Oct. 19, 1965 J. W. COATES 3,212,230

WRAPPING MACHINES

Filed April 2, 1965 3 Sheets-Sheet 1

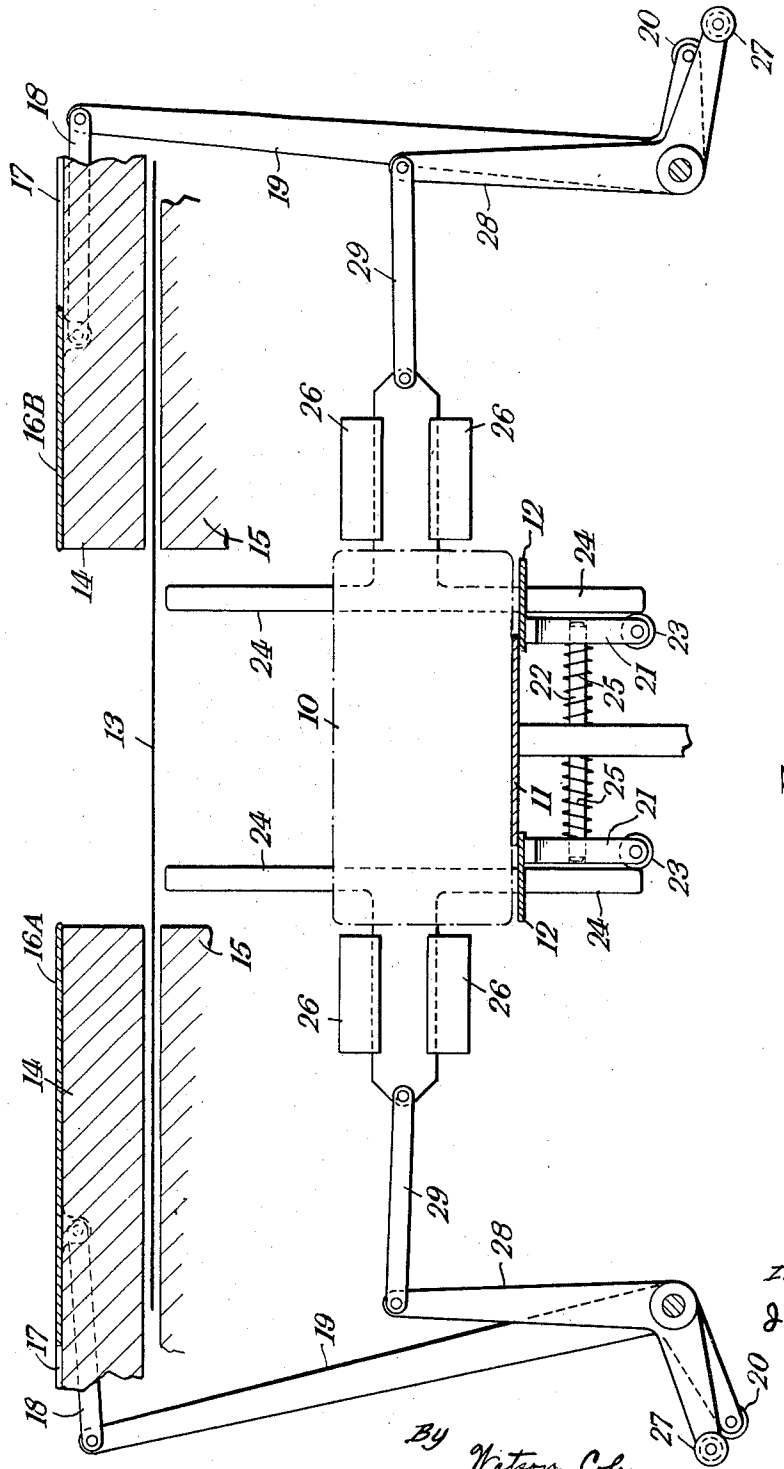


Fig. 1.

