

July 6, 1926.

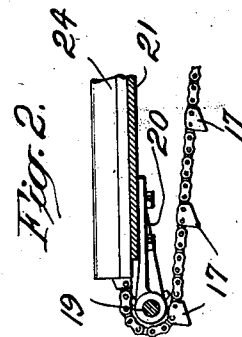
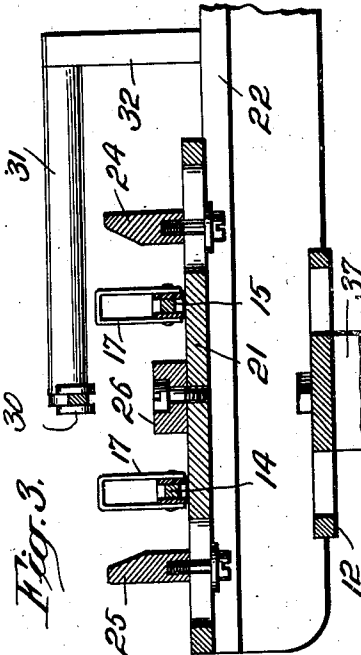
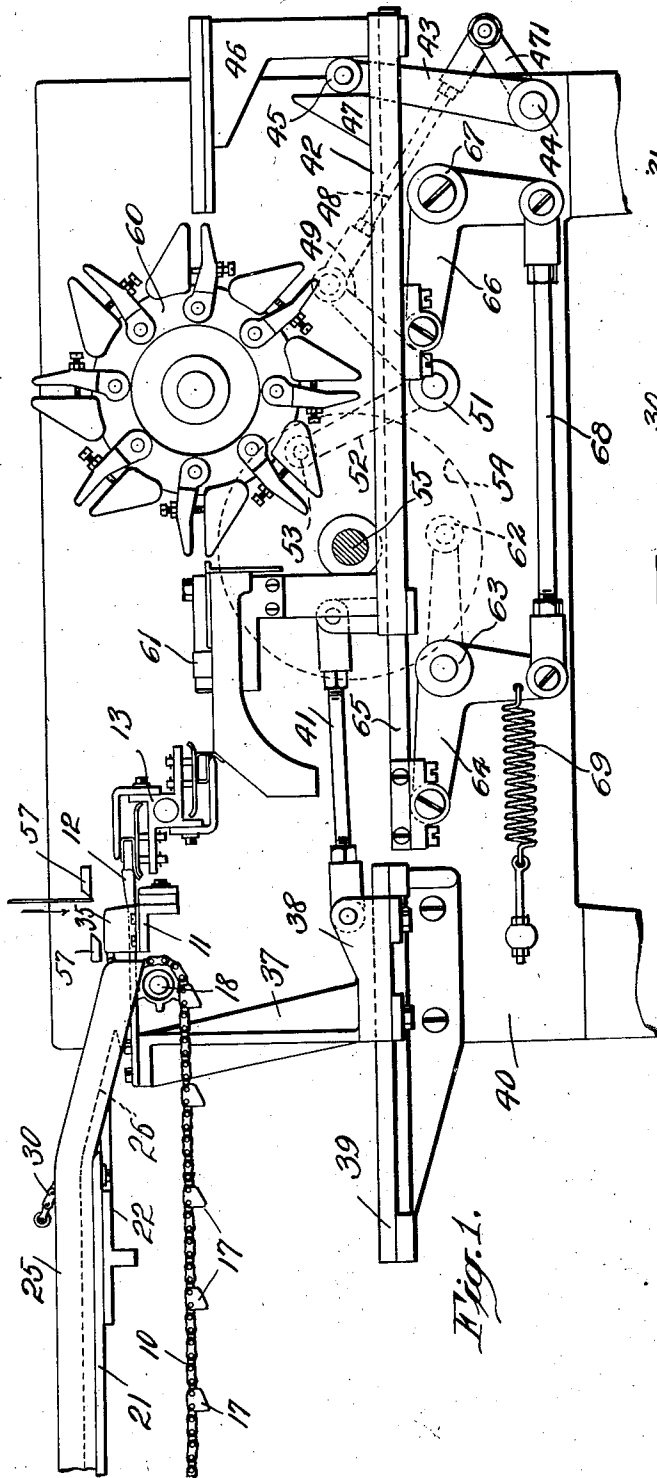
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1,591,422

