April 27, 1937. J. VAN BUREN 2,078,619

WRAPPING MACHINE

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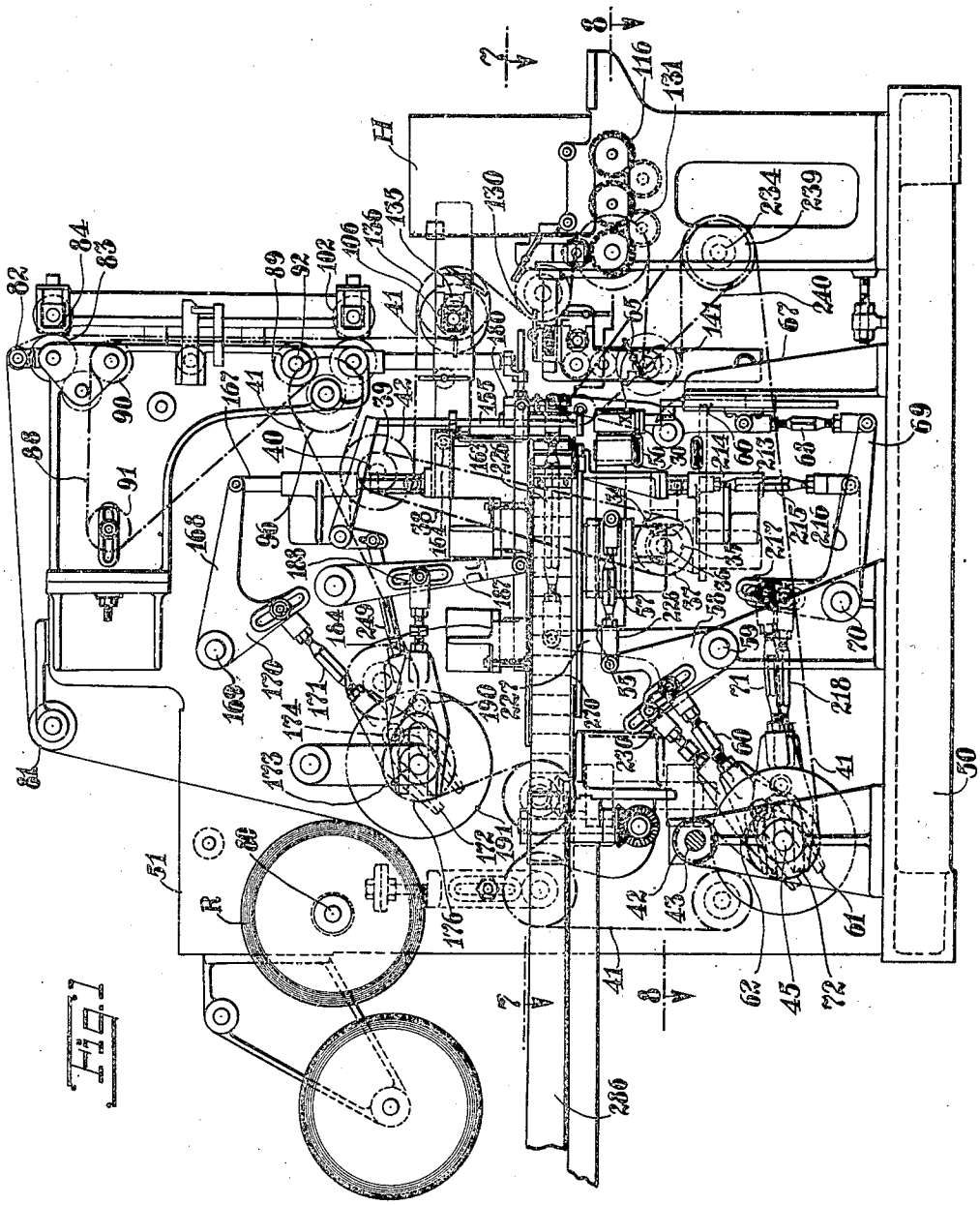


FIG. 1

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WRAPPING MACHINE

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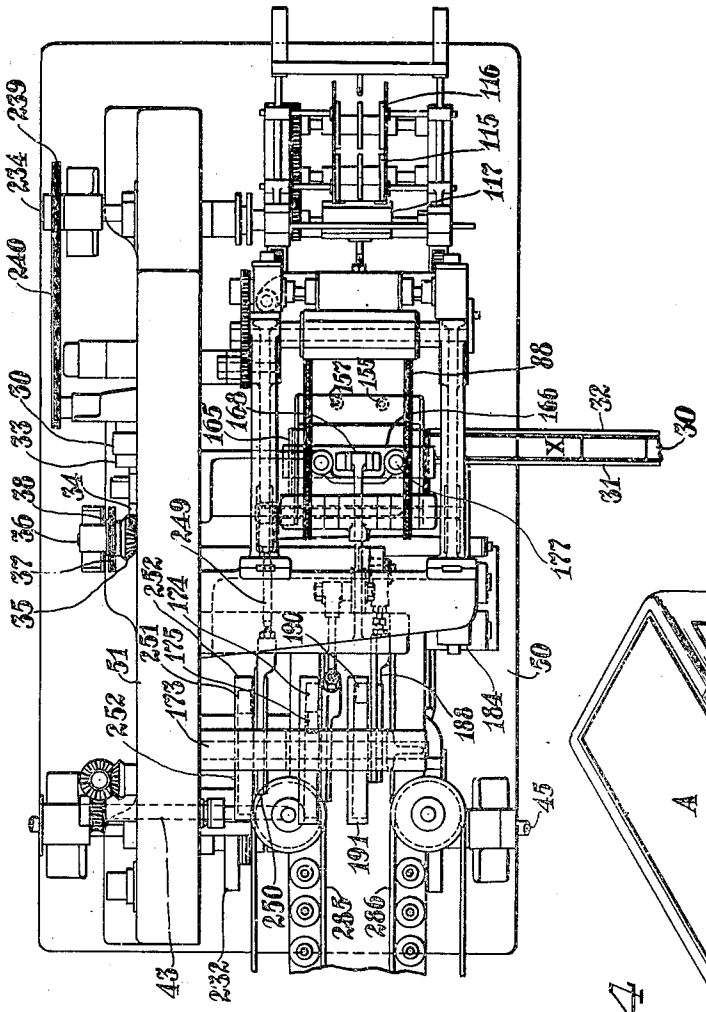


Fig. 2

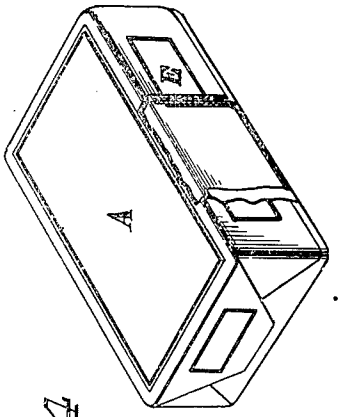


Fig. 4

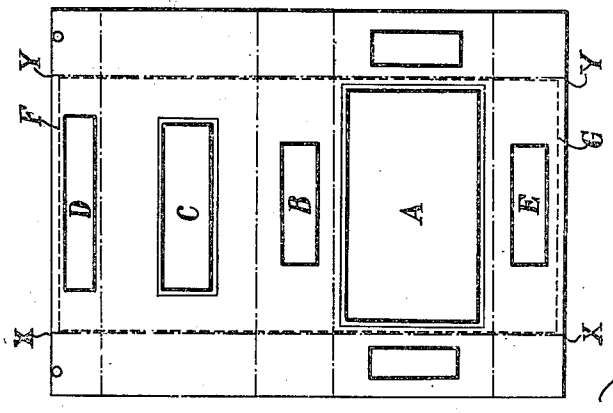


Fig. 3

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WRAPPING MACHINE

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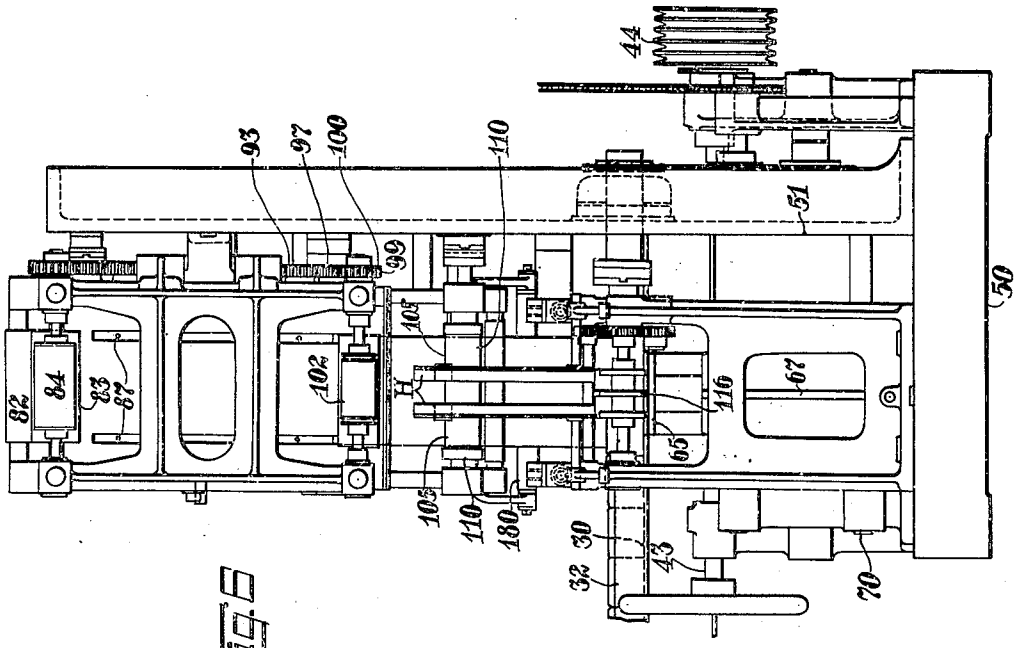