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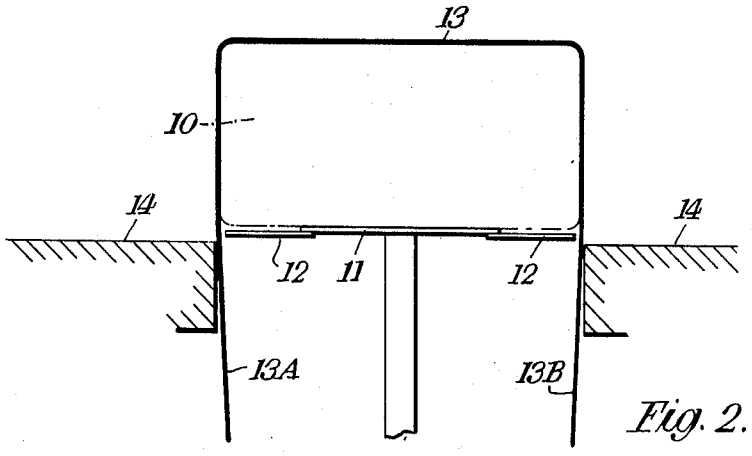


Fig. 2.

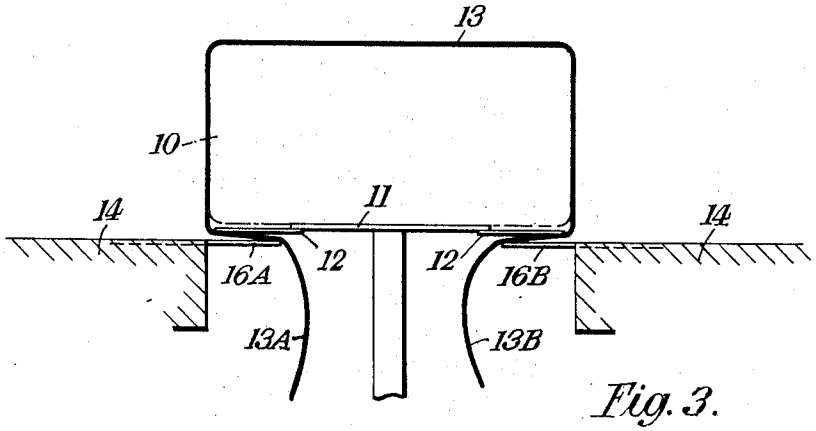


Fig. 3.

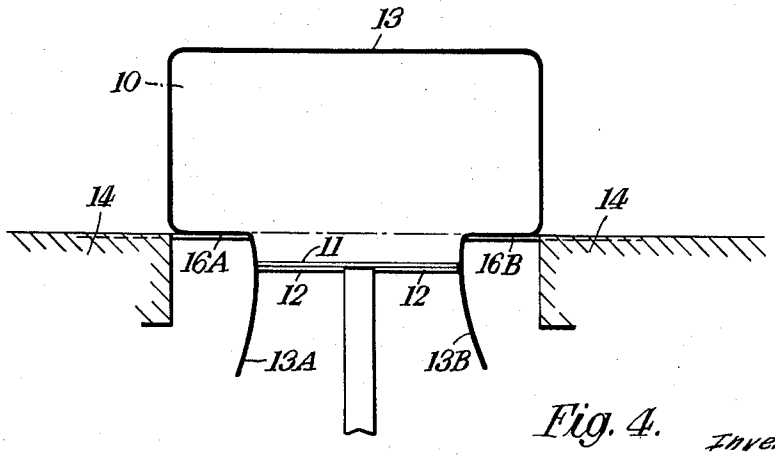


Fig. 4.