CONVEYER MECHANISM

Filed Oct. 23, 1923

2 Sheets-Sheet 1



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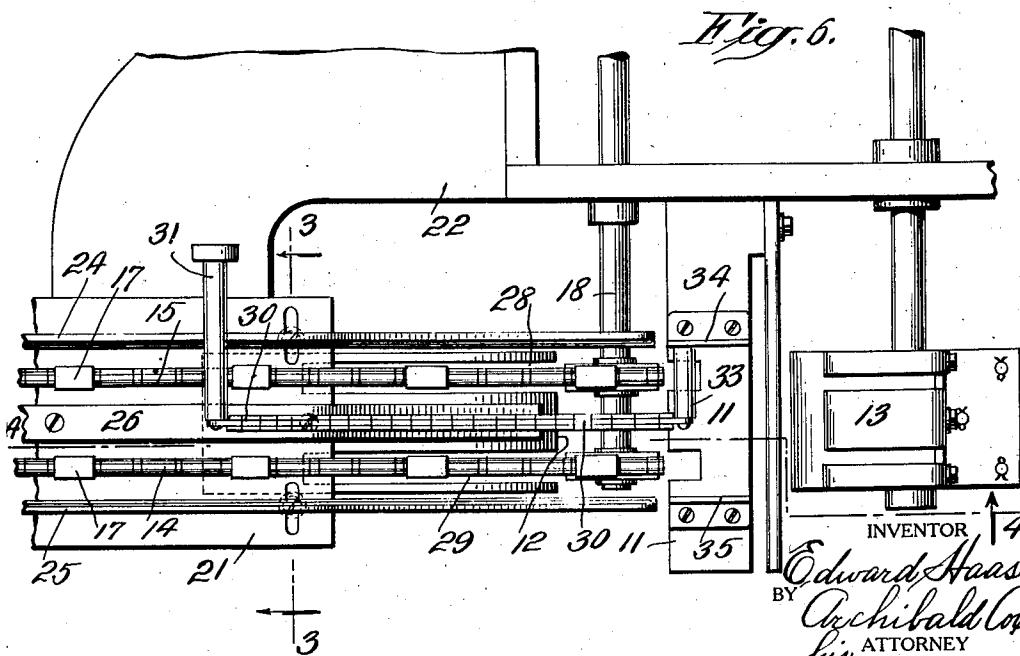
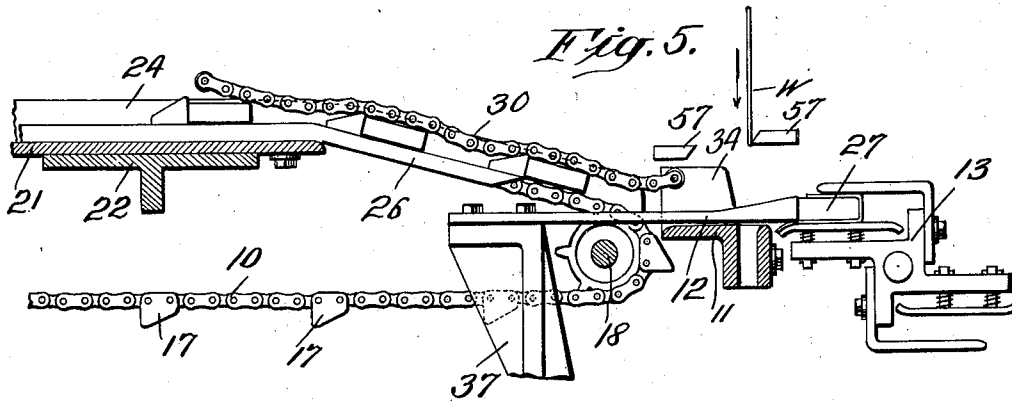
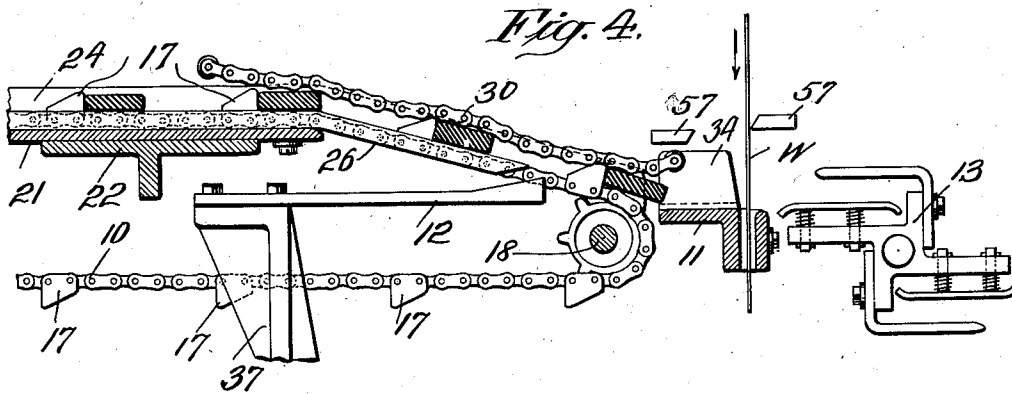
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CONVEYER MECHANISM

