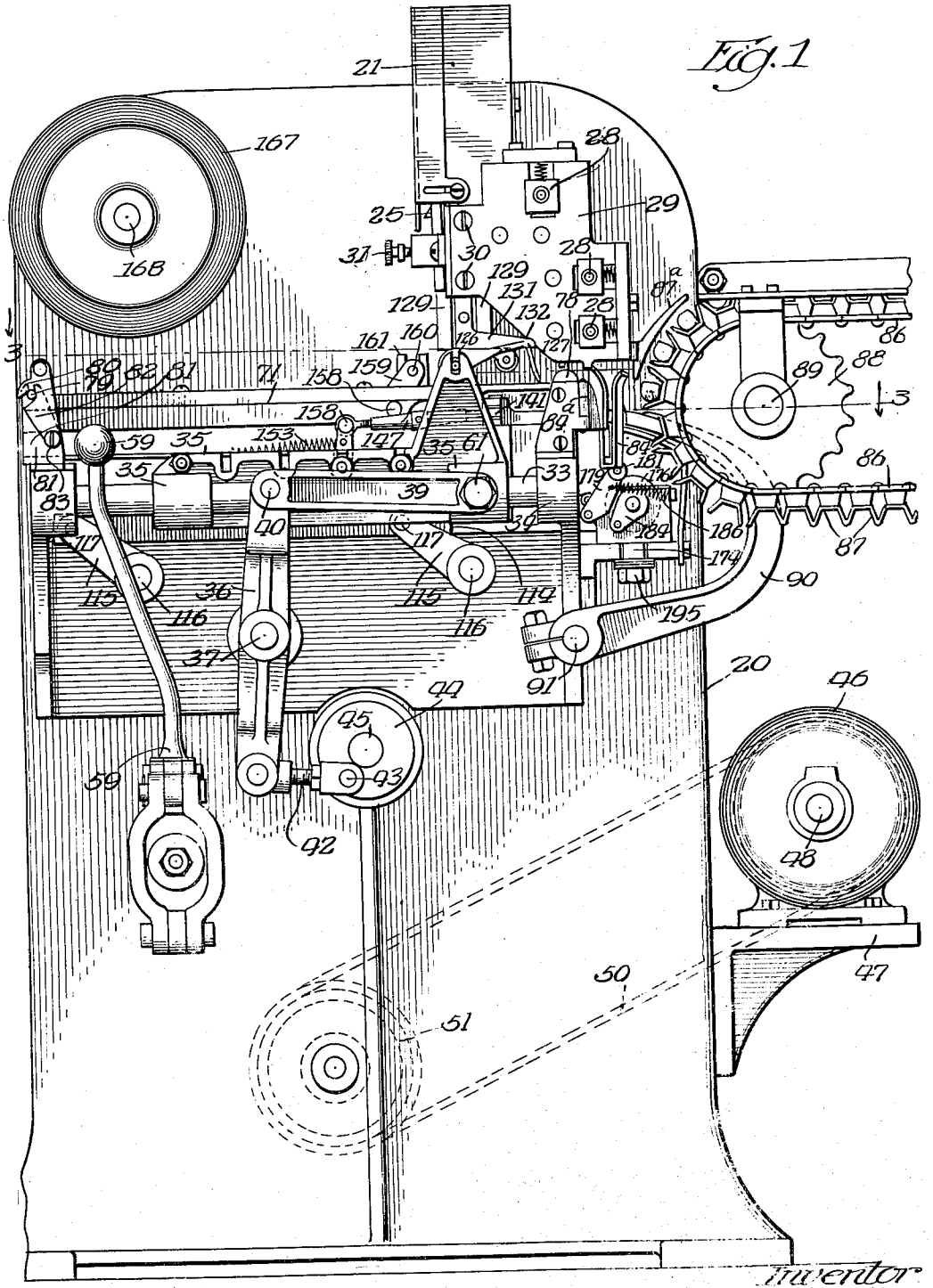
Oct. 15, 1935. A. S. KUX 2,017,314

WRAPPING MACHINE

Filed July 21, 1933 8 Sheets-Sheet 1

Fig. 1



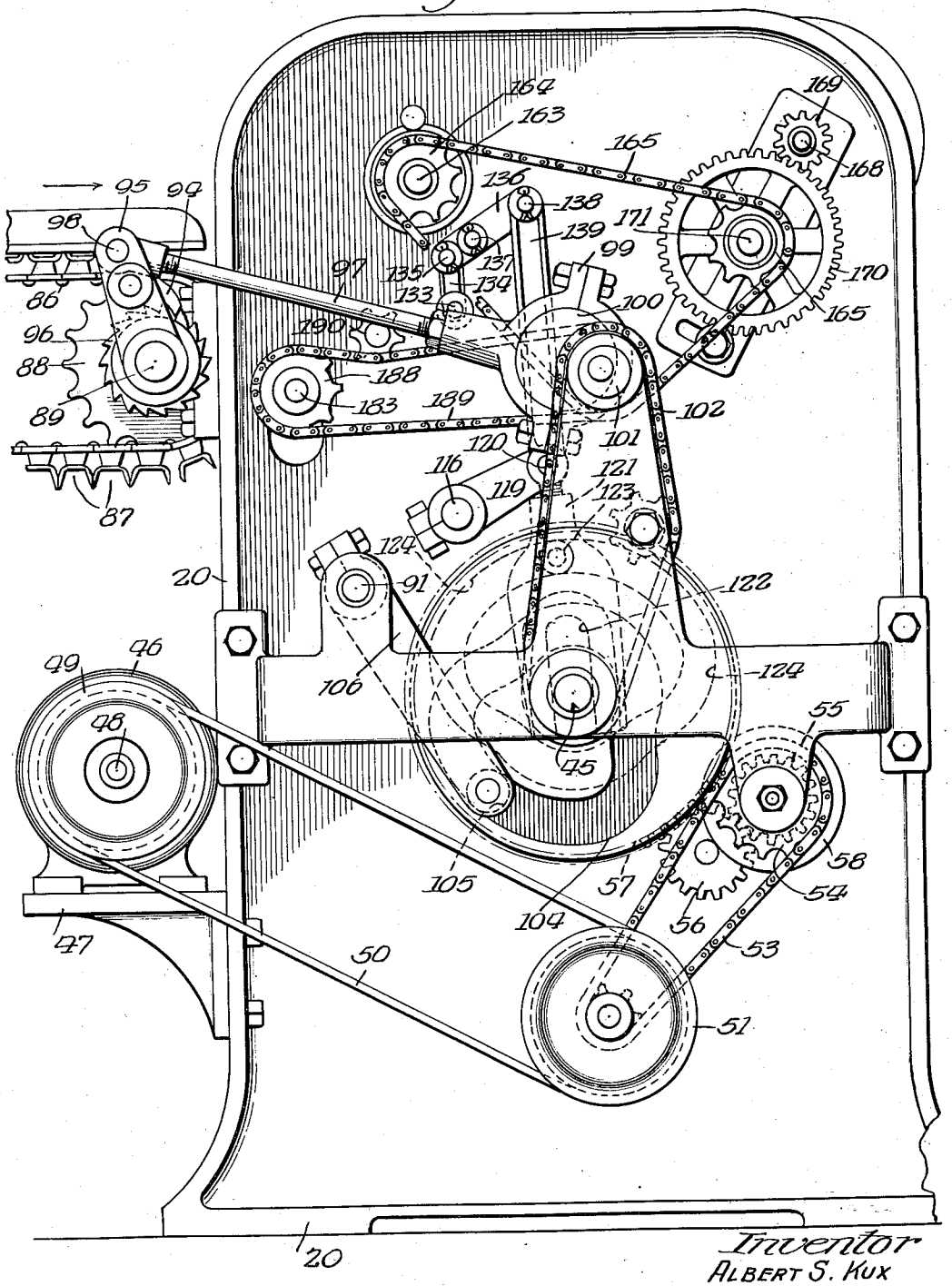
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WRAPPING MACHINE

