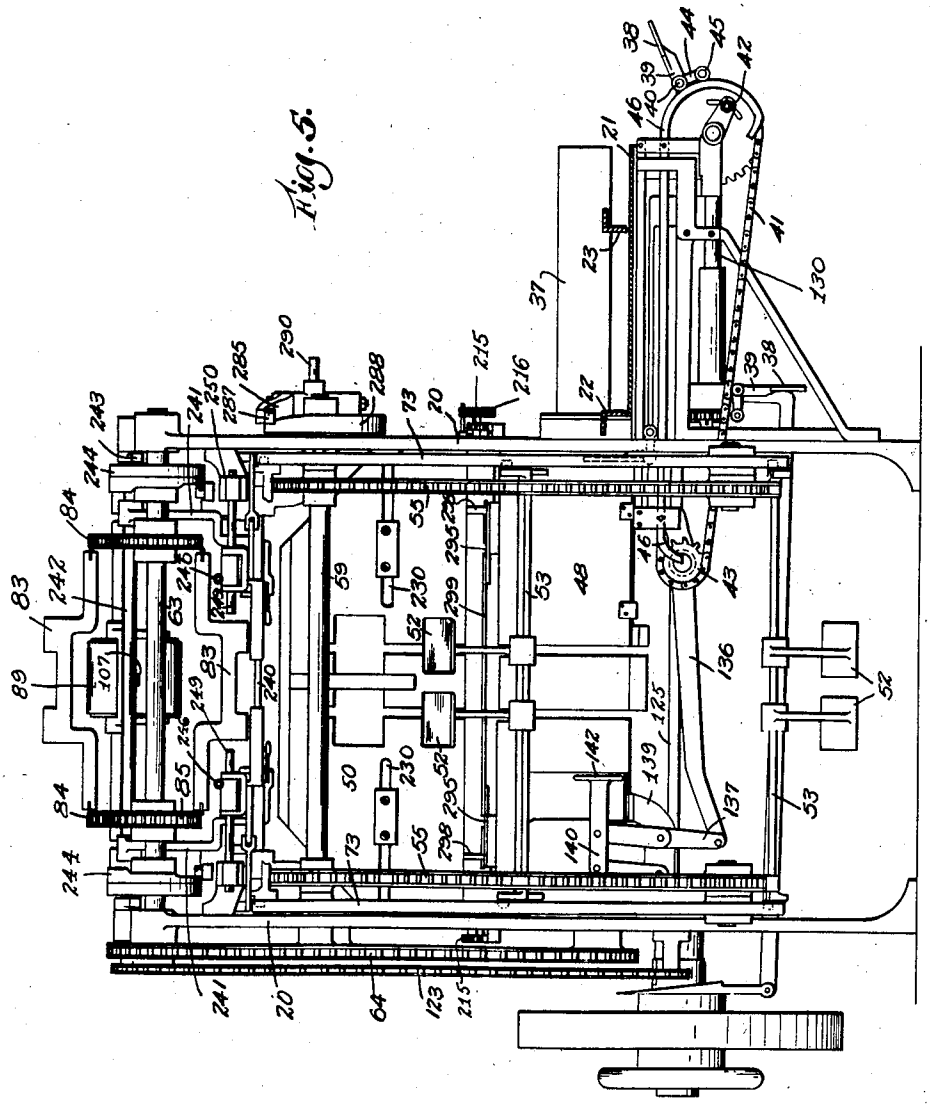
Inventor
Henri A. Sévigné
by A. W. Harrison
Attorney

June 2, 1931. H. A. SÉVIGNÉ 1,808,181

CONVERTIBLE WRAPPING MACHINE

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Fig. 5.



Inventor
Henri A. Sévigné
by A. W. Harrison
Attorney

June 2, 1931. H. A. SÉVIGNÉ 1,808,181

CONVERTIBLE WRAPPING MACHINE

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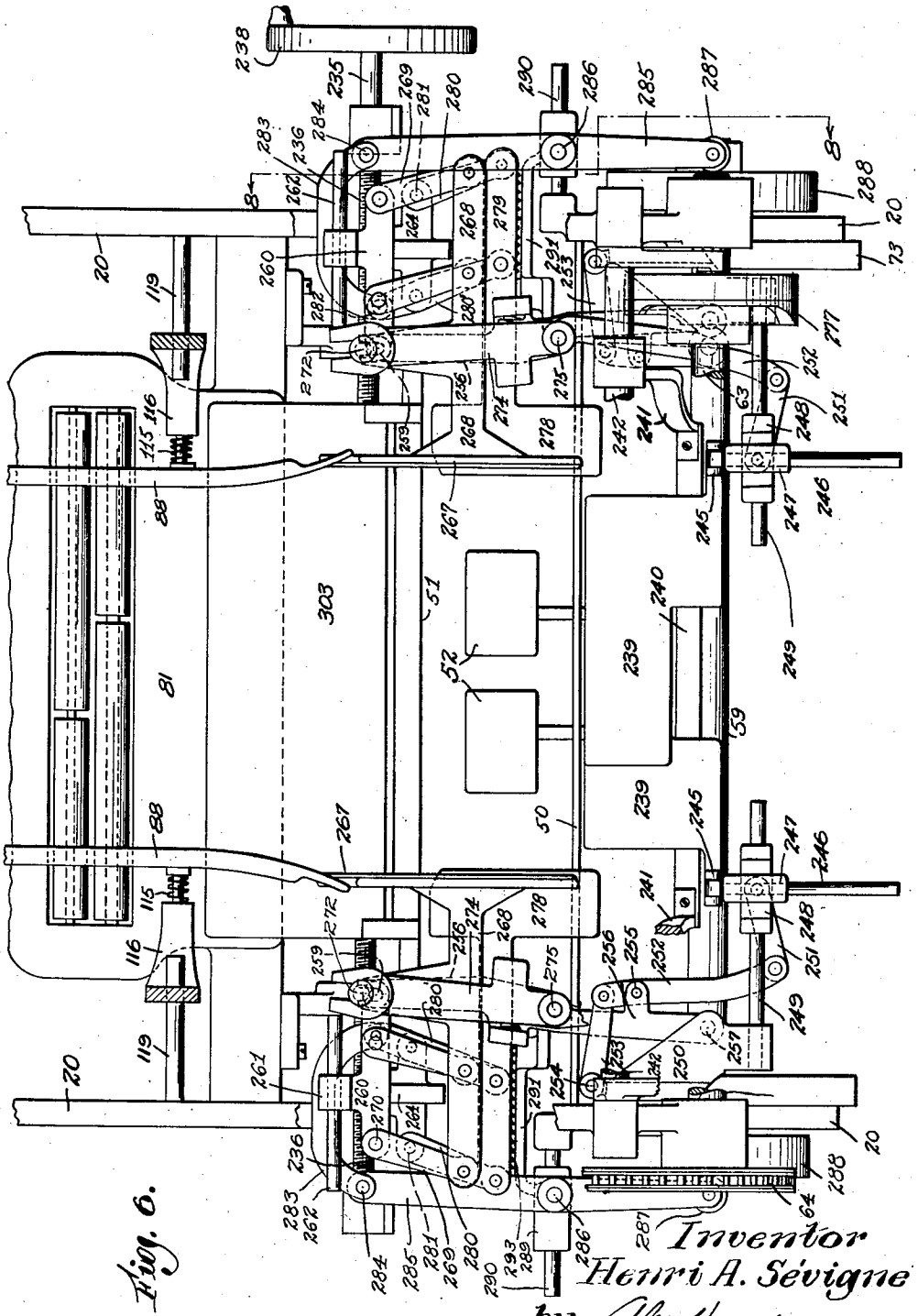


Fig. 6.

