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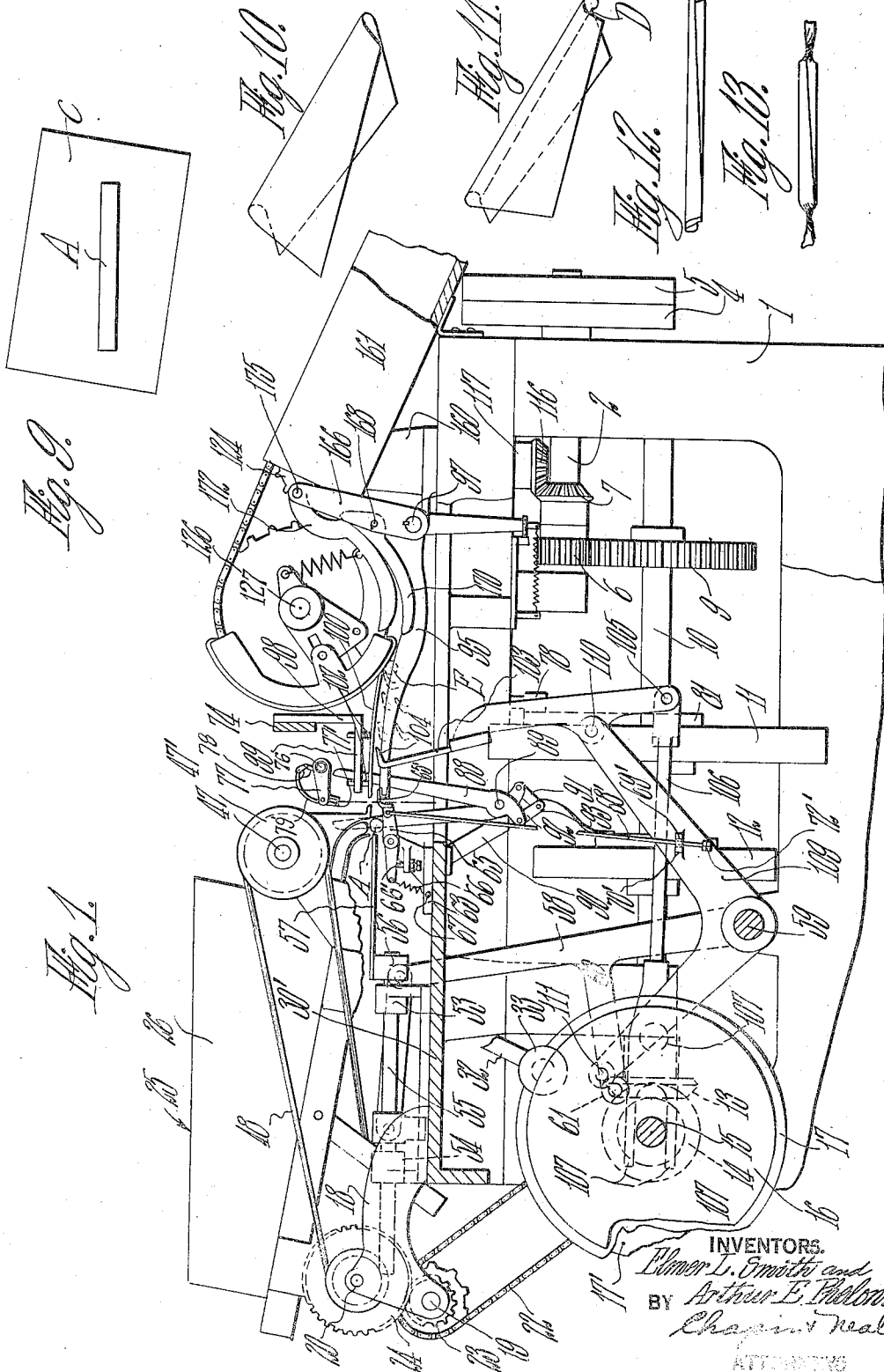
E. L. SMITH ET AL.