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Fig. 2



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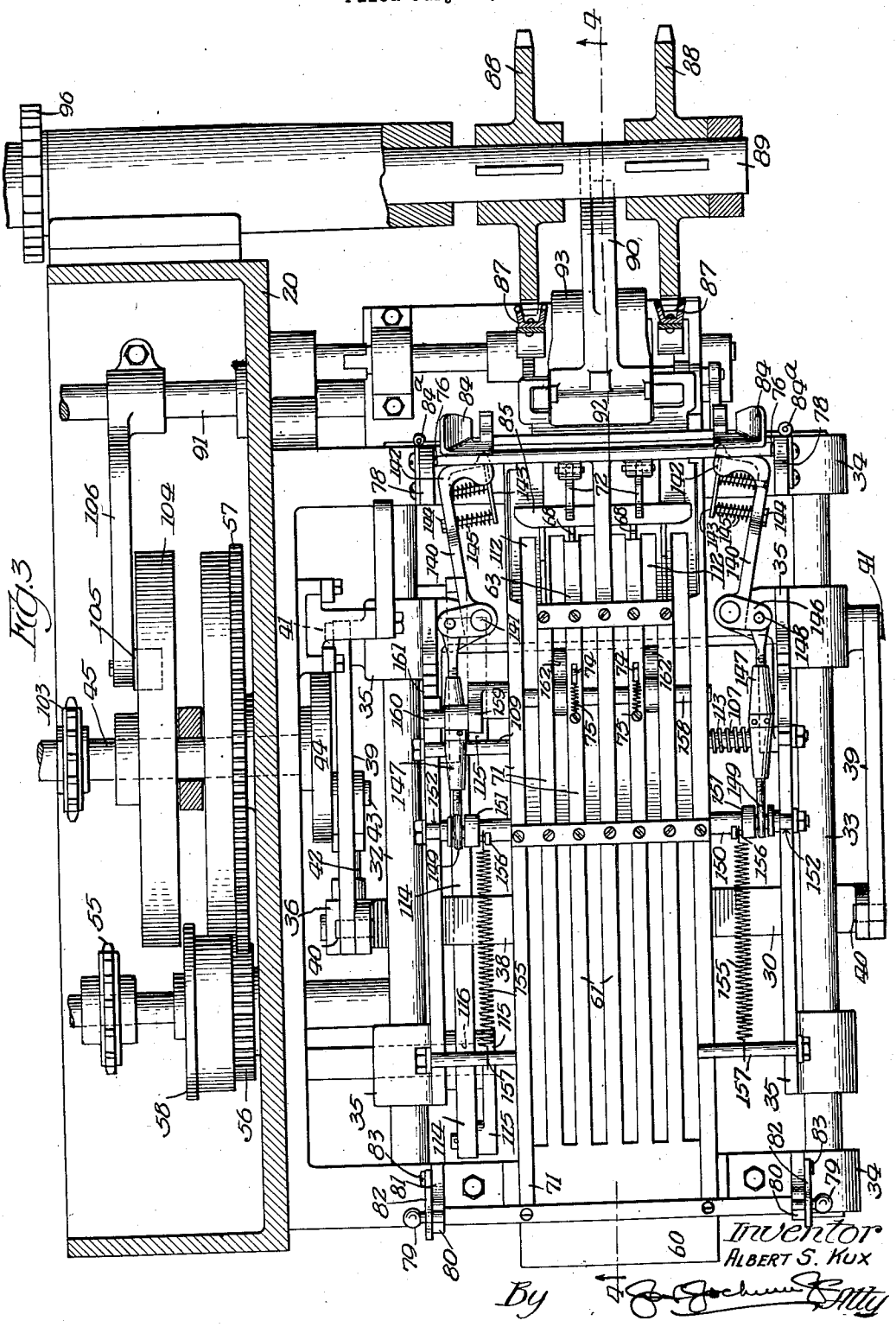


FIG. 3

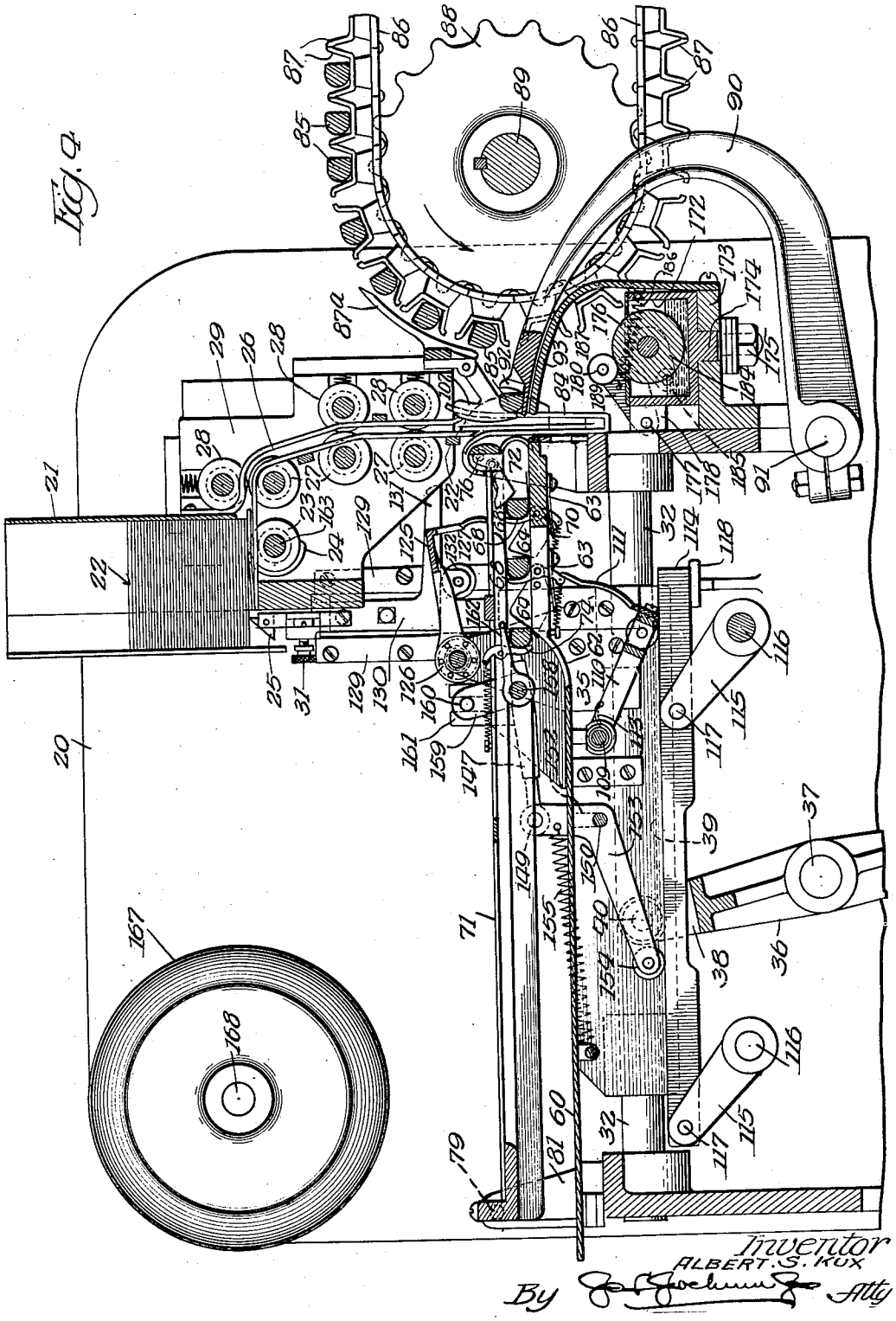
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WRAPPING MACHINE

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Fig. 4



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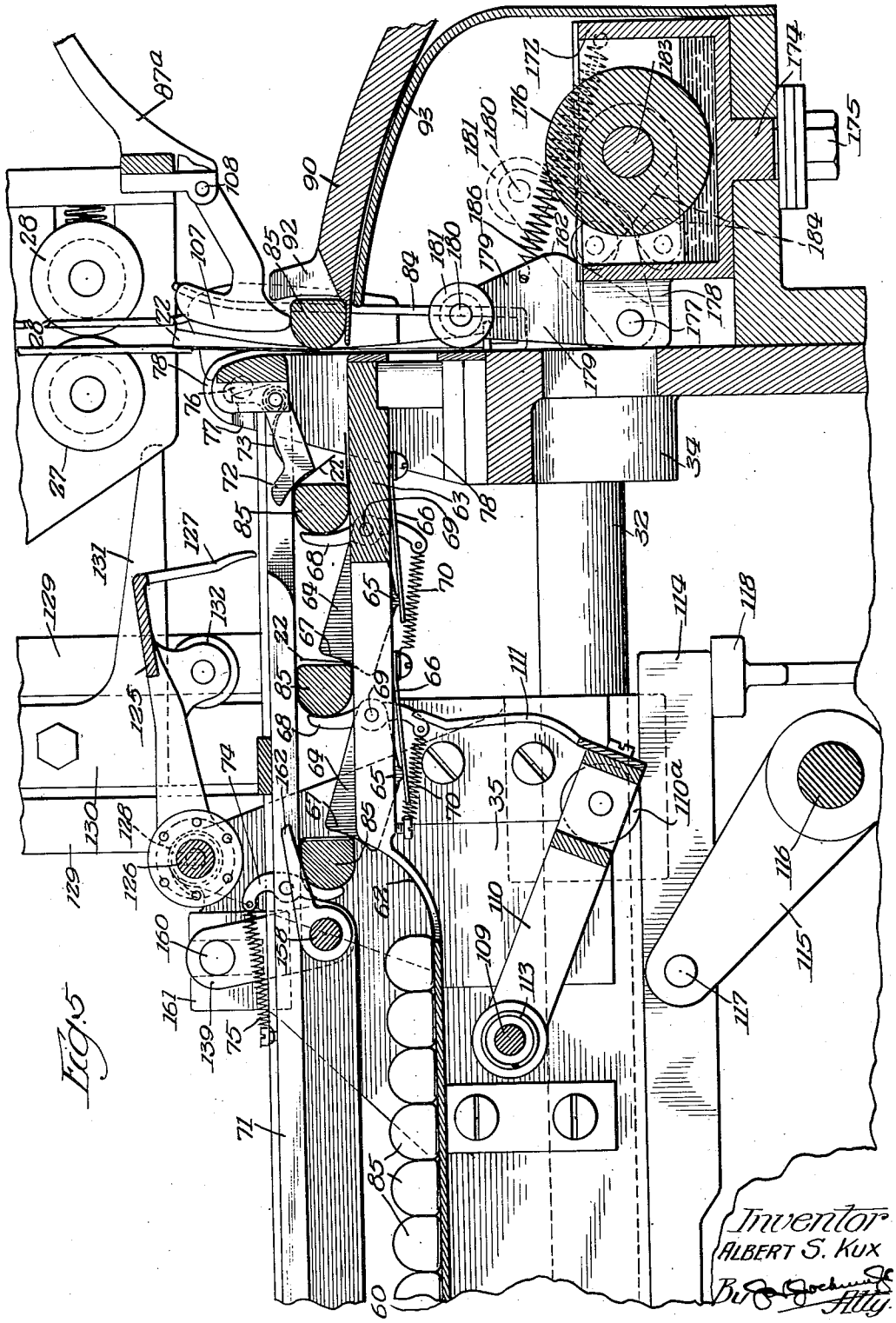


