Nov. 3, 1925. 1,559,618

A. KAPPES ET AL

PACKAGE DELIVERY MECHANISM FOR WRAPPING MACHINES

Filed Aug. 15, 1923 4 Sheets-Sheet 1

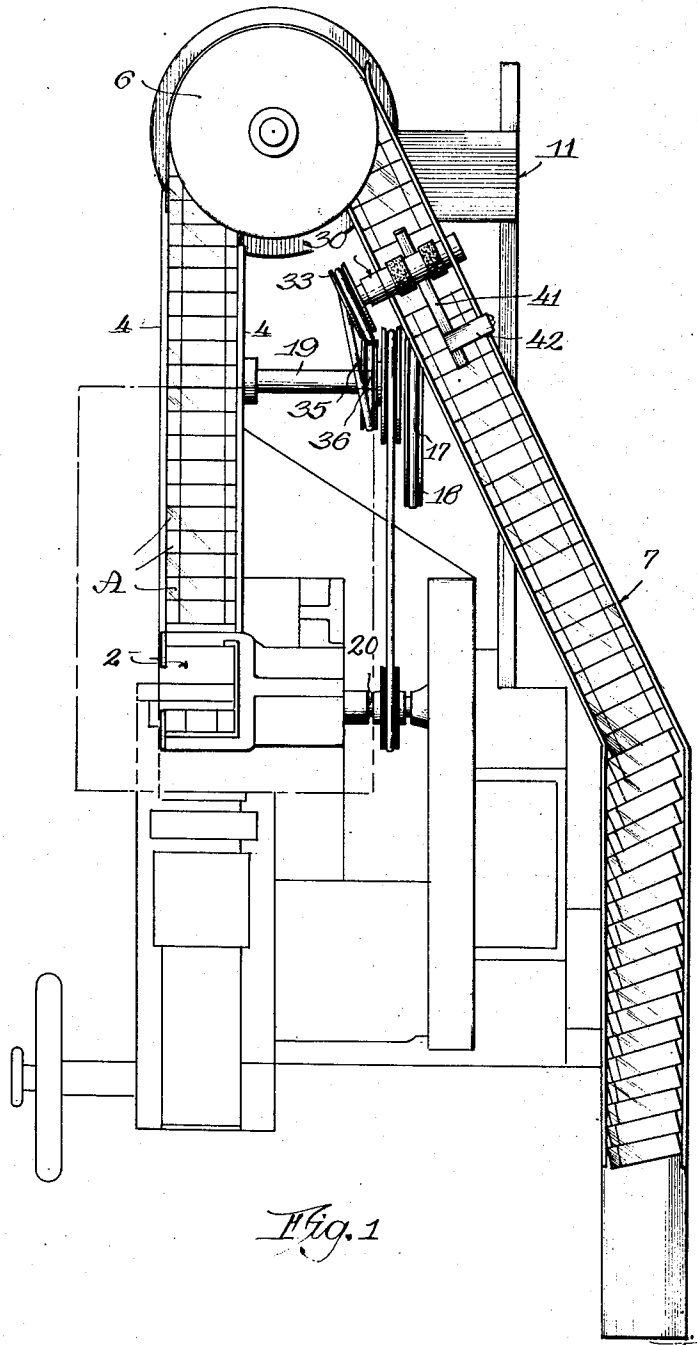


Fig. 1

Witness:
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PACKAGE DELIVERY MECHANISM FOR WRAPPING MACHINES