1,597,931

WRAPPING MACHINE

Filed Oct. 18, 1920

4 Sheets-Sheet 1



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WRAPPING MACHINE

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4 Sheets-Sheet 2

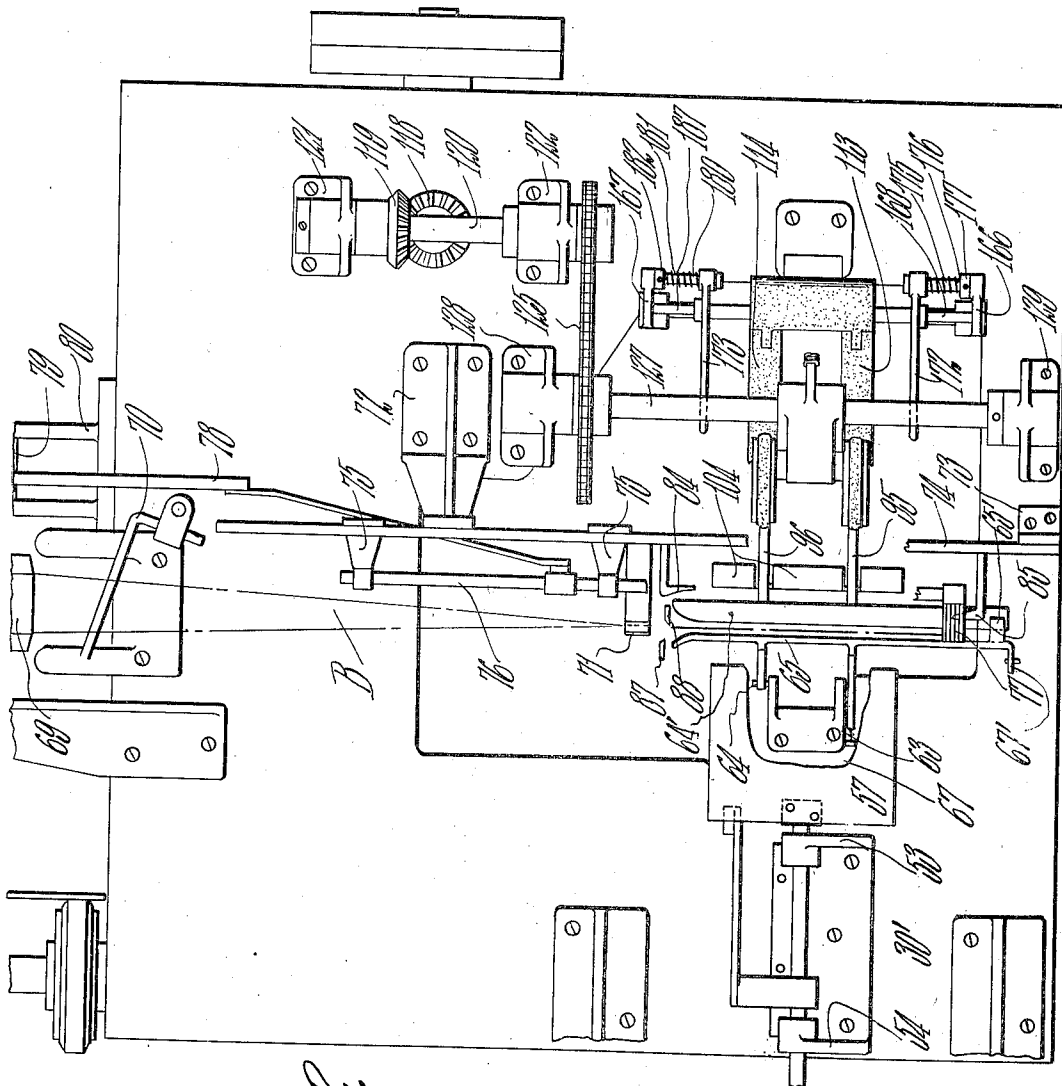


Fig. 2.

INVENTORS.
Elmer L. Smith and
BY Arthur E. Nelson.
Chapin & Neal
ATTORNEYS

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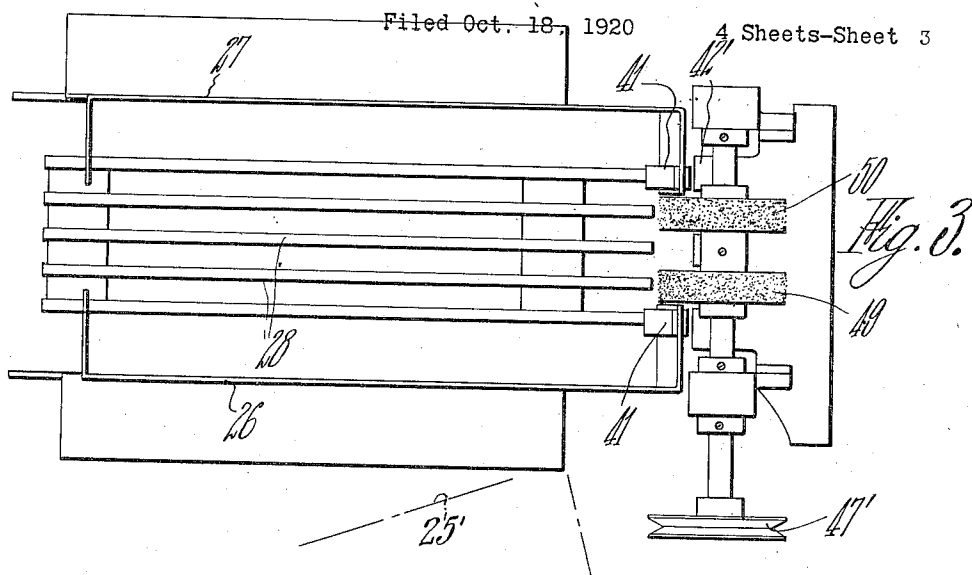
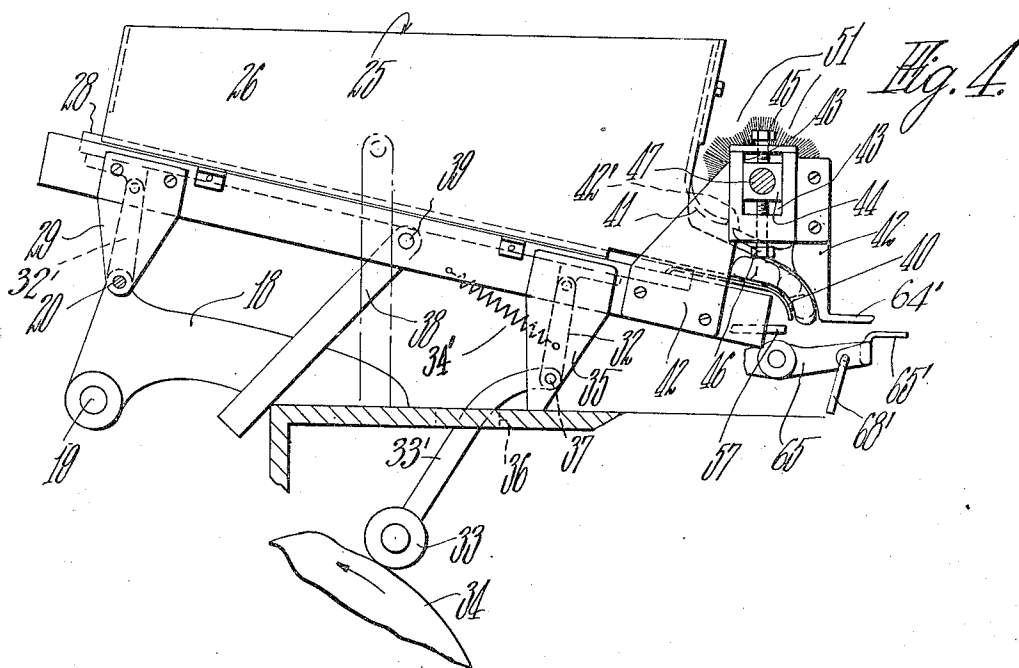
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Arthur E. Nelson
BY
Chapin & Neal
ATTORNEYS.

