Feb. 19, 1952 F. H. MURPHY 2,586,172

EDGE PILING MACHINE

Filed May 10, 1948 2 SHEETS—SHEET 1

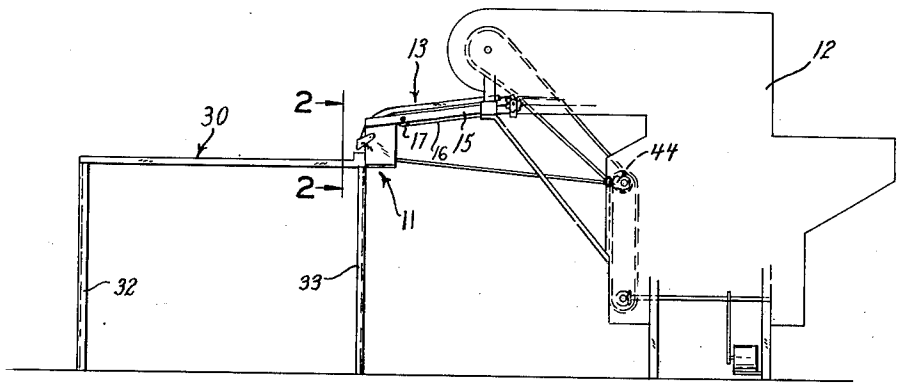


FIG. 1

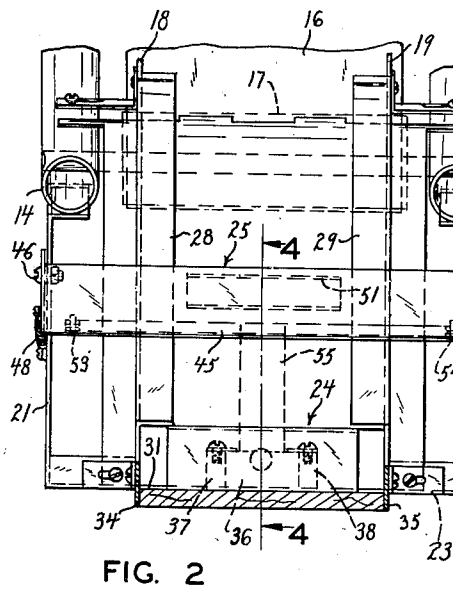


FIG. 2

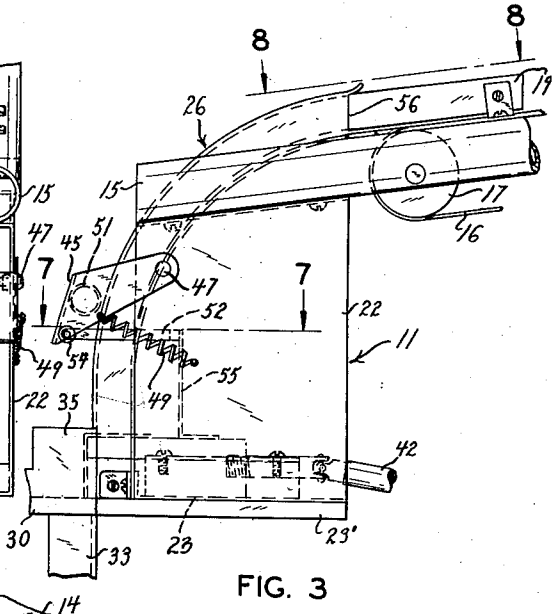


FIG. 3

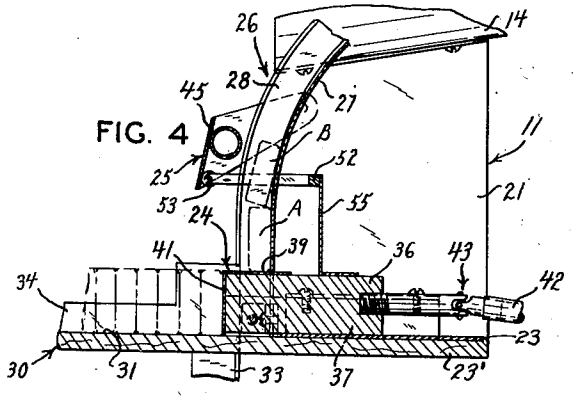


FIG. 4

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EDGE PILING MACHINE

Filed May 10, 1948 2 SHEETS—SHEET 2

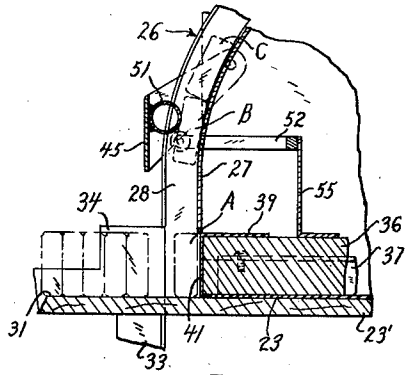


FIG. 5

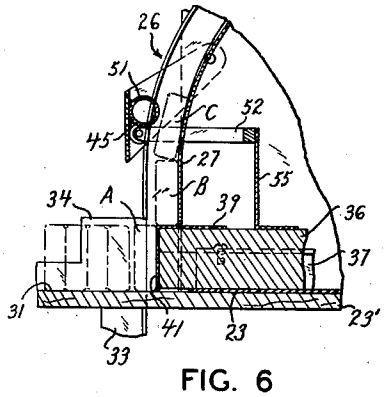


FIG. 6

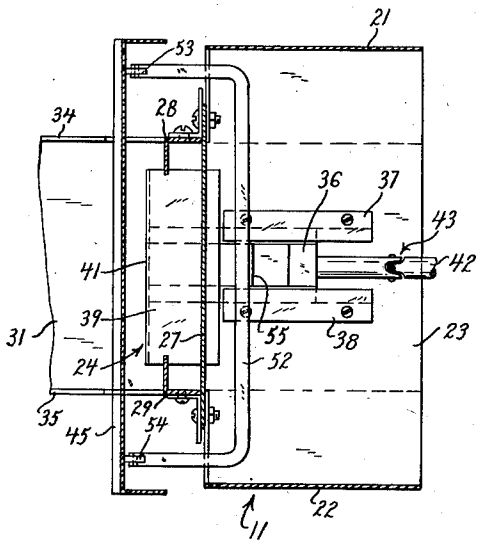


FIG. 7

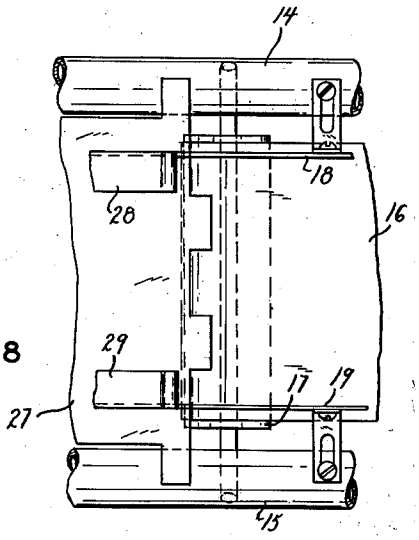


FIG. 8

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EDGE PILING MACHINE

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Application May 10, 1948, Serial No. 26,064

1 Claim. (Cl. 214—7)

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This invention relates to a wrapped article handling attachment for a wrapping machine such as is shown and described in U. S. Patent No. 2,283,097, for Wrapping Machine, issued May 12, 1942, to Oscar Sandberg.

As presently constructed and used, the aforementioned wrapping machine delivers the articles wrapped thereby, such as candy bars, onto a belt conveyor in an upright position. From this conveyor the articles are taken by an operator who counts and packages them for shipment. As used in some industries, for example in the wrapping of licorice sticks, it is required that the articles be taken from the conveyor, be placed on their sides, counted, and then packaged, by an operator.

It is herein proposed to provide a handling device comprising a curved chute which will receive the article from the conveyor and first turn it on its side. From this chute the article which has been turned through approximately 90 degrees is moved by a reciprocating platform onto a flanged table as a continuous operation, each article so moved being pushed against the one preceding it to move the latter forward on the table. When the handling device has moved a sufficient number of articles onto its table, all that is required of the operator is that he pick up the required number of articles and deposit them, as thus positioned, in the carton in which they are packaged. In this manner the articles are continuously fed onto a table where they may be conveniently counted and selected without the intermediate operation of turning them on their sides.