FIG. 5

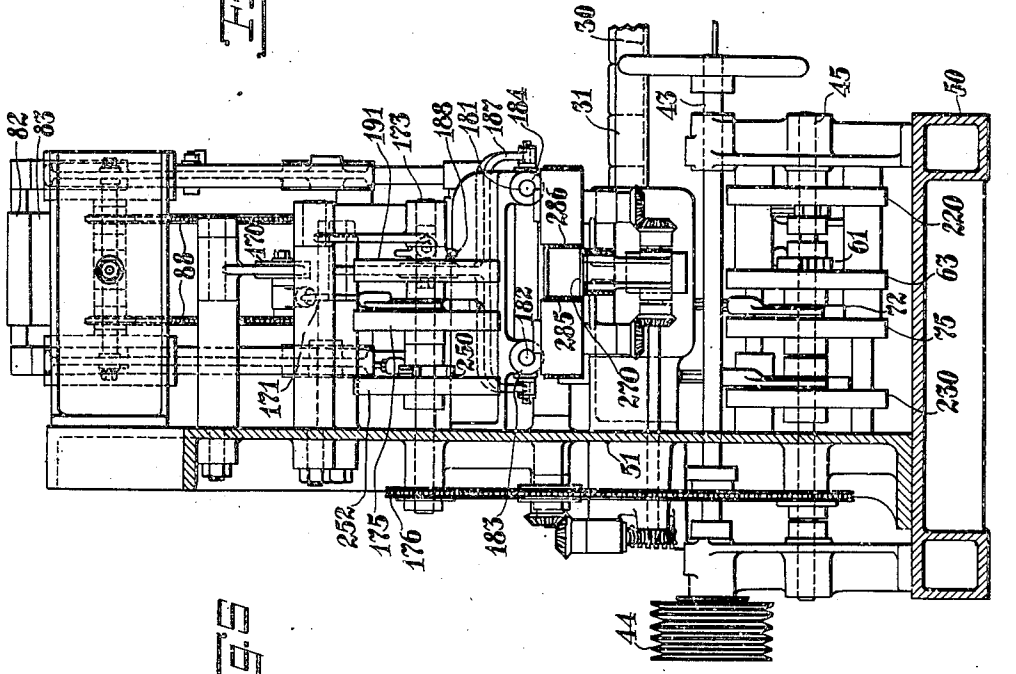


FIG. 6

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WRAPPING MACHINE

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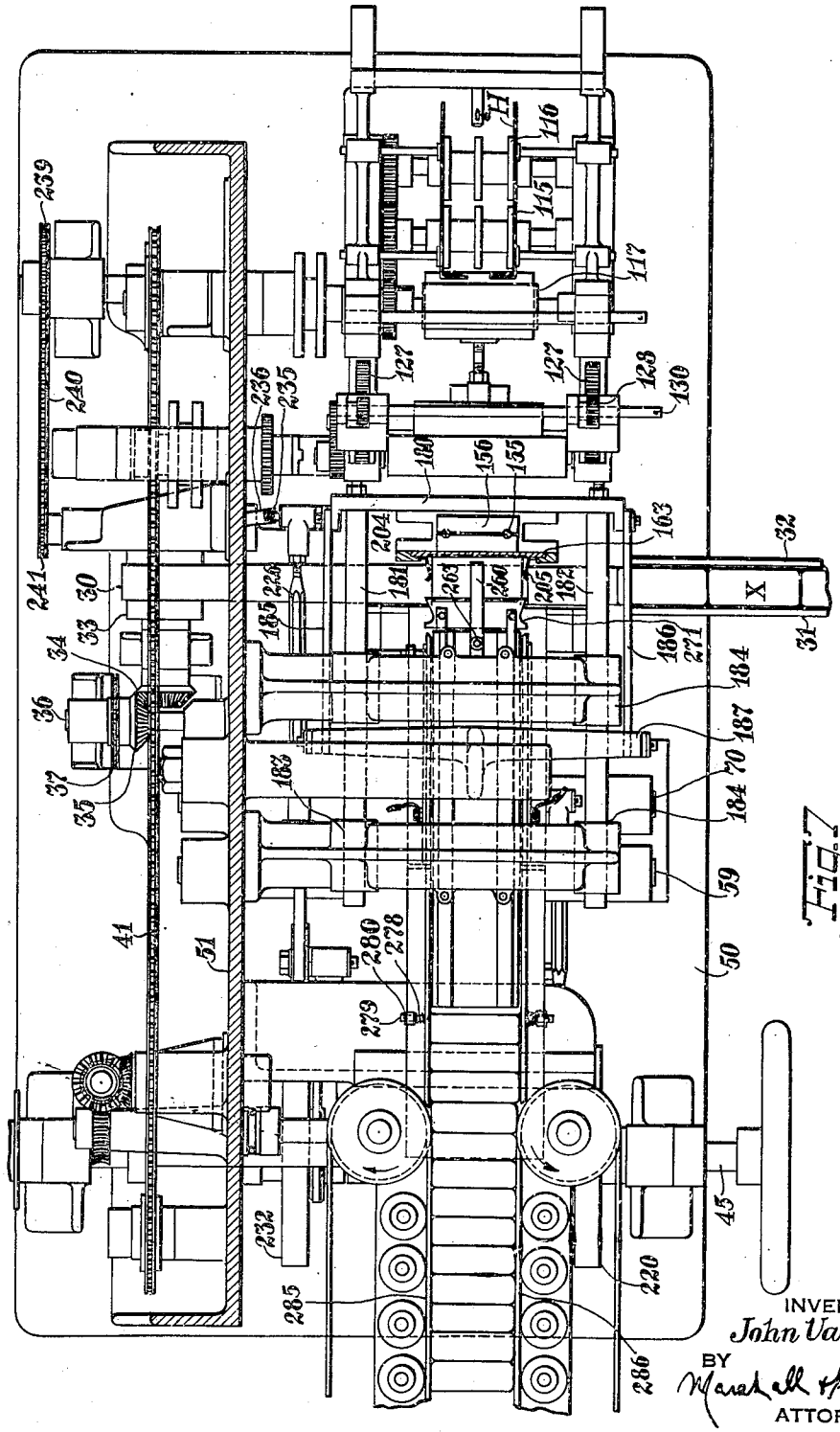


Fig. 7

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WRAPPING MACHINE

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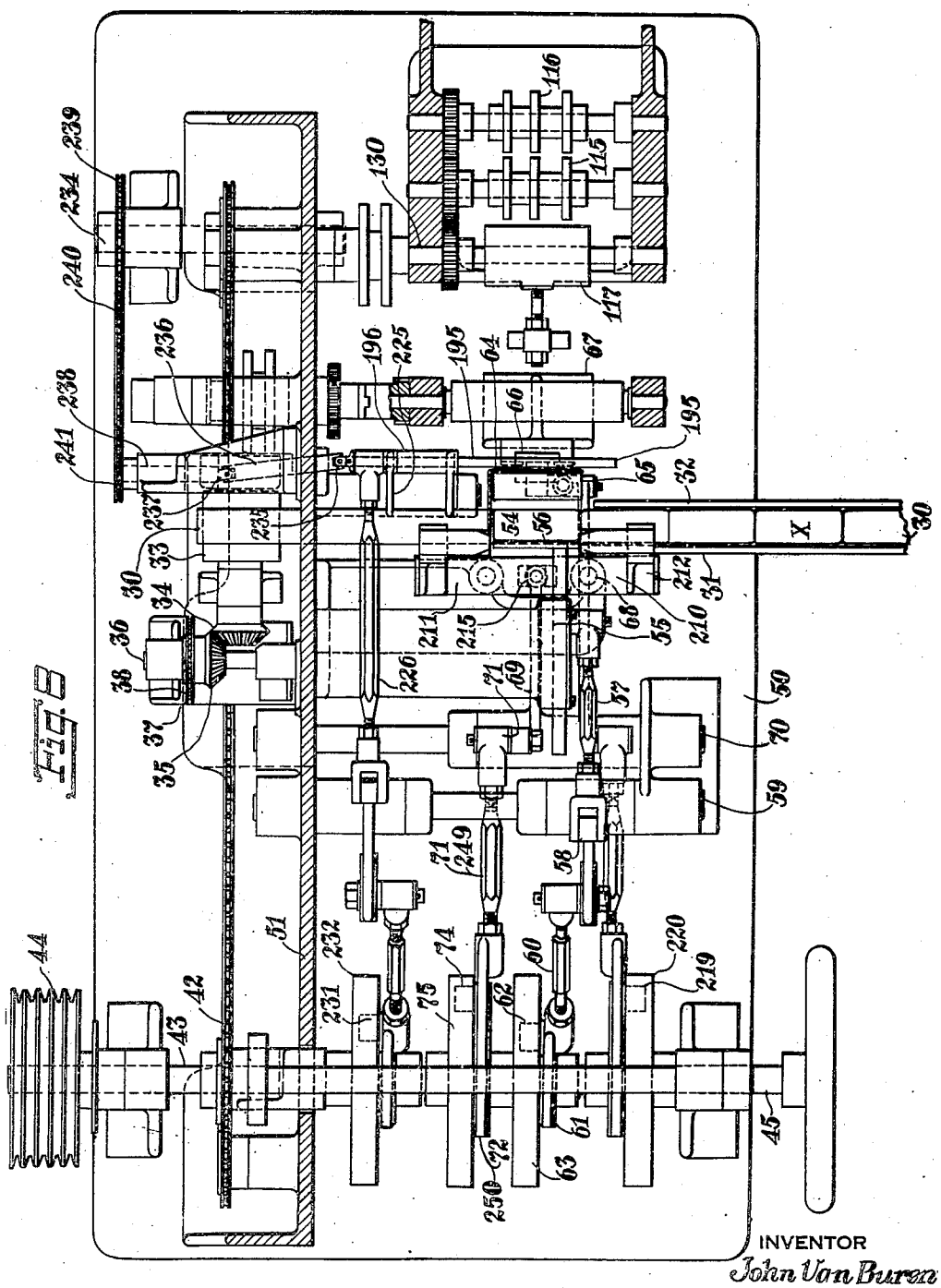