Filed Aug. 15, 1923 4 Sheets-Sheet 2

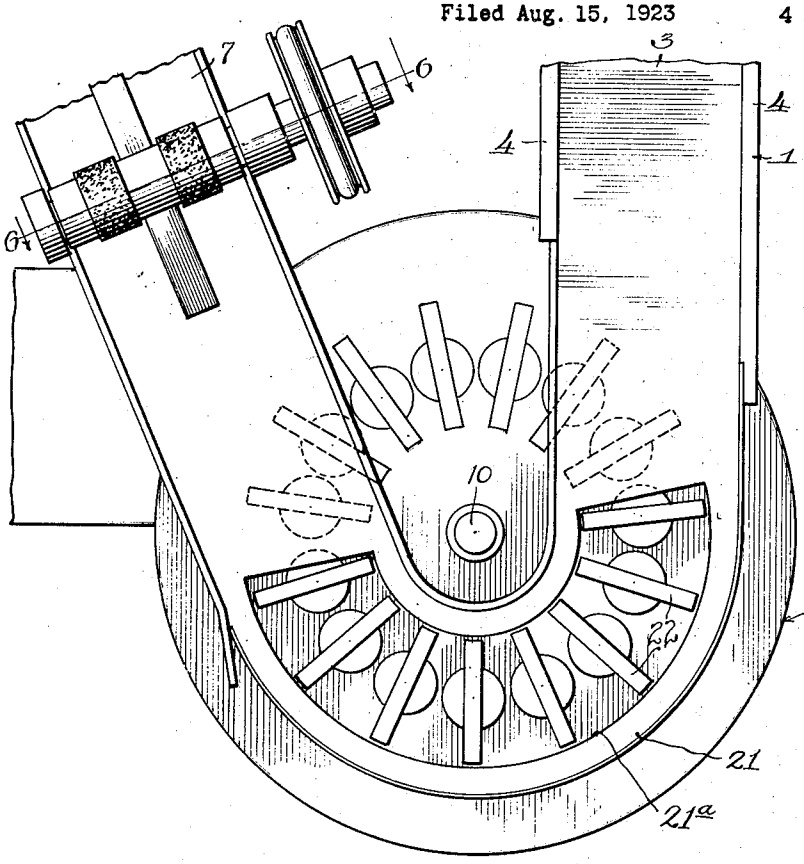


Fig. 2

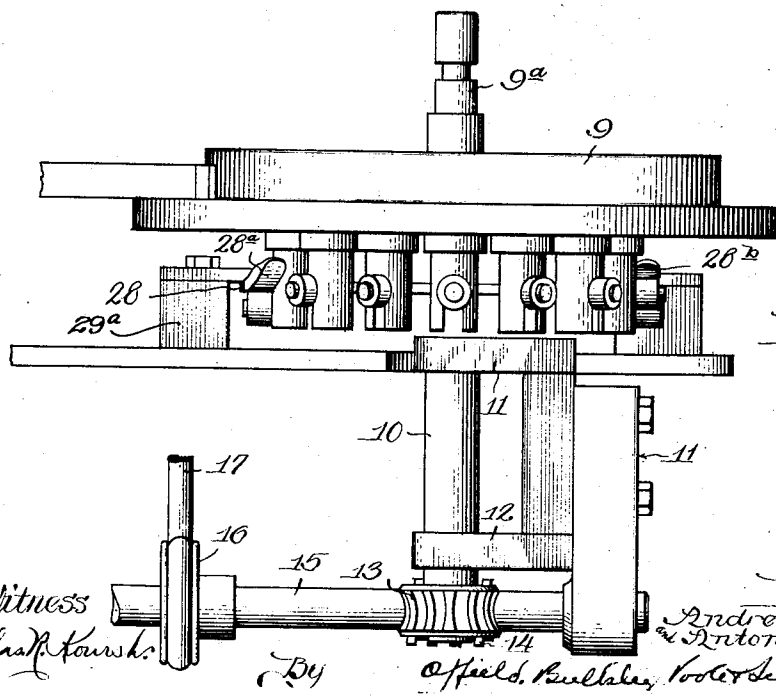


Fig. 3

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PACKAGE