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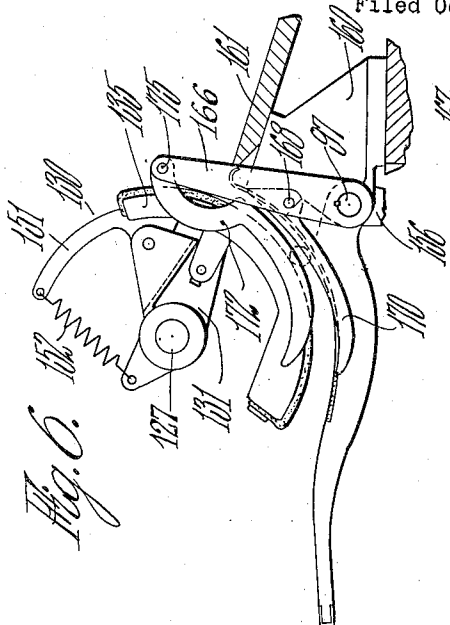
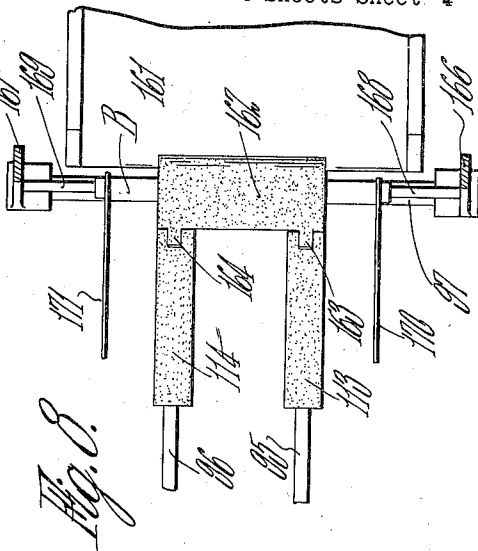
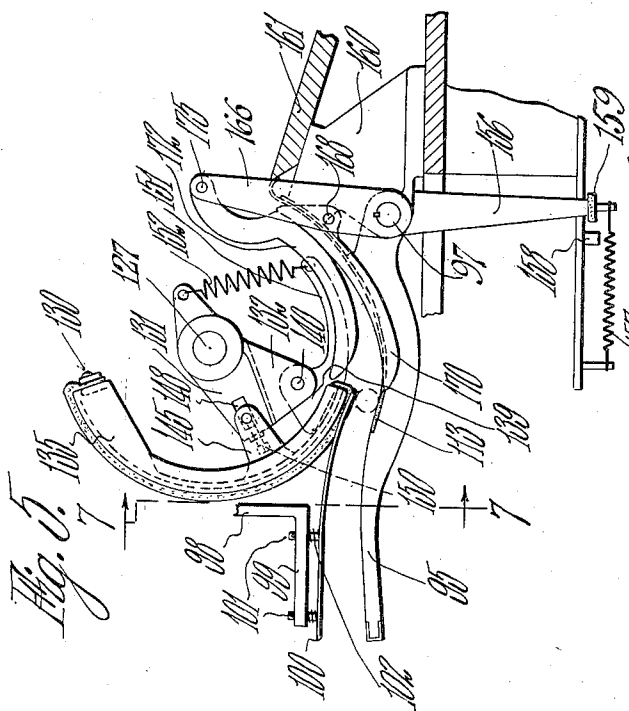
E. L. SMITH ET AL

1,597,931

WRAPPING MACHINE

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4 Sheets-Sheet 4



UNITED STATES PATENT OFFICE.

ELMER L. SMITH AND ARTHUR E. PHELON, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNORS TO PACKAGE MACHINERY COMPANY, OF SPRINGFIELD, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

WRAPPING MACHINE.

Application filed October 18, 1920. Serial No. 417,741.

This invention relates to an improved wrapping machine of the type wherein a wrapper is wound around a cylindrical article and which is particularly applicable for use in placing wrappers about stick candy.

One object of the invention is to simplify the mechanism and improve the arrangement of the same, whereby rapid and efficient operation may be accomplished by a machine of comparatively few parts.

Another object of the invention is to provide improved mechanism for feeding articles to be wrapped to the machine at suitable intervals and preventing jamming or clogging of the articles as they are fed to the mechanism.

A further object of the invention is to provide an improved arrangement of the parts whereby the wrapper for each article may be brought into position to be engaged by the article to be wrapped without interfering with or in any way affecting the operation of the machine parts which are engaged in transporting the articles through the machine and placing the wrappers therearound.

Another object of the invention is to provide improved mechanism for supporting each article to be wrapped as it comes into the machine and for forcing the same against the wrapper and upon the track upon which it travels during the progress of the wrapping operation.

Another object of the invention is to provide an improved form of tucker mechanism for folding the wrapper about the article to be wrapped.

A further object of the invention is to generally improve and simplify the wrapping mechanism, whereby the wrapping is accomplished in a rapid and efficient manner without danger of crushing or breaking the article to be wrapped or tearing or mutilating the wrapper.

A further object of the invention is to provide an improved form of twisting mechanism for twisting the end portions of the wrapper beyond the ends of the article to be wrapped.

Another object of the invention is to pro-

vide an improved device of this character which is of simple construction and efficient in operation.

Further objects of the invention relate to details of construction and improved methods of operation, as will more fully appear in the detailed description to follow,—

In the accompanying drawings:

Fig. 1 is a side elevational view partially in section illustrating the relative position of the operating mechanisms;

Fig. 2 is a top plan view of the machine with the hopper removed to more clearly show certain of the operating mechanism;

Fig. 3 is a top plan view of the hopper;

Fig. 4 is a side elevational view of the hopper showing the mechanism for vibrating the same;

Fig. 5 is an enlarged view of the track and certain of the mechanism cooperating therewith shown in the position it occupies at the beginning of the wrapping operation;

Fig. 6 is a similar view of the parts when the wrapping operation has been partially completed;

Fig. 7 is a sectional view, taken along the line 7—7 of Fig. 5 and showing the construction of the rotating frame;

Fig. 8 is a top plan view of the track with the frame removed; and

Figs. 9, and 10 to 13, inclusive, are plan and perspective views, respectively, showing the position of a cylindrical article such as a stick of candy and the wrapper therefor during successive steps in the wrapping operation.

While the mechanism shown and described herewith is adapted for general use in the wrapping of different articles of substantially cylindrical form, it is illustrated herewith as embodied in a machine for wrapping stick candies and similar articles, in connection with which work it is desirable to provide a machine of comparatively few parts which will require little care and attention other than to maintain the supply of articles to be wrapped and the wrappers in position to be constantly fed to the mechanism. Machines of this kind as heretofore constructed have been extremely complicated to construct, and careful adjustment

of the parts and extreme care in operation were constantly required. In the structure forming the subject-matter of this application the operating parts are compactly arranged and are constructed to suitably manipulate the article and wrapper without injuring the same and insure constant and uniform operation of the mechanism.

The machine as shown herewith comprises a base frame 1, of any desired construction, which is provided with suitable bearings for operatively supporting a main driving shaft 2 provided with the usual fixed and loose pulleys 4 and 5 adjacent to one end, whereby the shaft may be driven from any suitable source of power (not shown). A spur-gear 6 and a bevel-gear 7 are fixed to the shaft 2 and rotate therewith. The spur-gear 6 meshes with a spur-gear 9 carried by a countershaft 10 rotatably mounted in suitable bearings carried by the machine frame and extending in a direction substantially longitudinally of the frame. The countershaft 10 carries cam-wheels 11 and 12 fixed thereto, the function of which will be more fully described hereinafter. A bevel-gear 13 fixed to the shaft 10 adjacent to one end thereof meshes with a bevel-gear 14 fixed to a transverse shaft 15, whereby the transverse shaft is rotated from the shaft 10. Face-cams 16, 17 and 17' are secured to the shaft 15 and rotate therewith to actuate certain parts of the operating mechanism in a manner which will be more fully described. The top portion of the base frame 1 is in the form of a table and supports suitable brackets 18 in which are rotatably mounted shafts 19 and 20. The shaft 19 is driven from the shaft 15 through a sprocket-chain 22, and is provided with a spur-gear 23 meshing with a spur-gear 24 carried by the shaft 20, whereby the shaft 20 is driven from the shaft 19 but at a somewhat reduced speed.