Fig. 5

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WRAPPING MACHINE

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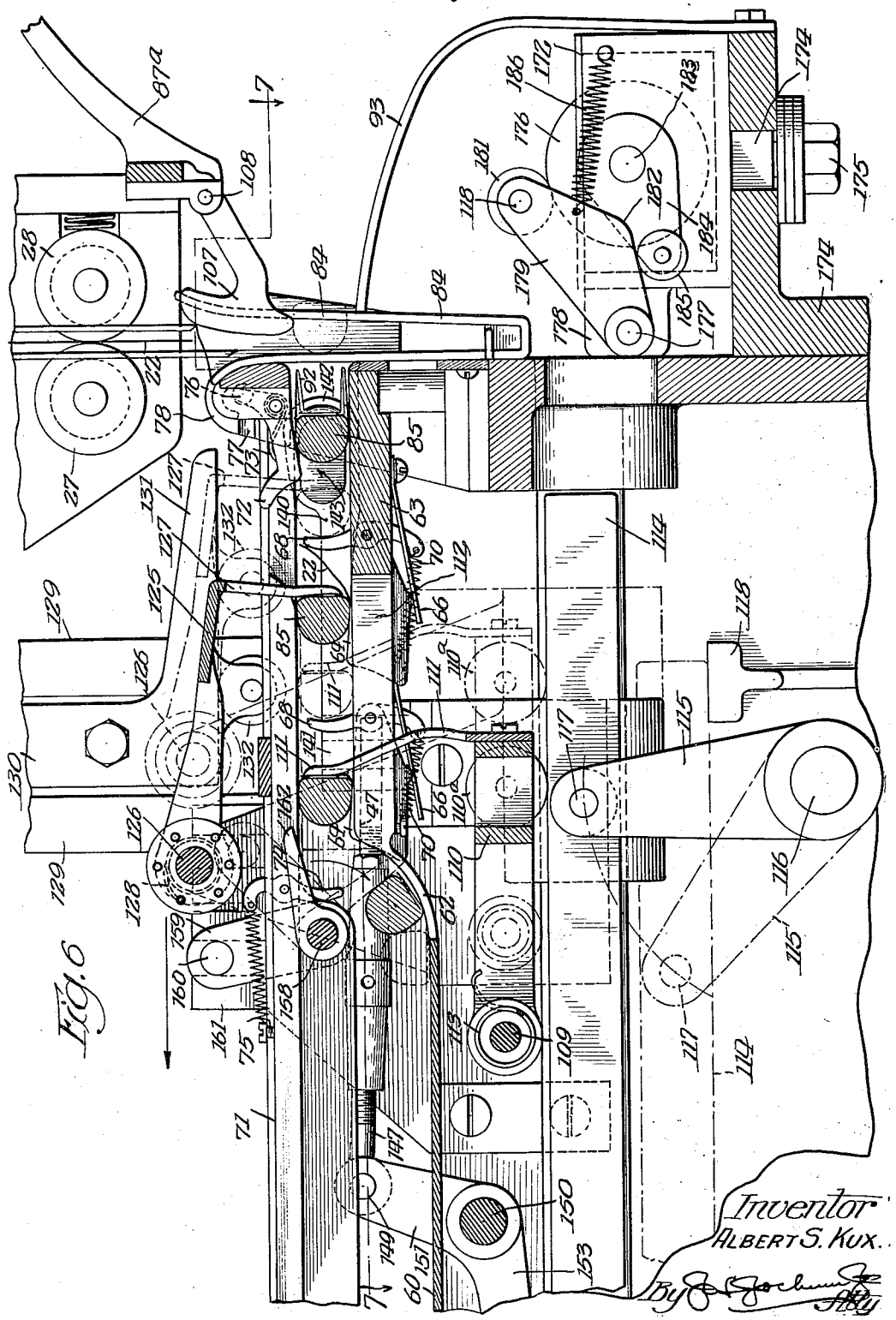


FIG. 6

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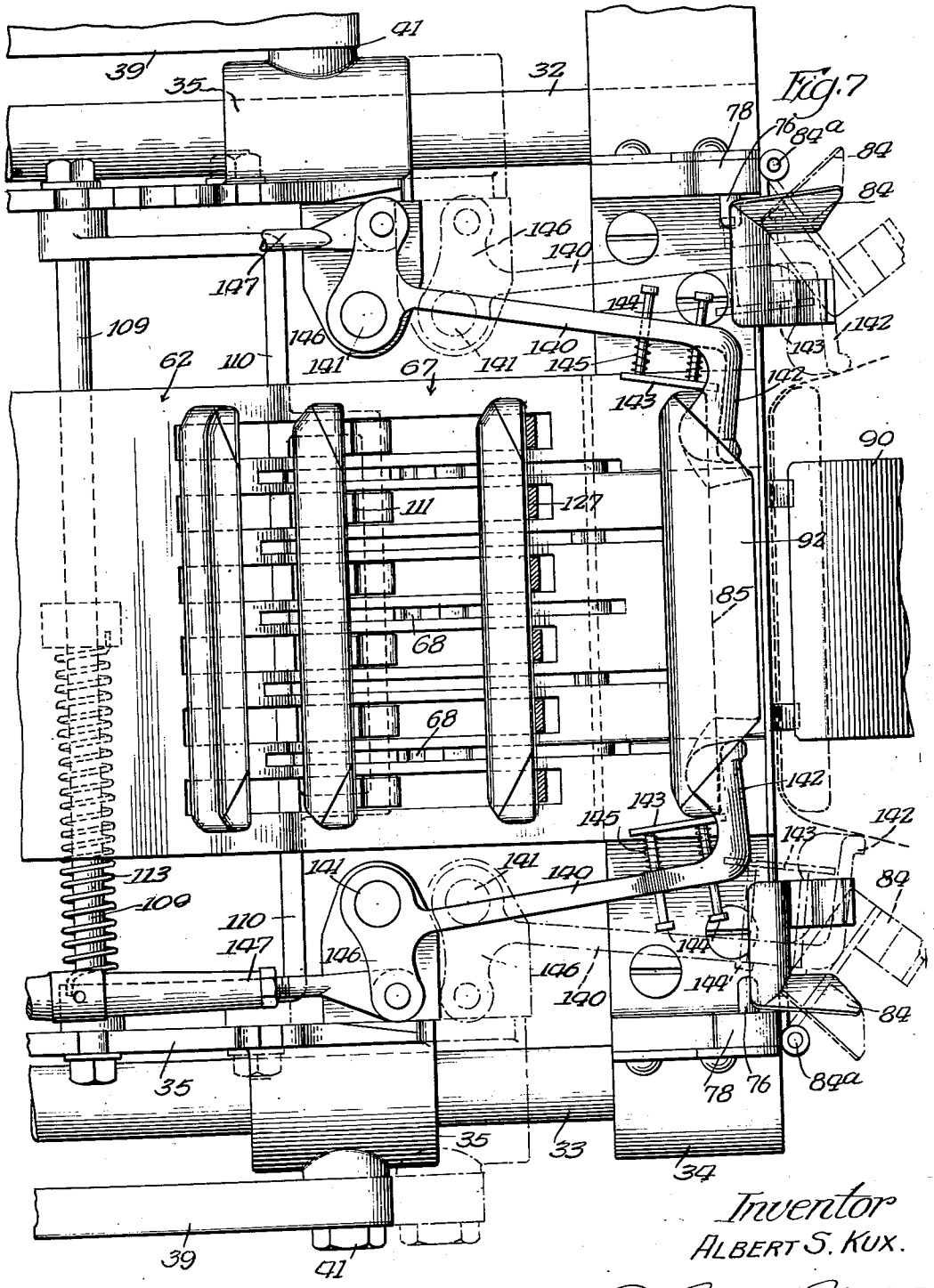


