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2,351,879

KICK-OUT DEVICE FOR WRAPPING MACHINES

Filed Dec. 24, 1941

2 Sheets-Sheet 1

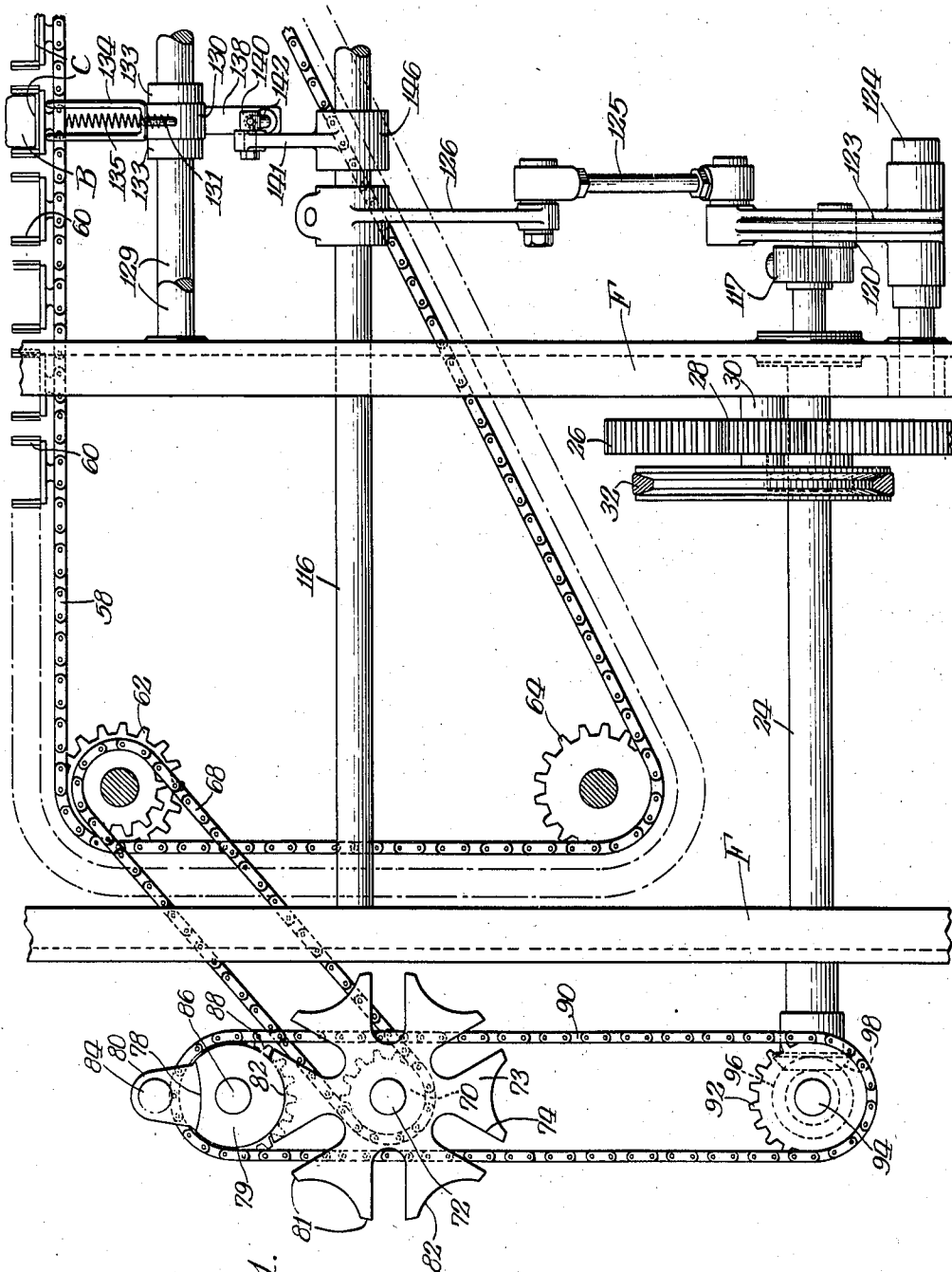


Fig. 1.

