

Oct. 6, 1936.

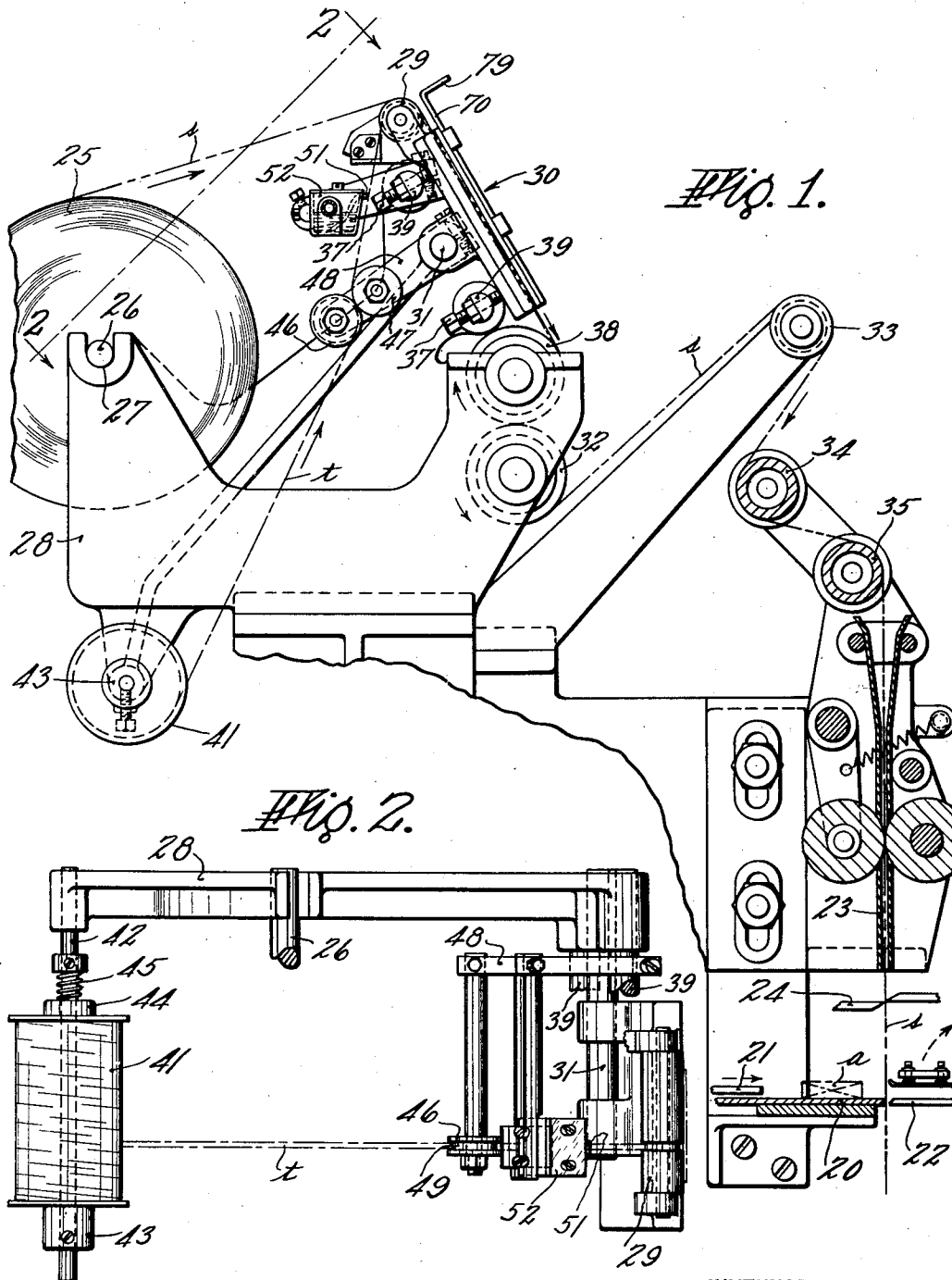
F. R. CLARK

2,056,825

WRAPPER AND METHOD AND APPARATUS FOR FORMING IT

Filed May 11, 1934

3 Sheets-Sheet 1



INVENTOR
FRANCIS ROSS CLARK
BY *Chapin & Neal*
ATTORNEYS

Oct. 6, 1936.