DELIVERY MECHANISM FOR WRAPPING MACHINES

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Fig. 4

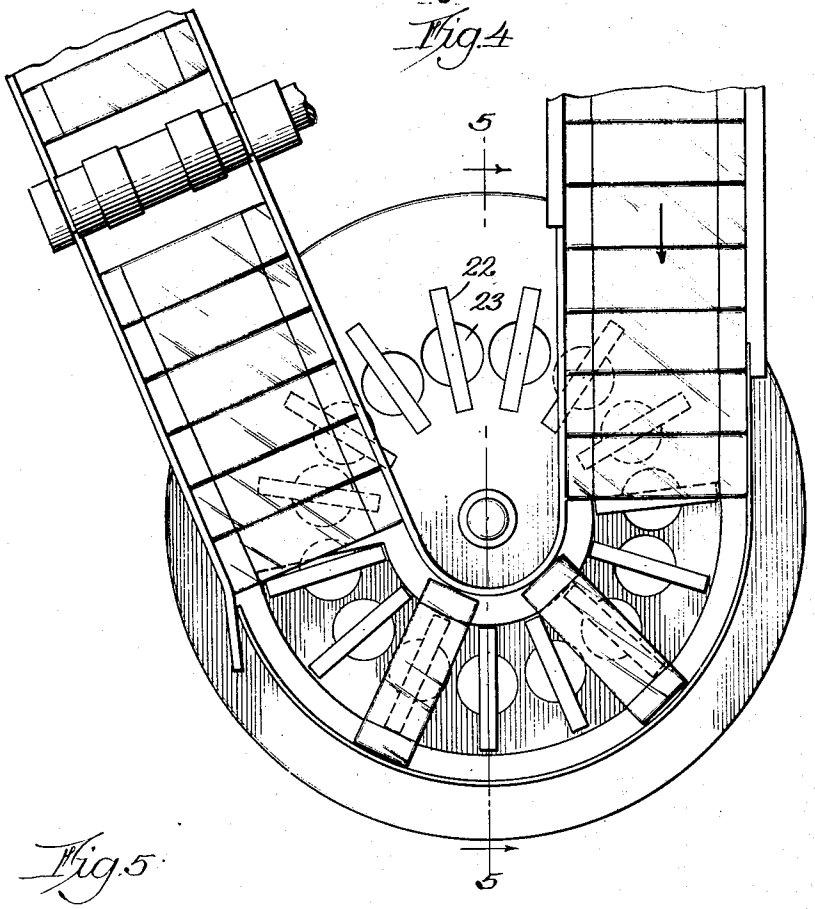
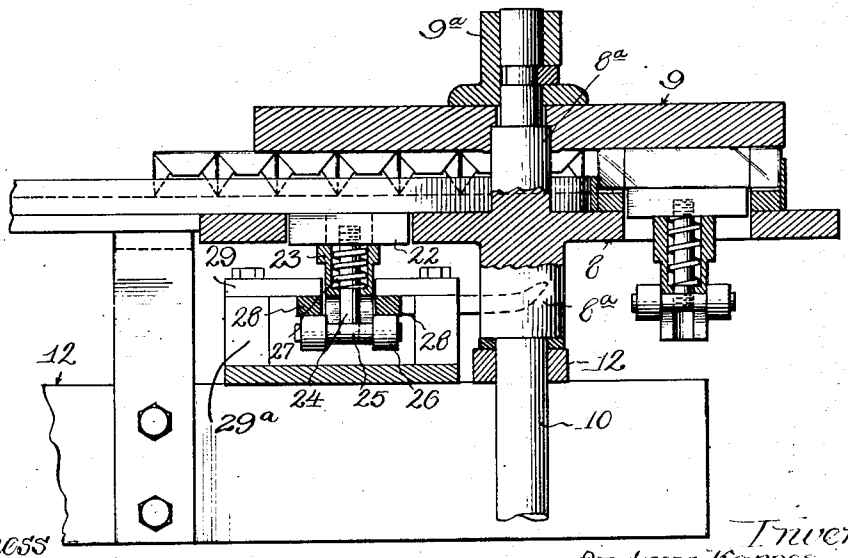