Inventor
Henri A. Sévigne
by W. Harrison
Attorney

June 2, 1931. H. A. SÉVIGNÉ 1,808,181

CONVERTIBLE WRAPPING MACHINE

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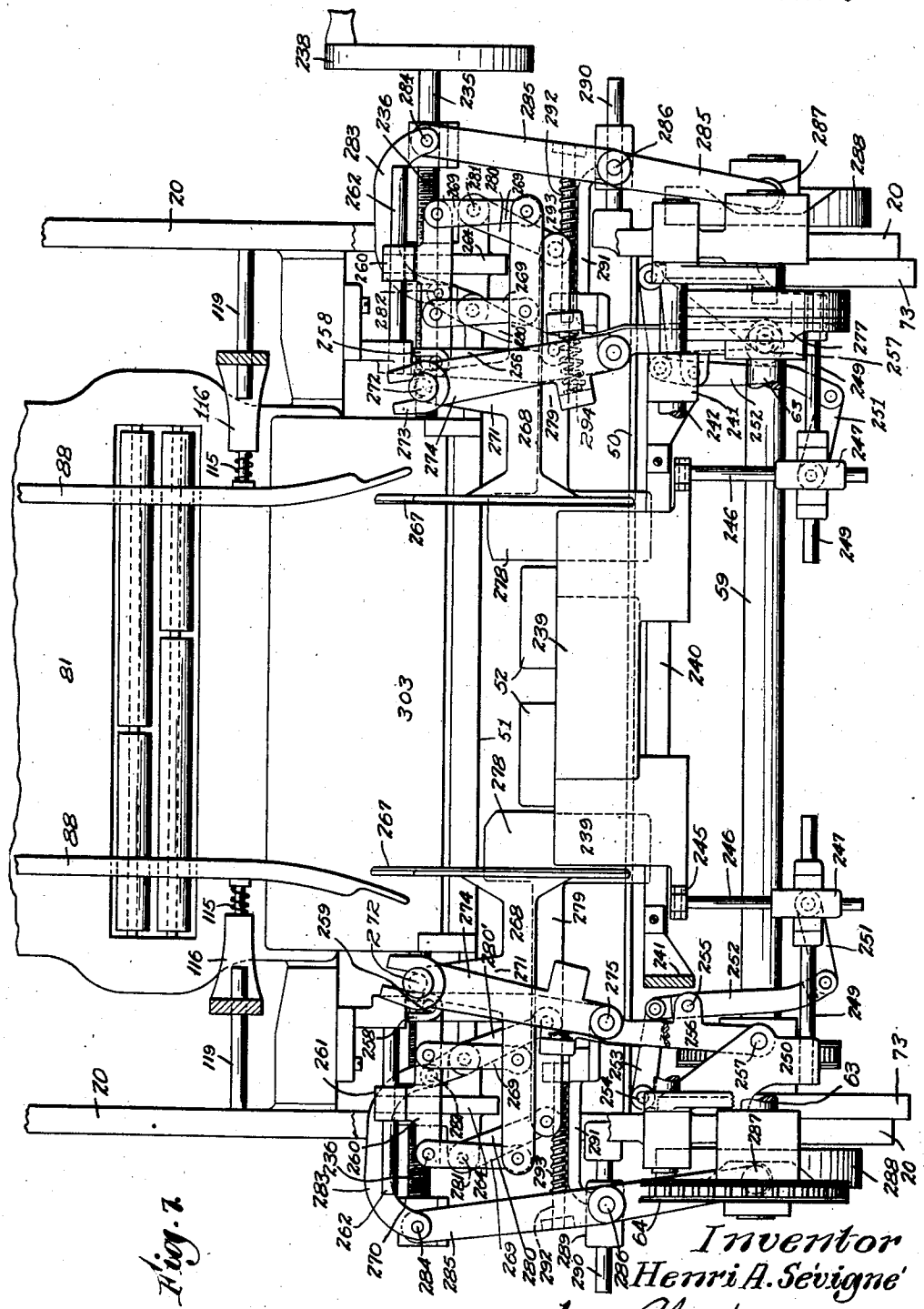


Fig. 1

Inventor
Henri A. Sévigné
by A. M. Harrison
Attorney

June 2, 1931. H. A. SÉVIGNÉ 1,808,181

CONVERTIBLE WRAPPING MACHINE

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Fig. 8.

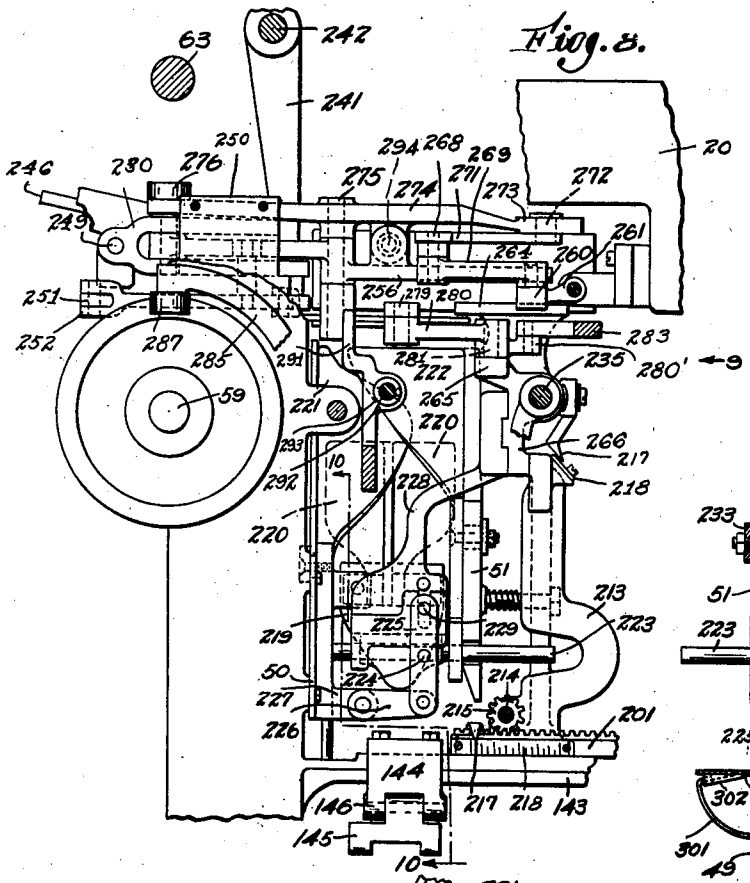
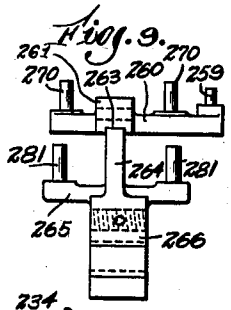


Fig. 9.



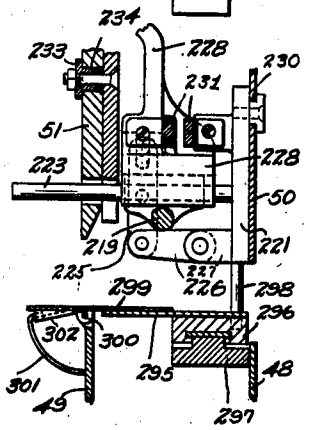


Fig. 11.

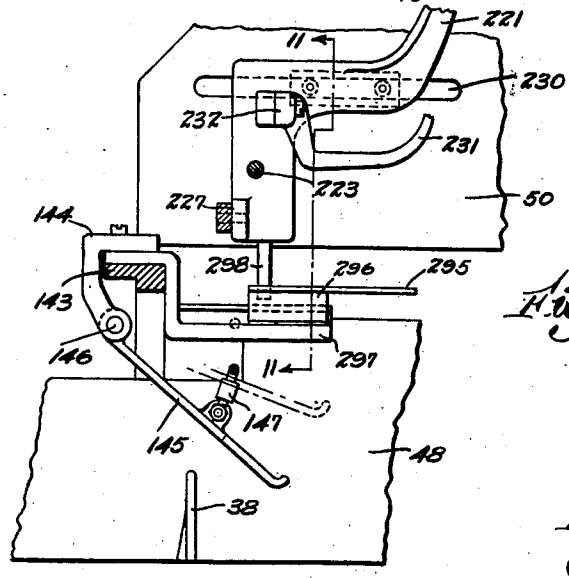


Fig. 10.