The feeding mechanism for feeding articles to be wrapped to the wrapping mechanism comprises a hopper 25, formed of side frames 26 and 27, and a base or platform 28 comprising a plurality of longitudinally-extending slats. The hopper 25 is pivotally mounted upon the shaft 20 by brackets 29 secured to the rearward end portion of said hopper, and is normally supported in the position shown in Fig. 4 by means of downwardly extending brackets 35 which depend from the forward end of the hopper and rest upon the top of the base frame. In the normal position of the hopper its floor slants downwardly and forwardly to insure that the articles to be fed therefrom will pass readily to the lower end of the hopper in position to be supplied to the wrapping mechanism, and in order to prevent the articles from sticking or clogging and to positively insure their being constantly supplied to the lower end of the hopper means

is provided for vibrating the floor of the hopper. To this end the platform 28 which constitutes the hopper floor is supported by upstanding parallel links 32 and 32' (Fig. 4) the upper ends of which are pivoted to said platform while the lower ends of said links are pivoted upon a rod 37 extending between the brackets 35, and upon the shaft 20, respectively. The link 32 is provided with a rigid downward extension 33' which projects through an opening 36 in the base frame and carries at its lower extremity a roller 33 which is adapted to bear against a cam 34 secured to the shaft 15. A spring 34' acts upon the link 32 to hold the roller 33 against the cam 34 and to limit the vibratory movement of the platform 28 in one direction. With this construction, as the raised portion of the cam 34 passes under the roller 33, the link 32 will be rocked toward the right in Fig. 4 and as the roller 33 passes out of engagement with the raised portion of said cam, the link 32 is returned to its illustrated position by the action of the spring 34'. Obviously, as the link 32 is rocked, the link 32' will rock in unison therewith so that a slight jar is imparted to the platform 28 tending to dislodge any articles which may have become clogged or jammed in the hopper. The slight vibratory movement imparted to the platform 28 by the rotation of the cam 34, while not sufficient to prevent the proper feeding of the articles from the hopper to the mechanism for receiving the same, is sufficient to prevent the articles from clogging in or sticking to the hopper and to each other and thus to insure a constant and regular supply at the lower end of the hopper. A member 38 is pivoted to the hopper, as at 39, and when the forward end of the hopper is raised manually a sufficient distance, the lower end of the member 38 may be seated upon the top surface of the frame, and the roller 33 will thus be held out of contact with the cam 34 and there will be a tendency for the articles in the hopper to move towards the rear of the hopper and the feeding of the articles therefrom will accordingly be discontinued.

Located adjacent the forward end of the hopper, and forming a continuation of the bottom of the hopper, are similarly formed curved rails 40 laterally spaced apart, upon which the ends of the articles are adapted to rest as the articles pass from the hopper, and a pair of curved bars 41 are secured to the forward end portion of the hopper and extend downwardly and forwardly in parallel relation to the lower rails 40 to direct the articles onto the curved rails 40. Upwardly and forwardly-extended brackets 42 are secured to the base of the hopper at opposite sides thereof, and these brackets are each provided with prongs 42' which extend

upwardly and rearwardly toward the bars 41 and in combination with said bars and rails 40 form a delivery spout for the hopper. Guides 43 are also formed in the brackets 42 for the reception of blocks 44, which are adapted to be held in adjusted position therein by means of set-screws 45 and 46. A shaft 47 is rotatably supported by the bearing blocks 44 and is provided at a point adjacent to one end with a pulley 47', whereby the shaft may be rotated from the shaft 20 through a belt 48. Secured to the shaft 47 intermediate its ends are a pair of spaced brushes 49 and 50, each of which is provided with segmental grooves 51 formed in the outer circumference thereof, which brushes are adapted to engage the articles in the hopper and arrange them in proper position to enter the tracks 40. The brush 47 is preferably rotated clockwise, looking at Fig. 4, so that the brushes 49 and 50 work in a counter-direction to the flow of candy sticks down the hopper. As the hopper is vibrated under the influence of the roller 33 engaging the cam 34, the articles contained in the hopper are kept in motion to cause them to roll freely down the inclined bottom portion into place to enter the delivery spout which guides them to the wrapping mechanism. As the hopper is pivoted for tilting adjustment about the shaft 20, the movement of the hopper into the inoperative upper position indicated by dotted lines will not affect the rotation of the shaft 47, which will continue to rotate while the hopper is thus inoperatively positioned. The rotation of the shaft 47 and the brushes 49 and 50 carried thereby, tends to properly align the articles at the lower end of the hopper and position the same to permit them to enter the delivery spout in proper position to move freely therethrough. Inasmuch as the hopper continues to rotate in the manner previously described when inoperatively positioned it is unnecessary to start the shaft 47 to rotating when the hopper is again lowered.

Mounted upon the top surface 30' of the base frame 1 are forwardly and rearwardly-positioned brackets 53 and 54 positioned in alinement with each other and by which is supported a rod 55. A block 56 is firmly secured to the forward ends of the rod in any desired manner, and a forwardly-projecting blade-pusher 57 is carried by the block 56 and extends forwardly from the block as shown in Fig. 1. A lever 58 is pivotally mounted upon the base frame, as at 59, and is provided with an arm 60 extending angularly therefrom, the arm 60 carrying a roll 61 adapted to engage a cam-groove on the cam 16, whereby the lever is actuated. The upper end of the lever 58 is suitably connected to the block 56 in any desired manner, as by a pin-and-slot connec-

tion, to permit the block 56 and pusher 57 carried thereby to be reciprocated upon movement of the lever 58 as the lever is moved forwardly and backwardly about its pivot point 59 under the influence of the cam 16. The forward end portion of the blade-pusher 57 is normally positioned slightly in the rear of and adjacent to the lower end of the feed spout for feeding articles to be wrapped to the wrapping mechanism, and, when actuated by the operating mechanism, assists in the forward movement of the articles in a manner which will be more fully described hereinafter.

A bracket 63 is secured to the top 30' of the base frame 1 in any suitable manner, and is provided with suitable means, such as a pair of aligned bearings 64, for pivotally supporting a resiliently-mounted receiving member 65 in position adjacent to the lower end of the delivery spout carried by the hopper. A coiled spring 66 connects the pivotally-mounted receiver 65 with a standard 67 carried by the bracket 63 for normally holding the pivoted receiver against a fixed stop 66' whereby the receiver is positioned as shown in Fig. 1 of the drawings, where it is adapted to receive an article discharged from the feed spout and to temporarily support the same. While supported by the receiver 65 the article is advanced beneath a ledge 64' which projects from the bracket 42 and cooperates with said receiver to guide the article. The receiver 65 is permitted by the spring 66 to yield downwardly to accommodate itself to articles of different diameters to enable the articles to freely pass beneath the ledge 64'.