Fig. 5



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Nov. 3, 1925. 1,559,618

A. KAPPES ET AL

PACKAGE DELIVERY MECHANISM FOR WRAPPING MACHINES

Filed Aug. 15, 1923 4 Sheets-Sheet 4

Fig. 6

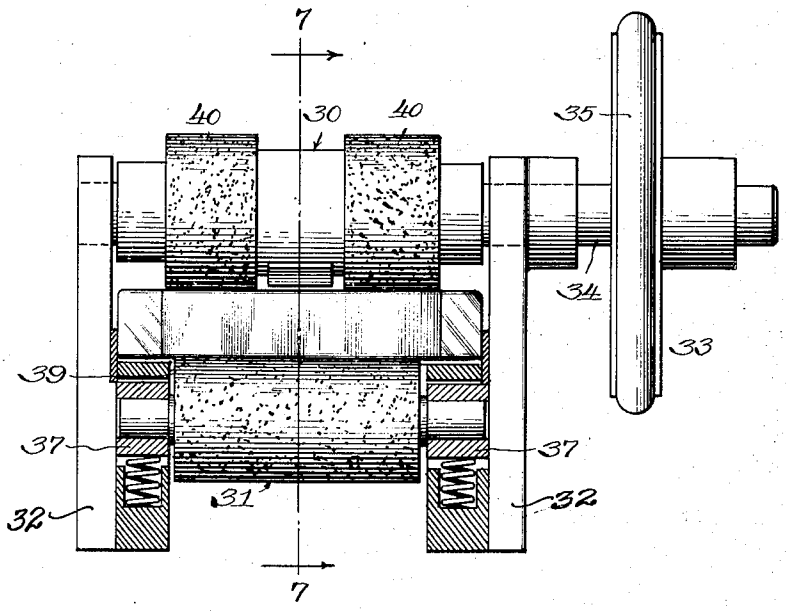


Fig. 7

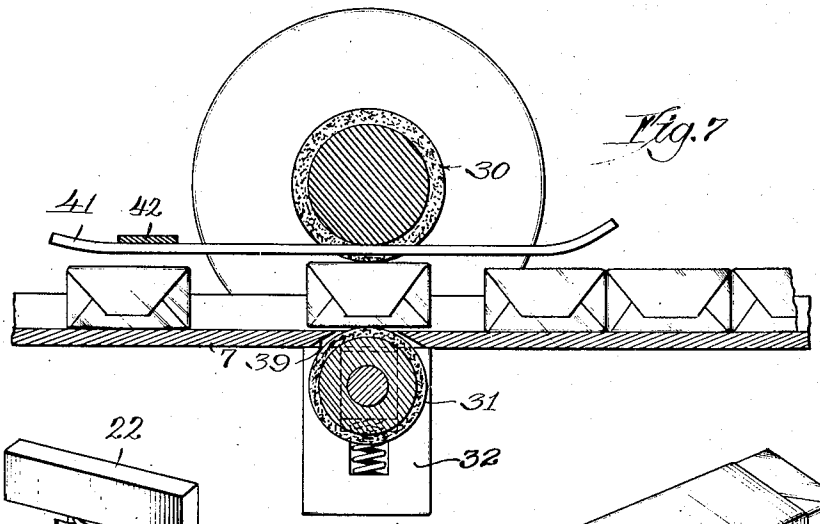


Fig. 8

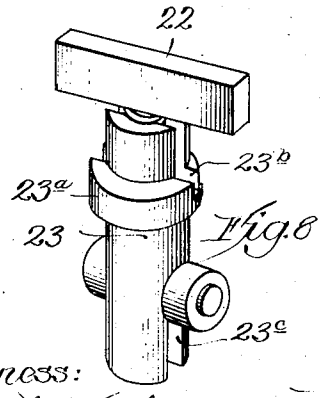
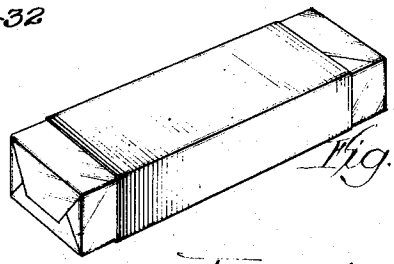


Fig. 9



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Patented Nov. 3, 1925. 1,559,618

UNITED STATES PATENT OFFICE.

ANDREW KAPPES AND ANTON F. R. GERSTMAYR, OF CHICAGO, ILLINOIS, ASSIGNORS TO WM. WRIGLEY, JR. CO., OF CHICAGO, ILLINOIS, A CORPORATION OF WEST VIRGINIA.

PACKAGE-DELIVERY MECHANISM FOR WRAPPING MACHINES.

Application filed August 15, 1923. Serial No. 657,467.