Inventor
Henri A. Sévigné
by W. Harrison
Attorney

June 2, 1931. H. A. SÉVIGNÉ 1,808,181

CONVERTIBLE WRAPPING MACHINE

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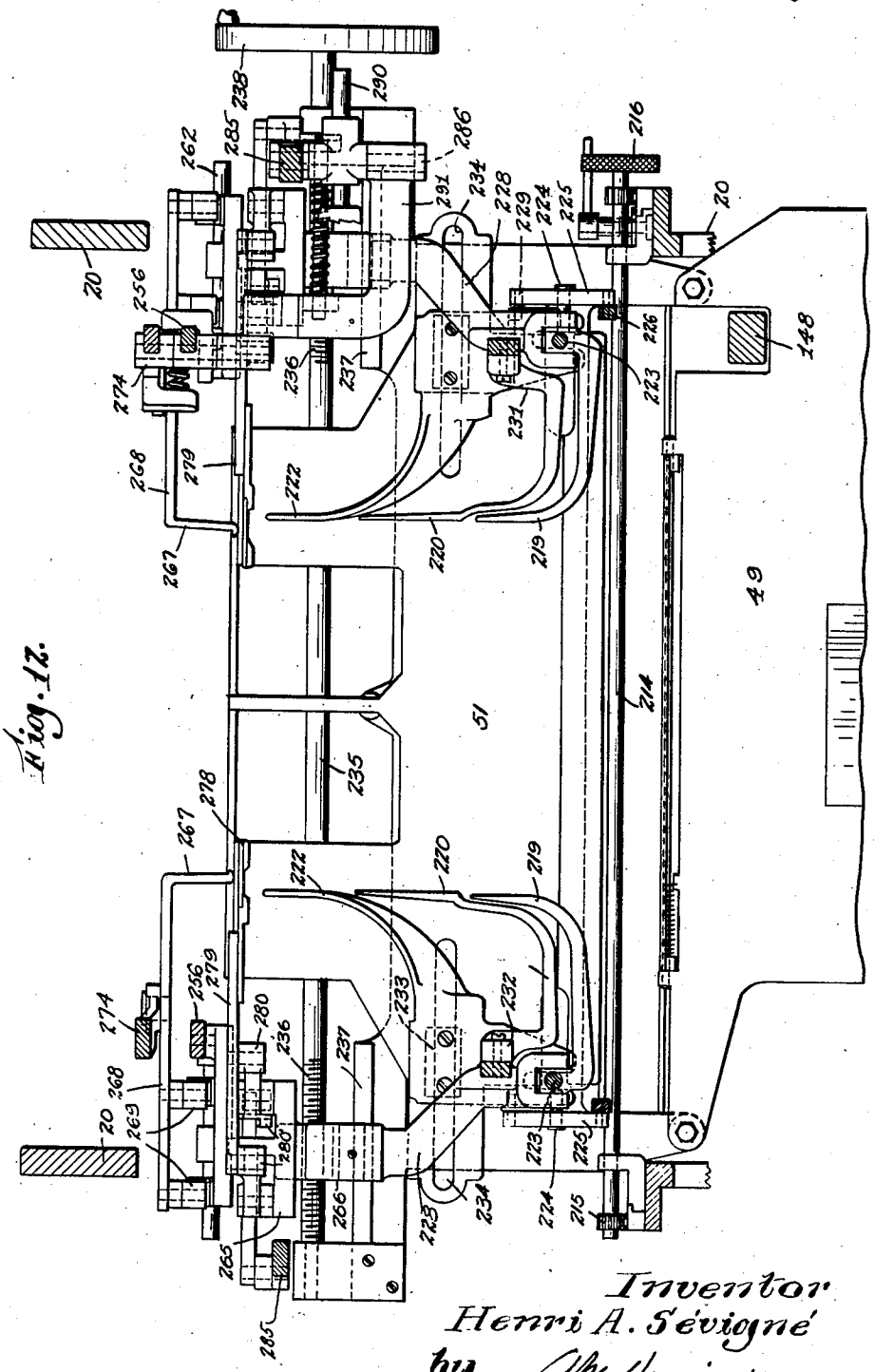


Fig. 12.

Inventor
Henri A. Sévigné
by W. H. Harrison
Attorney

June 2, 1931. H. A. SÉVIGNÉ 1,808,181

CONVERTIBLE WRAPPING MACHINE

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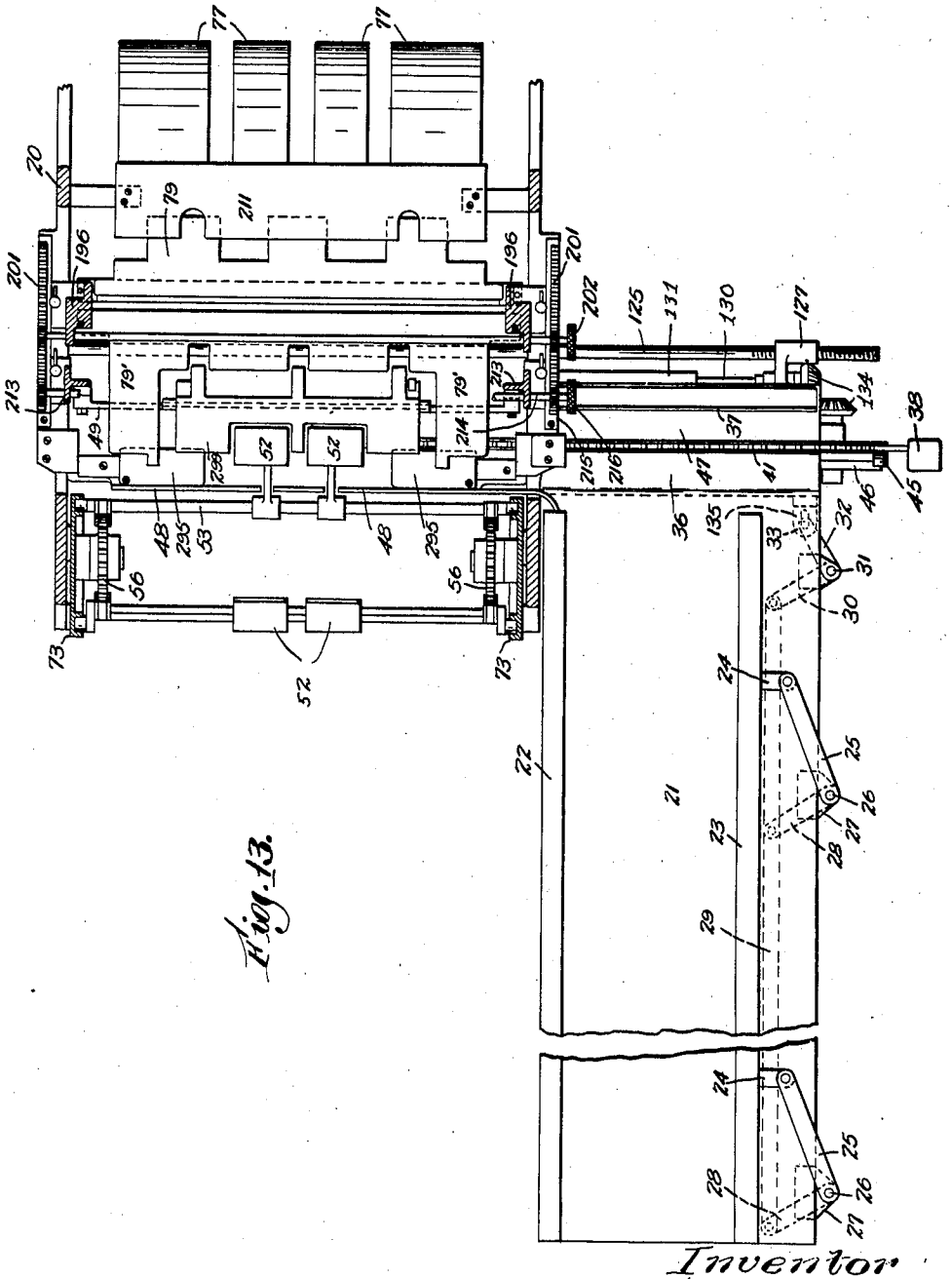


Fig. 13.

Inventor
Henri A. Sévigné
by A. M. Harrison
Attorney

June 2, 1931. H. A. SÉVIGNÉ 1,808,181

CONVERTIBLE WRAPPING MACHINE

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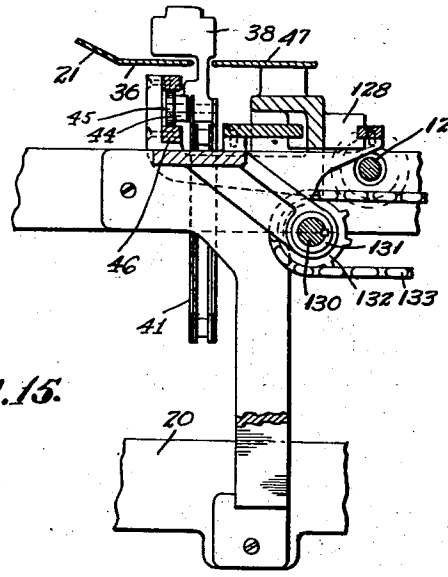
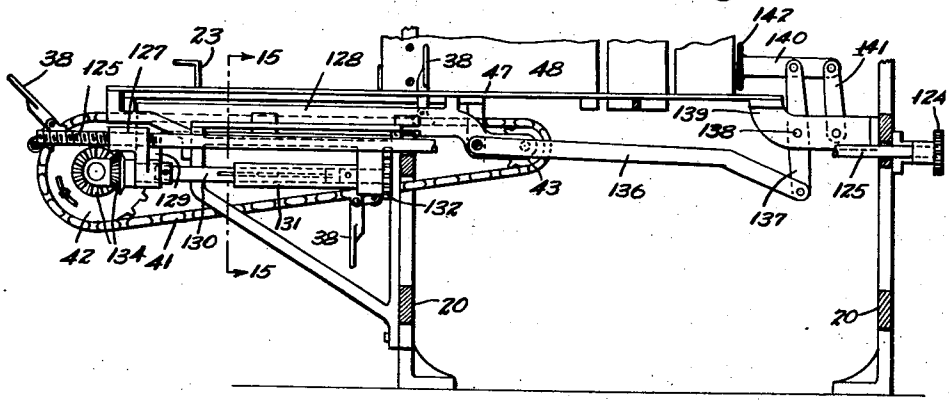


Fig. 15.