The wrappers for the articles are preferably fed into the machine in the form of a continuous strip of paper, which is brought into position adjacent to and in front of the pivotally-mounted receiver 65, in which position a wrapper of suitable length for one article is cut from the strip and the article and wrapper are then brought into engagement and are together forced into the wrapping mechanism. The roll of wrapping paper 69 is mounted to rotate freely as the paper is drawn therefrom during the operation of the machine.

The paper is preferably first drawn over a tension arm (not shown) from whence it passes over a guide 70 for turning it into vertical position and from which it extends across the top of the frame, as indicated by the character B, into position for the end thereof to be engaged by a stationary gripping jaw 71.

The mechanism for drawing the paper into position to be engaged by the articles to be wrapped and for cutting the same into the proper lengths, is automatic in its operation and is driven from the shaft 10 through the cams 11 and 12. Brackets 72

and 73 secured to the top 30' of the frame support a bar 74 which extends substantially transversely of the machine and which, in turn, supports a plurality of alined bearings 75 within which bearings is slidably mounted a rod 76 reciprocable transversely of the machine and having secured thereto at one end a suitable gripping mechanism 77 operable to draw the paper across the machine and into position to be engaged by the article to be wrapped. The reciprocating rod 76 (Figs. 1 and 2) is actuated by a lever 78 pivotally mounted intermediate its ends at 79, upon a bracket 80 carried by the frame of the machine. The lever 78 is pivoted at its lower end to a forked arm 81 by means of which it is adapted to be oscillated. The forked arm 81 straddles the shaft 10 and is actuated by means of a face-cam (not shown) formed on the cam-wheel 11. As shown in Fig. 1, the arm 81 is pivotally connected at its upper extremity to the lower end of the lever 78, whereby said lever is oscillated upon rotation of the cam-wheel. The upper end of the lever 78 is pivoted to the rod 76, as shown in Fig. 2, so that the rod is reciprocated as the lever is swung back and forth by its cam. This reciprocation of the rod 87 causes the gripping mechanism 77 to be reciprocated, for the purpose of drawing the end of the paper B across the machine in front of the article carried by the resiliently-mounted receiver 65 prior to the forcing of the article forwardly by the pusher 57, whereby the article engages a portion of the wrapper at substantially the same instant that this portion of the wrapper is severed by the knives and carries the severed portion into the wrapping mechanism. The gripping mechanism comprises a movable jaw 77' which cooperates with a suitable fixed jaw to grip the paper, after the manner of devices of this general character now in use, the movable jaw being actuated by means of toggle links 78' one of which is pivoted to the rod 76 while the other toggle link is pivoted to an extension 79' of the movable gripper jaw. As the gripping mechanism moves to engage the end of the wrapper, the toggle links 78' engage a cam face upon a fixed stop 84 in such a manner that the jaws are opened to engage the end of the wrapper. As the gripping mechanism 77 moves in the opposite direction, the paper is drawn across in front of the article and the toggle links 78' which are then in straightened condition finally engage a cam face upon a fixed stop 85 in such a manner that the toggle is broken and the gripper jaws opened to release the wrapper. At substantially the same time, the article carried by the resiliently-mounted receiver 65 is forced forwardly against the wrapper, which is at the same time severed from the

remaining portion of the sheet by actuation of the cutting blades 87 and 88.

The cutting blades 87 and 88 are pivotally mounted, as at 89, upon a bracket 90 carried by the machine frame and are actuated by toggle-links 91 and 92 through movement of a slidable bar 93, to which vertical movement is imparted by means of a face-cam on the disk 12. The face-cams on the disks 11 and 12 are so constructed as to properly time the movement of the gripping mechanism 77 and the cutting blades 87 and 88, whereby the sheet is drawn in front of the article to be wrapped and held in position until the article to be wrapped comes into contact with the same when the cutting blades are actuated and the severed portion of the wrapper is carried forwardly and wrapped about the article.

In the operation of placing the wrapper about the article to be wrapped, the article and wrapper therefor are supported by substantially parallel tracks 96 and 95 suitably mounted to receive the article from the resiliently-mounted receiver as it is advanced by the pusher 57. The tracks 95 and 96 are of similar form, having slightly curved upper surfaces, and are each keyed or otherwise fixedly secured to a shaft 97 from which they extend rearwardly to points adjacent the resiliently-mounted receiver 65. Depending brackets 98 are carried by the bar 74 previously described, each of which has a substantially horizontal position 99. Pressure bars 100 are carried by the horizontal portions of said brackets, each being located substantially over the corresponding track. Pins 101 are carried by the pressure-bars and extend upwardly through the horizontal portions 99 of the brackets, these pins being preferably surrounded by coiled springs 102 to give the pressure-bars a resilient mounting, whereby they will yieldingly engage articles carried by the tracks.

The wrapping paper is brought into position in front of the article to be wrapped in such a manner that the severed wrapper C will occupy a diagonal position relative to the article A, as shown in Fig. 9, since the wrapper can be applied more readily when occupying a diagonal position relative to the article than is possible if the center line of the wrapper coincides with the longitudinal axis of the article. When the article is forced against the wrapper and both article and wrapper thereby forced onto the tracks 95 and 96, the article and wrapper assume the position relative to each other, as shown in Fig. 9 of the drawings.

It then becomes necessary to provide means for sliding the article and wrapper along the tracks 95 and 96 in such a manner as to leave the article and wrapper in position to insure the wrapper being wound around the article upon rotation of the arti-

cle. This function is performed by a tucker-arm 103 having an angular lip 104 which is adapted to engage one side of the wrapper and tuck the same around the article so that the wrapper will assume the position shown in Fig. 11 relative to the article, and at the same time move the article and wrapper along the tracks. The tucker-arm 103 is pivotally mounted, as at 105 upon a slide-bar 106 which is provided with a forked end 107 engaging the shaft 15 and is reciprocated by means of a roller 107' engaging the face-cam 17. An elbow-lever 109 is pivotally mounted upon the shaft 59 upon which the lever 58 is pivotally mounted and has one arm thereof pivotally secured to the tucker-arm 103, as at 110, while the other arm of said lever carries a roller 111 adapted to engage the face-cam 17' for oscillating the lever. As a result of the movements imparted to the tucker-arm by the slide-bar 106 and the elbow-lever 109, the lip 104 is given a compound movement and travels along an ovoidal path as illustrated by its dotted-line positions shown in Fig. 1 of the drawings. By reason of the movement thus given to the tucker, the portion engaging the wrapper follows the article and wrapper along the track as the tucker moves forwardly of the machine and is then depressed and moved rearwardly into position to engage behind the next article and tuck the wrapper therearound.