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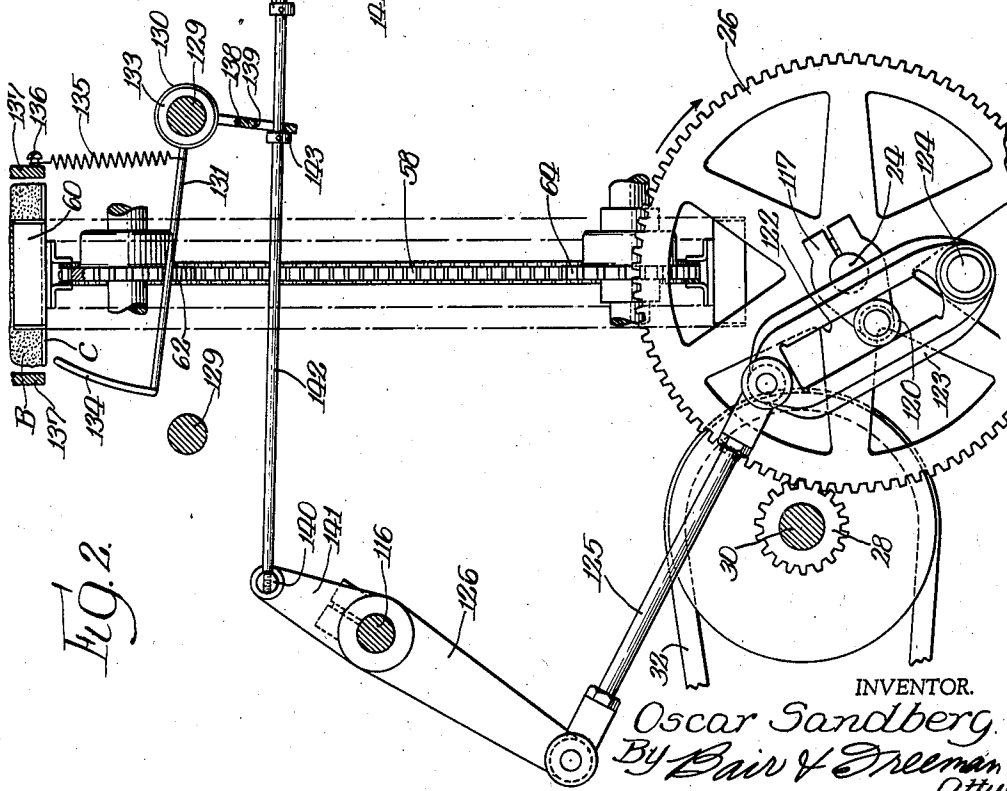
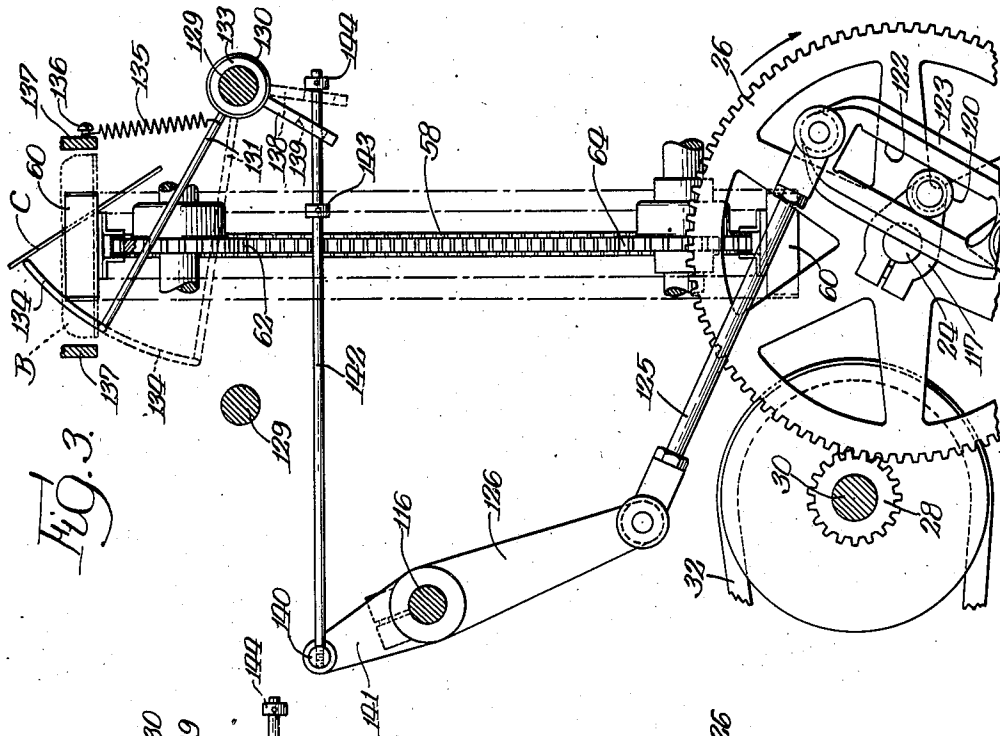
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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KICKOUT DEVICE FOR WRAPPING
MACHINES