Fig. 14.



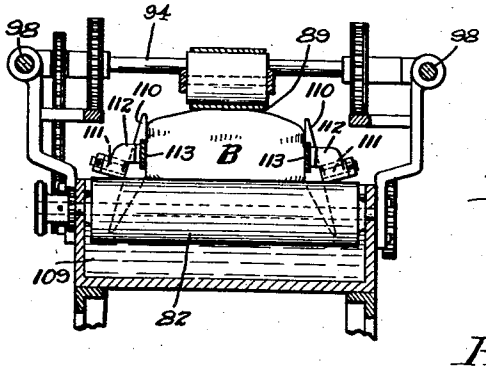


Fig. 16.

Inventor
Henri A. Sévigné
by A. M. Harrison
Attorney

June 2, 1931. H. A. SÉVIGNÉ 1,808,181

CONVERTIBLE WRAPPING MACHINE

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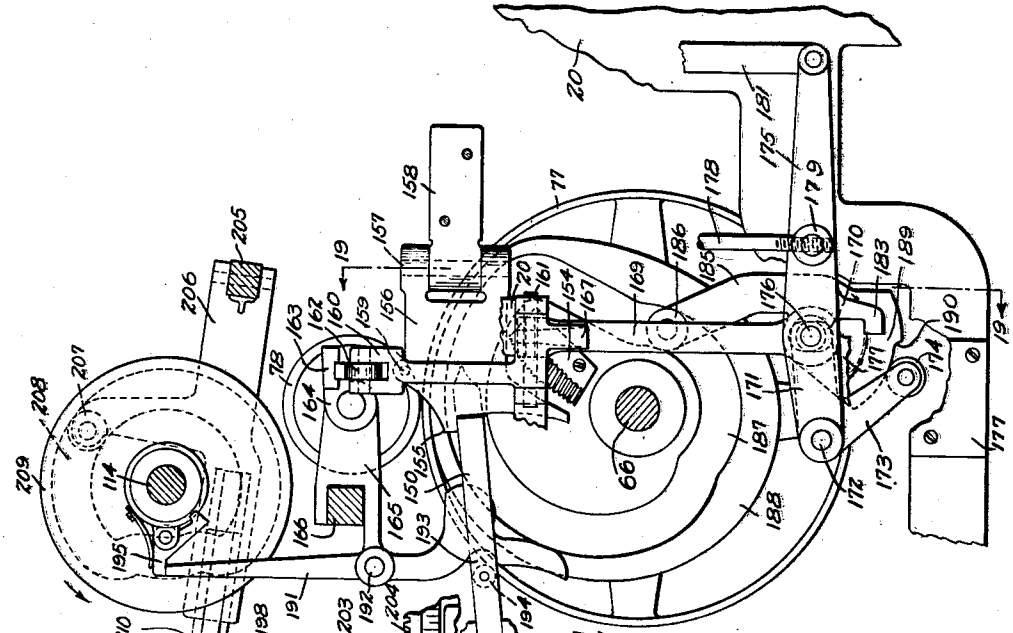


Fig. 17.

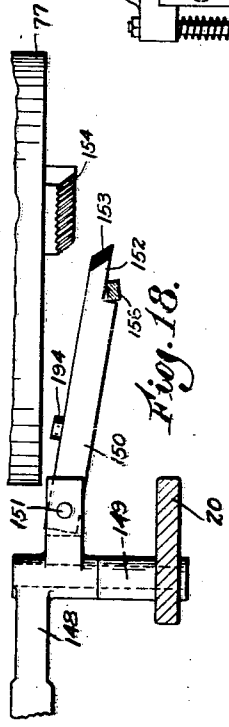


Fig. 18.

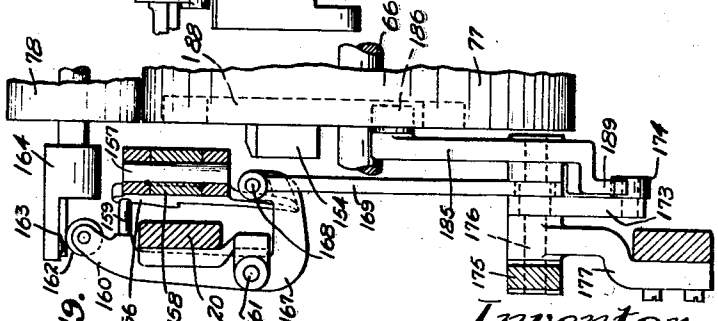


Fig. 19.

Inventor
Henri A. Sévigné
by A. M. Harrison
Attorney

Patented June 2, 1931 1,808,181

UNITED STATES PATENT OFFICE

HENRI A. SÉVIGNÉ, OF WINTHROP, MASSACHUSETTS, ASSIGNOR TO NATIONAL BREAD WRAPPING MACHINE COMPANY, OF SPRINGFIELD, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

CONVERTIBLE WRAPPING MACHINE

Application filed September 27, 1929. Serial No. 395,608.

This invention relates to wrapping machines, and has particular reference to machines adapted to wrap articles which vary more or less in shape or size or are quite irregular in form, such as loaves of bread.

The machine which will be described and claimed herein is similar in principle and operation to that which is described and claimed in Letters Patent No. 1,412,754 issued April 11, 1922 to Sevigne & Arnold, to which patent reference may be had for additional description of the structure and operation of those parts which are the same as or similar to parts of the present improved machine.

Many bakers do not confine their output to loaves baked in pans of uniform length and width. The loaves of some runs may be long, the loaves of other runs short, and the loaves of other runs of intermediate lengths. Also the loaves in some runs may differ considerably in width from the loaves in other runs.

It is not desirable that a baker, especially one whose plant is small, shall require a different machine for each of the different-size runs, and therefore the principal object of the present invention is to provide a machine which is readily convertible to either one of a variety of adjusted conditions, so that a single machine will successfully wrap the loaves of different-size runs, whether the loaves of one run are considerably longer or wider than the loaves of another run.

Another object is to provide improved means for maintaining pressure on the wrapped articles issuing from the machine, which means, by moving with the articles, will have no tendency to tilt the articles over.

Another object is to provide improved means for effecting quick cooling of all overlapped wax-carrying portions of the wrappers which have been heated, to harden or congeal the wax.

With the above and other objects hereinafter described in view, the invention consists in the construction and combination of parts substantally as hereinafter described and claimed.

Of the accompanying drawings:

Figure 1 is a side elevation of the machine.

Figure 2 is a plan view of the same.

Figure 3 represents a detail transverse section on line 3—3 of Figure 2.

Figure 4 represents a longitudinal section on line 4—4 of Figure 2.

Figure 5 is an end view looking from the left of Figure 1 and indicating the feed chute or slideway in section.

Figure 6 is a plan view of the portion of the machine illustrated at the left of Figure 1, on a larger scale.

Figure 7 is a view similar to Figure 6, showing some of the parts in different positions.

Figure 8 represents a section on line 8—8 of Figure 6.

Figure 9 is a detail view looking in the direction of the arrow 9, Figure 8.

Figure 10 represents a section on line 10—10 of Figure 8.

Figure 11 represents a section on line 11—11 of Figure 10.

Figure 12 represents a section on line 12—12 of Figure 1.

Figure 13 represents a section on line 13—13 of Figure 1 but omitting some parts to avoid confusion.

Figure 14 represents a section on line 14—14 of Figure 1.

Figure 15 represents a section on line 15—15 of Figure 14, on a larger scale.

Figure 16 represents a section on line 16—16 of Figure 4.

Figure 17 is a view similar to a portion of Figure 4, on a larger scale.

Figure 18 is a detail plan view of some of the parts shown in Figure 17.

Figure 19 represents a section on line 19—19 of Figure 17.

Figure 20 is a view similar to a portion of Figure 4 or Figure 8, illustrating a preferred construction to enable both the front and rear walls of the vertical folding passageway to be simultaneously adjusted relatively to each other.