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

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CONVEYER MECHANISM.

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This invention relates to an improvement in conveyer mechanisms for carrying forward a series of articles and delivering them one at a time to a machine or other mechanism in which one or more operations are performed upon the articles.

The invention has been developed in connection with the problem of feeding pieces of chocolate, hard candy and the like to wrapping machines in such a way as to minimize the liability of the pieces of candy breaking or sticking together. For convenience of illustration and description the improved conveyer mechanism is shown and described as applied to a wrapping machine. It will be understood, however, that the improved conveyer mechanism of the present invention is not to be restricted to this purpose, inasmuch as it is clearly adapted for application to and use in connection with other kinds of machines to which articles are delivered for one or more operations. The invention is fully described in the following specification and is particularly pointed out in the appended claims.

The preferred form in which the invention is at present embodied is illustrated in the accompanying drawings in which Fig. 1 is a side elevation of the improved conveyer mechanism (with the rear end broken away), showing its application to an automatic wrapping machine; Fig. 2 is a fragmentary view of the rear end of the conveyer; Fig. 3 is a transverse section (on an enlarged scale) taken along the line 3—3 of Fig. 6, looking in the direction of the arrows; Fig. 4 is a longitudinal section taken along the line 4—4 of Fig. 6, showing the plunger retracted; Fig. 5 is a view similar to Fig. 4 showing the plunger delivering an article to the wrapping machine; and Fig. 6 is a plan of the parts shown in Figs. 4 and 5.

The improved conveyer mechanism, as illustrated in the drawings, comprises a conveyer 10 by which the articles are carried forward one at a time and deposited upon a receiving platform 11 from which they are removed by a plunger 12 and delivered into the aligned jaws of a wrapping device 13 of the automatic wrapping machine with which the conveyer mechanism is connected. This wrapping machine may be of any usual or preferred construction, only such parts

of the wrapping machine being shown to indicate the cooperative relation between it and the conveyer mechanism. The main wrapping devices are indicated at 60. Interposed between the preliminary wrapping devices 13 and the main wrapping devices 60 are intermediate folders 61 which are caused to rise and fall at intervals during the operation of the wrapping machine by means of a cam path (not shown) formed in the cam 54, which cam path engages a roll 62 carried by an arm forming part of the bell crank 63 pivoted in the side of the machine. The arm 64 of the bell crank 63 is pivotally connected with one end of a bar 65 which forms part of the slide 42 of the transport system of the machine and on which the intermediate folding devices 61 are mounted. The other end of the slide 42 is supported on the arm 66 of a second bell crank 67 fulcrumed in the side of the machine. The two bell cranks are connected by the link 68. A spring 69 acts in conjunction with the cam path engaging the roll 62.