FIG. 5

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WRAPPING MACHINE

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Fig. 9

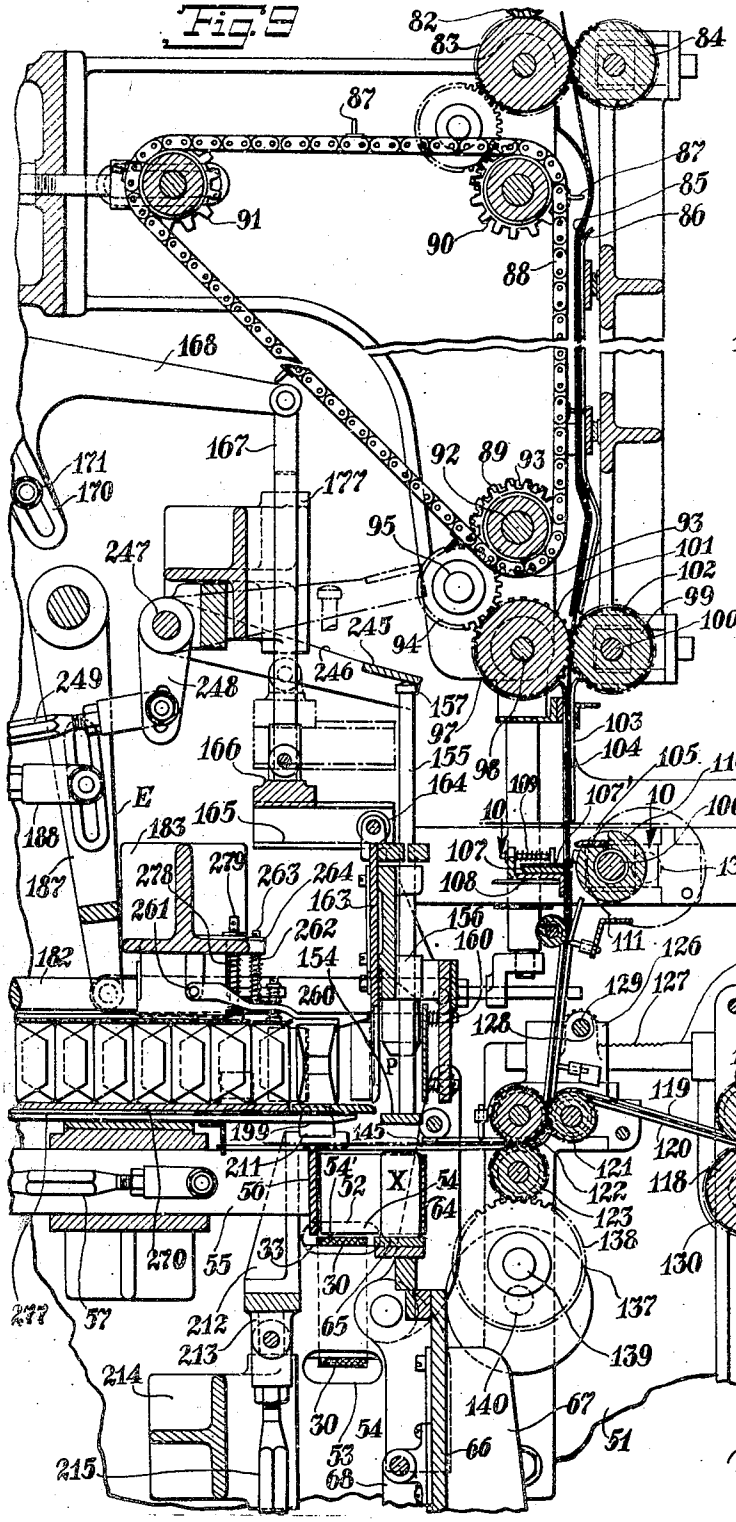
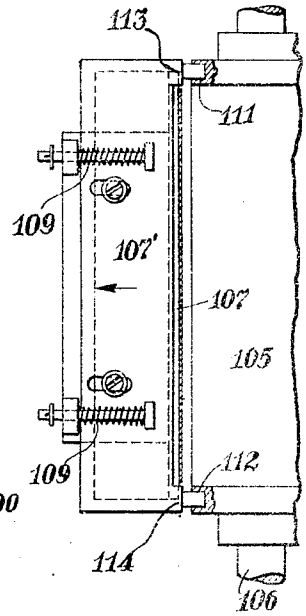


Fig. 10



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Fig. 11

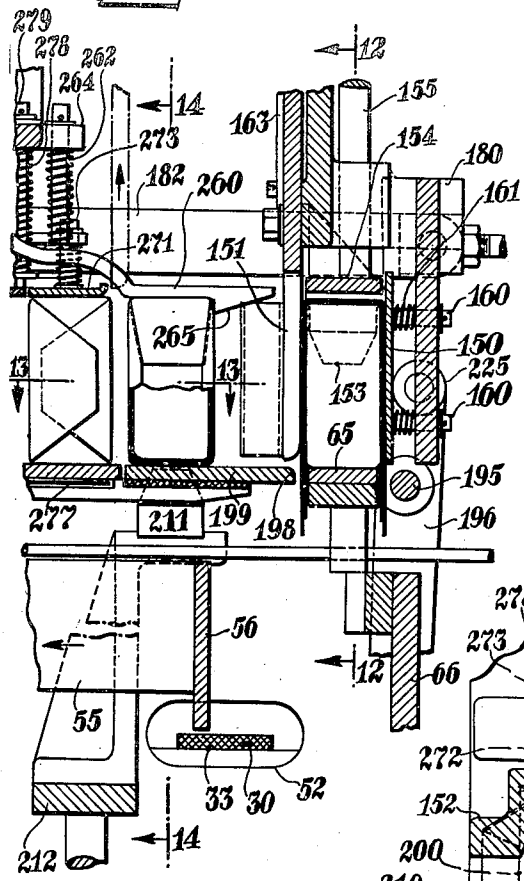


Fig. 12

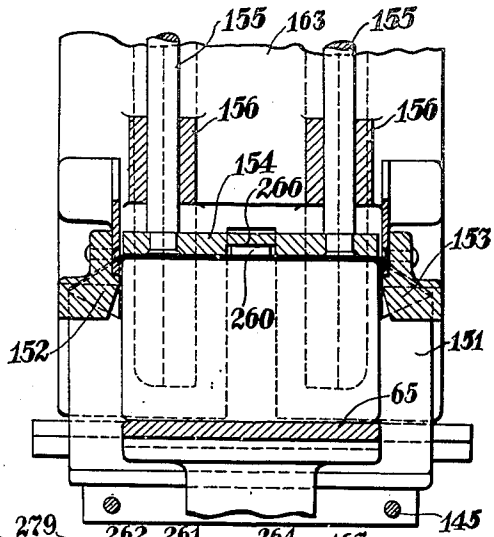


Fig. 13

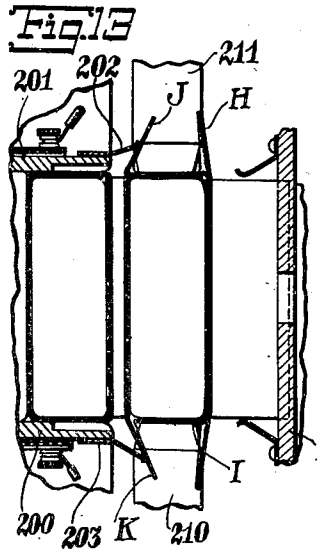
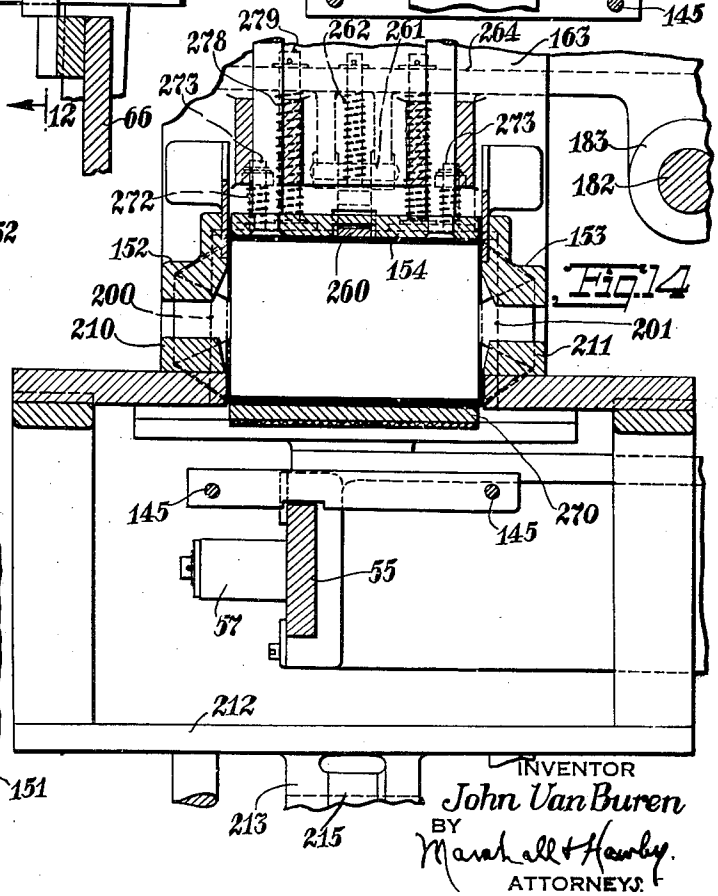