Accordingly, it may be stated that the general object of the instant invention is to provide a wrapped article handling attachment for a wrapping machine which will increase the output of the machine materially, which will reduce wastage and stoppages due to the human error and which will further reduce the amount of manual labor required to package the articles wrapped by the said wrapping machine.

Other objects and advantages will become apparent as the description proceeds and a more comprehensive understanding of the invention will be afforded from the following detailed description when considered in conjunction with the accompanying drawings, in which

Fig. 1 is a front view of a wrapped article handling atachment embodying the instant invention and showing the same attached to a wrapping machine with which it is used;

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Fig. 2 is a cross-sectional view of the attachment taken along a line 2—2 of Fig. 1;

Fig. 3 is a fragmentary side view of the attachment showing its turning chute, holding mechanism and reciprocating platform;

Fig. 4 is a longitudinal sectional view of the attachment taken along the line 4—4 of Fig. 2, showing the elements of the attachment described for Fig. 3, and further illustrating the relative positions of articles handled thereby with the attachment's holding mechanism in open position;

Figs. 5 and 6 are views similar to that of Fig. 4, showing the relative position of the attachment's elements and the articles handled thereby when its holding mechanism is in closed and open position, respectively;

Fig. 7 is a cross-sectional view of the attachment, taken along a line 7—7 of Fig. 3 showing details of its reciprocating platform; and

Fig. 8 is a top view of the attachment, taken at line 8—8 of Fig. 3, showing its connection with the wrapping machine.

The wrapped article handling attachment 11, which forms the subject matter of this invention, is illustrated in Fig. 1 as being attached to a wrapping machine 12, which may be of any suitable make. As illustrated, the machine 12 has a belt conveyor 13 which receives the articles wrapped by the machine and transfers them to a point where they are packaged or otherwise operated upon. It is to this conveyor that the attachment 11 is connected.

As will be seen in greater detail in Figs. 3 and 8, the conveyor 13 is supported on two tubular arms 14 and 15 which extend outwardly from the machine and flank a belt 16 thereof, the latter being passed over a roller 17. The belt 16 is paralleled by two guide flanges 18 and 19 which are connected to the arms 14 and 15, as shown. These elements are parts of the machine 12 and form no part of the invention. However, it is to them that the attachment 11 is connected as will now be described.

A housing comprising two sides 21 and 22, and a bottom 23 lies above a base plate 23' (Fig. 2) and is attached to the arms 14 and 15 as shown in Fig. 3. This housing encloses a reciprocating platform 24, to be described later, and supports a holding mechanism 25, also to be described. An article turning chute 26, having a bottom plate 27 and two side flanges 28 and 29, is also supported on the housing and is arranged to receive the wrapped articles delivered by the conveyor belt 16. Forming a part of a counting table 30 (Fig. 1) is an extension 31 of the base plate 23' which

is carried on legs 32 and 33. The bottom of the counting table 30, or the extension 31, is provided with two side walls, or guides, 34 and 35. With this arrangement of the parts thus far described, the articles wrapped by the machine are fed into the chute 26 from the belt 16, onto the platform 24, are dropped to the table 30 and pushed therealong also by the platform 24.

A more detailed description of the platform 24 will be made with the aid of Figs. 3, 4 and 7. Here it is seen that a block 36 (Fig. 7), having a T cross section, is mounted for movement on the base plate 23' between two guides 37 and 38. To the forward end of this block there is attached the platform 24, taking the form of an angle plate (Fig. 4), the top flange 39 of which forms an article platform and the end flange 41 of which forms an article pusher. The block 36 is reciprocated in the guides 37 and 38 by means of a rod 42 connected thereto by a universal joint 43. The rod 42, in turn, is moved longitudinally by a crank 44 (Fig. 1) attached to a part of the wrapping machine's central driving mechanism. As the rod is moved by the crank, the platform 24 is carired forward and backward through an opening in the bottom 27 of the turning chute 26.