To all whom it may concern:

Be it known that we, ANDREW KAPPES and ANTON F. R. GERSTMAYR, citizens of the United States, and residents of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Package-Delivery Mechanism for Wrapping Machines, of which the following is a specification.

This invention relates to improvements in package delivery mechanism and more particularly designed to be employed with package wrapping machines for delivering the wrapped packages to a point within convenient reach of the machine operator, thus enabling a single person to attend to operation of the machine as well as the disposal of the wrapped packages.

The particular industry for which the mechanism embodying the invention is designed, is that of the manufacture of chewing gum although it may be equally well adapted for any machine for wrapping packages.

A gum wrapping machine is designed to wrap and seal the product in stick or tablet form into packages. The sticks are discharged at the rear of the machine onto a delivery track. While this arrangement is not necessarily universal it is common in these machines to have the point of delivery so located as to make it impractical for the machine operator to handle the packages and at the same time attend to the other operations that are necessary. Hence it has heretofore required two persons to operate a single machine, one of which is an assistant who does nothing but remove the wrapped packages and pack them in cartons.

The object of the present invention is to eliminate the necessity of an assistant, by providing mechanism for guiding or transporting the wrapped packages to the position occupied by the machine operator thus making it possible for one operator to handle a machine without moving from a given position. In the present disclosure the operator ordinarily stands in front of the machine, the packages being ejected at the rear of the machine onto a track extending rearwardly of the machine. The transporting mechanism, however, reverses the direction of travel of the packages and with an additional track extending to the front of the machine the packages are delivered within easy reach of the operator.

The mechanism embodying the novel features of the invention are illustrated in the drawings as forming a part of, or an addition to, a wrapping machine, wherein

Figure 1 is a top plan view of a wrapping machine and the package transporting mechanism.

Figure 2 is an enlarged top plan view of the turn-table of the mechanism.

Figure 3 is an enlarged detail view in rear elevation of the turn-table and associated parts.

Figure 4 is a view similar to Figure 2 with top plate removed, showing the manner of advancing the packages around the turn-table.

Figure 5 is a view in vertical section taken on line 5—5 of Figure 4.

Figure 6 is a view in cross section taken on line 6—6 of Figure 2.

Figure 7 is a view in vertical section taken on line 7—7 of Figure 6.

Figure 8 is a perspective view of one of the package gripping elements associated with the turn-table, and

Figure 9 is a perspective view of a package.

In Figure 1 the general features of a wrapping machine are disclosed, but without showing the details of construction. The principal part of the wrapping machine is the track 1 extending rearwardly from the point of discharge 2, at which the packages are ejected from the wrapping mechanism onto the track in rapid succession. The packages are advanced sidewise in close contact and under the force of the ejection mechanism of the machine. The track is merely an elongated plate 3 with side rails 4—4 to guide the packages.

The track 1 terminates well beyond the rear of the wrapping machine and at its end is located what may be termed a turn-table 6. A return track 7, extends forwardly from the turn-table and terminates in front of and to one side of the machine. The track 7 is in reality a continuation of track 1, but considerably longer. Moreover, it is inclined laterally throughout its rear portion in order to clear the forward part of the machine and thence assumes a direction par-

allel to the track 1, but on the opposite side of the machine therefrom.

In other words, the course of the packages is to the rear, around the turn-table, and thence forwardly to the front of the machine adjacent the point where the operator stands. Thus the materials can be fed to the machine, the packages removed from the discharge track, without requiring the operator to shift position.

The turn-table is devised so that the packages can be carried around a turn of almost 180° without interrupting the uniform advance movement. Manifestly it would be impractical if not impossible to impel the packages throughout the entire length of track, and at the same time, guide them around the turn.

The turn-table consists in general of a positively driven rotating table 8 and a friction disc 9, preferably wood, mounted on a vertical shaft 10. A frame 11, extending rearwardly from the machine frame supports the various parts of the device including the bearings 12, in which the shaft 10 is journalled. At the end of the shaft 10 is a worm wheel 13, engaging a worm 14, mounted on a horizontal drive shaft 15. A pulley 16 is mounted on the shaft 15, (Figure 3) which carries a belt 17, extending to a drive pulley 18, mounted on a counter shaft 19, which in turn is driven from a shaft 20 of the machine by a suitable pulley and belt drive, (Figure 1).