Similar reference characters indicate similar parts or features in all of the views.

The main frame 20 of the machine comprises side members and suitable tie rods or bars. A gravity slideway for the articles to be wrapped comprises an inclined plate

21 (Figs. 1, 5 and 13) having a fixed guide rail 22 at one side and an adjustable guide rail 23 at the other side, to provide a slideway that may be adjusted to suit different lengths of articles such as loaves of bread, in order to accurately deliver them to proper position to be then introduced into the machine by the pushers presently described. It is important that the rail 23, when adjusted, shall always be parallel with the rail 22; that is, that the rail 23, when adjusted, shall shift an equal distance throughout its length. To accomplish this, the rail 23 has a plurality of lugs 24 each of which has a pivotal connection with one arm 25 of an elbow lever pivoted at 26 to a bracket 27 projecting from the edge of the plate 21 and having another arm 28 connected to a rod 29, whereby longitudinal adjustment of the rod 29 will vary the distance of the rail 23 from the rail 22 throughout its length. To provide for determining the longitudinal position of the rod 29, one end thereof is connected to an arm 30 of an elbow lever pivoted at 31 and having another arm 32 provided with a pin 33 engaging a slot in a lug or bracket 135 projecting from an adjustable slide which, when adjusted crosswise of the machine as hereinafter described, varies the distance of the rail 23 from the rail 22.

Although Figures 1, 2 and 13 illustrate the slideway as extending beyond one end of the main frame of the machine, it is to be understood that it may be located alongside it as illustrated in the Patent 1,412,754 referred to.

Loaves or other articles placed on the slideway, move down in juxtaposition, the front one of the row arriving on a horizontal plate 36 which may be integral with the lower end of the inclined plate 21 or so secured as to occupy substantially the position illustrated. A stop plate 37 (Figs. 1 and 5) arrests each article on the floor plate 36 in the path of one of a series of pushers 38 the supporting arms 39 of which are pivoted at 40 to links of a chain 41 mounted on sprockets 42, 43. A short arm 44 of each pusher arm 39 carries a roll 45 which rides on the surface of a track bar 46 curved at each end and straight between said ends, so that each pusher will stand upright when acting on an article to introduce it to position to be wrapped. A floor plate 47 (Figs. 1, 2 and 4) in the plane of the plate 36 is spaced from the latter to provide a slot for the passage of the pusher arms. Certain adjustments of the pusher mechanism and the advantages thereof will be explained hereinafter.

Each article is delivered by a pusher 38 onto the shelf members at the bottom of a vertical chute formed by two lower vertical wall plates 48, 49, and two upper vertical wall plates 50, 51. The front wall plates 48, 50, are vertically slotted (Figs. 5 and 13) to permit the upward passage of the lifting fingers 52. The said fingers are arranged in pairs, each pair clamped on a rod 53 mounted in bearings attached to links of two chains 55, the latter being mounted on upper and lower sprockets 56, 57, (Fig. 4). The sprockets 57 are idle and are carried by stud shafts 58. The sprockets 56 are connected to rotate with a shaft 59 having another sprocket which is engaged by a chain 64 running also over sprockets on shafts 63, 114 and 66, the latter being the shaft of the wrapper feeding drum 77 hereinafter described. The shaft 66 also has a gear 67 meshing with a pinion 68 of the main driving shaft 69.

Each article, as it is lifted by the fingers 52 through the vertical chute or passageway between the front and rear walls of the latter, is brought into juxtaposition with an overlying section of wrapping material such as paper P (Fig. 4), and the wrapper section is folded all but the bottom flaps or edges. It is essential that the fingers, after they have brought each article to the upper end of the chute, shall be interrupted in their elevating movement, to permit tuckers at the top of the chute to operate as hereinafter described. To effect this result, each finger-carrying shaft has secured to one or both ends thereof an arm 71 carrying a roll travelling in a cam track 73. Said cam track is formed substantially as illustrated and described in the patent referred to, and controls the swinging of the lifting fingers as described therein.

The machine as a whole will now be described somewhat generally, to be followed by more detailed description.

The articles delivered successively into the machine by the horizontally travelling pushers 38 are elevated by the lifting fingers 52, and while moving upwardly are partially enwrapped in sections of paper cut from a web. Such wrapping, which is similar to that described in the patent referred to, is effected by members which are adjustable as described hereinafter.

The web of paper P (Fig. 4), such paper being usually coated with paraffine wax, is drawn from a roll on a suitably mounted core 74. It passes under gravity rolls 75, then between members of a device which prevents retrograde movement of the web, such device being indicated as a whole at 76, then over the feeding drum 77 and under the upper roll or rolls 78, and then over a bed 79. The web is cut into sections by a knife 80 and each section is engaged by an upwardly-moving article. As the mechanism just described is substantially the same as in the patent referred to, detailed description herein is unnecessary.

The completion of the wrapping is effected at the top of the vertical chute or wrapping well, and the wrapped articles are moved horizontally over the sealing table 81 and cooling rolls 82 by pushers 83 carried by chains 84 mounted at one end on sprockets 85 carried by the shaft 63 and at the other end on sprockets 86 carried by shaft 87. When so moved, the articles pass along between guide strips 88 (Figs. 1, 2, 3 and 4).

To press the wrapped articles down while travelling, a belt 89, of canvas or other suitable material, is employed, (Figs. 2 and 4). Said belt is mounted at one end on a roll 90 above the wrapping well and at the other end on a roll 91 at the delivery end of the machine. The roll 90 is affixed to a shaft 92 which has a sprocket or sprockets 93 engaged by the chain or chains 84 which carry the pushers 83. Therefore the belt 89 travels at the same speed as the pushers and the wrapped articles which are engaged by the pushers, and no retarding friction can be applied to the wrapped articles tending to tilt them.

In Fig. 4 the roll 90 is, to avoid confusion of illustration, shown as smaller than is employed in practice. In practice, it is of course of such size as to insure the described speed of travel of the belt 89.

The roll 91 is idly mounted on a shaft 94 at the end of a rocker frame 95 mounted on a fixed shaft 96, the latter being mounted in blocks 97 carried by the side bars 98 of the frame of the machine. The shaft 96 has a rigid arm 99, and an adjustable stop screw 100 carried by the frame 95 coacts with said arm 99 in determining the height of the roll 91 above the floor or table 81. Preferably, but not necessarily, the rocker frame 95 has a backwardly extending portion 101 carrying an idle roll 102 over which the upper or returning run of the belt rides so that said run will be supported at a height to avoid becoming worn by contact with other members which extend transversely of the machine between the upper and lower runs of the belt.

Several rolls 103, such as two of them, bear on portions of the lower run of the belt 89, in locations intermediate the rolls 90 and 91. Each of said rolls 103 is free to rotate on a shaft 104 carried by a frame 105 one of which is pivotally mounted on a transverse rod 106 fixedly mounted in brackets secured to the side frame bars of the machine, and the other frame 105 is pivotally mounted on the shaft 92. The rod 106 has a fixed arm extending under an adjustable screw carried by the swinging frame 105. The other frame 105 has an arm 107 extending under a shaft 242 hereinafter described.

The adjustments of the frames 95 and 105, carrying the rolls 91 and 103 provide for adjusting the normal distance of the lower run of the belt 89 from the floor or table 81, such adjustments being desirable when the articles to be wrapped are high or low ones.

It will now be understood that the lower run of the belt 89 yields at all points. This is essential in order to enable the machine to act on loaves which vary considerably in height, even if high ones are next to each other. Of course, the loaves are never any closer together than the pushers 83.

As the wrapped articles move along over the table or floor 81, the overlapped portions of the wrappers are subjected to heat substantially as in the patent referred to or in any other convenient or preferred manner, to melt the wax carried by the paper. To then quickly cool and harden the wax, the mechanism illustrated in Figures 1, 2, 4 and 16 is employed, said figures showing the rolls 82 carried by shafts mounted in the walls of a water tank 109. Said rolls preferably have absorbent coverings such as felt, and they are preferably driven in the direction of the arrows (Fig. 4) by suitable gearing and connections such as illustrated in the drawings but not necessary to describe in detail, especially since no claim is made herein to such cooling rolls 82 which act on the bottoms of the wrapped articles.