Fig. 7

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Fig. 8

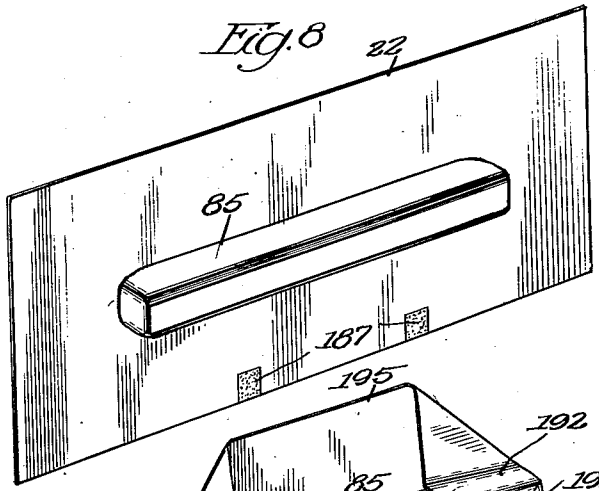


Fig. 9

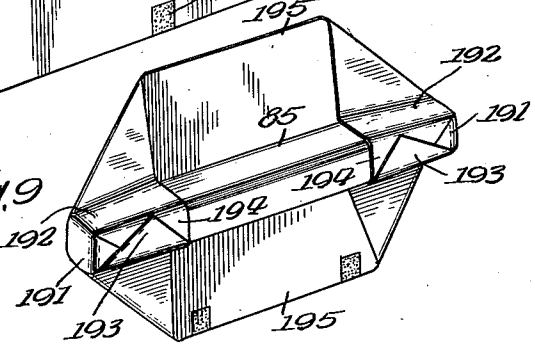


Fig. 10

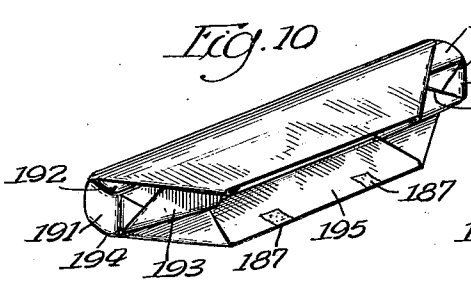


Fig. 11

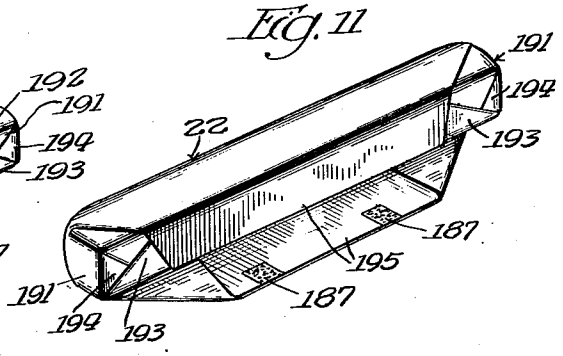


Fig. 12

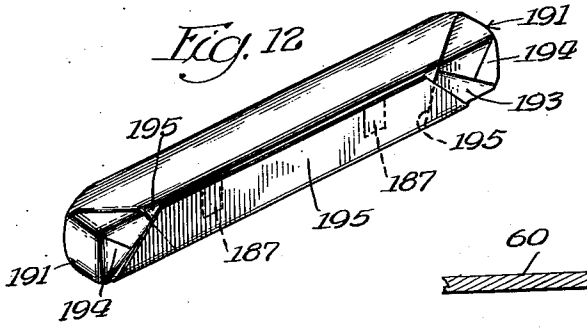
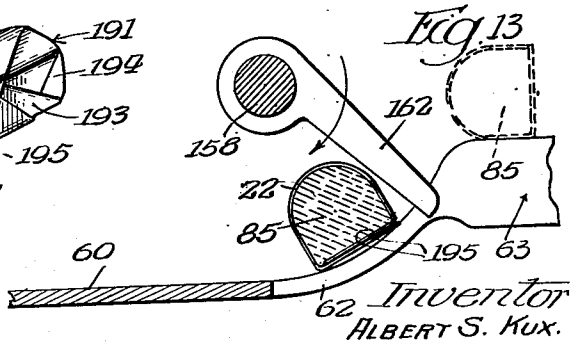


Fig. 13



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Patented Oct. 15, 1935 2,017,314

UNITED STATES PATENT OFFICE

2,017,314

WRAPPING MACHINE

Albert S. Kux, Chicago, Ill.

Application July 21, 1933, Serial No. 681,471

24 Claims. (Cl. 93—2)

This invention relates to improvements in wrapping machines particularly adapted, though not necessarily limited in its use, for wrapping bars or sticks of candy, and one of the objects of the invention is to provide an improved machine of this character which will be of a comparatively simple and compact construction and which will be effective and efficient in operation.

A further object is to provide an improved arrangement in the folds of the wrapper about the article.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings illustrating this invention and in which

Figure 1 is a front elevation of one end of the machine.

Figure 2 is an elevation taken from the side of the machine opposite to the side from which Figure 1 is taken, and with the cover for the casing removed, showing a portion of the operating mechanism.

Figure 3 is a view taken on line 3—3, Figure 1, on an enlarged scale, with parts omitted and with parts broken away.

Figure 4 is a vertical, longitudinal, sectional view of the machine, as taken on line 4—4, Figure 3.

Figure 5 is a vertical sectional view similar to Figure 4, on an enlarged scale, with parts omitted and showing others of the parts in a different position from that shown in Figure 4.

Figure 6 is a view similar to Figure 5, showing the parts in another position.

Figure 7 is a horizontal sectional view taken on line 7—7, Figure 6, with parts omitted.

Figures 8, 9, 10, 11 and 12 are detail perspective views showing the different steps in the operation of folding the wrapper about the article.

Figure 13 is a detail sectional view showing the manner of advancing the article just after it has been wrapped.

Referring more particularly to the drawings the numeral 20 designates a supporting structure which is preferably in the form of a housing provided with a removable closure for housing certain of the operating mechanisms to be hereinafter described. This housing 20 serves as a support for a hopper or container 21 which is arranged adjacent the closed side of the housing for holding the wrappers 22, and which wrappers are ejected through the bottom thereof by means of one or more rollers 23 having a friction surface 24 preferably in the form of rubber or the like to engage the bottom wrapper and remove the same from the hopper. A supporting pin or element 25 may be provided for supporting the rear ends of the wrappers while in the container.

The wrappers are delivered into a guideway 26 and are advanced by means of co-operating rollers 27—28 through the guideway to be positioned, in a manner to be set forth, so as to be contacted by the article which is to be wrapped. Certain of the rollers 23—27 are positively driven, while the rollers 28 may be spring pressed to co-operate with the respective rollers 27 for gripping and advancing the wrappers.

The wrapper feeding rollers are preferably supported by a frame 29 which may be removably secured in position preferably by means of fastening screws 30, and the pin or element 25 may be adapted for adjustment and is held in position by means of a fastening screw 31. It will therefore be manifest that the feeding rollers together with the guide 26 which is also mounted upon the support 29, may be readily removed when desired.

Supported below and spaced for a considerable distance from the bottom of the hopper or container 21, are guide rods or bars 32—33 held in position by means of suitable brackets or bearings 34, and these rods or guides 32—33 constitute supports and guides for a reciprocable carriage 35, reciprocation being imparted to the carriage by means of a lever 36 (see particularly Figure 1) pivotally mounted intermediate its ends as at 37 and provided with laterally projecting portions 38 (see also Figures 3 and 4) at the top thereof, and to which portions 38 one end of links 39 are pivotally connected as at 40. The other end of the links are respectively connected as at 41 to the carriage 35. To the other end of the lever 36 is connected one end of a link 42, and the other end of the link 42 is connected as at 43 to a crank disc 44 secured to a shaft 45, so that when the crank 44 is rotated the carriage 35 will be reciprocated. The carriage 35 and the bars or rods 32—33 are of such a length with respect to each other so as to permit of a free reciprocation of the carriage.

Motion is imparted to the shaft 45 from a motor 46 (see particularly Figure 2) mounted upon a suitable bracket 47 secured to the casing or support 20. To the shaft 48 of the motor is secured a pulley 49 over which an endless belt 50 passes, and the belt also passes over a pulley 51, which latter has secured thereto for rotation therewith a sprocket wheel 52, over which a sprocket chain 53 passes, and this sprocket chain also passes over a sprocket wheel 54 which has secured to it and for rotation therewith a gear wheel 55 which meshes with an idle gear 56, and this gear in turn meshes with a gear 57 that is secured to the shaft 45.

A clutch member 58 is provided between the motor 46 and the gear 55 for controlling the operation of the gear, and this clutch member is

controlled by means of a control lever 59, conveniently positioned for the operator.