The table 8 is keyed to the shaft 10, the former having a hub 8^a extending above and below the table. The disc 9 is mounted above the table, the two being spaced apart a distance somewhat greater than the thickness of the packages A, and determined by the length of the upper portion of the table hub 8^a on which the disc seats. The disc is movably mounted on the shaft, and held in frictional engagement therewith by means of a clip 9^a, which is applied to the end of the shaft 10.

As clearly shown in Figure 2, the adjacent end of the tracks 1 and 7 are connected by a curvilinear track section 21, arranged concentrically about the axis of the table. Formed in the bottom of the curved section 21 is a slot 21^a, likewise curved, and having a width slightly less than that of the track. This slot extends throughout an arc of 180° and exposes a section of the table below of the same extent and width.

Carried by the table 9, and operated through the slot 21^a, in the track section 21, are a plurality of package engaging members which will now be described in detail.

Arranged concentrically about the axis of the table, and in alignment with the slot 21^a, is a plurality of radially disposed bars 22 supported in cylindric fixtures or sleeves 23 inserted through the table, with portions extending below. The bars are depressed by means of cams to lie flush with the surface of the table, as shown at the left in Figure 5, and throughout the length of the curved slot 21^a the bars are released by the cams allowing springs to act to raise them above the level of the table as will hereinafter be more fully explained.

Figures 5 and 8 clearly show the construction of the package engaging members. The sleeves are tubular in form having a flange or enlargement 23^a below its upper end portion, and which abut against the underside of the table with the portion above inserted through an aperture therein. A transverse slot 23^b is formed in upper end of the sleeve to receive the bar 22 in depressed position. The bars 22 are mounted on rods 24 extending axially of each sleeve and carrying at their lower ends cross rods 25, extending laterally beyond the sleeve and through slots 23^c formed therein. At the ends of the rod 25 are mounted cam rollers 26. The upper portion of each sleeve is provided with an enlarged cavity containing a coil spring 27, bearing against the bar 22, and acting to force the same upwardly above the surface of the table as already described.

Mounted beneath the table, and in the plane of the cam roller, is a pair of fixed cams 28 having the form of curvilinear bars mounted on opposite sides of the package engaging members and in the path of the cam rollers. These cam bars are supported at intervals by bars 29 and posts 29^a, so that the undersides of the bars serve as the cam surfaces. Referring to Figures 2 and 3, the cam bars 28 extend from a point just short of the rear or left extremity of the slot 21^a in the track section 21, throughout one-half the circular path of the package engaging members, terminating a short distance beyond the forward end of the slot 21^a. In other words, the cam bars occupy that portion of the circumference of the table not included between the ends of the slot 21^a. Thus assuming that the direction of rotation of the table is clockwise the cam rollers are successively engaged by the cam bars just an instant before they reach the end of the slot 21^a, the action being that of depressing the bars 22 until the opposite end of the slot is reached, when they are released and the bars 22 are lifted under the action of the springs 27. The ends of the cam bars are tapered or inclined as at 28^a to allow the rollers to ride onto and from the cam bars, just before each bar reaches the end of the slot and just after the same comes into registering relation therewith.

Now referring to Figure 4, the packages of gum A are shown as advancing in close formation along the track 1, toward the turn-table which is rotating at a speed consider-

ably greater than the rate at which the packages are advanced along the track. As each package reaches the forward end of the slot 21ª one of the bars 22, which has just been released, springs up, and lifting the package into contact with the disc 9, carries it around and deposits it onto the return track 7. As the package reaches the track 7, the cam bars engage the cam rollers of the package engaging members, depressing the bars 22, thus releasing the package, so also it permits the bars 22 to pass below the track as they reach the end of the slot 21ª. Due to the increased speed of turn-table, the packages are separated in negotiating the turn, so that there may be no more than two packages being carried around the turn at the same time. This allows sufficient space between packages to permit each to maintain a radial position during the turning movement.

Thus the packages are carried from the delivery track 1 to the return track without interruption in the advance movement toward the final point of discharge.