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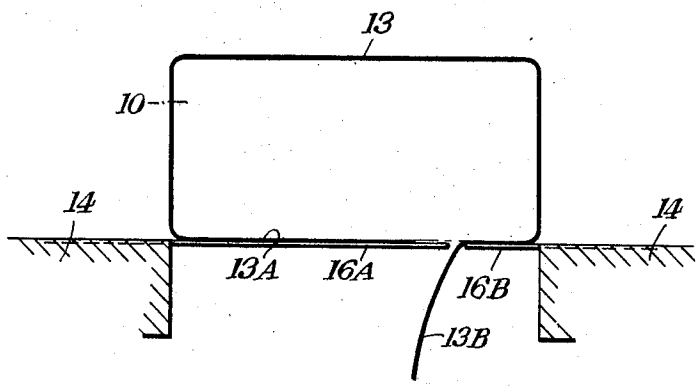


Fig. 5.

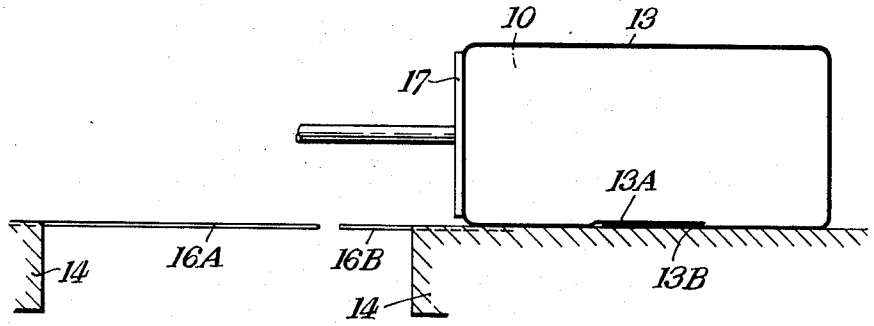


Fig. 6.

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3,212,230

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3,212,230

WRAPPING MACHINES

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Filed Apr. 2, 1965, Ser. No. 445,216

2 Claims. (Cl. 53—228)

This application is a continuation-in-part of my application Serial No. 254,280 filed January 28, 1963, now abandoned.

The conventional method of folding a wrapper around an article (which expression is to be understood herein as including a batch of articles) consists in presenting a wrapper above an elevator on which the article is carried raising the elevator through the wrapper to cause the wrapper to be draped around the article in the form of an inverted U with its ends hanging downward as depending tails and then folding the tails of the wrapper in overlapping relation against the base of the article to form an open added tube. This method is not, however, wholly satisfactory for wrapping soft articles of irregular shape, such for example as textiles because the article tends to buckle or collapse at its lower corners as the result of the tightening of the wrapper when the underfolds are made, thus causing an untidy wrap.

According to the invention this difficulty is overcome by forming the underfolds against blades which are moved laterally outwards from an elevator into position beneath the ends of the article and afterwards withdrawn and not directly against the article itself. In this way neat and regular corners are formed in the wrap without any collapse or buckling of the soft article.

The invention thus provides apparatus for folding a wrapper directly around a soft article of irregular shape comprising an elevator, means for supporting a wrapper above the elevator whereby, upon upward movement of said elevator, carrying thereon an article with the ends of the article projecting beyond the elevator, the wrapper will be folded around the top and sides of said article with its ends hanging downwardly as depending tails, retractable blades on said elevator, underfolders, blade actuating means for projecting said blades laterally from the elevator into a position in which they extend in a plane parallel to the base of the article beneath the ends of the article and afterwards retracting said blades, and means operative, while the elevator is in the raised position and with said blades projected, to advance said underfolders to fold the tails of the wrapper around the tips of said blades, said blade actuating means retracting said blades after advance of said underfolders into a position spaced inwardly from the advanced underfolders, so permitting descent of said elevator to leave said article supported by said advanced underfolders.