As the motor is continuously rotating, it will be manifest that by the operation of the lever 59, the clutch 58 will be controlled, and therefore the reciprocation of the carriage 35 will be correspondingly controlled.

Extending across the body portion of the carriage 35 is a support 60 preferably formed by means of spaced members 61, and this support is provided with an upwardly curved portion 62 terminating in a horizontal portion 63, which latter extends forwardly to the point at which the wrapper and articles are delivered thereonto. Carried by the portion 63 of this support and in advance of the upwardly curved portion 62, are pivotally mounted members 64 preferably provided with projections 65 to be engaged by leaf springs 66 which tend normally to project the edges 67 of the members 64 above the top of the portion 63 of the support, for a purpose to be described.

Carried also by the portion 63 of the support are fingers 68 pivotally mounted as at 69 and which also project above the top of the portion 63 of the support. The respective fingers 68 and members 64 may be mounted upon the same pivot and any number of these members and fingers may be provided. Springs 70 are also provided so as to yieldingly hold the fingers 68 in the path of movement of the advancing articles, in a manner to be later described.

Arranged above the support 60—62—63 is a guide 71 which is also preferably formed of spaced members as shown more clearly in Figure 3, and pivotally mounted at the forward end of the guide 71 are retaining members 72, any number of which may be provided. Springs 73 individual to these members 72 are provided which tend normally to hold a portion of the members 72 in the path of advancing movement of the article, but the springs permit the members 72 to yield so that the articles may pass thereunder and then return the members 72 to the position shown in Figure 5, to hold the article against retrograde movement upon the portion 63 of the support.

Supported also by the guide 71 and adjacent the upwardly curved portion 62 of the support 60 are pivotally mounted fingers 74 controlled by springs 75 and which springs tend normally to hold the fingers 74 in the path of the advancing movement of the articles.

The guide 71 is preferably removably held in position by means of lugs 76 (see particularly Figures, 1, 3, 4, 5 and 6) which are adapted to enter open seats 77 provided in supports 78 at one end of the guides 71. At the other end of the guide 71 lugs 79 are provided which engage behind a projection 80 on a support 81, and latch members 82 pivotally mounted as at 83 are provided on the support 81 so as to co-operate with the projection 80 and engage behind the lugs 79.

Thus it will be seen that by swinging the latch 82 about its pivot 83 the guide 71 with the supporting parts will be freely removable from the machine.

The guide 71 is so arranged as to form a space above the portion 63 of the support 60 which is only slightly greater than the cross sectional diameter of the article so that when the wrapper is partially applied to the article, in a manner to be set forth, and to move upon the portion 63 of the support 60, the guide 71 will co-operate with the support 63 to partially fold the wrapper and hold the wrapper and article in proper position with respect to each other during the advancement and wrapping of the article.

Arranged beneath the guides 26 are upwardly opening substantially U shaped members 84 constituting pockets for receiving the wrappers 22 from the guides 26 and these members 84 are so arranged that when a wrapper is deposited thereinto (see particularly Figures 4 and 5) the wrappers will extend across the space between the portion 63 of the support 60 and the forward edge of the guide 71 to be contacted by the article 85 when the latter is delivered on to the portion 63 of the support, thereby carrying with it the wrapper. These members 84 (see particularly Figures 3 and 7) are mounted to swing about upright pivots 84a, such as hinges to be moved out of the way of the operation of the other parts to be described. The hinges 84a are preferably of the spring type, so as to return the members 84 during a portion of the cycle of operation of the machine. These members are so arranged that when the article 85 contacts the wrapper it will do so at substantially its central point, as shown more clearly in Figure 4.

The articles to be wrapped are fed into the machine in any suitable manner, preferably by means of an endless conveyor 86 having pockets 87 thereon and which conveyor passes over a sprocket wheel 88 mounted upon a shaft 89. Two of the endless conveyors 86 with pockets 87 secured thereto, are preferably provided, and arranged to operate between the members 86 and the sprocket wheels 88 is a plunger 90 (see particularly Figures 3 and 4) which is pivotally mounted as at 91, and this plunger is provided with a head 92 which preferably projects laterally beyond the plunger so as to engage a substantial portion of the article 85. The forward end of the plunger moves over a support 93 (see Figure 4) upon which the articles 85 are deposited from the conveyor by inverting the pockets 87 as the conveyor travels. As soon as an article is deposited upon the support 93, and after one of the wrappers 22 has been positioned as shown in Figure 4, the plunger 90 is rocked about its pivot 91 so as to engage the article upon the support 93 and advanced to move the article into contact with the wrapper 22 in the pockets 84. A further movement of the plunger will cause the wrapper to be withdrawn from the pockets 84 by the advancing article and both will be moved into the space between the portion 63 of the support 60 and the guide 71. The article with the wrapper will then be moved forwardly upon the support 63 until both have assumed a position behind the retaining members 72 to be retained in this position while the plunger 90 is retracted to permit another article to be deposited upon the support 93. After the article and the wrapper have passed beyond the retaining member 72 it will engage the fingers 68 and both will be held in position until the article and wrapper are advanced, in a manner to be described. The retaining members 72 (see particularly Figures 4 and 5) also serve as a means for partially folding the wrapper about the article.

Motion is imparted to the conveyors 86 intermittently by means of a pawl 94 (see particularly Figure 2) which is mounted upon an oscillatable arm 95 and which pawl engages a ratchet wheel 96 secured to the shaft 89. A rod 97 is pivotally connected as at 98 to the arm 95 and is preferably provided with an eccentric strap 99 encompassing an eccentric 100, and which eccentric is connected with a crank 101, to which latter is

connected a sprocket wheel over which a sprocket chain 102 passes, and this sprocket chain also passes over a sprocket wheel 103 (see Figure 3) secured to the shaft 45. Secured also to the shaft 45 for rotation therewith is a cam 104 (see Figures 2 and 3), preferably of the box type, in which a roller 105 operates, and which roller is secured to an arm 106, the latter being secured to the shaft 91, so that as the cam 104 is rotated an oscillatory movement will be imparted to the shaft 91 by reason of the roller 105 on the arm 106 traveling in the cam groove of the cam 104.

As a means for directing the wrapper into the pockets 84 as it is delivered from the guides 26, members 107 (see particularly Figures 5 and 6) may be pivotally mounted as at 108, and a portion of these members are arranged normally in the path of movement of the advancing articles and serve as a means for assisting and holding the articles in position, but are adapted to be swung about their pivots by the article and by engagement therewith of the ends 92 of the plunger 90.

Mounted upon the carriage 35 (see particularly Figures 4, 5 and 6), preferably by means of pivots 109, is a frame 110 which carries a plurality of upwardly projecting fingers 111 and which fingers are adapted to be projected through slots 112 between the members constituting the support (see also Figure 7). A spring 113 is provided which tends normally to depress the member 110 and thereby withdraw or lower the fingers 111 below the surface of the support 63 so as not to interfere with the advancing movement of the article 85 upon the support. The fingers 111 and the supporting frame, however, are mounted to reciprocate with the carriage 35 and during a portion of the reciprocating movement of the carriage the spring 113 serves to lower the frame about its pivot and consequently the fingers 111, but during the movement of the carriage during another portion of the cycle of operation the frame 110 is elevated so as to project the fingers 113 above the support 63 to engage behind the articles 85 and advance them along the support 63. This raising movement of the frame 110 and fingers 111 may be accomplished in any desired or suitable manner, but preferably by means of a track 114 (see particularly Figures 3 to 6) supported by means of arms 115 pivotally mounted as at 116, and which arms are pivotally connected to the track as at 117. A stop 118 is provided for limiting the lowering movement of the track.

The pivot of one of the arms 115 is formed by a rock shaft (see also Figure 2) which extends into the housing formed by the support 20 and to the shaft is connected an arm 119, which latter is pivotally connected as at 120 to a member 121 having a bifurcation 122 which stands astride of the shaft 45. Connected to the member 121 is a roller 123 which travels in a cam groove 124 of the cam member 104 so that as the cam member rotates, the shaft 116 will be rocked to raise and lower the track 114 at predetermined times in the cycle of operation of the machine. It will therefore be manifest that when the carriage 35 is moved in one direction and when the track 114 is raised, the member 110 will be raised to project the fingers 111 above the support 63 to engage behind the article and as the carriage moves in the opposite direction and while the track 114 is raised the article will be moved along the support 63 by the fingers 111, and as the article approaches the downwardly curved portion 62 of the support 60, the track 114 will be lowered so as to permit the spring 113 to swing the frame 110 about its pivot and thereby lower or retract the fingers 111.

Carried also by the carriage 35 (see particularly Figures 4, 5 and 6) is another member 125 which is pivotally mounted as at 126. This member 125 is arranged above the guide 71 and the support 63 and is provided with depending fingers 127, which fingers are adapted to be projected through the slots or spaces in the guide 71 formed by the members constituting the guide.

A spring 128 operates upon the member 125 and tends normally to raise the same so as to withdraw the fingers 127 from the slots.