In order to improve the operation of the mechanism and insure the passage of the articles from the receiver 65 to the curved tracks without making it necessary to use such force upon the articles as would be liable to break or otherwise injure the same, the forward edge of the receiver is provided with a projecting lip 65' which engages above a plate 64' (Fig. 2) carried by the tracks 95 and 96 adjacent the point where the articles are transferred thereto and the receiver is also provided with a rearwardly extending lug 67' to which is pivotally connected a downwardly extending tie rod 68' slidably mounted in an opening 69' formed in a lug 70' carried by the elbow lever 109 whereby the tie rod may be drawn downwardly to draw the receiver downwardly against the tension of the spring 66 and at the same time through the lip 65' draw the tracks 95 and 96 downwardly to permit the article to pass freely upon the tracks without forcing it between the tracks and the pressure bars 100 as would be necessary if no means were employed for depressing the tracks with the consequent danger of injuring the article as it passes between the tracks and pressure bars. It will be seen that as the elbow-lever 109 swings forwardly to carry the tucker 104 into its most advanced position the stop 72' carried by the tie rod 68' will be engaged to draw

the tie rod downwardly and thus depress the tracks 95 and 96 for the reception of the next succeeding article as it is moved forwardly by the pusher 57.

The forward curved upper faces of the tracks 95 and 96 are provided with facing strips 113 and 114, respectively, of rubber or other suitable material, to prevent breaking or injuring the articles as they are rolled therealong as well as to insure better contact for the wrappers and thus wind the wrapper tightly about the articles.

The bevel-gear 7 carried by the shaft 2, as previously described, meshes with a bevel-gear 116 fixed to a vertical shaft which is mounted in a suitable bearing 117 carried by the frame and projects upwardly above the top of the frame, being provided at its upper extremity with a bevel-gear 118 meshing with a bevel-gear 119 fixed to a horizontal shaft 120 rotatably supported by brackets 121 and 122 carried by the frame. A sprocket-wheel 124 is fixed to the shaft 120 adjacent to one end thereof and a sprocket-chain 125 connects the sprocket 124 with a sprocket 126 fixedly secured to a shaft 127 which is rotatably supported by brackets 123 and 129 carried by the machine frame.

Mounted upon the shaft 127, which is constantly rotated from the shaft 2 through the mechanism just described, is a rotating frame indicated generally by the reference character 130, which rotating frame cooperates with the curved portions of the tracks 95 and 96 to roll the articles therealong and thus wind the wrappers thereupon. The rotating frame 130 is directly secured to a casting 131 keyed or otherwise fixedly secured to the shaft 127 to rotate therewith. The casting 131 is provided with a pair of parallel spaced lugs 132 and 133, to which the rotating frame is pivotally secured and by which the same is carried during rotation of the shaft.

Mounted on the periphery of said rotating frame are a pair of segmental rolling members 135 and 136 which are maintained in substantially parallel relation by means of connecting webs 137 and 138. The connecting web 138 is provided with a tongue 139 which is adapted to extend between the lugs 132 and 133 of the central casting 131 and be pivotally secured thereto by means of a pin 140 extending through the lugs and upon which the tongue is loosely mounted to permit slight rocking movement of the frame laterally as it pivots about the pin 140. This rocking movement is found to be desirable since there may be slight differences in size in opposite ends of the article to be wrapped, and this rocking movement permits both of the segmental members to constantly engage the article in its progress along the curved portions of the tracks. The segmental members 135 and 136 are pro-

vided with facings 142 and 143, respectively, of rubber or other suitable material to prevent injury to the articles and also grip the same and positively roll them upon the tracks. These facings 142 and 143 are secured to the exterior surfaces of the members 135 and 136 in any desired manner and are preferably so attached as to be capable of being readily removed for the purpose of replacement or repair.

Lugs 145 and 146 are carried by the segmental members 135 and 136, respectively, and a bar 147 is securely mounted in the lugs 145 and 146 and extends through a slot 148 formed in the casting 131. A bolt 150 is threaded through a portion of the casting into the slot and engages the bar to act as a stop and prevent the segmental members from moving outwardly too great a distance as they pivot about the pin 140. A curved extension 151 is formed integral with or fixedly secured to the connecting web 138 and is connected at its outer free end to the casting 131 through a coiled spring 152. By reason of this connection the segmental members are constantly urged outwardly by the spring 152 to bring the outer faces of the segmental members into yielding engagement with the articles to be wrapped.

Fixed to the shaft 97 to which the tracks 95 and 96 are secured is a downwardly-extending arm 156, the lower end of which is connected to a portion of the machine frame by means of a coiled spring 157. The spring 157 is constantly effective to rotate the shaft 97 in such a manner as to raise the tracks 95 and 96 and hold them in yielding engagement with the segmental members 135 and 136. A stop 158 is carried by the machine frame in position to be engaged by a buffer member 159 secured to the arm 156, whereby excessive movement of the arm 156 is prevented.

A bracket 160 is secured to a portion of the machine frame and serves as a bearing for the shaft 97 previously mentioned. The bracket supports a discharge-chute 161 for discharging the wrapped articles from the wrapping mechanism, and also has secured thereto an apron 162 of curved form having a pair of spaced projections 163 and 164 upon the lower edge thereof which register with corresponding slots formed in the upper surface of the tracks 95 and 96 to present an unobstructed path for the travel of the articles as they pass over the tracks and move therefrom to the delivery chute.

Upwardly-extending arms 166 and 167 are fixedly secured to opposite ends of the shaft 97 and are provided intermediate their ends with inwardly-projecting pins 168 and 169 respectively, to the free ends of which are secured curved twisting fingers 170 and 171. These curved fingers are spaced outwardly

slightly from the curved tracks 95 and 96 and cooperate with similar curved twisting fingers 172 and 173, also carried by the arms 166 and 167, to twist the ends of the wrappers. The curved finger 172 is rotatably supported by a pin 175 secured to the upper end portion of the arm 166, and a coiled spring 176 surrounds the pin and is connected at one end to the finger 172 and at its opposite end to an adjustable collar 177, whereby the tension upon the spring may be desired to exert the necessary downward pressure upon the finger 172. The curved finger 173 is supported in a similar manner upon a pin 180 secured to the upper end of the arm 167, and a coiled spring 181 surrounds the pin 180, being connected at one end to the finger 173 and at its opposite end to an adjustable collar 182 to enable the finger 173 to be placed under greater or less tension, in the same manner as the finger 172 previously described.