One embodiment of the invention will now be described in more detail, by way of example, with reference to the accompanying diagrammatic drawings, in which:

FIG. 1 shows the elevator about to start its upward movement with an article supported thereon,

FIG. 2 shows the elevator having completed its upward movement,

FIG. 3 shows the underfolders advanced to fold the wrapper against blades projected from the elevator beneath the ends of the article,

FIG. 4 shows the elevator having commenced its descent,

FIG. 5 shows advance of one underfolder to complete an underfold, and

FIG. 6 shows the article being pushed off the underfolder.

FIG. 1 shows the article **10** positioned on an elevator **11** which is in its bottom position. The elevator carries rectractable blades **12**, which are situated just below the level of the top surface of the elevator. A wrapper **13** is shown in position above the article and held between top and bottom plates **14**, **15**. The elevator **11** then rises to the position shown in FIG. 2, the bottom plates **15** meanwhile retracting, and as the result the wrapper **13** is folded around the article in the form of an inverted U with depending tails **13A**, **13B**. Then, as shown in FIG. 3, underfolders **16A**, **16B** are moved out from the plates **14** to fold the wraper about the tips of the projected blades **12**. The blades **12** are then retracted to a position spaced inwardly from the advanced underfolders and the elevator **11** commences to descend as shown in FIG. 4, leaving the article supported by the advanced underfolders **16A**, **16B**. Then, as shown in FIG. 5, the underfolder **16A** is advanced further to complete the folding of the tail **13A** of the wrapper against the base of the article. Then, as shown in FIG. 6, a pusher **17** pushes the article to the right across the underfolder **16B** which completes the folding of the tail **13B**. Finally the underfolders are retracted to the position shown in FIG. 1, in readiness for the next cycle of operation of the apparatus.

As will be seen from FIG. 1, the underfolders **16A**, **16B** are movable in guides **17** in the plates **14** and are actuated by links **18** from bell cranks **19** carrying cam rollers **20** which coact with cams (not shown). The blades **12** are supported by bars **21** which are slidable on a rod **22** supporting the elevator **11** and carry rollers **23** which are urged by springs **24** into contact with cam plate **25**. The cam plates **24** are slidable in guides **26** and are actuated by cams (not shown) cooperating with cam rollers **27** on bell cranks **28**, which move the cam plates **24**, as necessary, to project or retract the blades through the agency of links **29**.

It will be appreciated that, since the underfolders **16A**, **16B** fold the wrapper about the tips of the blades **12** and not against the soft article **10** itself, a neat wrap is obtained since, when the elevator **11** descends to the position shown in FIG. 4, the article will fall on to the advanced underfolders **16A**, **16B** so bringing the inturned portions of the wrapper into contact with the base of the article, the folding of the wrapper against the base of the article being thereafter completed as shown in FIGS. 5 and 6.

What I claim as my invention and desired to secure by Letters Patent is:

1. Apparatus for folding a wrapper directly around a soft article of irregular shape comprising an elevator, means for supporting a wrapper above the elevator whereby, upon upward movement of said elevator, carrying thereon an article with the ends of the article projecting beyond the elevator, the wrapper will be folded around the top and sides of said article with its ends hanging downwardly as depending tails, retractable blades on said elevator, underfolders, blade actuating means for projecting said blades laterally from the elevator into a position in which they extend in a plane parallel to the base of the article beneath the ends of the article and afterwards retracting said blades, and means operative, while the elevator is in the raised position and with said blades project-

ed, to advance said underfolders to fold the tails of the wrapper around the tips of said blades, said blade actuating means retracting said blades after advance of said underfolders into a position spaced inwardly from the advanced underfolders, so permitting descent of said elevator to leave said article supported by said advanced underfolders.

2. Apparatus as claimed in claim 1, wherein said underfolder advancing means are effective, after retraction of the blades, to effect further advance of one underfolder to complete folding of one of the tails of the wrapper against the base of the article, said apparatus including a pusher for thereafter pushing the article across the other underfolder to complete the folding of the other tail of the wrapper against the base of the article.

No references cited.

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