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Application December 24, 1941, Serial No. 424,285

1 Claim. (Cl. 209—121)

My present invention has to do with a kick-out device for article supporting cards, and is particularly applicable to a wrapping machine of the kind shown in my co-pending application Serial No. 317,370, filed February 5, 1940, of which the present application is a continuation-in-part.

One object of the invention is to provide simple and inexpensive mechanism which may be mounted in a wrapping machine to kick out an article supporting card therefrom whenever there is no article on such card, the cards and articles being successively fed to wrapping position by a conveyor having pockets to receive the cards and articles.

A further object is to provide kick-out mechanism for use in connection with a card and article conveyor which consists of a kick-out arm adapted to engage a card under the constraint of a relatively light spring to tip the card to a position where it will slide out of the pocket if there is no article on it, the presence of an article effecting retention of the card in position against the bias of the spring whereby only those cards that do not have articles on them are discharged from the article and card conveyor.

Still another object is to provide an operative connection between the card kick-out device and a periodically operating element, such as a rock shaft, of the wrapping machine to remove the card kick-out device from operative position during the time that one card is moving forward from kick-out position and another card is moving to kick-out position.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claim and illustrated in the accompanying drawings, wherein:

Figure 1 is a side elevation of a portion of a wrapping machine such as disclosed in my parent application showing only the parts essential to the present invention;

Figure 2 is an end view of Figure 1 taken from the left hand end of the figure and showing the card kick-out device in inoperative position; and

Figure 3 is a similar view showing it in position for operation by dotted lines, and in its operative position by full lines.

My machine has to do with the wrapping of articles, for instance, candy bars of the type commonly sold in drug and grocery stores. For complete details of the wrapping machine my parent application is referred to. Certain parts of that

application find their counterpart in the present application and bear the same reference numerals.

The wrapping machine includes vertical frame members **F**, which may be made of cast steel or the like and rigidly connected by cross-members (not shown in this specification). Journaled in the frame members **F** is a main drive shaft **24**. The drive shaft **24** has secured thereto a gear **26**. The gear **26** meshes with a pinion **28** on a countershaft **30**. A pulley **32** is secured to the countershaft **30** and is driven by a belt **34** from any suitable source of power, such as a motor (not shown).

A bar and card conveyor chain **58** is provided, which chain is provided with pockets **60** to receive the respective candy bars or the like **B**. The conveyor chain **58** traverses sprockets **62** and **64**, and is driven intermittently in synchronism with the drive shaft **24** by a chain **68** and associated mechanism, which will now be described. The associated mechanism includes a sprocket **70** mounted on a shaft **72**. A star wheel **73** is also secured to the shaft **72** and provided with slots **74**.

A crank arm **80** is mounted on a shaft **86** and carries a crank pin **82**. The crank pin **82** is adapted each revolution of the shaft **86** to enter one of the slots **74** and effect a 60-degree turn of the shaft **72**. A disk **79** is mounted on the shaft **86** and is provided with a concavity **78** to permit such 60-degree movement of the shaft **72**. During the major portion of a revolution of the shaft **86** a concavity **82** of the star wheel **73** coacts with the perforated disk **79** to prevent rotation of the star wheel.

The shaft **86** is driven in synchronism with the main drive shaft **24** by a sprocket **88**, a chain **90** and a sprocket **92**. The sprocket **92** is secured to a shaft **94** which is driven by bevel gears **96** and **98** from the shaft **24**. Thus, one revolution of the shaft **24** effects one revolution of the shaft **86** and one-sixth revolution of the shaft **72** each cycle of operation. A one-sixth revolution of the shaft **72** effects movement of one of the pockets **60** to the position of the preceding pocket, whereby the pockets are successively presented at any given point, one for each cycle of operation of the wrapping machine.