Fig. 14



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Fig. 15

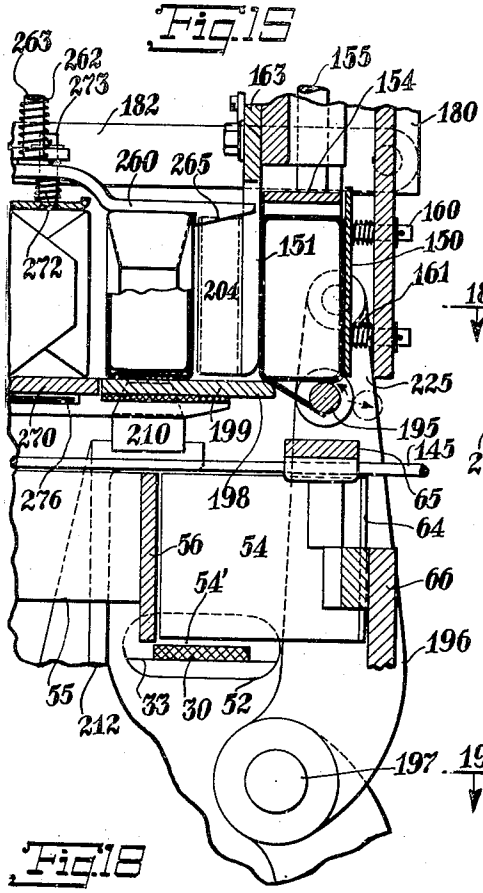


Fig. 16

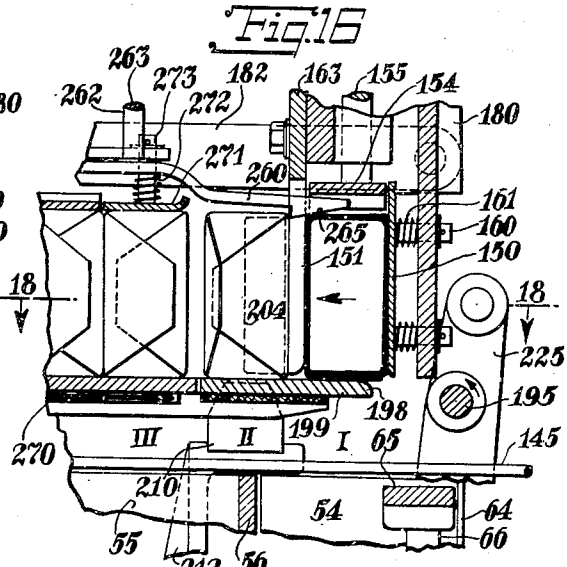


Fig. 17

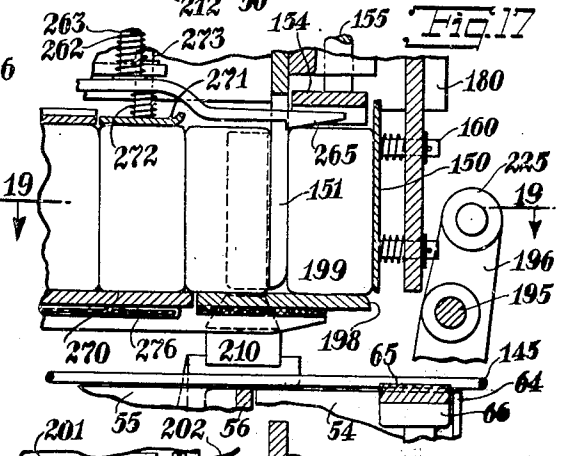


Fig. 18

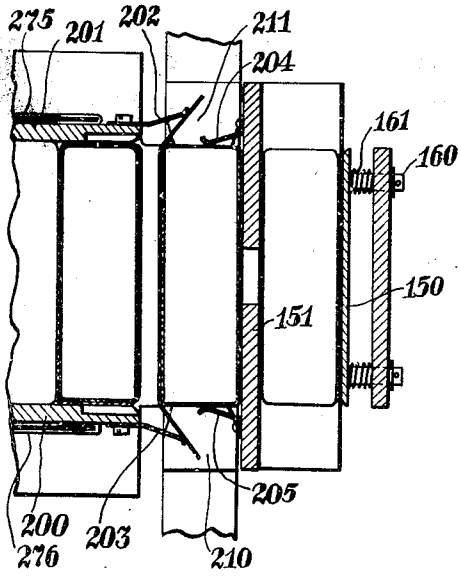
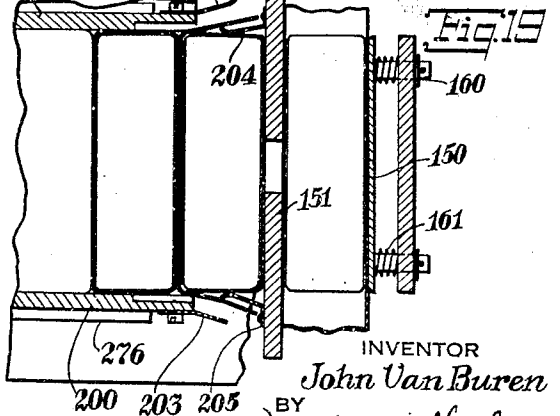


Fig. 19



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WRAPPING MACHINE

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Fig. 20

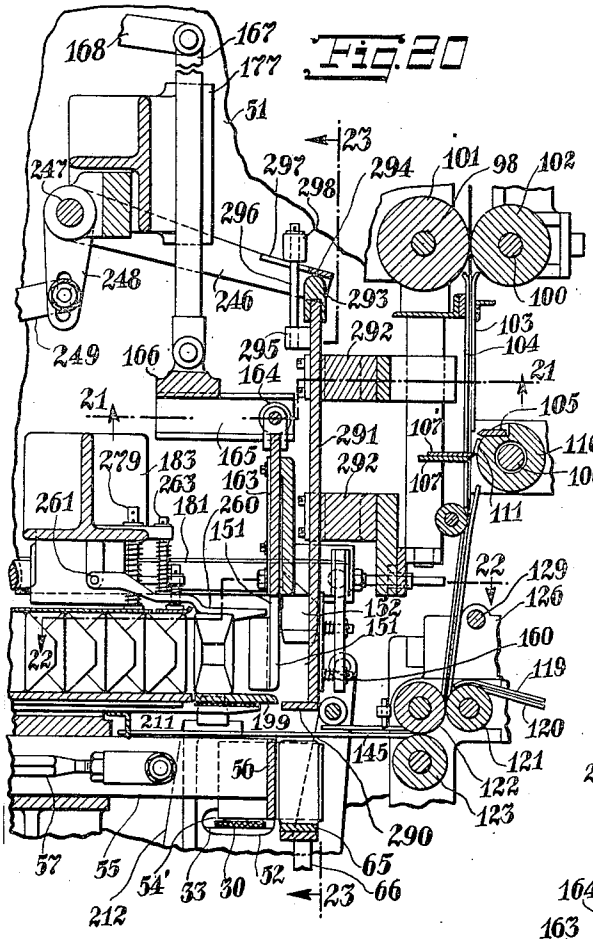


Fig. 21

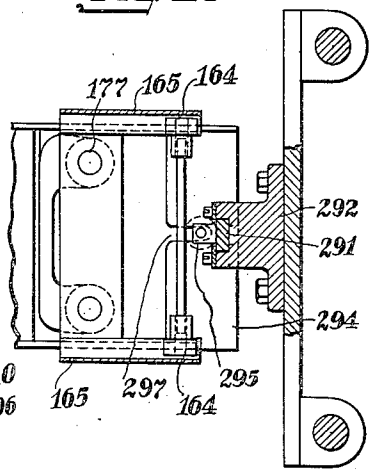


Fig. 22

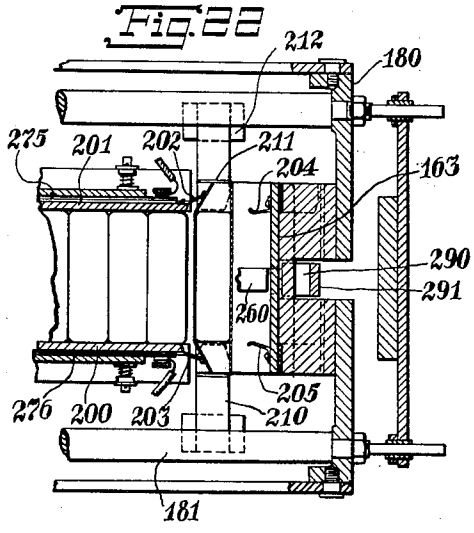
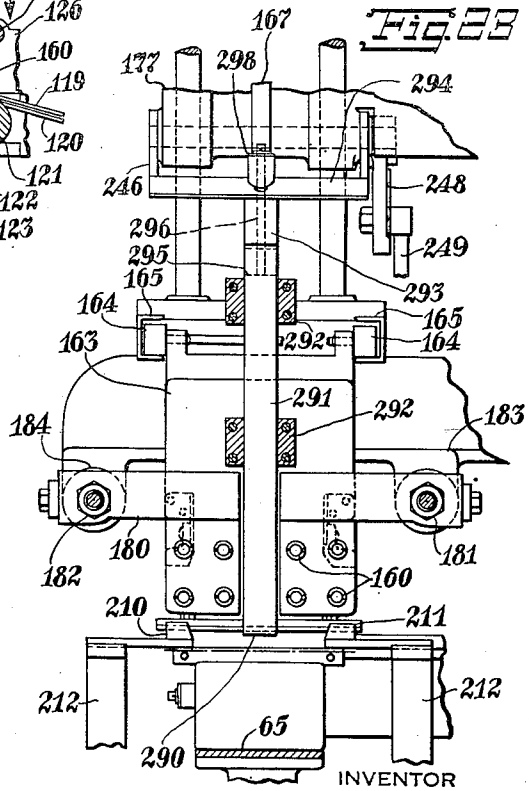