In order to cool and harden the wax of the wrappers at the ends of the articles, a pair of revolving cone-shaped disks 110 are provided, said disks being, in practice, preferably faced with felt. The disks are so mounted, angularly, that their lower portions are in the water in the tank 109 while their upper portions which are engaged by the ends of the wrapped articles pushed between them are substantially vertical to correspond with the ends of the wrapped article indicated at B in Figure 16. Said disks may be positively rotated by suitable gearing connected with their shafts, or they may be so mounted idly as to be revolved by the friction of the articles pushed between them by the pushers 83. The disks are illustrated as carried by shafts 111 (see dotted lines in Fig. 16) mounted in angular brackets 112 secured to the ends of extensions 113 (Fig. 1) of the guide strips 88. Since the said strips 88 are adjustable laterally for different lengths of wrapped articles as hereinafter described, such adjustments will correspondingly adjust the distance between the two cooling disks 110 so that the face portions of the disks which bear against the ends of the wrapped articles will always be in line with the inner faces of the article-guiding strips 88, 113.

To provide for effecting the adjustment of the parts just referred to, the strips 88 (Figs. 2, 3 and 4) are secured in a plurality of locations to the inner ends of pins 115 slidably mounted in brackets 116 having internally threaded hubs 117 which are engaged by right-and-left-hand screw threaded rods 118.

In other words, there is one shaft 118 for each pair of oppositely mounted brackets 116. The brackets are suitably guided, as by pins 119 projecting in from the frame 20. Springs surrounding the pins 115 between the strips 88 and the brackets 116 (Fig. 3) cause the strips 88 to bear yieldingly against the ends of the wrapped articles being pushed along between them. Each screw-threaded rod has a sprocket 120 (Fig. 2), a chain 121 engaging the sprockets of all of the rods. One of said rods has also another sprocket 122 connected by a chain 123 with a sprocket 124 of a lower shaft 125 (Figs. 1, 4 and 14). The rod which has the sprocket 122 has, at its other end, a hand wheel 126 by turning which the operator can adjust the guides 88 and the cone disks 110 to suit the length of the loaves or other articles to be wrapped. Certain other parts of the machine which will now be described are also adjusted by means of the hand wheel 126, the chain 123, and the lower shaft 125.

The shaft 125 (Figs. 1, 2, 13, 14 and 15) has a threaded portion engaging an internally threaded sleeve portion 127 of a slidingly mounted carrier 128 which supports the cross-feed mechanism, that is, the mechanism which introduces the articles into the machine to position to be lifted through the vertical chute or folding passageway. A lug 129 of the carrier 128 provides a bearing for the outer end of a telescopic shaft 130, 131 (Fig. 14) the inner end of which has a sprocket 132. A chain 133 (Figs. 1 and 15) connects the sprocket 132 with another sprocket carried by the shaft 66 whereby said telescopic shaft is driven. Bevel gearing 134 transmits motion from said shaft to the shaft having the sprocket 42 and drives the chain 41 which carries the cross-feed pushers 38.

The sliding carrier 128 has a slotted ear 135 (Fig. 13) connected by the before-described pin 33 with the elbow arm 32 so that, when the carrier is adjusted as presently described, the guide rail 23 will be correspondingly adjusted.

The inner end of the carrier 128 is connected by a link 136 (Figs. 5 and 14) to the lower end of a lever 137 pivoted at 138 to a fixed bracket 139 which supports the inner end of the shelf of floor member 47. The upper end of the lever 137 is pivotally connected to a bar 140 the outer end of which is connected by a link 141 to the bracket 139 and the inner end of which carries an upright stop plate 142 up to or against which each article is pushed by a member 38 of the cross-feed mechanism.

From the above description it will now be understood that when the hand wheel 126 is rotated, the guide strips 88 and the cooling cone disks 110 at the top of the machine are adjusted toward or from each other, the side rail 23 of the feed chute is adjusted toward or from the rail 22, and the stop plate 142 and the cross-feed mechanism or pusher carriage are also adjusted toward or from each other. These three parts or features of the machine are all that need to be adjusted according to the length of the articles to be wrapped, and since all three are controlled by the one hand wheel 126, there is no liability that a careless operator might fail to effect just the proper adjustment of one of them. When the stop plate 142 is shifted toward the left (Fig. 14) the cross-feed mechanism is shifted in the opposite direction, this being due to the members 136, 137, 140 and 141. The reason for such opposite shifting is that it is important that each article fed to position to be lifted through the vertical wrapping chute, shall have its longitudinal center as accurately as possible in position to be engaged by the rising lifting fingers 52.

The mechanism for effecting the feed of the paper web and cutting it into wrapper sections will now be described:

The frame of the machine has a fixed ledge 143 (Figs. 1 and 17) on which is mounted a block 144 having what is termed the selector shoe 145 hinged to it at 146. Said shoe is so located and so formed and supported as presently described that a loaf of bread being pushed under it and into the machine by the cross-feed will swing the shoe upward and, through the mechanism now to be described, vary the length of each wrapper section cut from the web according to the height of the particular loaf which raises said shoe. The said shoe has a flexible-joint connection 147 with the outer end of a lever 148 pivotally supported at 149 and having a laterally movable extension or inner arm 150 connected to it by a vertical hinge pin 151. The inner end of the arm 150 has a notch 152 in one side (Fig. 18) and is laterally bevelled and serrated on the other side of its tip as illustrated at 153. Said serrated tip coacts, in operation, with the bevelled and serrated block 154 which is carried by a disk that rotates with the feeding drum 77, all in a manner similar to the mechanism illustrated in Figure 7 of the Patent 1,412,754 hereinbefore referred to.

As illustrated by comparing Figures 17 and 19, a stop shoulder 155 of a member 156 coacts with the inner end of the compound lever 150, 148, to limit the lower position occupied normally by the selector shoe 145. Said member 156 is connected by a vertical pivot 157 to a bracket 158 fixed to the frame of the machine and therefore can swing laterally. Projecting laterally from the top of the member 156 is a stud 159 adapted to act on a lever 160 which is pivotally supported at 161 and has a roll 162 at its upper end. Said roll moves to and from position under the block 163 which projects

from the bearing 164 in which one end of the shaft of the upper rolls 78 is mounted. The said bearing 164 is carried by the arm 165 projecting from the rock shaft 166 the rocking of which, to effect intermittent feed of the paper web according to whether or not the rolls 78 are lowered to grip the paper against the drum 77, will now be described.

The lower end 167 of the lever 160 (Fig. 19) extends inwardly in a somewhat horizontal direction and is connected at 168 to the upper end of a link 169 the lower end of which is connected at 170 to the arm 171 (see dotted lines in Fig. 17) of a bell-crank lever pivotally supported at 172 and having its other arm 173 provided with a roll 174. The pivot pin 172 is carried by one end of a lever 175 pivoted at 176 to a fixed bracket 177. A vertical rod 178 has a screw-threaded lower end engaging an internally threaded stud 179 projecting from the lever 175, the upper end of said rod (Fig. 1) passing through a stud projecting from the machine frame and having a knob 180. A spring is confined between said stud and knob. By means of the knob the rod 178 may be rotated so that its lower screw-threaded end will effect adjustment of the lever 175 for a purpose presently described. To enable the amount of such adjustment to be visualized, a gage strip 181 is connected to the end of the lever 175 and extends up through a guide eye of the machine frame and coacts with a scale 182 attached to said frame.

The lever 175 has a lug 183 to coact with a stop 184 (Fig. 1) projecting from the machine frame, to limit the position to which the lever may be swung in one direction.

A lever 185 (Figs. 17 and 19) is pivotally supported at 176 and has a roll 186 engaging a cam groove 187 in the disk 188 which rotates with the shaft 66 and carries the serrated block 154, and said lever 185 has a lower portion 189 formed with a cam edge 190 to act on the roll 174 of the arm 173 of the elbow lever.

By the mechanism just described, especially the parts shown in the lower portions of Figures 17 and 19, and including the adjusting rod 178, provision is made for ensuring proper length of feed of the web when it is advanced to the cutter by the coaction of the drum 77 and rolls 78, to suit wide loaves as well as narrow ones. When the loaves of a run are wide, the wrapper sections must be longer than those for the loaves of an ordinary or narrow one. The mechanism just referred to permits this to be done without affecting the operation of the selector shoe 145 and its associated members in varying the length of the wrapper sections according to different heights of the loaves in either a run of wide loaves or a run of narrow ones.

When the lever 185 is rocked by the cam groove 187 (Fig. 17) its cam 190 acts on the roll 174 and, through the bell-crank lever 173, 171, pulls the link 169 down and the latter swings the lever 167, 160 (Fig. 19) so that the roll 162 of the latter moves under the block 163 of the shaft-bearing 164 and separates the rolls 78 from the drum 77 and stops feeding of the paper web. By adjusting the rod 178 (Figs. 1 and 17) the lever 175 is adjusted so that its bell-crank lever 173, 171, is shifted up or down so as to vary the period at which the described lifting of the feed rolls occurs and thereby cause a greater or lesser range of feed of the web according to whether the loaves in the run to be wrapped are wide ones or narrow ones.