The conveyer 10 consists of two sections 14 and 15 (Fig. 6), and each section is provided with a series of equally spaced lugs 17 by which the articles are carried forward. The lugs on one section of the conveyer are disposed oppositely to the lugs on the other section so that the longitudinal axis of the article engaged by a pair of lugs is disposed at right angles to the travel of the conveyer. By reason of this arrangement the plunger delivers the articles sideways into the jaws of the wrapping device 13. The conveyer sections 14 and 15 are in the form of endless chains, the forward ends of which pass over sprocket wheels mounted on a shaft 18 which may constantly or intermittently be driven from a source of power not indicated in the drawings. The rear ends of the chains pass over sprocket wheels mounted on the shaft 19 journaled in a bracket 20 secured to the rear end of the plate 21 on which the upper portions of the conveyer chains rest. The plate 21 rests on an offset part of a platform 22 forming part of the wrapping machine.

The operative places the pieces of candy or other articles on the left hand or rear end of the conveyer, placing one article in front of each pair of lugs. The articles are

guided laterally by the longitudinally disposed guides 24 and 25 which may be adjusted laterally for articles of different length. The middle portions of the articles rest upon and are supported by a centrally arranged piece or support 26. It will be observed that the upper surface of the receiving end of the conveyer is on a higher level or plane than the upper surface of the platform 11 and that consequently the forward end of the conveyer travels down an incline to deliver the articles onto the platform. The forward ends of the guides 24 and 25 and the forward end of the support 26 are inclined conformably to the incline of the conveyer sections. This arrangement is such that the conveyer carries the articles forward over the plunger 12 and delivers them in front of it. The plunger is caused to reciprocate in timed relation with the delivery of each article onto the platform so that following the delivery of each article onto the platform the plunger moves forward to remove the article and push it onto the aligned jaws of the wrapping device 13 and then move rearwardly to permit the next succeeding article to be deposited onto the platform. This mode of operation obtains whether the conveyer travels constantly or intermittently.

The plunger 12 reciprocates parallelly with the line of travel of the conveyer and the forward end of the plunger passes over the shaft 18 on which the forward ends of the conveyer chains are mounted. In order that the plunger which extends laterally beyond the conveyer chains may pass freely by the chains on its forward movement, it is provided with the slots 28 and 29. The timing of the movements of the plunger and the conveyer is such that when the plunger has delivered an article 27 into the aligned jaws of the wrapping device 13, as shown in Fig. 5, and travels rearwardly again, the upper surface of the forward end of the plunger encounters the next succeeding article. The article thus engaged by the plunger is prevented from being displaced from the conveyer by means of a section of chain 30, the rear end of which is supported from the rod 31 extending from an upright 32 rising from the platform 22, and the forward end of which is supported from a pin 33 extending from the guide piece 34 rising from the platform 11. The guide piece 34 cooperates with the guide piece 35 to align the article on the platform and the two form an extension of the guides 24 and 25. The chain 30 is loosely mounted to engage the articles loosely and frictionally and thereby exert a dragging effect upon them to hold them against the lugs as they descend the incline. Moreover, the holding effect of the chain against the articles is such that the backward movement of the

plunger in engagement with the article then above it does not displace the article from its proper position on the conveyer.

The plunger 12 is secured at its rear end to the top of a bracket 37 rising from the slide 38 mounted to reciprocate on a guide 39 secured to the frame 40 of the wrapping machine. The slide 38 is connected by a link 41 with the slide 42. Reciprocating movements are imparted to the two slides and to the plunger by the arm 43 of a bell crank pivoted on the pin 44. The upper end of the arm 43 is provided with a roll 45 which travels in a slot formed by the bracket 46 and lug 47 rising from the slide 42. The other arm 471 of the bell crank is connected by a link 48 with one arm 49 of the bell crank 51, the other arm 52 of which is provided with a roll 53 which travels in a cam path (not shown) formed in the cam disc 54 mounted on the shaft 55 which is driven from a source of power not shown.