Fig. 23



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WRAPPING MACHINE

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Fig. 24

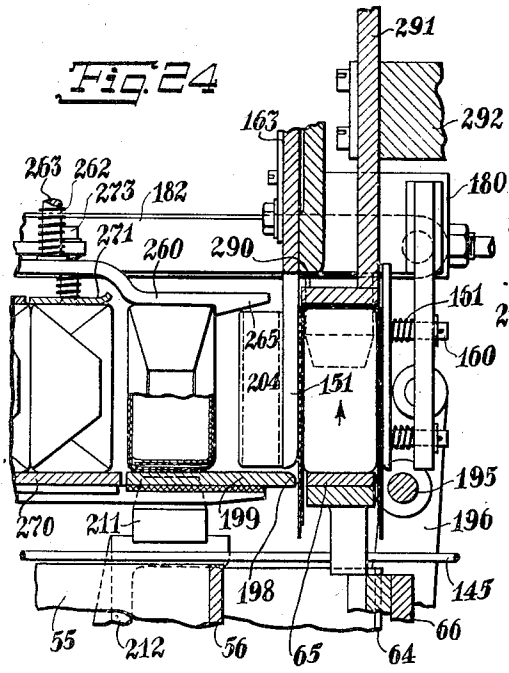


Fig. 25

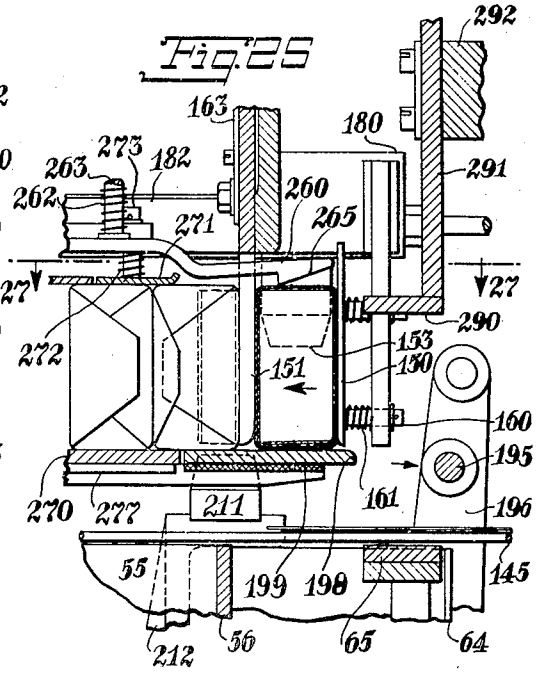


Fig. 26

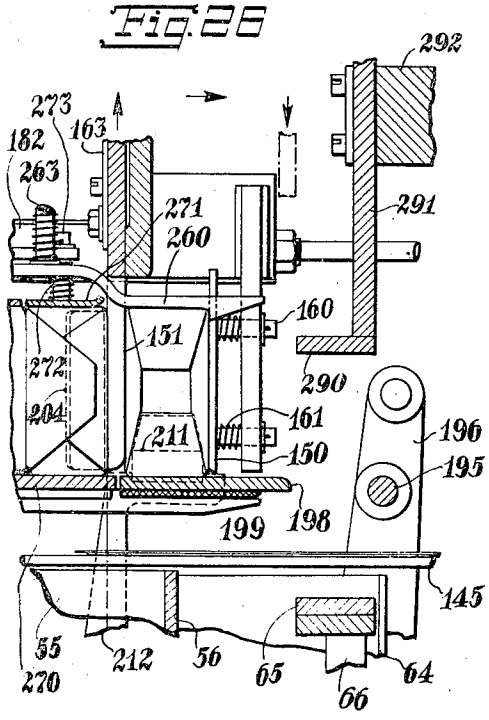
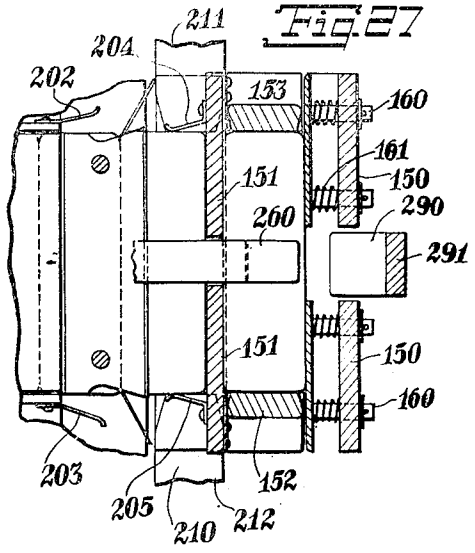


Fig. 27



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Patented Apr. 27, 1937

2,078,619

UNITED STATES PATENT OFFICE

2,078,619

WRAPPING MACHINE

John Van Buren, Brooklyn, N. Y.

Application November 9, 1935, Serial No. 48,969

20 Claims. (Cl. 93—2)

This invention relates to wrapping machines.

More particularly stated, the invention relates to wrapping mechanism for articles, such as cakes of soap.

In order to prevent soap from drying out or, in other words, to keep it moist, it has been found desirable to wrap the cakes in waxed paper. Such wrappers are sealed by the application of heat which melts or softens the wax forming a binder for the overlapping portions of the wrapper. When the cakes are paneled or provided with depressed faces the seal must be formed on the edge of the cake since it is difficult to exert even pressure across the face having a depressed portion.

The invention has for its salient object to provide a wrapping machine so constructed and arranged that the wrappers will be tightly wrapped and secured along one edge and at the ends of the articles wrapped.

Further objects of the invention will appear from the following specification taken in connection with the drawings which form a part of this application, and in which

Fig. 1 is an elevational view of a machine constructed in accordance with the invention;

Fig. 2 is a top plan view of the machine;

Fig. 3 is a plan view of the blank used for forming the wrapper;

Fig. 4 is a perspective view partly broken away, showing the wrapped article;

Fig. 5 is a rear elevation of the machine, parts being shown in section;

Fig. 6 is a front elevation of the machine shown in Fig. 1;

Fig. 7 is a plan view partly in section taken on line 7—7 of Fig. 1, looking in the direction of the arrows;

Fig. 8 is a sectional plan view taken on line 8—8 of Fig. 1, looking in the direction of the arrows;

Fig. 9 is a vertical sectional elevation on an enlarged scale illustrating the paper feeding and wrapper folding mechanism;

Fig. 10 is a detail sectional elevation taken substantially on line 10—10 of Fig. 9;

Fig. 11 is a detail sectional elevation through the wrapper folding mechanism, one of the articles being shown in its initial wrapping position and another article being shown in an intermediate stage of the wrapping operation;

Fig. 12 is a sectional elevation taken substantially on line 12—12 of Fig. 11, this figure being taken at right angles to Fig. 11;

Fig. 13 is a sectional elevation taken on line 13—13 of Fig. 11;

Fig. 14 is a sectional elevation taken substantially on line 14—14 of Fig. 11;

Fig. 15 is a view similar to Fig. 11 but showing the article and wrapper at a later stage in the wrapping operation, the bottom folds in the wrapper being formed;

Fig. 16 is a view similar to Fig. 15 but showing the article being wrapped at a still later stage in the wrapping operation;

Fig. 17 is a view similar to Fig. 16 but showing the parts at a slightly later stage in the operation of the feeding and folding mechanism;

Fig. 18 is a sectional elevation taken substantially on line 18—18 of Fig. 16;

Fig. 19 is a sectional elevation at right angles to Fig. 17 and taken substantially on line 19—19 of Fig. 17;

Fig. 20 is a vertical sectional elevation through the wrapping and folding mechanism showing a slightly modified form of pocket;

Fig. 21 is a horizontal sectional view taken substantially on line 21—21 of Fig. 20, looking in the direction of the arrows;

Fig. 22 is a horizontal sectional view taken substantially on line 22—22 of Fig. 20, looking in the direction of the arrows;

Fig. 23 is a vertical sectional view taken substantially on line 23—23 of Fig. 20, looking in the direction of the arrows;

Figs. 24, 25 and 26 are enlarged vertical sectional views through the pocket and folding mechanism shown in Fig. 20, the pocket and folding mechanism being shown in successive stages or steps of operation; and

Fig. 27 is a horizontal sectional view taken substantially on line 27—27 of Fig. 25, looking in the direction of the arrows.

The invention briefly described consists of a machine for tightly and securely wrapping an article, such as a cake of soap, in a waxed wrapper. The machine comprises means for feeding the article and wrapper, for folding the wrapper around the article, for tucking the ends of the wrapper and folding the tucked ends across the ends of the article. The wrapper is stretched tightly around the article and the folded ends are tightly held as they are secured in folded position. The wrapper and article are fed into a pocket and are fed with the pocket and subsequently by the pocket to successive positions in which the tucks and folds are made in the wrapper.

Further details of the invention will appear from the following description.

In the particular embodiments of the invention illustrated in the drawings the articles, such as cakes of soap, are fed to the machine on a belt conveyor 30 between guide walls 31 and 32. The belt conveyor is supported on the usual supporting pulleys, one pulley 33 being shown in the drawings. This pulley is mounted on a shaft on which is secured a gear 34 which meshes with a gear 35 on a shaft 36. The shaft 36 has also mounted thereon a sprocket wheel 37 which is connected by a chain 38 to a sprocket wheel 39 mounted on the shaft 40. The shaft 40 is driven by a sprocket chain 41 which engages a sprocket wheel 42 mounted on the shaft 40.

The chain 41 operates as the driving medium for many operative parts of the machine and is driven by a sprocket wheel 42 carried by the main drive shaft 43 of the machine. The shaft 43 is driven from any suitable source of power which is connected to a drive pulley 44 secured to the shaft. The chain 41 also drives a shaft 45 mounted below shaft 43 and having secured thereto a plurality of cams, hereinafter described, for driving various parts of the mechanism.

The parts above described and the other operative parts of the machine are mounted on a machine frame comprising a base or bed plate 50 and a vertical frame 51 connected thereto and extending upwardly therefrom.

As above stated, the articles or cakes of soap X are fed into the machine on the conveyor 30. The conveyor passes through spaced openings 52 and 53 in a vertical wall or frame 51 and the upper lap passes through an opening 54' in an abutment or stop 54 and the cakes are arrested in their feeding movement by the abutment. The forward cake is fed laterally at the proper time in the cycle of operation in the machine by a plunger 55 having a plate 56 at the advance end thereof engageable with the forward cake. The plunger 55 is operated by a pitman 57 which is connected to a bell crank lever 58 mounted on a fixed pivot 59. The other arm of the bell crank lever has connected thereto a link or lever 60 having a bifurcated end 61 which straddles the shaft 45. The link or lever 60 has secured thereto a roller 62 which engages a groove in a cam 63. It will be obvious that as the shaft 45 and cam 63 are rotated, the plunger 55 will be reciprocated and will discharge the advance cake from the conveyor 30 to platform 65. The abutment 54 has formed thereon a back stop or abutment 64 to position the cake on platform 65.