As in the patent referred to, there is no web-cutting operation when there is no feed movement of the paper web, and in the present machine the mechanism for controlling this is similar to that of said patent. It includes a stop lever 191 (Fig. 17) pivoted at 192 to the rock-shaft arm 165 and having a notch 193 cooperating with a roll 194 projecting from the lever arm 150. The upper end of the lever 191 shifts under and from the detent lug 195 carried by the shaft 114. As the structure and operation of this part of the machine is substantially the same as in the patent referred to, further description thereof herein is unnecessary.

The upright frame 196 has guides for the vertical carrier 197 the lower end of which carries the knife blade 80 (Fig. 4). Said frame also carries presser rods 198 similar to those of the patent referred to.

In the present machine however the knife frame is adjustable toward and from the nip of the web-feeding drum and rolls. To this end, the said frame is mounted in suitable slideways and has a transverse shaft 199 having a pinion 200 at each end, the said pinions engaging rack bars 201 (Figs. 1, 13 and 17) supported by the ledges 143 of the machine frame. At one end the shaft 199 has a knob or hand wheel 202 by means of which the shaft and its pinions may be rotated to change the position of the knife longitudinally of the machine. When the loaves of a run are wide ones the knife is moved and set away from the nip of the feed rolls. As indicated in Figures 4 and 13, the bed plates 79, 79′, which are separated by a narrow space to permit the knife 80 to act, are so connected to the knife frame as to move with the latter when adjustment is effected. The other edges of the plates are recessed as illustrated in Figure 13, for a reason explained hereinafter.

By means of a pointer 203 carried by the knife frame, coacting with a scale 204 on the ledge 143, the degree of adjustment of the knife frame can be visualized.

To reciprocate the knife carrier 197, the rock shaft 205 has at each end an arm 206 having a roll 207 engaging a cam groove 208

in a disk 209 carried by the shaft 114, and the arms 206 have slidable outer sections 210 which actuate the knife-carrier vertically.

The web of paper is moved toward the knife over a fixed bed strip 211 (Figs. 4 and 13) and over the bed plate 79 and under the knife, the forward edge of the web extending across the wrapping chute between the upper and lower wall plates. The overlapping edges of the strip 211 and plate 79 are irregular or recessed as illustrated in Figure 13 so that, while presenting sufficient smooth surface areas for guiding the web to position under the knife, will cause less frictional resistance to the advance of the paper than would be the case if said overlapping edges of the strip and plate had no recesses.

To permit either wide articles or narrow ones to be properly guided while being raised through the vertical chute or wrapping well by the lifting fingers 52, wall members of the chute are adjustable. As illustrated by Figures 4 and 8, an upright frame 213, which is mounted in suitable guideways of the machine frame, supports the rear wall members 49, 51 and in said frame is mounted a transverse shaft 214 having pinions 215 engaging the fixed racks 201 and provided with a knob or hand wheel 216 (Figs. 1, 12 and 13) by means of which the frame may be shifted to vary the distance of the rear wall members 49, 51, from the front wall members 48, 50. A pointer 217 carried by the base of the frame 213 coacts with a scale 218 attached to the rack bar 201 in enabling the operator to visually determine the amount of adjustment.

Each wrapper section cut from the web arrives across the chute in the path of an article being elevated by a lifter 52, and the successive wrapping steps are the same as in the machine of the patent hereinbefore referred to. In view of the similarity between the two machines, it will not necessary to describe herein every detail of the structure and operation.

Referring to Figures 4, 8 and 12, the first members to act on the wrapper which is draped over the rising article are the oppositely located end breakers 219. Above each of said breakers are two breaker blades 220, and above the latter are the two folders 221, 222. Projecting horizontally from a lower part of the folder 221 is a stud pin 223 (Figs. 8, 9, 10 and 11) which extends through a horizontal slot in the rear chute-wall plate 51. A pin 224 (Figs. 8 and 12) projects from the breaker 219 and mounted on it is a lever 225 connected by a link 226 to a lug 227 of the folder 221. The rear wall frame 213 supports brackets 228 extending down from its upper portion, each having a pin 229 entering a slot in the upper end of the lever 225, and both are adjustable as presently described.

The front wall plate 50 has, near each end, a horizontal slot 230 (Figs. 5 and 10) in which is adjustably mounted a block which supports the shank of the folder 221 and also supports the shank 231 of one of the pair of blades 220. This mounting of the members which are adjustable along the slots 230 in the front plate 50 provides for operating on articles of different lengths. To simultaneously shift the other blade 220 and the folder 222 which are connected with the rear wall plate 51, a block 232 (Fig. 12) which is supported by the bracket 228 of the frame 213, is connected to a block 233 of said folder 222, and said block 233 is mounted in and adjustable along the horizontal slot 234 in the rear wall plate 51. This structure is, of course, duplicated at both sides of the machine.

To simultaneously adjust the opposite breakers and folders toward and from each other, a shaft 235, mounted in upper extensions of the frame 213 (Fig. 4) has threaded portions 236 engaging internally-threaded portions of the two brackets 228, said brackets being steadied by guides 237. The shaft 235 has a hand wheel 238 at one end.

After the rising articles have passed the wrapper-folding members which have been described, they successively reach position to have edge portions of the wrappers tucked under their bottoms, as in the patent referred to. In the present machine, to provide for different lengths of articles, there are two tucker members 239 which overlap (Figs. 4, 6 and 7) but act as a single tucker, the overlapping providing for varying the length of such single tucker. The two members are mounted on a bar 240 so as to be adjustably slid lengthwise of the latter. The bar 240 is carried by arms 241 of a rock shaft 242, the latter having an arm 243 (Fig. 5) provided with a roll engaged in a cam groove in a disk 244 carried by the shaft 63. To effect adjustment of the overlapping tucker members 239, to vary the length thereof as a whole, each member has an ear 245 to which is connected a pin 246 (Fig 6), said pin extending through a guide 247 carried by a slide 248 mounted on a stud rod 249 projecting from a fixed frame bracket 250. A link 251 connects each slide 248 with one end of a lever 252 the other end of which is connected by a link 253 with a fixed pivot 254. The pivot 255 of the lever 252 is carried by a lever 256 pivoted at 257 to the bracket 250.

As best shown in Figure 7, which shows the above-described parts in positions with the tuckers 239 moved in, the lever 256 has a yoke 258 at its inner end embracing a pin 259 which rises from a slide 260 having a lug 261 mounted on a fixed guide pin 262. The base of the slide 260 has a groove 263 (compare Fig. 9 with Figs. 6 and 7) for a rib 264 rising from a block 265 the base 266 of which (Figs. 8 and 9) is slidably mounted in ways in the inner face of the frame 213.

The structure just described is duplicated at opposite sides of the machine, as illustrated in Figures 6 and 7, and it will now be understood that the two structures are adjustable toward and from each other, for different-length articles, by the right-and-left-hand threaded shaft 235 having the hand wheel 238. At the same time, the two retainers 267, which temporarily bear against opposite ends of the article to hold it while the tucker 239 operates and while the lifter 52 drops away from the bottom of the article, are also adjusted for the same purpose.

Each retainer 267 has a shank 268 (Figs. 6, 8 and 12) connected by links or swing arms 269 (see also Fig. 9) to a side arm of the slide 260. Said shank 268 has a roll 272 engaging the yoke end 273 of a lever 274 pivoted at 275 and having at its other end a roll 276 (Fig. 8) actuated by a cam (Fig. 7) carried by the shaft 63. This structure, duplicated at both sides of the machine, serves to actuate the retainers 267.

The tucker members 278, 278, which move from their outer positions illustrated by Figure 6 to inner positions as illustrated by Figure 7, to tuck end edge portions of the wrappers under the articles, have shanks 279. Each shank 279 is connected by links or swing arms 280, 280′ to pins 281 of the block 265 (Fig. 9). One end of the arm 280′ (Fig. 8) is connected to a curved link 283 (Figs. 6 and 7) the other end of which is pivoted at 284 to a lever 285 which is pivoted at 286 and has a roll 287 at its other end bearing on a cam 288 carried by the shaft 59 (Figs. 1 and 8). The pivot 286 for the lever 285 is carried by a block 289 slidably mounted on a fixed pin 290 (Figs. 1, 2, 6 and 7). Said block 289 is connected by a bracket link 291 to a pin 292 which extends through an opening in the lever 285 and is surrounded by a spring 293. Another spring 294, illustrated by dotted lines in Figure 8 and in one location of Figure 7, is confined between opposing lugs of the levers 256 and 274. Said springs 293 and 294 serve to cause the parts through which motion is transmitted to the operating members described, to act yieldingly.