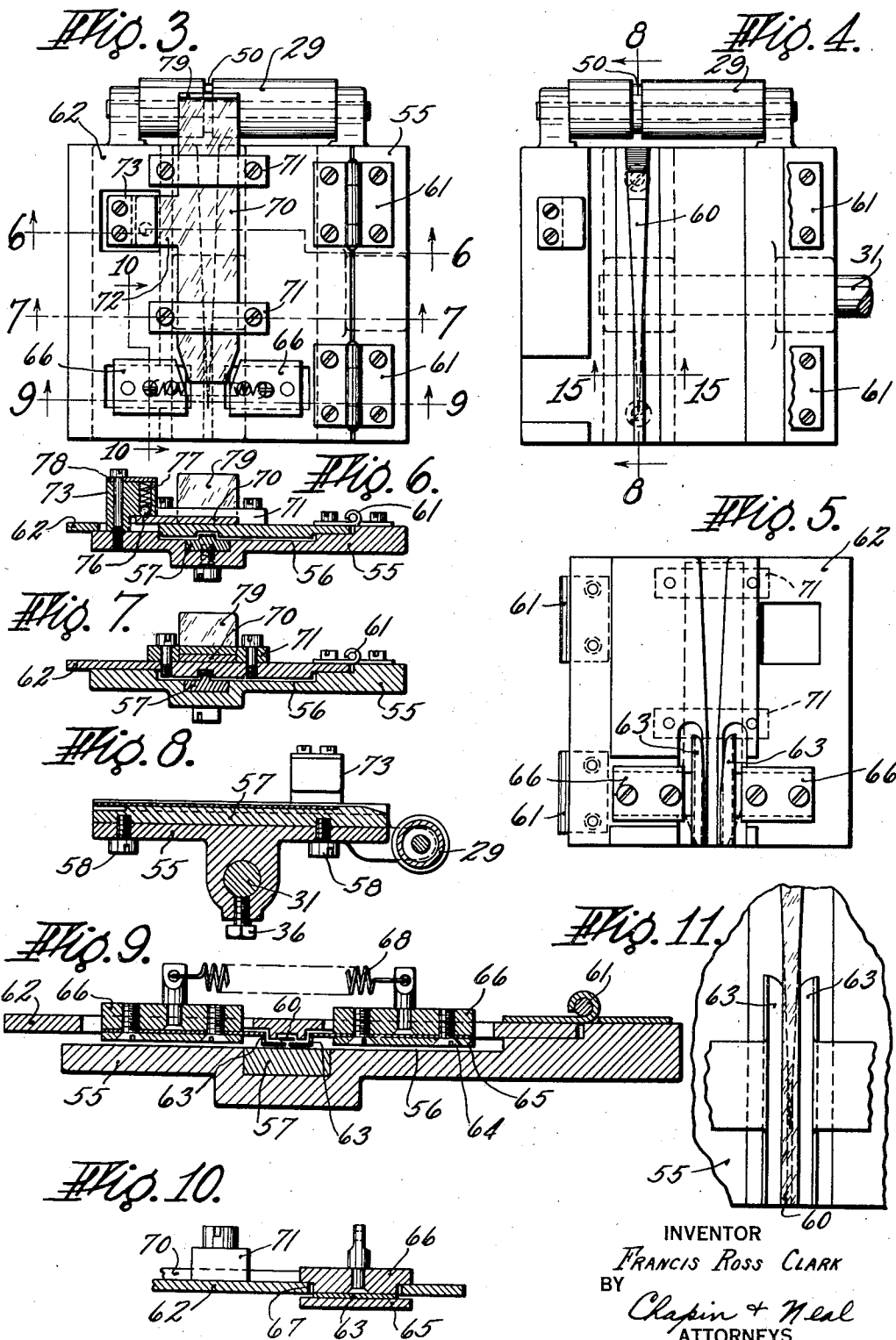
F. R. CLARK

2,056,825

WRAPPER AND METHOD AND APPARATUS FOR FORMING IT

Filed May 11, 1934

3 Sheets-Sheet 2



INVENTOR
FRANCIS ROSS CLARK
BY
Chapin & Neal
ATTORNEYS

Oct. 6, 1936.

F. R. CLARK

2,056,825

WRAPPER AND METHOD AND APPARATUS FOR FORMING IT

Filed May 11, 1934