This cake will thus be fed by the plunger 55 to the support or platform 65 which is carried by a vertically reciprocatable frame 66 slidably mounted on a guideway 67. A link 68 connects the lower end of the frame 66 to a bell crank lever 69 mounted on a fixed pivot 70. The upper end of the bell crank lever 69 is connected to a link 71 having a bifurcated end 72 which straddles the shaft 45 and also having a roller 74 which is positioned in a cam groove in a cam 75. By means of the connections and operating mechanism just described the platform or support 65 is periodically raised to feed the cake upwardly. During this feeding movement a wrapper is positioned above the cake and is engaged thereby and fed into folding mechanism therewith.

Wrapper feeding mechanism

In the form of the invention illustrated in the drawings, a double wrapper is used. The outer wrapper is preferably formed of laminated waxed paper in the form of a sheet which is fed and cut into suitable lengths. The wrapper sheet is supplied in a roll R which is mounted on a spindle 80. The web or sheet is led from the supply roll R over idlers 81 and 82 to a position between a pair of feed rolls 83, 84. From these rolls the strip is led between a pair of guide members 85, 86 and is fed by means of feeding pins 87 carried by feed chains 88 which are mounted on sprockets 89, 90 and 91. The paper web is provided at spaced intervals with perforations which are engaged by the pins 87.

The sprocket 89 is mounted on a shaft 92 on which is also mounted a spur gear 93 which meshes with a gear 94 carried by a shaft 95. The shaft 95 also has secured thereto a sprocket wheel 96 which is driven by the chain 41.

The gear 94 on a shaft 95 also meshes with a gear 97 carried by a shaft 98. Gear 97 also meshes with a gear 99 carried by a shaft 100. The shafts 98 and 100 have secured thereto feed rollers 101 and 102 between which the paper web passes from the guide members 85 and 86. The strip or web is fed downwardly by feed rollers 101 and 102 between vertical guide members 103 and 104 and is cut by a rotary knife 105 carried by a shaft 106. The knife 105 coacts with a stationary knife 107 mounted on a base 108. Above the knife 107 is slidably mounted a plate 107' which is spring actuated in one direction by springs 109. The movement of the plate 107' by the springs is limited by suitable stops.

The rotary knife 105 is carried by a roll 110 mounted on the shaft 106 and this roll also carries a pair of lugs 111 and 112 which are adapted to engage abutments 113 and 114 projecting from the end portions of the plate 107'.

Thus, as the knife 105 rotates with the roll 110 the wrapper strip or web will be severed by the coaction of the knife 105 with the knife 107. As the web is being cut in this way the plate 107' will be pushed backwardly by the engagement of the lugs 113 and 114 by the lugs 111 and 112. The plate when released will spring back and prevent the waxed paper web from sticking to the knife 107 which would interfere with the feeding movement thereof.

The inner wrapper, which is slightly smaller in dimensions, than the outer wrapper is fed from a hopper H' by means of feed rolls 115 and 116 which engage the bottom blank and feed this blank to a position in which it is engaged by feed rolls 117 and 118 and is fed between guiding members 119 and 120 to a position in which it is engaged and fed with the outer wrapper by a pair of feed rolls 121 and 122. From these last named feed rolls 121 and 122 the two wrapper blanks are engaged by feed rolls 122 and 123. Feed rolls 121, 122 and 123 are carried by an adjustably mounted bracket 126.

In order to properly space the bracket 126 and the feed rolls 121, 122 and 123 from the article and wrapper receiving pocket P, hereinafter described, the bracket 126 is adjustably mounted, being supported by fixed posts 125. The posts 125 are provided with rack teeth 127 which are engaged by pinions 128 carried by a spindle 129 mounted in bracket 126. The spindle can be rotated by a handle 130 and thus the bracket can

be adjusted toward and from the pocket P to thus properly position the wrapper.

The feed rolls 115, 116 and 117 are driven by geared connections shown from the shaft of the feed roll 118. This shaft is provided with a sprocket wheel 131 which is engaged by the sprocket chain 41.

The shaft 106 of the rotary cutter 105 is driven by a suitable "fast and slow" driving connection from a shaft 135 which carries a sprocket wheel 136 engaged by the chain 41. The "fast and slow" driving connection between the shafts 106 and 135 forms no part of the present invention and need not be further described.

The feed rolls 121, 122 and 123 are geared together and the roll 123 is provided with a gear 137 which meshes with a gear 138 mounted on a shaft 139. This shaft is driven by a shaft 140 through a "fast and slow" driving connection, the shaft 140 being provided with a sprocket 141 engaged by the sprocket chain 41 and driven thereby.

From the feed rolls 122 and 123 the superposed outer and inner wrapper blanks are fed over supporting members 145 and are supported thereby in the path of upward movement of the cake or article as it is fed upwardly by the vertical movement of the support 65.

Folding mechanism

Fig. 3 illustrates the blank of the outer wrapper which, as shown, is provided with five sections A, B, C, D and E. The sections A and C form the covers for the two faces of the cake, B and E form the outer covers for the edges of the cake and the ends of the cake are covered by the portions of the wrapper beyond the fold lines X—X and Y—Y. The inner wrapper does not extend over the ends of the cake and only between the lines X—X and Y—Y. This wrapper is also slightly shorter than the outer wrapper, the ends being shown by the dotted lines F and G.

The wrapper is fed by the feed rolls 122 and 123 to a position in which the section B of the wrapper is disposed above the cake as it is fed upwardly with the upward movement of the support 65. As the cake and wrapper are fed upwardly they will be fed into a pocket comprising walls 150 and 151, which press the wrapper against the two faces of the cake. The wall 151 carries lugs or tuckers 152 and 153 disposed at the ends of the pocket, which engage the projecting end portions of the wrapper and tuck the ends positioned beyond the section B of the wrapper in a downward direction against the ends of the cake.

In the form of the invention illustrated in Figs. 1–19, inclusive, the upper end of the pocket is formed by an end wall or plate 154 which is carried by vertically movable rods 155 slidably mounted in bearings 156. Heads 157 are formed on the upper ends of the rods 155 and are periodically engaged in a manner hereinafter described to push the rods downwardly to the position shown in Fig. 9. When the rods are disposed in this position the plate or end wall 154 will be disposed above the wrapper and will be engaged thereby as the article and wrapper are fed upwardly to a position between the side walls 150 and 151 of the pocket.

The wall 150 is carried by pins 160 and is spring pressed in one direction or toward the wall 151 by springs 161. This spring pressure insures the firm engagement of the sides of the article and wrapper by the walls 150 and 151.

The side wall 151 of the pocket is vertically movable and is carried by a member 163 having on its upper end a roller 164 mounted on a support or rail 165. The rail 165 is carried by a bracket 166 which also carries a rail or track 162 above the roller 164. The bracket 166 is supported by a link 167, the upper end of which is connected to an arm 168 of a bell crank lever mounted on a fixed pivot 169. The other arm 170 of the bell crank lever is connected to a link 171 having a bifurcated end 172 which straddles a shaft 173. The end of the link 171 is also provided with a roller 174 which is positioned in a groove in a cam 175 mounted on the shaft 173. This shaft also carries a sprocket wheel 176 which is driven by the sprocket chain 41. The link 167 is slidably mounted in a vertical guide 177.

The pocket into which the article and wrapper are fed is slidably mounted in the following manner: A frame member 180 is secured to the pocket and is mounted on rods 181 and 182 which are slidable in bearings 183 and 184. The ends of the frame member 180 have connected thereto links 185 and 186, the opposite ends of which are secured to a lever 187. A pitman 188 is connected to the lever 187. The opposite end of the pitman 188 is bifurcated and straddles the shaft 173 and is provided with a roller 190 engaging or positioned in a groove in a cam 191 mounted on the shaft 173. Thus, as the shaft 173 is rotated the pocket will be moved laterally, thus feeding the articles and wrappers through the folding mechanism in the manner hereinafter described.

From the foregoing description it will be seen that as the wrapper and article are fed into the pocket, the wrapper will be folded around the upper end of the article and across the front and rear faces thereof with the ends of the wrapper extending downwardly below the lower ends of the cake or article. This position is illustrated in Fig. 11.

Also, as shown in Fig. 12, the upper outer ends of the wrapper will be tucked by the tuckers 152 and 153 against the ends of the cake or article.

After the article and wrapper have been fed to the position shown in Fig. 11 the support 65 is lowered and the article and wrapper are moved to the position shown in Fig. 15. It will be noted that the right hand downwardly projecting end of the wrapper has been engaged by a spindle 195 carried by an arm 196 mounted on a fixed pivot 197. The spindle 195 is positively rotated in the direction of the arrow shown in Fig. 15 in a manner hereinafter described and engages and folds upwardly against the bottom edge of the cake the right hand downwardly projecting end of the wrapper shown in Fig. 11. The spindle 195 continues to engage this fold and to hold it tightly against the bottom edge of the cake as the cake and wrapper are fed with the pocket. However, as the cake is fed forwardly the edge 198 of a shelf 199 will fold the other or outer projecting end over the folded end of the wrapper. This position is shown in Fig. 16.

After the ends D and E of the wrapper are folded across the bottom of the cake in the manner above described, the lower edges of the wrapper are tucked upwardly against the ends of the plate by movable tuckers 210 and 211 which are carried by a frame 212 supported on a bracket 213 slidably mounted in a frame 214. A link 215 is connected to the bracket 213 and has

its lower end connected to an arm 216 of a bell crank lever mounted on the pivot 70. The other arm 217 of the bell crank lever has connected thereto a link 218 having a bifurcated end which straddles the shaft 45 and carries a roller 219 positioned in a groove in a cam 220 mounted on the shaft 45. The bottom tuckers operate to tuck the bottom end portions of the wrapper upwardly when the cake and wrapper and pocket in which they are positioned reach the position II in Fig. 16.