Slidably mounted in suitable guides 129 (see particularly Figures 2, 5 and 6) is a slide 130 having a projecting arm 131 of a substantial length. Carried by the member 125 is a roller 132 which is disposed beneath and is adapted to be acted upon by the lower face of the arm 131 so that when the slide 130 is raised, the member 125 will also be raised under the influence of the spring 128, but when the slide 130 together with the arm 131 is depressed, the face of the arm 131 will engage the roller 132 and will depress the member 125 against the stress of the spring 128 to cause the fingers 127 to pass through the slots in the guide 71 to engage to the rear of the article behind which the fingers 111 engage, and both of these sets of fingers serve to advance the article along the support 63.

Any suitable means may be provided for reciprocating the slide 130 (see particularly Figure 2), but a simple and efficient means embodies a lug or projection 133 connected to the slide 130, and this lug 133 projects through a suitable slot in the wall of the housing or support 20. Connected to the lug is a link 134 and this link is also pivotally connected as at 135, to an arm 136, the latter being pivotally supported intermediate its ends as at 137. The link 134 is pivotally connected as at 138 to one end of a link 139, which latter is in turn pivotally connected to the member 121, preferably by means of the pivot 120.

Thus it will be seen that when the member 121 is actuated by the cam groove 124 and roller 123, the lever 136 will be rocked about its pivot and will thereby cause a reciprocating movement of the slide 130. The movement of the member 125 as well as the member 110 to control the respective fingers 127 and 111 will of course be in timed relation with respect to each other.

As the article is advanced by the plunger 90 into engagement with the wrapper 22 and as both of them are moved on to the support 63 beneath the guide 71 to a position behind the retaining member 72 and in advance of the fingers 68, and the parts have assumed the position shown in Figure 5, the track 114 will be lowered and the member 110 will be lowered, while the member 125 will be elevated, due to the fact that the slide 130 is elevated. This will occur just before the carriage 35 reaches the limit of its forward movement. At this time and upon a further movement of the parts shown in Figure 5 to the position shown in Figure 6, the track 114 will be elevated and the slide 130 will be lowered so as to cause the respective members 110 and 125 to assume the positions shown in Figure 6, so that the fingers 111 will be in the rear of one of the wrapped articles, while the fingers 127 will be in the rear of a partially wrapped article. The carriage 35 will then be moved to the left from

the position shown in Figure 6, so that the fingers 111 will advance the completely wrapped article 85 while the fingers 127 will advance a partially wrapped article 85 along the support 63 and until the foremost article is moved by the fingers 111 to a position to be forced down the curved portion 62 of the support 60, while the partially wrapped article will be arrested in its forward movement by the forward set of fingers 68, and the partially wrapped article will remain in this position until the fingers 111 are again raised to pass behind the partially wrapped article. During this movement of the fingers 111 the extremities thereof will engage the portion of the wrapper 22 which has not been folded against the article and will force this portion of the wrapper against the article so that upon advancement of the article then being acted upon, the wrapper will be sealed against the article.

This operation continues as the articles are being fed into the machine and wrapped.

It will therefore be manifest that the fingers 127 serve as a means for folding down a portion of the wrapper against the article while the fingers 111 serve as a means for folding another unwrapped portion of the wrapper against the article and over the portion which has been folded down by the fingers 127. Both sets of fingers, however, serve a further function of intermittently advancing the article along the support 63.

Before the articles arrive at a position to be operated upon by the fingers 127, and as the article is being positioned by the head 92 of the plunger 90 (see particularly Figures 5 and 6) the article first contacts with the wrapper 22 and the wrapper will be folded about its middle over the article by reason of the two passing into the space between the support and the guide and just before the partially wrapped article arrives at a position to be engaged by the retaining members 72 which partially folds down one side of the wrapper, the ends of the wrapper are folded over the article, and this is accomplished in the following manner (see particularly Figures 3 and 7). Folding members 140 are mounted to swing about upright pivots 141 and one of these members is arranged adjacent the path of movement of each end of the article 85. The members 140 are provided with a laterally projecting substantially U shaped portion 142 to engage the ends of the wrapper and force the same over the ends of the article. Spring pressed plunger members 143 are arranged adjacent these portions 142 and are preferably supported by means of rods or bolts 144 about which springs 145 are arranged, which tend normally to project the plungers 143 towards each other and towards the extremities of the laterally projecting portions 142 so as to engage the end of the article and the wrapper to assist in folding the wrapper, and at the same time are resiliently yielding so as not to injure the article or the wrapper.

These members 140 are provided with arms 146 to which one end of an adjustable link 147 is pivotally connected as at 148. The other ends of these link members 147 are pivotally connected as at 149 to a rock shaft 150 (see also Figure 6) through the medium of arms 151, and which shaft 150 is mounted upon a fixed or stationary portion of the machine (see also Figure 4) being removably held in position by being mounted in an open seat 152. Connected to the shaft 150 is an arm 153 carrying a roller 154 and which roller is positioned to be engaged by the track 114, so that when the track 114 is raised, the shaft 150 will be rocked in a direction to force the ends 142 of the folding members 140 toward each other, against the wrapper and over the end of the article, but when the track 114 is lowered the folding members 140 will move away from each other and out of engagement with the ends of the article and the wrapper to permit an advancement of the partially folded article and the further folding of the wrapper. Springs 155 (see particularly Figure 3) may be provided which are anchored as at 156 by one end to the arm 151 and are anchored at their other ends as at 157 and assist in and tend normally to return or move the folding members into an inactive position.

As the articles (see particularly Figures 3, 4 and 6) have been completely wrapped and have been moved to the position shown in Figure 6 just before the fingers 111 are retracted, the forward retaining members 64 will be depressed by the article passing thereover and the completely wrapped article will move to a position so as to be engaged by fingers and forced down the curved portion 62 of the support on to the portion 60. To that end there is provided a shaft 158 which is provided with an arm 159 having a laterally projecting pin 160 that extends into a slotted member or bearing 161 carried by the carriage 35, and to the shaft 158 fingers 162 are secured, and these fingers are arranged preferably adjacent the fingers 74 and are disposed, when the shaft 158 is rocked in the proper direction, to engage over the top of the article, and when the fingers are moved in the opposite direction to depress the same, will force the article down the curved portion 62 of the support 60, as shown more clearly in Figure 4, to cause the article to be partially turned so that the folded portion of the wrapper will contact with the portion 62 of the support. The fingers 74 co-operate with the fingers 162 (see particularly Figure 4) to effect this movement.

The wrapped articles will be advanced along the support 60 by reason of their contact with each other and through the intermediary of the fingers 162 forcing an article down the portion 62 of the support.

As the carriage 35 moves from the full line position shown in Figure 6, to the dotted line position, this movement of the fingers or members 162 will be effected, and as the carriage moves to the left in Figure 6, the shaft 158 will be rocked to elevate the fingers 162.

The wrappers are fed from the container and into the guides 26 by the roller 23, and this roller 23 is mounted upon a shaft 163 (see particularly Figures 2 and 4) which is positively driven by means of a sprocket wheel 164 secured to the shaft and over which sprocket wheel a sprocket chain 165 passes. The sprocket chain also passes over a sprocket wheel on the crank shaft 101 and also over a sprocket wheel 166.

If desired, a hand wheel 167 may be provided, to the shaft 168 of which is secured a gear wheel 169, and this gear wheel meshes with a gear wheel 170 secured to the shaft 171 to which the sprocket wheel 166 is connected, for the purpose of adjusting or positioning the parts of the mechanism by hand.

As the wrappers 22 are fed into the pockets 84 to be engaged by the article being advanced by the plunger 90 and before the wrapper and article are delivered into the space between the sup-

port 63 and guide 71, paste or glue is applied to portions of the wrapper so as to seal the same around the article when the wrapper is completely folded.

To that end there is arranged a glue pot or chamber 172 which may be removably supported by means of a bracket 173, the glue pot being preferably provided with one or more projections 174 passing through openings in the bracket and upon which projection a nut 175 is secured.

A roller 176 is rotatably mounted so as to project into the contents of the glue pot, and a portion of the roller preferably projects above the top of the pot.

A rock shaft 177 is journaled in suitable bearings 178 and carried by the rock shaft are arms 179 and carried by the arms is another shaft 180 extending across the space therebetween. A plurality of rollers 181 are secured to the shaft 180, and either one or both of the arms 179 is provided with a cam shaped portion or projection 182.

Secured to the shaft 183 of the roller 176 is a crank arm 184 carrying a roller 185, and one of these crank arms and rollers 184—185 may be provided for each of the arms 179.