When the web of wrapping paper is being advanced across the vertical chute, prior to its being cut and the section of it reached by an upwardly-moving article, it is essential that it shall be properly guided. The web is, of course, considerably wider than the length of the articles to be wrapped in sections thereof. To support and guide the marginal portions of the paper, there are two thin plates 295 (Figs. 5 and 11) which are farther apart than the length of the articles which are to pass up between them. Each plate 295 is carried by a block 296 slidably mounted on a bracket member 297. A pin 298 depending from a folder 221 enters the block 296. Therefore, when adjustment is made for different lengths of articles and the folders at opposite ends of the chute are being moved toward or from each other, the plates 295 are correspondingly adjusted.

To bridge the space between the two paper-guiding plates 295 so that the advancing edge of the paper will not catch on the said plates or on the top of the chute wall 48, a swinging plate 299 is provided (Figs. 5 and 11), said plate being hinged at 300 to the top of the chute wall 49. A portion of the plate 299 extends over a hook-shaped member 301 secured to the wall plate 49 and has a catch 302 which engages the hook member and normally maintains the plate 299 in the position illustrated in Figure 11, which plate, however, is readily swung up by an article that is being elevated through the folding chute. As the article moves up past the plate, the rear part of the draped paper section is smoothed down by the plate, and then the latter returns to normal position.

After a wrapped article reaches the top of the folding chute and the tuckers have operated to nearly complete the wrapping, it is engaged by a horizontally travelling pusher 83 and moved over the bridging apron 303 connected to the top of the wall plate 51 (Figs. 4 and 6) and over the table 81. As it moves onto and over said apron 303, the final flap of the wrapper is wiped rearwardly under and against the bottom of the article ready for the sealing operation effected during its travel over the table 81.

Reference has been made to adjusting the rear wall members 49, 51, of the folding chute, in order that runs of loaves or other articles may be wrapped whether the articles are wider or narrower than the average. It is sometimes preferred however that both the front and rear walls may be adjusted. A structure which will enable this to be done is illustrated by Figure 20 in which a frame 304 connects the lower and upper front wall plates 48′, 50′, said plates having horizontal pins 305 slidably engaging frame portions of the machine indicated at 20′ in said Figure 20. The rear wall plates are illustrated at 49′, 51′, carried by the frame 213, the same as in Figure 4. In order to simultaneously adjust the front and rear wall plates as illustrated by Figure 20, a link 306 connects the frame 304 with the lower end of a lever 307 pivoted at 308 and having a forked upper end engaging a pin 309 projecting from the frame 213. When the frame 213 is adjusted in one direction as hereinbefore described, the lever and link connections just referred to effect a corresponding degree of adjustment of the frame 304 and its plates 48′, 50′, in the opposite direction, thereby widening or narrowing the vertical chute or passageway through which the articles are lifted during the draping and folding of the wrapper sections.

I do not claim herein the features of the ma-

chine relating to the knife or cutter and adjusting mechanism thereof, as the same forms the subject matter of my divisional application filed March 30, 1931, Serial No. 526,193.

Having now described my invention, I claim:—

1. A wrapping machine having a supply guideway for articles to be wrapped, said guideway having a fixed rail at one side, a plurality of levers at the other side, a rail connected to said levers and parallel with the fixed rail, and a longitudinally adjustable rod connected to said levers to vary the space equally between the two rails throughout their lengths.

2. A machine having folders for enclosing articles in wrappers, a sealing table, a carrier for moving the wrapped articles over said table, and a belt having its lower run in position to increase the bearing of the wrapped articles on said table, means being provided for yieldingly supporting said lower run throughout its length.

3. A machine having folders for enclosing articles in wrappers, a sealing table, an endless series of pushers for moving the wrapped articles over said table, and a belt having its lower run in position to increase the bearing of the wrapped articles on said table, means being provided for yieldingly supporting said lower run throughout its length.

4. A machine having folders for enclosing articles in wrappers, a sealing table, an endless series of pushers for moving the wrapped articles over said table, a belt having its lower run in position to increase the bearing of the wrapped articles on said table, means being provided for yieldingly supporting said lower run throughout its length and means for causing said belt to travel at the same speed as the pushers.

5. A machine having folders for enclosing articles in wrappers, a sealing table, an endless series of pushers for moving the wrapped articles over said table, a belt above the table and having its lower run substantially parallel with said table, means for yieldingly pressing said lower run of the belt toward the table, and means for causing the said belt to travel at the same speed as the pushers.

6. A machine having folders for enclosing articles in wrappers, a sealing table, an endless series of pushers for moving the wrapped articles over said table, a belt having its lower run above the table and substantially parallel therewith, means for yieldingly pressing said lower run of the belt toward the table, and means for adjustably determining the minimum degree of space between said lower run of the belt and the table.

7. A machine for wrapping articles in waxed paper, said machine having a table and means for moving the wrapped articles over said table, a water tank at the delivery end of the table, and a pair of cone-shaped disks mounted in positions to rotate with their lower portions immersed in water and their upper portions spaced to bear on the ends of wrapped articles passing between them.

8. A machine for wrapping articles in waxed paper, said machine having a table and means for moving the wrapped articles over said table, a water tank at the delivery end of the table, and a pair of cone-shaped disks mounted in positions to rotate with their lower portions immersed in water and their upper portions spaced to bear on the ends of wrapped articles passing between them, means being provided for varying the distance between said disks.

9. A machine for wrapping articles in waxed paper, said machine having a table and means for moving the wrapped articles over said table, guide strips above said table, a water tank at the delivery end of the table, a pair of cone-shaped disks mounted in positions to rotate with their lower portions immersed in water and their upper portions spaced to bear on the ends of wrapped articles passing between them, and means for simultaneously and equally varying the distance between said guide strips and between said disks.

10. A machine for wrapping articles in waxed paper, said machine having a table and means for moving the wrapped articles over said table, a water tank at the delivery end of the table, a pair of guide strips above the table, a pair of disks supported by said strips with their lower portions in said tank, and means for laterally adjusting said strips and the disks supported thereby.

11. A wrapping machine having a cross-feed mechanism for introducing articles into the machine to position to be operated upon by wrapping mechanism, said cross-feed mechanism comprising a carriage and a series of chain-connected pushers, and means for adjusting said carriage and chain-connected pushers to vary the distance to which the articles are introduced.

12. A wrapping machine having a cross-feed mechanism for introducing articles into the machine to position to be operated upon by wrapping mechanism, said cross-feed mechanism comprising a carriage and a series of chain-connected pushers, means for adjusting said carriage and chain-connected pushers to vary the distance to which the articles are introduced, and an adjustable stop for arresting the introduced articles.

13. A wrapping machine having a cross-feed mechanism for introducing articles into the machine to position to be operated upon by wrapping mechanism, a stop for arresting the introduced articles, and means for simultaneously adjusting the said cross-feed mechanism and stop toward or from each other to center the articles in position for the wrapping operation.

14. A wrapping machine having a feed chute provided with an adjustable side rail, a cross-feed mechanism for transferring articles from the feed chute into the machine to position to be operated upon by wrapping mechanism, guide strips between which the wrapped articles are delivered, and means for simultaneously adjusting the said side rail and cross-feed mechanism and guide strips to accord with the lengths of the articles to be wrapped.

15. A wrapping machine having a feed chute provided with an adjustable side rail, a cross-feed mechanism for transferring articles from the feed chute into the machine to position to be operated upon by wrapping mechanism, guide strips between which the wrapped articles are delivered, all of said parts being inter-connected, and a single manually-operable member for effecting simultaneous adjustment of the said side rail and cross-feed mechanism and guide strips to accord with the lengths of the articles to be wrapped.

16. A wrapping machine having a vertical passageway, means for elevating articles through said passageway, folders for enclosing articles in wrappers while in transit through said passageway, and an edge-tucking device at the upper end of the passageway, said tucking device comprising two overlapping members, means being provided for adjusting the amount of overlapping of said members to provide for varying the length of the edge-tucking device as a whole.

17. A wrapping machine having a vertical passageway, means for elevating articles through said passageway, folders for enclosing articles in wrappers while in transit through said passageway, an edge-tucking device at the upper end of the passageway, said tucking device comprising two overlapping members, and retainers for temporarily bearing against the ends of an article at the upper end of the passageway, means being provided for simultaneously adjusting the retainers toward or from each other and also adjusting the amount of overlapping of the said tucking members.

In testimony whereof I have affixed my signature.

HENRI A. SÉVIGNÉ.