The cake is fed with the pocket over the shelf 199 to position II and the wall 151 of the pocket is then raised and the pocket returns to its initial or receiving position. The front or advance end flaps J and K are disposed between and engaged by outwardly flared members 202 and 203 mounted at the entrance of side walls 200 and 201. The wall 151 is provided with plates 204 and 205 which engage the outwardly projecting end flaps H and I of the wrapper, on the next feeding movement of the pocket, and fold these ends inwardly against the ends of the cake, as shown in Fig. 18. The plates 204 and 205 continue to hold the flaps H and I against the ends of the cake until the cake reaches the position shown in Fig. 19 in which the other end folds J and K are folded over the ends H and I. The edges of the folds J and K will be pinched between the ends of the walls 200 and 201 and held firmly in position thereby.

The operating mechanism for actuating the arm 196 and rotating spindle 195 to form the inside bottom fold will now be described.

The spindle 195 is mounted in suitable bearings carried by the arm 196 and this arm is connected, as hereinbefore stated, to the shaft 197. The arm 196 has formed thereon an extension 225. The upper end of extension 225 is connected by a link 226 to an arm 227 of a bell crank lever 228 which is mounted on the pivot 59. The other arm 229 of the bell crank lever has connected thereto a link 230 having a bifurcated end which straddles the shaft 45 and also having a roller 231 disposed in a cam 232 secured to the shaft 45.

The spindle 195 is rotated in the following manner: The outer end of the spindle is connected through a universal joint 235 to a shaft 236, the other end of which is connected through a universal joint 237 to a shaft 238. The shaft 238 is driven from a shaft 234 through a sprocket and chain connection 239, 240 and 241. Shaft 234 is driven by chain 41.

After the article and wrapper have been discharged from the pocket the end plate 154 and the rods 155 are pushed downwardly by the engagement of the heads 157 carried by the upper ends of the rods 155 with a plate 245 carried by an arm 246 mounted on a shaft or spindle 247 to which is also secured an arm 248. The arm 248 has secured thereto one end of a link 249, the other end of which is provided with a bifurcated end 250 which straddles the shaft 173. This end of the link 249 also has secured thereto a roller 251 which engages a cam 252 secured to the shaft 173.

As the cakes are fed from the position shown at I in Figs. 15 and 16 to the intermediate position shown at II, they are engaged by a downwardly movable hook 260. This hook is mounted on a fixed pivot 261 and is normally pressed downwardly by a spring 262 which is mounted on a spindle 263 carried by a bracket 264. The outer end of the hook 260 is beveled, as shown at 265, and extends through an opening in the wall 151 of the pocket and into a recess 266 formed on the undersurface of the plate 154. As the cake moves toward the hook the front end of the hook will be raised and after the cake has reached the position shown at II in Fig. 11 the hook will drop over the outer edge of the cake and will retain the cake in position when the wall 151 is raised and the pocket returns to the receiving position.

Before the pocket can return to its receiving position the wall 151 is raised by the upward movement of the track or support 165 and link 167 which carries the support. After this wall has been raised in this manner to the position shown in dot and dash lines in Fig. 11 the pocket will be fed to the right viewing Figs. 1 and 9 and will return to its initial position whereupon the wall 151 will be lowered to the position shown in full lines in Fig. 11. The plate 154 is then lowered to the receiving position, as shown in Fig. 9.

When the article and wrapper are positioned at II and the lower tucks have been formed, the lower tuckers will be lowered out of operative position. The end folds J, H, K and I will then take the positions shown in Fig. 13.

When the pocket moves the next cake from position I to position II the wall 151 and the plates 204 and 205 carried thereby will, as above stated, engage the cake in the position II in the manner shown in Fig. 18. The folds H and I will be folded against the ends of the cake by the plates 204 and 205 and the cake will be pushed by the movement of the wall 151 of the pocket from the position II to the position III. The walls 200 and 201 and their extensions 202 and 203 will engage the folds J and K and fold them toward the end of the cake as the folds H and I are being held in position by the plates 204 and 205 in the manner shown in Fig. 19. The cake will then be fed between the walls 200 and 201 which form the side walls of the delivery or discharge chute or guideway. The bottom wall, as shown at 270, supports the cakes and in the position III the upper edge of the cake is engaged by a spring pressed plate 271 which is pressed downwardly by springs 272 carried by pins 273. Suitable heaters are provided for heating the end folds J, H, K and I as they pass between the walls 200 and 201 so that the wax will be melted and these folds will be sealed by the wax. Such heaters are shown at 275 and 276.

A heater is also provided for heating the end folds D and E which are disposed on the bottom of the wrapped article as it is fed through the discharge chute to the discharge conveyor. This heater is shown at 277.

The walls 200 and 201 are resiliently pressed against the ends of the cake by means of springs 278 which surround pins 279 carried by the walls and extending through lugs 280.

At the discharge end of the delivery or discharge chute the wrapped articles pass between a pair of endless conveyors 285 and 286 and they are fed by these conveyors over a supporting table and away from the wrapping mechanism.

The embodiment of the invention illustrated in Figs. 1–19, inclusive, operates as follows:

Operation

The articles, such as cakes of soap, are fed into the machine on the endless conveyor 30 and are interrupted in this feeding movement by the stop

plate or abutment 54 which positions them opposite the feed plate 56 carried by the plunger 55. The advance or front cake is then discharged from the conveyor by the forward movement of the plate and plunger and is positioned on the shelf or support 65. At this stage in the operation the shelf 65 is disposed in the position shown in Fig. 9.

The cake is then fed upwardly by the upward movement of the shelf or support 65 and engages the end surface of the inner wrapper which has been previously fed to the supports 145. The cake and wrapper are then fed upwardly together and during this movement engage the under-surface of the plate 154 and move this plate upwardly between the walls 150 and 151 of the pocket. Fig. 11 shows the wrapper and article after they have been fed into the pocket. The wrapper has been wrapped around the end and two faces of the article and the upper ends have been tucked by the operation of the tuckers 152 and 153 carried by wall 151. The ends D and E of the wrapper project downwardly, as shown in Fig. 11.

The support or shelf 65 is then lowered and the spindle 195 is moved to the left about the pivot 197 and folds the inner end D against the bottom edge of the cake. The rotation of the spindle maintains this fold in tight engagement with the lower edge of the cake and the pocket then moves to the left to position the cake over the support or plate 199 and in the position shown at I in Fig. 16.

The movement of the pocket and the wrapped article therein will be continued to the position shown at II in Fig. 16 in which position the bottom tuckers 210 and 211 move upwardly to tuck the lower ends of the wrapper against the ends of the cake. This operation is shown in Figs. 13 and 14 and it will be noted in Fig. 13 that the ends J, H, K and I project outwardly from the ends of the cake.

When the pocket has reached the position II the wall 151 and tuckers 152 and 153 and plates 204 and 205 carried thereby will be raised by the upward movement of the support 165, bracket 166 and link 167. After this wall has been raised the links 185 and 186 and the actuating mechanism therefor will return the pocket to the receiving position shown in Fig. 11. When the pocket has reached this position the plate 154 will be lowered by the engagement of the rods 155 and actuation thereof by the plate 245 carried by the arm 246. Also, the wall 151 and tuckers 152 and 153 and plates 204 and 205 carried thereby will be lowered to the position shown in Fig. 11. The pocket is then ready to receive the next article and wrapper as they are fed upwardly by the upward movement of the shelf or support 65.

The tucks are formed in the second wrapper in the same manner as above described, and the article and wrapper are then fed to the support 199. During this last movement of the pocket the plates 204 and 205 will engage and fold the end flaps H and I against the ends of the cake previously fed and this cake will be fed between the walls 200 and 201 causing the end flaps J and K to be folded against the folded flaps H and I in the manner shown in Fig. 19.

The structure illustrated in Figs. 20–27, inclusive, is substantially the same as that shown in the preceding figures, but differs therefrom in that the plate which forms the upper wall or top of the pocket is mounted independently of the pocket and does not move therewith. By reason of this construction the plate can be lowered to receiving position before the pocket has been returned to receiving position.

Referring to the structure shown in Figs. 20–27, inclusive, the plate 290 which forms the upper end or top of the pocket and corresponds to the plate 154 shown in the other form of the invention, is carried by a vertical bar or strip 291 which is slidably mounted in brackets 292. The upper end of the bar 291 is provided with a head 293 which is disposed beneath and adapted to be engaged by a plate 294 carried by the arm 246 and corresponding to the plate 245 shown in the other form of the invention.

The arm 246, as hereinbefore described, forms one arm of a bell crank lever pivoted at 247 and the other arm of this lever is indicated at 248. The arm 248 is connected to a link 249 which is provided with a bifurcated end 250 which straddles the shaft 173. The link 249 also has a roller 251 which engages a cam 252 mounted on the shaft 173.

The bar 291 has connected thereto adjacent the upper end thereof a lug 295 on which is mounted a pin 296 which extends upwardly through a slot 297 in the plate 294. A collar 298 is mounted on the upper end of the pin 296 and rests on the upper surface of the plate 294. The purpose of the pin 296 and collar 298 is to insure the upward movement of the plate 290 in case no article has been deposited on the ledge or support 65.

The construction just described operates as follows: When the article and wrapper are fed upwardly by the upward movement of the shelf or support 65 the wrapper will be pushed into engagement with the under surface of the plate 290 and the plate will move upwardly between the walls of the pocket to the position shown in Fig. 24. The pocket will then be moved laterally to the position shown in Fig. 25 in the manner hereinbefore described and the arm 246 of the bell crank lever and the actuating mechanism therefor will be so timed as to start the downward movement of the bar 291 and plate 290, as shown in Fig. 25. Thus, when the pocket is returned to receiving position the plate 290 will be disposed in receiving position and the time interval required to lower the plate in the embodiment of the invention shown in Figs. 1–19 will be saved with the construction shown in Figs. 20–27, inclusive. This operation is repeated as each successive article is fed with its wrapper into the pocket and is fed with the pocket in the manner described. The wrapped articles as they are successively fed over the support 270 and between the walls 200 and 201 push the articles in advance thereof along the support and they pass successively between the endless conveyors 285 and 286 and out of the machine.