A spring 186 tends normally to move the arms 179 in a direction to cause the rollers 181 to engage the periphery of the roller 176, and when the wrappers are being fed into the pockets 84, the paste applying rollers 181 will assume the position shown in Figures 4 and 6. During a proper time in the cycle of operation of the machine and when the shaft 183 is rotated the arm 184 will be rotated, causing the roller 185 to swing the arms 179 and the rollers 181 about the pivots 177 against the stress of the spring 186, so as to cause the rollers 181 to contact with the lower portion of one edge of the wrapper at spaced intervals as indicated by the reference character 187 in Figure 11 of the drawings. The paste will be applied to the rollers 181 by the roller 176 and as soon as the roller 185 on the arm 184 passes out of contact with the high portion of the cam or projecting surface 182, the spring 186 will return the arms 179 and roller 181 to the position shown in Figure 6. The shaft 183 is rotated (see particularly Figure 2) by means of a sprocket wheel 188, over which a sprocket chain 189 passes, and this sprocket chain 189 also passes over a sprocket wheel on the crank shaft 101. An idle sprocket wheel 190 may be provided, if desired, for engagement with the sprocket chain 189 for holding the latter in position.

Thus it will be manifest that at a predetermined time in the cycle of operation of the machine, paste will be applied to the wrapper and the rollers 181 will be moved into and out of engagement with the paste supplying roller 176 and also with the wrappers.

The wrapper is applied around the article by first folding the ends of the wrapper towards each other, then folding the intermediate portion of the folded ends around the article, after which the wrapper is then made to encompass the body of the article and sealed during the advancement of the article in the machine.

Referring to Figures 8 to 12 of the drawings, it will be seen that Figure 8 represents the blank or wrapper when it is fed into the pockets 84 and with the article 85 in the position which it will assume with respect to the wrapper when it is advanced by the plunger 90, and with the paste 187 applied at separated portions thereof. When the article is advanced into the space between the support 63 and the guide 71 as shown in Figure 6, the guide and support will form the first fold, and as the article and wrapper are being advanced they will assume positions so that the ends of the article and the ends of the wrapper will be in a position (see particularly Figure 7) to be operated upon by the folding members 142 which will fold the ends of the wrapper over the ends of the article as at 191, and between the partially folded wrapper. It will be noted that the ends of the folding members 142 are substantially U shape in cross section, with the bottom of the U formation substantially upright so that when they are moved to stand astride of the ends of the article, the upper and lower walls fold the ends of the wrapper down on the ends of the article and between the ends of the portion 195 of the wrapper. At the same time there will be produced the folds 192 upon the portion 194 of the wrapper, thereby encompassing the ends of the article 85 and between the edges 195, as shown more clearly in Figure 10. As the folding members 140 are moved towards each other, they will engage and swing the pockets 84 about their pivots 84^a, as shown in Figure 7. During the time that the folding members are operating upon the wrapper, the plunger 90 is advancing the article along the support 63, and as the article and partially folded wrapper passes beyond the end of the retaining member 72, the spring 73 of the retaining member will force the latter downwardly into engagement with the upper folded edge of the wrapper to partially fold the same.

The partially wrapped article will then assume a position behind the retaining member 72 and in front of the fingers 68 so as to hold the article and wrapper while the plunger 90 is being retracted.

By this time in the operation of the machine, the carriage 35 will have been advanced to the position shown in dotted lines in Figure 6, and as the slide 130 is in its lowermost position it will, through the medium of the roller 132, force the member 125 downwardly against the stress of the spring 128 and behind the article which has been partially wrapped so as to complete the folding of the upper edge of the wrapper which has been partially folded by the retaining members 72.

The carriage 35 is then moved in the opposite direction carrying with it the member 125 and fingers 127, and these fingers will then move the partially wrapped article past the fingers 68, which will yield to permit such movement until the partially wrapped article passes beyond the end of the member 64 and in front of the next series of fingers 68. As the article and wrapper passes over the first fingers 68, the spring 70 will cause these fingers 68 to be projected above the support 63 and partially raise the other end of the wrapper 22, as shown in Figure 6.

By the time the partially wrapped article passes in front of the edge of the first members 64, the slide 130 will be raised, raising the arm 131 and thereby permitting the spring 128 to raise the member 125 to move the fingers 127 into an inactive position. At this same time the track 114 will be raised and this will raise the member 110, causing the fingers 111 to pass behind the partially wrapped article which is being held between the edge of the member 64 and the fingers 168, as shown in dotted lines in Figure 6. When the carriage 35 is then advanced, the fingers 111 will engage the folded and glued edge of the wrapper 22 and force the latter against the article, the

movement of the articles being resisted slightly by the fingers 168, so as to complete the sealing of the wrapper. The fingers 111 will then move the completely wrapped article to a position to be engaged by the fingers 162, which latter are operated to force the wrapped article down the curved portion 62 of the support 60 to be advanced out of the machine, and the article will be completely sealed as shown in Figure 12.

It will be manifest, as clearly shown in the diagrammatic illustration in Figure 13, that when the wrapper and article rests upon the portion 63 of the support 60, the sealed edge of the wrapper will be in an upright plane, but when the fingers 162 on the shaft 158 engage the wrapped article to force the same down the curved portion 62 of the support, the article will be axially turned so that the sealed edge of the wrapper will be on the bottom, thereby utilizing the weight of the article as a means for holding the sealed edge of the wrapper in position until the adhesive material becomes dry.

Obviously, all of the parts of the mechanism will be arranged to operate in timed relation with respect to each other.

While the preferred form of the invention has been herein shown and described, it is to be understood that various changes may be made in the details of construction and in the combination and arrangement of the several parts, within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:—

1. In a wrapping machine, means for positioning a wrapper across the path of movement of the article, means for moving the article into contact with the wrapper and for advancing both, means for partially folding the wrapper about the article as it is advanced, retaining means between which the partially wrapped article is positioned, means for folding in the ends of the wrapper as the article is thus advanced, a reciprocable carriage, fingers independent of each other and successively engaging behind the wrapped article from opposite sides of the article for separately advancing the article, and means individual to the fingers for automatically controlling the operation of said fingers.

2. In a wrapping machine, means for positioning a wrapper across the path of movement of the article, means for moving the article into contact with the wrapper and for advancing both, means for partially folding the wrapper about the article as it is advanced, retaining means between which the partially wrapped article is positioned, means for folding in the ends of the wrapper as the article is thus advanced, a reciprocable carriage, fingers independent of each other and successively engaging behind the wrapped article and from opposite sides thereof for separately advancing the article, and means individual to the fingers for automatically controlling the operation thereof, certain of said retaining means also operating to partially fold the wrapper about the article.

3. In a wrapping machine, means for positioning a wrapper across the path of movement of the article, means for moving the article into contact with the wrapper and for advancing both, means for partially folding the wrapper about the article as it is advanced, retaining means between which the partially wrapped article is positioned, means for folding in the ends of the wrapper as the article is thus advanced, a reciprocable carriage, fingers independent of each other and successively engaging behind the wrapped article for separately advancing the article, means individual to the fingers for automatically controlling the operation thereof, a stationary support upon which the wrapped article is moved, and means operating automatically for axially turning the wrapped article upon the support.

4. In a wrapping machine, means for positioning the wrapper, means for applying an adhesive to one edge of the wrapper at spaced points, means for moving the article into contact with the wrapper and for advancing both, means for partially folding the wrapper about the article as it is advanced, retaining means between which the partially wrapped article is positioned, means for folding in the ends of the wrapper as the article is thus advanced, a reciprocable carriage, fingers independent of each other and successively engaging behind the wrapped article for separately advancing the article, and means individual to the fingers for automatically controlling the operation of said fingers.

5. In a wrapping machine spaced members between which the article is moved while being wrapped, means for positioning a wrapper across such space, a plunger for moving the article against the wrapper and for forcing both into such space to partially fold the wrapper about the article, folding members for bending the ends of the wrapper over the ends of the article and for folding such portion around the article, a reciprocable carriage, a plurality of oppositely operating fingers mounted upon the carriage for movement therewith and with respect thereto, said fingers being spaced from each other along the line of travel of the article, and means individual to the fingers for causing them to engage behind the wrapped article at different points in the line of travel of the article as the carriage moves in one direction, said fingers operating when the carriage moves in the opposite direction to advance the wrapped article.

6. In a wrapping machine spaced members between which the article is moved while being wrapped, means for positioning a wrapper across such space, a plunger for moving the article against the wrapper and for forcing both into such space to partially fold the wrapper about the article, folding members for bending the ends of the wrapper over the ends of the article and for folding such portion around the article, a reciprocable carriage, a plurality of oppositely operating fingers mounted upon the carriage for movement therewith and with respect thereto, said fingers being spaced from each other along the line of travel of the article, means individual to the fingers for moving them with respect to the carriage and for causing them to engage behind the wrapped article at different points in the line of travel of the article as the carriage moves in one direction, said fingers operating when the carriage moves in the opposite direction to advance the wrapped article, and a finger member responsive in its operation to the movement of said carriage for axially turning the wrapped article so as to utilize the weight of the article to maintain the wrapper against unwrapping.

7. In a wrapping machine, means for temporarily holding a wrapper across the path of movement of an article, means for moving the article into contact with the wrapper and for advancing the wrapper with the article, folding members for folding the ends of the wrapper over the article, and means for actuating said folding members, said folding members also operating to

move the said holding means out of engagement with the wrapper.