3 Sheets-Sheet 3

Fig. 12.

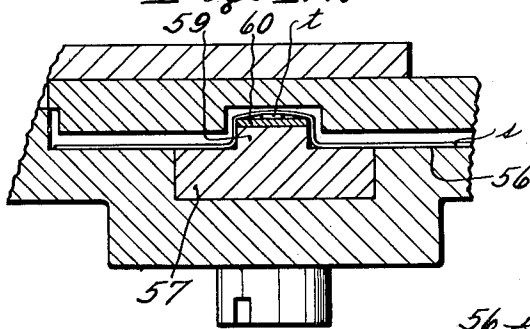


Fig. 13.

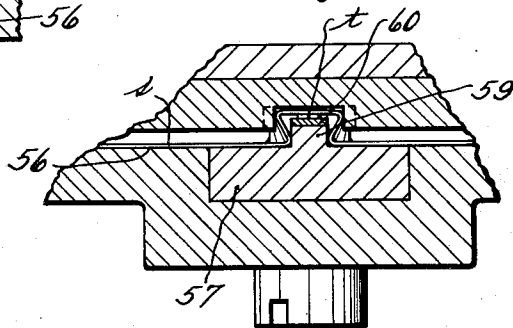


Fig. 15.

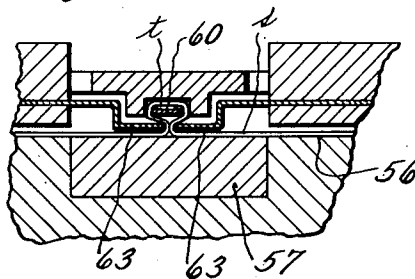


Fig. 17.

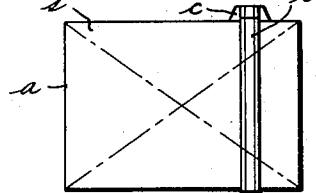


Fig. 14.

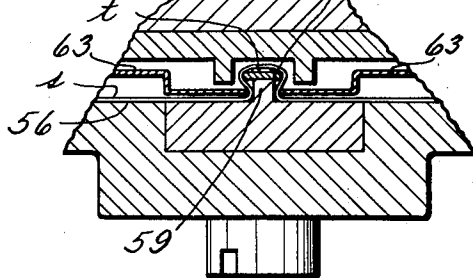
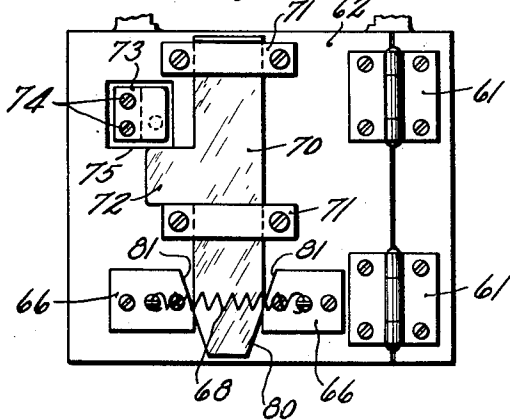


Fig. 16.