A shaft **116** is included in the wrapping machine for operating the wrapping instrumentalities shown in my parent application. The shaft **116** is rocked each cycle of operation by a crank **117** carrying a roller **120**, which roller cooperates with a slot **122** of an arm **123**. The arm **123**

is pivoted on a stud shaft 124 extending from one of the frame members F and is connected by a link 125 to a rock arm 126. The rock arm 126 is secured to the shaft 116.

My card kick-out mechanism includes a boss 130 rotatably mounted on a stationary shaft 129, two of which are provided in the machine, forming part of the framework of the wrapping machine. The boss 130 is confined against axial movement on the shaft 129 by collars 133. A kick-out arm 131 in the form of a rod extends from the boss 130 in a direction transverse of the conveyor chain 58. At its outer end the arm 131 has a pair of fingers 134 extending upwardly. The arm 131 is normally biased upwardly by a light spring 135 connected at its lower end to the arm and at its upper end to a screw 136 or the like mounted in a side bar 137 for the conveyor pockets 60.

The boss 130 has a downwardly extending arm 138 provided with a slot 139. A rotatable stud 140 is mounted on a lever 141 secured to the rock shaft 116. A rod 142 is screwed into the stud 140 and extends loosely through the slot 139. A pair of collars 143 and 144 is mounted on the rod 142.

Practical operation

In the operation of my card kick-out device, assuming the shaft 24 in rotation, the pockets 60 will successively come to a position of alignment with the card kick-out fingers 134 and stop momentarily at such position due to the star wheel actuation provided for the conveyor 58. During the time of movement of the pockets from one position to the next the operating parts will assume the position shown in Figure 2, with the arm 123 toward the left and the collar 143 accordingly toward the right. The collar 143 engages the arm 138 to lower the fingers 134 below the lower surface of the card C so that the fingers do not interfere with the cards during such movement. After the pockets have stopped the gear 126 has advanced clockwise from the position of Figure 2 so that the spring 135 is permitted to raise the arm 131 and the spring is operated in this capacity during most of the revolution of the drive shaft 24. Figure 3 shows the opposite extreme of movement of the rod 142.

When the spring 132 raises the arm 131 it will cause the fingers 134 to tip a card C, as shown by solid lines in Figure 3, to such an inclined position that it will slide out of the pocket 60. If, however, there is an article such as a candy bar B, as shown by dotted lines in this figure, on the card C, the weight of the candy bar will overcome the tension of the spring 132 so that the

fingers 134 cannot lift it. Thus, any cards unoccupied by the candy bars are discharged from the machine instead of proceeding to wrapping position and effecting a wrapping operation performed on a card that does not have a bar supported on it.

From the foregoing description it is obvious how I have provided automatic means to remove empty cards from the conveyor 58 and provided such means automatically operable, depending upon the absence of a bar from the card. The kick-out device is so tied in with the operation of the wrapping machine that it is automatically moved out of position where it will interfere with the cards and bars as they advance from one position to the next.

Some changes may be made in the construction and arrangement of the parts of my device without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claim any modified forms of structure or use of mechanical equivalents which may be reasonably included within its scope without sacrificing any of the advantages thereof.

I claim as my invention:

In a device for supplying articles to a wrapping machine, means for feeding articles and elongated cards to wrapping position comprising an article and card conveyor having channel shaped pockets arranged transversely of the direction of movement of the conveyor, said channel shaped pockets being adapted to receive the cards, means to remove any cards from said pockets which do not support an article, said last means including an arm pivotally mounted and extending transversely relative to said conveyor, said arm having an upwardly extending finger beneath one end of a card when the conveyor is in stationary position due to stopping of the article and card conveyor, said finger being adapted to engage the card at a predetermined point and tip the card while continuing to engage the card substantially adjacent said point until the card assumes such an inclined position that the card slides endwise by gravity off the conveyor, resilient means to normally render such card removing means operable, said card removing means being rendered inoperable by the weight of an article on said card overcoming the resilient means, means for driving said conveyor intermittently, and means for periodically withdrawing said finger from card contacting position during the time the cards and articles and their conveyor are in motion.

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