The mode of operation of the improved conveyer mechanism in delivering an article to the wrapping machine is as follows:— It is assumed that the conveyer moves constantly and delivers the articles one at a time on to the platform 11. The operative places an article in front of each pair of lugs 17. The guides 24 and 25 and the loose chain 30 serve to properly position the articles on the conveyer and against the lugs. Immediately an article is deposited upon the platform 11 the plunger 12 moves forward and pushes it together with its wrapper W which has been severed by the blades 57 into the aligned pocket of the wrapping device 13. The three fingers which constitute the forward end of the plunger 12, being substantially as wide as the article is long, push the article squarely against the wrapper and so, accurately into the aligned pocket of the wrapping device. While the plunger is pushing one article into the wrapping device the next succeeding article is traveling down the incline so that as the plunger retracts, it passes under this latter article which is then pushed into place on the platform. It will thus be seen that the articles may be fed rapidly and accurately to the wrapping or other machine with little liability of breaking the articles. It is unnecessary to follow the progress of the articles through the wrapping machine which is assumed to operate in a usual and well-known manner.

Having thus described the invention what I claim as new is:—

1. A conveyer mechanism comprising a conveyer having its forward end arranged on an inclined plane, a platform located opposite the lower end of the inclined portion of the conveyer, and a plunger mounted to reciprocate over the platform and arranged so that the articles carried by the conveyer

pass over the plunger and are deposited on the platform in front of the plunger.

2. A conveyer mechanism comprising a conveyer provided with a series of lugs for carrying forward a series of articles, a platform located at the discharge end of said conveyer in such position that the conveyer lugs positively push the articles onto the platform, and a reciprocating plunger for removing the articles from the platform.

3. A conveyer mechanism comprising a conveyer provided with a series of lugs for carrying forward a series of articles and having its forward end arranged on an inclined plane, a platform located opposite the lower end of the inclined plane so that the conveyer lugs may push the articles onto the platform, and a reciprocating plunger for removing the articles from the platform.

4. A conveyer mechanism comprising a conveyer consisting of two sections for carrying forward a series of articles placed transversely across the two sections, the forward end of the upper portion of the conveyer being arranged on an incline, a platform on which the articles are deposited one at a time from the conveyer, and a plunger arranged to reciprocate in the direction of travel of the conveyer for removing the articles from the platform.

5. A conveyer mechanism comprising a horizontally reciprocating plunger, a conveyer consisting of two sections for carrying forward a series of articles placed transversely across the sections, the upper portion of the forward end of the conveyer being arranged so that the plunger passes between the sections, and a platform for receiving the articles from the conveyer and over which the plunger reciprocates to remove the articles from the platform.

6. A conveyer mechanism comprising a conveyer arranged to receive articles on one plane and carry them forward and discharge them on a lower plane, means for loosely engaging the articles while they are being conveyed from the higher to the lower plane to prevent their accidental displacement from the conveyer, a platform for receiving the articles from the conveyer, and a plunger for removing the articles from the platform.

7. A conveyer mechanism comprising a

conveyer consisting of two sections for carrying forward a series of articles placed transversely across the sections, the upper portion of the forward end of the conveyer being arranged on an incline, means for loosely engaging the articles as they travel down the incline to prevent their accidental displacement from the conveyer, a platform for receiving the articles from the conveyer, and a plunger arranged to reciprocate between the inclined sections of the conveyer for removing the articles from the platform.

8. A conveyer mechanism comprising a conveyer provided with a series of lugs for carrying forward a series of articles, the upper portion of the conveyer being arranged to receive the articles on one plane and to deliver them on a lower plane, means for loosely engaging the articles to prevent their accidental displacement from the conveyer as they travel from the upper to the lower plane, a platform on which the articles are delivered one at a time by the conveyer, and a plunger arranged to reciprocate parallelly with the line of travel of the conveyer for removing the articles from the platform.

9. A conveyer mechanism comprising a conveyer consisting of two sections having lugs for carrying forward a series of articles, the lugs of one section being disposed oppositely to the lugs of the other, the forward end of the upper portion of the conveyer being arranged on an incline, a plunger arranged to reciprocate between the inclined portions of the conveyer sections, and means arranged above the inclined portions of the conveyer sections for frictionally engaging the articles and holding them against their respective lugs as they travel down the incline.

10. A conveyer mechanism comprising a reciprocating plunger, a conveyer arranged to receive articles on one plane and deliver them on another plane in front of the plunger, a platform for receiving the articles from the conveyer and from which the plunger removes them, and means for frictionally holding the articles against the conveyer as they pass over the plunger into position in front of it.

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