INVENTOR
FRANCIS ROSS CLARK
BY
Chapin + Neal
ATTORNEYS

UNITED STATES PATENT OFFICE

2,056,825

WRAPPER AND METHOD AND APPARATUS
FOR FORMING ITFrancis Ross Clark, Springfield, Mass., assignor
to Package Machinery Company, Springfield,
Mass., a corporation of Massachusetts

Application May 11, 1934, Serial No. 725,168

5 Claims. (Cl. 93—2)

In the wrapping of articles by machine, various forms of treatment of the wrapper to produce a tearing strip have been proposed. In general it may be said that the tearing strips formed by a pleating of the wrapping material lacked the necessary strength, and those formed by the gluing of a separate tearing strip to the wrapper sometimes gave trouble due to the seepage of the sealing material into contact with the printed or decorated article underneath. It is one object of the present invention to provide a new wrapper, in which a tearing strip is incorporated, and also a new method and a machine for making such a wrapper, in which these difficulties are avoided. Another object of the invention is to provide a wrapper which will be extremely difficult to counterfeit and thus to add to the protection against the substitution of goods of one manufacturer for those of another. Additional objects will appear from the description and claims.

Referring to the drawings,

Fig. 1 is a fragmentary side elevation of a wrapping machine, illustrating the present invention applied thereto;

Fig. 2 is a detail of a portion of the mechanism shown in Fig. 1, looking in the direction of line 2—2 of Fig. 1;

Fig. 3 is a detail of the pleating or folding box in which the tearing strip is formed;

Fig. 4 is a similar view with the cover removed;

Fig. 5 is a detail view of the inside of the cover;

Fig. 6 is a section on line 6—6 of Fig. 3;

Fig. 7 is a section on line 7—7 of Fig. 3;

Fig. 8 is a section on line 8—8 of Fig. 4;

Fig. 9 is a section on an enlarged scale, taken on line 9—9 of Fig. 3;

Fig. 10 is a section on an enlarged scale, taken on line 10—10 of Fig. 3;

Fig. 11 is an enlarged detail showing the interaction between the parts of the pleat forming mechanism;

Figs. 12 to 14 are enlarged details corresponding to portions of Figs. 6, 7, and 9 respectively, but showing the wrapper and tearing strip tape in place;

Fig. 15 is a similar detail on line 15—15 of Fig. 4;

Fig. 16 is a view corresponding generally to Fig. 3 but showing the parts in unlatched positions; and

Fig. 17 is a view of a package embodying the improved tearing strip.

The wrapping machine to which the invention is applied may be of any desired type. It is here shown conventionally as having a support 20 from

which an article *a* is carried by a pusher 21 into a wrapping pocket 22. Between the support and the pocket a wrapper *s* is delivered from a guide chute 23 and is cut off by suitable shears 24. This wrapper is delivered from a reel 25 supported on a shaft 26 carried in open slots 27 by the wrapper feed bracket 28. From this reel the wrapper passes over a guide roll 29, through a pleating or folding box indicated generically in Fig. 1 by 30, between a rubber covered roll 38 and a steel roll 32, and around guide rolls 33, 34, and 35 to the chute 23. The rolls 38 and 32 are driven, generally intermittently, by any of the usual mechanisms. The folding box 30 is held on a cross bar 31 by a clamp screw 36 (Fig. 8) and is adjustable in angular position by a pair of screws 37 passing through cross rods 39.

A tape *t* is carried on a reel 41 rotatable on a rod 42 carried in the bracket 28 and frictionally controlled by being mounted between collars 43 and 44, the former of which is fixed and the latter pressed against the reel by a spring 45. As shown in Fig. 2, the tape is narrow and in order to hold a comparatively large amount the reel is made relatively wide, the tape being wound on it in the manner of string on a spool. It is therefore necessary to provide means for guiding the tape into proper lateral registration with the folding box. In the present case a pair of rolls 46 and 47 are mounted on an arm 48 carried by the cross bar 31, the former of these rolls having a tape guiding groove 49. The tape passes from rolls 46, 47 over the roll 29, which also has a guiding groove 50, rubbing in its way over a wick 51 extending from a solvent reservoir 52. Solvent is used in cases where the wrapper and tape are composed of some material such as cellulose acetate, or one of the various cellulose derivatives having a soluble coating. In other cases an adhesive would be applied in any suitable way as by a roll.