Owing to the extended length of the return track and the resistance that is offered to the movement of the packages along said track, and particularly at the point where the packages are delivered by the turn-table to the return track, there is preferably provided what may be termed a "booster". This is an auxiliary package advancing device acting to boost or push the packages forwardly.

The booster, so called, comprises, a pair of rolls 30 and 31, one located above the track 7, and the other below the track, (Figures 6 and 7). Two vertical supports 32, 32 are clamped to the sides of the track and provide bearings for the ends of the rollers. The lower or under roller is mounted to turn freely, while the upper roller is positively driven by means of a pulley drive from the shaft 19 (Figure 1) through a pulley 33, mounted upon the spindle 34 of the roller 30, a belt 35, and a pulley 36 on the shaft 19.

The lower roller is journalled in adjustable bearing blocks 37, movable vertically and with springs 38, beneath the blocks to exert a yielding pressure upwardly. A slot 39 is formed in the track 7 through which the periphery of roller projects a short distance.

The upper roller is preferably divided into two roller sections 40, 40 of increased diameter having a centrally disposed space there between, moreover, they are spaced above the track surface a distance slightly greater than the thickness of the packages. As shown in Figure 7, the surface of the roller preferably consists of layers of pliable material such as leather or rubber, so that the packages will not be damaged in passing between them. Coacting with the rolls is a longitudinal guide bar 41 extending parallel with the surface of the track and at a slightly greater distance above the same, than the roller section 40, 40 between which it is located. The guide bar is secured in place by a bracket 42, secured to the track beyond the rollers and fixed to one end of said bar. The opposite end of the guide bar terminates in advance of the rollers in a free end portion having its extremity turned up slightly.

The operation and function of the booster is manifest. As each package advances between the rollers it is lifted slightly as it rides over the lower roller 31, and at the same time comes into contact with the revolving upper roller sections 40, which is turning at a somewhat increased speed, thereby impelling the packages forwardly and with a positive movement.

While it would perhaps be unnecessary to employ the booster in every instance, it is nevertheless desirable to provide such auxiliary advancing means, particularly where the length of the return track is considerable or there are bends in the track.

The invention, therefore, resides principally in the turn-table and associated parts which constitute a complete mechanism whereby the direction of travel of the packages can be changed, no matter how acute the angle, without interfering with the smooth and uniform progress toward the point of discharge.

We claim as our invention:

1. In a device of the character described the combination of an article delivery track having an abrupt turn intermediate its ends, a rotative table located below said track at the turn therein, a series of spring actuated article engaging members, arranged about the axis of said table, and in substantially tangential relation with said track, a friction disc located above said track and rotating with said table, said article engaging members being operative to lift said articles into contact with said disc throughout the length of said curved track portion and cam mechanism for depressing said article engaging members to release the articles at the end of said curved track portion.

2. In a device of the character described, the combination of an article delivery track having an abrupt turn intermediate its ends, a rotative turn-table located at the turn in said track, and comprising discs between which the articles are advanced, and a series of spring actuated article engaging members, carried by one of said discs and adapted to shift successive articles in frictional contact with the other disc, during their advance movement about the turn.

3. In a device of the character described the combination of an article delivery track consisting of sections arranged at an angle

to each other, and connected by a curved track portion, a turn-table journalled at said curved track portion, and comprising a plurality of annularly arranged article engaging members, beneath, and a disc above said curved track portion to engage the articles, said article engaging members comprising spring plungers having cam members moving in a circular path and a fixed rail mounted in the path of said cam member and acting to depress said article engaging members at a predetermined portion of each revolution of said table.

4. In a device of the character described the combination of an article delivery track having an abrupt turn intermediate its ends, a rotative table located below said track at the turn therein, a series of spring actuated article engaging members, arranged concentrically about the axis of said table, and in vertical alignment with a slot extending throughout the turn in said track, a friction disc located above said track and rotating with said table, said article engaging members being spring actuated to lift said articles into contact with said disc as they pass over said slot, and cam mechanism for depressing said article engaging members to release the articles as they reach the end of said slot.

In witness whereof, we hereunto subscribe our names this 7th day of August A. D., 1923.

ANDREW KAPPES.
ANTON F. R. GERSTMAYR.