8. In a wrapping machine, means for temporarily holding a wrapper across the path of movement of an article, means for moving the article into contact with the wrapper and for advancing the wrapper with the article, folding members for folding the ends of the wrapper over the article, means for actuating said folding members, said folding members also operating to move the said holding means out of engagement with the wrapper, and retaining means for intermittently interrupting the advancement of the article and wrapper, a portion of said retaining means also operating to fold a portion of the wrapper about the article.

9. In a wrapping machine, pivotally mounted holders for holding a wrapper across the path of movement of an article, means for feeding the wrapper to said holders, a plunger for moving the article into contact with the wrapper and for advancing both of them, folding members for folding the ends of the wrapper about the article, and means for actuating said folding members, said folding members also operating to engage and swing the said holders about their pivots to release the wrapper held thereby.

10. In a wrapping machine, pivotally mounted holders for holding a wrapper across the path of movement of an article, means for feeding the wrapper to said holders, a plunger for moving the article into contact with the wrapper and for advancing both, a reciprocable carriage, means for reciprocating the carriage, folding members for folding the wrapper about the article, means for operating said folding members, said folding members also operating to swing said holders about their pivots to release the wrapper, and means responsive in operation to the movement of the carriage for engaging behind the wrapped article at different points in the line of travel of the wrapped article for advancing it.

11. In a wrapping machine, pivotally mounted holders for holding a wrapper across the path of movement of an article, means for feeding the wrapper to said holders, a plunger for moving the article into contact with the wrapper and for advancing both, a reciprocable carriage, means for reciprocating the carriage, folding members for folding the wrapper about the article, means for operating said folding members, said folding members also operating to swing said holders about their pivots to release the wrapper, pivotally mounted fingers movable with and with respect to the carriage, and means for moving the fingers with respect to the carriage to cause them to engage behind the wrapped article at different points in the line of travel of the article for advancing the latter.

12. In a wrapping machine, pivotally mounted holders for holding a wrapper across the path of movement of an article, means for feeding the wrapper to said holders, a plunger for moving the article into contact with the wrapper and for advancing both, a reciprocable carriage, means for reciprocating the carriage, folding members for folding the wrapper about the article, means for operating said folding members, said folding members also operating to swing said holders about their pivots to release the wrapper, means responsive in operation to the movement of the carriage for engaging behind the wrapped article at different points in the line of travel of the wrapped article for advancing it, and pivotally mounted means responsive in its operation to the movement of said carriage for engaging and axially turning the wrapped article upon its support whereby the weight of the article will be utilized to maintain the wrapper against unwrapping.

13. In a wrapping machine, means for temporarily holding a wrapper across the path of movement of an article, means for moving the article into contact with the wrapper and for advancing the wrapper with the article, folding members for folding the ends of the wrapper over the article, means for actuating said folding members, said folding members also operating to move the said holding means out of engagement with the wrapper, said folding members embodying a substantially U shaped portion to engage an upright face and pass over the top and bottom of the end of the article to bend the ends of the wrapper over the ends of the article and tuck or fold a portion of the bent end of the wrapper upon itself and over the article, and resiliently yielding plungers carried by said folding members for engaging the folded portion of the wrapper at the extremity of the ends of the article.

14. In a wrapping machine a support along which the articles are advanced, a guide disposed above and spaced from the said support and cooperating therewith to form a space through which the articles are moved as they are being wrapped, means for positioning a wrapper across said space, a plunger for engaging and moving the article into contact with the wrapper and for advancing both into said space, co-operating spring controlled article retaining means arranged along the path of movement of the article, a reciprocable carriage, a plurality of means movable with and with respect to the carriage, one for engaging behind the article from above and one from below the support and at different points lengthwise of the support for advancing the article through said space, and means individual to the last recited means for separately actuating them with respect to the said carriage.

15. In a wrapping machine a support along which the articles are advanced, a guide disposed above and spaced from the said support and cooperating therewith to form a space through which the articles are moved as they are being wrapped, means for positioning a wrapper across said space, a plunger for engaging and moving the article into contact with the wrapper and for advancing both into said space, co-operating spring controlled article retaining means arranged along the path of movement of the article, a reciprocable carriage, means movable with and with respect to the carriage for engaging behind the article from above, means also carried with the carriage for engagement behind the articles from below the support, the last two recited means operating upon the article at different points lengthwise of the support for advancing the article through said space, means individual to the last two recited means for separately actuating them with respect to the said carriage, said support having a downwardly inclined portion, and means operating automatically to engage the wrapped article and move the same down said downwardly inclined portion to axially turn the article upon said support.

16. In a wrapping machine a support along which the articles are advanced, means for positioning a wrapper transversely of said support, a plunger for moving the article into contact with the wrapper and for moving both on to the support, means for folding the wrapper about the

article, a reciprocable carriage, pivotally mounted members carried with the carriage above and below the support, fingers individual to the said members for engaging behind the article at different points with respect to each other along the line of travel of the article, means individual to the members for moving them in one direction, means individual to the members for moving them in the opposite direction, one of the last two recited means embodying a track movable to a position to cause said means to move about its pivot upon the carriage and movable out of such position, and means for thus moving the track.

17. In a wrapping machine a support along which the articles are advanced, means for positioning a wrapper transversely of said support, a plunger for moving the article into contact with the wrapper and for moving both on to the support, means for folding the wrapper about the article, a reciprocable carriage, pivotally mounted members carried with the carriage above and below the support, fingers individual to the said members for engaging behind the article at different points with respect to each other along the line of travel of the article, means individual to the members for moving them in one direction, means individual to the members for moving them in the opposite direction, one of the last two recited means embodying a slide movable into a position to engage a portion of said means for causing the latter to move about its pivot with respect to the carriage, and means for thus moving the slide.

18. In a wrapping machine, means for supplying a wrapper to the article, pivotally mounted folding members for folding the wrapper about the ends of the article, means for intermittently advancing the article as it is being wrapped, a pivotally mounted member for swinging said folding members about their pivots, a track movable into and out of contact with a portion of the last said member for actuating said folding members and over which track the contacting portion of the said pivotally mounted member moves, and means for thus moving said track.

19. In a wrapping machine, means for bringing a wrapper and an article into contact, means for causing the wrapper to be folded about the article, folding members for folding the ends of the wrapper over the article, said folding members each embodying a substantially U-shaped portion into which a portion of the article projects as the members are moved to cause the edges of its walls to fold a portion of the wrapper against opposite sides of the article, means for moving said members towards and away from the article, and means for holding the article as said members fold the wrapper thereover.

20. In a wrapping machine, means for bringing a wrapper and an article into contact, means for causing the wrapper to be folded about the article, folding members for folding the ends of the wrapper over the article, said folding members each embodying a substantially U-shaped portion into which a portion of the article projects as the members are moved to cause the edges of its walls to fold a portion of the wrapper against opposite sides of the article, means pivotally mounting said members, means for swinging the members about their pivots towards and away from the article, and means for holding the article as said members fold the wrapper thereover.

21. In a wrapping machine, means for bringing a wrapper and an article into contact, means for causing the wrapper to be folded about the article, folding members for folding the ends of the wrapper over the article, said folding members each embodying a substantially U-shaped portion into which a portion of the article projects as the members are moved to cause the edges of its walls to fold a portion of the wrapper against opposite sides of the article, means for moving said members towards and away from the article, means for holding the article as said members fold the wrapper thereover, and a spring pressed plunger within said U-shaped portion for pressing against the ends of the article.

22. In a wrapping machine, means for bringing a wrapper and an article into contact, means for causing the wrapper to be folded about the article, folding members for folding the ends of the wrapper over the article, said folding members each embodying a substantially U-shaped portion into which a portion of the article projects as the members are moved to cause the edges of its walls to fold a portion of the wrapper against opposite sides of the article, means for moving said members towards and away from the article, means for holding the article as said members fold the wrapper thereover, and means for holding the wrapper while the wrapper and article are brought into contact, said folding members also operating to move the said holding means out of engagement with the wrapper.

23. In a wrapping machine, means for bringing a wrapper and an article into contact, means for causing the wrapper to be folded about the article, folding members for folding the ends of the wrapper over the article, said folding members each embodying a substantially U-shaped portion into which a portion of the article projects as the members are moved to cause the edges of its walls to fold a portion of the wrapper against opposite sides of the article, means for holding the articles as said members fold the wrapper thereover, a lever operatively connected to said members for actuating them, and means for automatically actuating said lever.

24. In a wrapping machine, means for bringing a wrapper and an article into contact, means for causing the wrapper to be folded about the article, folding members for folding the ends of the wrapper over the article, said folding members each embodying a substantially U-shaped portion into which a portion of the article projects as the members are moved to cause the edges of its walls to fold a portion of the wrapper against opposite sides of the article, means for holding the articles as said members fold the wrapper thereover, a lever operatively connected to said members for actuating them, and means for automatically actuating said lever, the last recited means embodying an operating track automatically movable into and out of contact with the lever and over which track the lever moves.

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