As the wrapped articles are fed through the discharge chute or passageway the folded ends J, H and K, I are sealed by the operation of the heaters and the ends D and E are also sealed by the action of the heater disposed below these folded ends.

From the foregoing specification it will be seen that simple, practical and efficient wrapping mechanism has been designed and that this mechanism will operate to tightly fold and secure the waxed wrappers around the articles.

Although one specific embodiment of the invention has been particularly shown and described, it will be understood that the invention

is capable of modification and that changes in the construction and in the arrangement of the various cooperating parts may be made without departing from the spirit or scope of the invention, as expressed in the following claims.

What I claim is:

1. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an article and wrapper, means for feeding an article and wrapper into said pocket, means for moving said pocket and said article and wrapper therein, a distance corresponding to the width of the article, to a support, and means for raising the advance wall of the pocket, said pocket moving means operating to return the pocket to its initial position after the said wall is raised and said wall being lowered to its initial position after the return of the pocket.

2. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an article and wrapper, means for feeding an article and wrapper into said pocket, means for moving said pocket and said article and wrapper therein to a support, means operable during the movement of the pocket to fold the ends of the wrapper across the bottom of the article, and means for vertically raising the advance wall of the pocket, said pocket moving means operating to return the pocket to its initial position after the said wall is raised and said wall being lowered to its initial position after the return of the pocket.

3. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an article and wrapper, means for feeding an article and wrapper into said pocket, means for moving said pocket and said article and wrapper therein to a support, and means carried by said pocket and engageable with end portions of the wrapper of an article on said support, previously fed by said pocket, for folding said end portions against the ends of the article.

4. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an article and wrapper, means for feeding an article and wrapper into said pocket, means for moving said pocket and said article and wrapper therein to a support, means operable during the movement of the pocket to fold the ends of the wrapper across the bottom of the article, and means carried by said pocket and engageable with end portions of the wrapper of an article on said support, previously fed by said pocket, for folding said end portions against the ends of the article.

5. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an article and wrapper, means for feeding an article and wrapper into said pocket, means for moving said pocket and said article and wrapper therein to a support, means operable during the movement of the pocket to fold the ends of the wrapper across the bottom of the article, means carried by said pocket and engageable with end portions of the wrapper of an article on said support, previously fed by said pocket, for folding said end portions against the ends of the article, and means for raising the advance wall of the pocket, said pocket moving means operating to return the pocket to its initial position after the said wall is raised and said wall being lowered to its initial position after the return of the pocket.

6. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an article and wrapper, means for feeding an article and wrapper into said pocket, means for moving said pocket and said article and wrapper therein to a support, means carried by the pocket for tucking the upper projecting ends of the wrapper downwardly against the ends of the article, means operable during the movement of the pocket and article and wrapper therein to fold the ends of the wrapper across the bottom of the article, means operable on the wrapper after the article and wrapper have been moved with the pocket to the support for tucking the lower projecting ends of the wrapper upwardly against the ends of the article, and means for folding the wrapper against the ends of the article.

7. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an article and wrapper, means for feeding an article and wrapper into said pocket, means for moving said pocket and said article and wrapper therein to a support, means carried by the pocket for tucking the upper projecting ends of the wrapper downwardly against the ends of the article, means operable during the movement of the pocket and article and wrapper therein to fold the ends of the wrapper across the bottom of the article, means operable on the wrapper after the article and wrapper have been moved with the pocket to the support for tucking the lower projecting ends of the wrapper upwardly against the ends of the article, means for folding the wrapper against the ends of the article, and means for raising the advance wall of the pocket, said pocket moving means operating to return the pocket to its initial position after the said wall is raised and said wall being lowered to its initial position after the return of the pocket.

8. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an article and wrapper, means for feeding an article and wrapper into said pocket, means for moving said pocket and said article and wrapper therein to a support, means for tucking the upper projecting ends of the wrapper, means for folding the ends of the wrapper against the bottom of the article, means for withdrawing the pocket and returning the pocket to its initial position, and means including members carried by the pocket for folding the lateral ends of the wrapper against the ends of the article on the next succeeding feeding movement of the pocket.

9. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an article and wrapper, means for feeding an article and wrapper into said pocket, means for moving said pocket and said article and wrapper therein to a support, means for tucking the upper projecting ends of the wrapper, means including a positively rotated member for folding the ends of the wrapper against the bottom of the article, means for withdrawing the pocket and returning the pocket to its initial position, and means including members carried by the pocket for folding the lateral ends of the wrapper against the ends of the article on the next succeeding feeding movement of the pocket.

10. In a wrapping machine, a pocket, means for feeding an article and a waxed wrapper into said pocket with the ends of the wrapper projecting downwardly below the article and pocket, means for folding said ends upwardly against the bottom of the article, means for folding the laterally projecting ends of the wrapper against the ends of the article, a delivery passageway having a bottom, a top and side walls, heating means for heating the folded bottom ends of the wrapper as the wrapped article passes through the pas-

sageway, and heating means for heating the folded lateral ends of the wrapper as the wrapped article passes through the passageway.

11. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an article and wrapper, means for feeding an article and wrapper into said pocket, means for moving said pocket and said article and wrapper therein to a support, means for folding the ends of the wrapper against the bottom of the article during the movement of the pocket, a discharge or delivery passageway having a bottom, side walls and a top, means for returning the pocket to receiving position, and means including end fold engaging members carried by the side walls of the delivery passageway and by the advance wall of the pocket for folding the lateral end folds of the wrapper against the ends of the article on the next feeding movement of the pocket.

12. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an article and wrapper, means for feeding an article and wrapper into said pocket, means for moving said pocket and said article and wrapper therein to a support, means for folding the ends of the wrapper against the bottom of the article during the movement of the pocket, a discharge or delivery passageway having a bottom, side walls and a top, means for returning the pocket to receiving position, and means including end fold engaging members carried by the side walls of the delivery passageway and by the advance wall of the pocket for folding the lateral end folds of the wrapper against the ends of the article on the next feeding movement of the pocket, said members carried by the wall of the pocket operating to fold one set of end folds against the ends of the article before the other set of end folds are folded against the first folds.

13. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an article and wrapper, means for feeding an article and wrapper into said pocket means for moving said pocket and said article and wrapper therein to a support, means for folding the ends of the wrapper against the bottom of the article during the movement of the pocket, a discharge or delivery passageway having a bottom, side walls and a top, means for returning the pocket to receiving position, and means including end fold engaging members carried by the side walls of the delivery passageway and by the advance wall of the pocket for folding the lateral end folds of the wrapper against the ends of the article on the next feeding movement of the pocket, said members carried by the wall of the pocket operating to fold one set of end folds against the ends of the article and hold said folds in position until the outer folds are formed and are held between the side walls of the delivery passage.

14. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an article and wrapper, a plate mounted independently of the pocket arranged to move vertically into the pocket between the walls thereof to form an inner end wall, means for feeding an article and wrapper into engagement with said plate and into said pocket, means for moving the pocket and article laterally, and means for lowering said plate vertically to receiving position after said pocket has been moved laterally.

15. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an article and wrapper, a plate mounted independently of the pocket arranged to move vertically into the pocket between the walls thereof to form an inner end wall, means for feeding an article and wrapper into engagement with said plate and into said pocket, a support, means for moving the pocket and article over said support, and means for lowering said plate vertically to receiving position after said pocket has been moved over said support.

16. In a wrapping machine a pocket having spaced walls adapted to receive therebetween an article and wrapper, a plate mounted independently of the pocket arranged to move into the pocket between the walls thereof to form an inner end wall, means for feeding an article and wrapper into engagement with said plate and into said pocket, a support, means for moving the pocket and article a distance corresponding to the width of the article and over said support, means for raising the advance wall of said pocket when the pocket has been moved over said support, means for returning the pocket to receiving position, said wall raising means operating to return the wall to its lower position, and means for lowering said plate to receiving position after said pocket has been moved over said support.

17. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an article and wrapper, a plate mounted independently of the pocket arranged to move vertically into the pocket between the walls thereof to form an inner end wall, means for feeding an article and wrapper into engagement with said plate and into said pocket, means for moving the pocket and article from receiving to discharge position, and means for lowering said plate vertically to receiving position after said pocket has been moved from receiving to discharge position.

18. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an article and wrapper, a plate mounted independently of the pocket arranged to move vertically into the pocket between the walls thereof to form an inner end wall, means for feeding an article and wrapper into engagement with said plate and into said pocket, means for moving the pocket and article from receiving to discharge position, means for raising the advance wall of said pocket vertically when the pocket has been moved from receiving to discharge position, means for returning the pocket to receiving position, said wall raising means operating to return the wall to its lowered position, and means for lowering said plate to receiving position after said pocket has been moved from receiving to discharge position.

19. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an article and wrapper, means for feeding an article and wrapper into said pocket, means for moving said pocket and said article and wrapper therein to a support, means for raising the advance wall of the pocket, said pocket moving means operating to return the pocket to its initial position after the said wall is raised and said wall being lowered to its initial position after the return of the pocket, and means carried by said advance wall of the pocket engageable with end portions of the wrapper of an article on said support, previously fed by said pocket, for folding said end portions against the ends of the article.

20. In a wrapping machine, a pocket having spaced walls adapted to receive therebetween an

article and wrapper, means for feeding an article and wrapper into said pocket, means for moving said pocket and said article and wrapper therein to a support, means for raising the advance wall of the pocket, said pocket moving means operating to return the pocket to its initial position after the said wall is raised and said wall being lowered to its initial position after the return of the pocket, and means carried by and projecting forwardly from said advance wall of the pocket engageable with end portions of the wrapper of an article on said support, previously fed by said pocket, for folding said end portions against the ends of the article.

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