The operation of the mechanism will be understood from the previous description but may be briefly explained as follows: The floor of the hopper 25 is constantly vibrated while the hopper occupies its operative position, as shown in Figs. 1, 3 and 4, to insure a constant and regular supply of the articles in the spout formed by the tracks 40, while continued rotation of the brushes 49 and 50 serve to maintain those articles which are about to enter the spout in proper position to prevent clogging or jamming. As each article passes from the hopper to the resiliently-mounted receiver 65, the pusher 57 operates immediately to force the article against a wrapper which has been severed from the paper strip approximately at the instant that it is engaged by the article.

As the tucker engages behind one end of the wrapper C and forces the wrapper and article along the tracks 95 and 96, it tucks the end portion of the wrapper, which it directly engages, closely against the article, as indicated by D in Fig. 11 of the drawings, to insure the wrapper being carried around with the article as the same is rotated and wound closely therearound. When the tucker has finished its forward movement, it leaves the article and wrapper in the position indicated by E in Fig. 1 of the drawings, whereupon it is engaged by the segmental rolling members 135 and rolled along the curved portions of the tracks, the article being rotated in the direction of the arrow, as shown in Fig. 11 of the drawings, to wind the wrapper closely around the same. As the article is rolled, the wrapper is immediately placed therearound to assume the form of a cylinder, as shown in Fig. 12, and as the wrapper assumes this cylindrical form, the ends of the wrapper extending beyond the ends of the article come into contact with the cooper-

ating edges of the twisting fingers 170 and 172 and 171 and 173, the space between which gradually narrows as shown on Fig. 1, whereby as the article and wrapper continue to rotate and the ends of the wrapper are engaged by the fingers, as stated above, the ends of the wrapper are twisted into the form shown in Fig. 13. As the frame 130 continues its rotation, the articles are carried upwardly along the plate 162 and discharged into the delivery chute 161 from which they are delivered to a table or packing box in position to be packed for shipment.

While the various structural features employed have been particularly described in connection with the embodiment of the invention shown herewith, in order to make the construction and operation of the mechanism clear to those skilled in the art, it is to be understood that various changes may be made in the details of the construction as shown herewith without departing from the spirit of the invention, and that the invention is not limited to the precise details of construction as shown and described herein except as defined in the appended claims.

What we claim is—

1. In a wrapping-machine, the combination of a fixed guiding member, a resiliently-mounted receiver adapted to cooperate with said member to form a guideway for the articles and to yield to enable said guideway to accommodate articles of a different size, a curved track positioned adjacent said receiver, means for transferring an article to be wrapped from said receiver to said track, means for feeding a wrapper into position to be engaged by the article during said transfer and means for folding a portion of the wrapper about the article and at the same time forcing the article along the curved track.

2. In a wrapping-machine, the combination of a fixed guiding member, a resiliently-mounted receiver adapted to cooperate with said member to form a guideway for the articles and to yield to enable said guideway to accommodate articles of a different size, a curved track located adjacent said receiver, means for supporting a wrapper between said receiver and said track, and means for moving an article to be wrapped from said receiver against the wrapper and upon the curved track.

3. In a wrapping-machine, the combination of a fixed guiding member, a pivotally-mounted receiver adapted to cooperate with said member to form a guideway for the articles and to yield to enable said guideway to accommodate articles of a different size, a curved track located adjacent said receiver, means for supporting a wrapper between said receiver and said track, means for moving an article to be wrapped

from said receiver against the wrapper and upon the track, and means for tucking a portion of the wrapper about the article to be wrapped.

4. In a wrapping-machine, the combination of a pivotally-mounted hopper for containing articles to be wrapped, means normally supporting the hopper in article delivering position, means adapted to be set to support the hopper in inoperative position, a track upon which the articles are adapted to travel during the wrapping operation, means for transferring the articles successively from said hopper to the track, means for simultaneously tucking a wrapper around each article and moving the article and wrapper along the track, and a segmental roller for cooperating with said track to complete the wrapping operation.

5. In a wrapping-machine, the combination of a hopper for containing articles to be wrapped, a track upon which the articles are adapted to travel during the wrapping operation, means for transferring the articles to be wrapped from said hopper to said track, a tucker having a compound movement for folding a wrapper about each article and moving the article along the track, and means for completing the wrapping operation comprising a driven roller and an extension of said track, said extension being curved in conformity with the curvature of the roller and arranged relatively to the roller to enable the partially wrapped article to be rolled between said track extension and said roller by the rotation of the latter.

6. In a wrapping machine, a spring pressed track upon which articles to be wrapped are adapted to travel during the wrapping operation, means for placing an article to be wrapped together with the wrapper therefor upon said track, a tucker having a compound movement for folding the wrapper about the article, a curved extension of said track, and means movable with and cooperating with said extension to complete the wrapping operation.

7. In a wrapping machine, a track upon which articles to be wrapped are adapted to travel during the wrapping operation, means for placing an article to be wrapped together with the wrapper therefor upon said track, a tucker having a compound movement for folding the wrapper about the article and simultaneously moving the article and wrapper along said track, a curved extension of said track, and a driven roller partially embraced by said track extension for advancing said article and wrapper along said extension to complete the wrapping operation.

8. In a wrapping machine, a resiliently mounted receiver, a curved track having its receiving end located adjacent to said re-