To provide for the feeding of a single article onto the platform 24 is the function of the holding mechanism 25. This part of the attachment comprises a movable yoke 45 (Figs. 2 and 3) which is connected to the housing plates 21 and 22 by the bolts 46 and 47. The yoke pivots about the latter elements and is biased inwardly by two tension springs 48 and 49. The yoke 45 mounts a stop member 51 which is moved against the article to clamp and hold the same between it and the bottom 27 of the turning chute 26.

The yoke 45 is moved outwardly against the forces of the springs 48 and 49 by a U-shaped member 52 (Fig. 7) which mounts two rollers 53 and 54. An upright bracket 55 (Fig. 4) attached to the block 36 supports the member 52 and moves it with the same action as that of the reciprocating platform 24.

Operation

The attachment's operation will be described with the aid of Figs. 3 to 6. As heretofore stated, the wrapping machine 12 delivers the wrapped articles onto the conveyor 13, each in an upright position. As they are moved forward by the belt 16 they are fed into the mouth of the turning chute 26, which is formed at the point 56 where the side flanges 28 and 29 of the chute 26 are attached to the guides 18 and 19 of the conveyor. Partially through the driving forces of the belt 16 acting on the articles still remaining on it, and through the articles carried forward, and partially through gravity, the articles are moved through the turning chute where they are turned on their sides by movement through approximately 90°.

Assuming the wrapping machine 12 has been delivering articles to the attachment for some time and that the latter's elements occupy their positions as shown in Fig. 4, it will be seen that the holding mechanism 25 is in open position and that the platform 24 is carried forward, this action being effected by the driving mechanism of the machine 12 through the crank 44 and rod 42. Accordingly, an article A, which has been turned on its side in the turning chute 26, has fallen by gravity onto the surface 39 of the platform 24. A second article B, likewise turned on its side, has fallen in the chute and is supported by the preceding article A.

As the block 36 is moved rearwardly by the crank 44 and rod 42, the platform 24 is withdrawn, the member 52 is moved rearwardly and the yoke 45 is carried downwardly by the springs 48 and 49 to move the stop member 51 against the article B, all as is shown in Fig. 5. Thus, the article B is stopped in the chute 26 at the point illustrated, the movement of a third article C has been arrested at the point indicated, and the article A has dropped onto the top 31 of the table 30.

As the reciprocating platform 24 is again moved forward and the elements of the attachment occupy their positions as shown in Fig. 6, then the article B is released to drop onto the surface 39 of the platform 24, the end flange 41 of the latter has moved against the article A to move it forward on the table 30, and the article C has been stopped in its downward course at a point where it will be held by the holding mechanism 25 upon the return stroke of the reciprocating platform 24.

Through such operation wrapped articles are continuously received from the machine 12, are turned on their sides in the turning chute 26, and are moved onto the table 30 where they may be counted, lifted from the table in selected numbers and placed directly into packages.

That the invention thus accomplishes its stated objects will be seen by comparing the action of the attachment in which it is embodied with those required by operators in prior art uses of the machine 12. Here it was required that the operator handle each and every article separately by first taking it from the conveyor 13, then turning it on its side and placing it on a table, repeating the operation until a given number of articles were thus arranged and then placing them in a package. With the present attachment, all that is required of the operator is that he "pick up" a selected number of articles from the table 30 and place them in their package.

Various changes may be made in the details of construction, within the scope of the appended claim, without departing from the spirit of this invention. Parts of the invention may be used without the whole and improvements may be added while retaining some or all of the advantages of the invention.

What is claimed is:

In a wrapped article handling attachment for a wrapping machine having a conveyor for delivering a wrapped article in an upright position, a housing depending from a support for said conveyor, an article turning device carried on said housing comprising a curved bottom plate having one of its ends abutting said conveyor and its other end disposed at approximately 90 degrees thereto and a flanged side attached to each side of said plate, an article holding mechanism associated with said chute comprising a spring biased yoke pivotally connected to said housing, and a stop member mounted on said yoke, a movable platform having article supporting and article pushing surfaces movable through an opening in said bottom plate at the discharge end of said chute, a block attached to said platform movable in guideways supported within said housing, an upright bracket supported on said block having two arms movable against said yoke, a drive mechanism for moving said block in said guideways with reciprocating movement, and a table extending outwardly from said housing

adapted to support articles pushed thereon by said platform.

FRANCIS H. MURPHY.

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