- ceiver, means for supporting a wrapper between said receiver and said track, means for feeding articles to be wrapped upon said resiliently mounted receiver, means for successively sliding articles from said receiver against the wrapper and forcing the article and wrapper upon said track and a tucker having a compound movement for folding the wrapper about each article and advancing the article and wrapper along the track.
9. In a wrapping-machine, a resiliently-mounted receiver, a curved track having its receiving end located adjacent to said receiver, means for supporting a wrapper between said receiver and said track, means for feeding articles to be wrapped upon said resiliently-mounted receiver, and means for successively sliding articles from said receiver against the wrapper and forcing the article and wrapper upon said track.
10. In a wrapping machine, a pivotally-mounted receiver adapted to yield to accommodate articles of various sizes, a reciprocating pusher for successively feeding articles to be wrapped along said receiver and discharging the same therefrom, and a track having its receiving end located adjacent to said receiver for receiving the articles as they are discharged from said receiver.
11. In a wrapping-machine, a pivotally-mounted receiver, means for successively feeding articles to be wrapped upon said receiver and discharging the same therefrom, a curved track having its receiving end located adjacent to said receiver for receiving the articles as they are discharged from said receiver, and a tucker having a compound movement for folding a wrapper about each article and moving the article and wrapper along the track.
12. In a wrapping-machine, a pivoted track capable of being depressed into article receiving position, means for depressing said track, means for placing an article to be wrapped and a wrapper therefor on said track, a tucker for folding the wrapper about the article and moving the article along said track, and means for completing the wrapping operation.
13. In a wrapping-machine, a pivoted track capable of being depressed into article receiving position, means for depressing said track, means for placing an article to be wrapped and a wrapper therefor on said track, a tucker having a compound movement for folding the wrapper about the article and moving the article along said track, and means for completing the wrapping operation.
14. In a wrapping machine, means for feeding a wrapper into position to be engaged by an article to be wrapped, a reciprocating pusher for moving the article into positive engagement with said wrapper, and a tucker having a compound movement for tucking the wrapper around the article, means for twisting the wrapper about the ends of the article, and means for feeding the article and wrapper into the field of operations of said twisting means.
15. In a wrapping-machine, wrapping mechanism including an article supporting track, a tucker having a compound movement, and means including a plurality of cams carried by a common shaft for imparting compound movement to said tucker to cause it to tuck a portion of a wrapper about an article and to advance the article along said track.
16. In a wrapping-machine, a pivoted track, a rotating frame cooperating with said track, means for placing an article to be wrapped and a wrapper therefor on said track, means for advancing said article and the wrapper therefor along said track into position to be engaged by said frame, and means for resiliently forcing the track toward the outer periphery of said frame during the rotation thereof, whereby the wrapper is wound around the article to be wrapped.
17. In a wrapping machine, a rotatably mounted frame, a track mounted for oscillation about a pivot eccentric to the axis of rotation of said frame, said track having an arc-shaped portion for cooperating with said frame, means for placing an article to be wrapped and a wrapper therefor on said track, means for resiliently forcing the arc-shaped portion of said track toward the outer periphery of said frame and means for rotating said frame to wind the wrapper around the sides of the article to be wrapped.
18. In a wrapping-machine, means for placing a wrapper partially around an article to be wrapped, a track, means for transferring the article and wrapper to the said track, means for rolling the article along said track to wind the wrapper completely therearound, and means for twisting the end portions of the wrapper comprising a pair of spaced fingers located adjacent opposite sides of said track and adapted to receive the end portions of the wrapper and prevent tearing of the same.
19. In a wrapping-machine, means for placing a wrapper about an article to be wrapped, a pivoted track having a curved portion, means for transferring the article and wrapper to the said track, means for rolling the article along said track to wind the wrapper therearound, and means for twisting the end portions of the wrapper comprising a pair of spaced fingers located adjacent opposite sides of said track and adapted to receive the end portions of the wrapper and prevent tearing of the same.
20. In a wrapping machine, means for

winding a wrapper about an article to be wrapped comprising a pivotally mounted track for supporting the article, means for placing upon the track an article having a wrapper folded over one side thereof, and spring-pressed means cooperating with said track for engaging the sides of the article and wrapper and rolling the same along said track to complete the wrapping of the sides of the article.

21. In a wrapping machine, means for winding a wrapper about an article to be wrapped comprising a pivotally mounted resiliently supported track for supporting the article, means for placing upon the track an article having a wrapper folded over one side thereof, and means cooperating with said track for engaging the sides of the article and wrapper and rolling the same along said track to complete the wrapping of the sides of the article.

22. In a wrapping machine, means for winding a wrapper about an article to be wrapped comprising a pivotally mounted resiliently supported track for supporting the article, means for placing upon the track an article having a wrapper folded over one side thereof, and spring-pressed means cooperating with said track for engaging the sides of the article and wrapper and rolling the same along said track to complete the wrapping of the sides of the article.

23. In a wrapping-machine, means for supporting a cylindrical article having a wrapper wound partially around its sides, and rotating segmental members adapted to engage the partially wrapped article and roll the same along the supporting means for completing the winding of the wrapper around its sides.

24. In a wrapping machine, means for supporting an article to be wrapped, rotating segmental members adapted to engage the article and roll the same along the supporting means, and means for yieldingly urging the segmental members into contact with the articles to be wrapped.

25. In a wrapping-machine, the combination of a hopper having a mouth for the delivery of articles singly therethrough, a resiliently mounted receiver adjacent said mouth for supporting the articles after they have been delivered from the hopper, said receiver cooperating with a portion of said hopper to form a guideway for the articles issuing from the latter and being adapted to yield to enable said guideway to accommodate articles of different size, a resilient track adjacent said guideway, means for transferring an article from said guideway to said track, and means for constraining said track to yield in unison with said receiver to insure that the former shall be maintained in registry with the latter.

26. In a wrapping machine, the combination of a hopper having a mouth for the delivery of articles singly therethrough, a resiliently mounted receiver adjacent said mouth for supporting the articles after they have been delivered from the hopper, said receiver cooperating with a portion of said hopper to form a guideway for the articles issuing from the latter, a track adjacent said guideway, means for feeding an article along said receiver and transferring it to said track, and means for moving said receiver away from the cooperating portion of said hopper to facilitate the feeding and transferal of the article.

27. In a wrapping machine, the combination of a hopper having a mouth for the delivery of articles singly therethrough, a resiliently mounted receiver adjacent said mouth for supporting the articles after they have been delivered from the hopper, said receiver cooperating with a portion of said hopper to form a guideway for the articles issuing from the latter and being adapted to yield to enable said guideway to accommodate articles of different size, a resilient track adjacent said guideway, a resilient guide member cooperating with said track to provide a guiding passage for the articles, means for transferring an article from said receiver to said track, and means for moving said receiver and track away from the parts cooperating therewith to reduce frictional resistance to the transfer of the articles from the receiver to the track.

28. In a wrapping machine, the combination of a hopper having a mouth for the delivery of articles singly therethrough, a resiliently mounted support adjacent said mouth for receiving the articles after they have been delivered from the hopper, said support cooperating with a portion of said hopper to form a guideway for the articles issuing from the latter and being adapted to yield to enable said guideway to accommodate articles of different size, a second resilient support adjacent said guideway, a resilient guide member cooperating with said second support to provide a guiding passage for the articles, means for transferring an article from the first support to the second support, means for moving one of said supports away from the article guiding part cooperating therewith to reduce frictional resistance to the transfer from the first support to the second support, and connections between said supports whereby both are constrained to move in unison away from the article guiding parts cooperating therewith.

29. In a wrapping machine, a resiliently mounted receiver, a reciprocating pusher for feeding articles to be wrapped along said receiver and discharging the same therefrom, and folding mechanism having its re-

ceiving end located adjacent the discharge end of said receiver for receiving the articles as they are discharged therefrom.

30. In a wrapping machine, a resiliently mounted receiver, means for delivering articles successively thereonto, folding mechanism for folding a wrapper about an article having its receiving end adjacent said re-

ceiver, and a member for engaging an article supported by said receiver for moving it therealong and discharging it onto said folding mechanism.

In testimony whereof we have affixed our signatures.

ELMER L. SMITH.
ARTHUR E. PHELON.