The construction of the folding box 30 will now be considered in detail. The base or tray 55 forming one-half of the device is mounted on the rods 31, 39 as previously described. A wrapper receiving recess 56 is formed in the tray, of the width of the wrapper web being fed through the folding box. In a groove formed in the bottom of this recess a bar 57 is held by screws 58 and has a rib 59 on its top tapered to a point in the direction of travel of the web. Upon the top of this rib a thin plate 60 is brazed or otherwise secured, the plate overlying the pointed end of the rib to form a template around which the box pleat may be formed.

Secured to the tray 55 by hinges 61 is a cover 62 carrying the cooperating parts of the box pleating apparatus. These comprise folding wings 63 bent as shown in Fig. 9 to underlie the plate 60, and fastened as by screws 64 and cap plates 65 to slide members 66. The members 66 and their cap plates are formed (Fig. 10) to embrace the walls of slots 67 formed in the cover, and are normally held so as to press the wings 63 yieldingly against the rib 59 as shown in Fig. 15 by a contractile spring 68. As the web is drawn through the folding box it is first arched upwardly as in Fig. 12 by the rib 59 and plate 60, and the sides of the pleat are tucked under this arched portion by the folders 63 which reach a practically abutting position underneath the overhanging portion of the plate. The successive positions of the pleat shown in Figs. 12 to 15 are diagrammatic only, and are not intended as definitive details of the action of the folders. In considering these views it should be remembered that the folds of the pleat have a tendency to remain straight between their initial and final positions, and the folders have been designed with this tendency in view.

It will be recalled that the tape *t* has been coated with a sealing liquid so that it adheres to the wrapper intermediate the side pleats. In the preferred case the sealing liquid is applied to the side of the tape away from the plate 60 only, so that when the pleat is completed the folded portions of the pleats will not be adhesively secured in place. This method of formation has several advantages over a mere tearing strip adhesively secured to the wrapper or to a pleat adhesively secured together with or without a tearing strip. It will be recalled that the composite wrapper, when of transparent material, is intended for use upon an article which is generally contained within an inner printed or decorated wrapper. Such a wrapper is easily marred by the adhesives or solvents used to secure the tape and transparent wrapper together. The localization of the sealing liquid on the outer surface of the tape, and the infolding of the wrapper under the tape, effectively prevent any escape of the liquid to a position where it can come in contact with the underlying printed wrapper. The adhesion of the tape to the wrapper prevents any slippage when the end *c* (Fig. 17) of the tearing strip is pulled, while the tape makes a much stronger tearing strip than if it were attempted only to secure the folds of the pleat together.

It is necessary to provide for the withdrawal of the folders 63 from underneath the plate 60 and to make the inside of the folding box accessible when it is desired to thread in a new web. As previously mentioned, the cover 62 which carries the folders 63 is supported from the base of the folding box by hinges 61. When in assembled position the cover is locked by a slide 70 running in guides 71 and having a projecting portion 72. This projection is so located that when the cover is down it may be moved underneath an overhanging member 73 secured to the body by screws 74 and fitting in a hole

75 formed in the cover. To increase the stability of the assembly this member is provided with a ball 76 fitting in a hole having a constricted lower end and pressed downwardly by a spring 77 compressed between it and a cap plate 78. The slide has a handle portion 79 by which it may be moved from the locking position of Fig. 3 to the unlocking position of Fig. 16, in the latter of which the projection 72 is moved clear of the member 73. In the latter position also a tapered end 80 on the slide comes between tapered surfaces 81 on the folder carrying members 66 previously described, so that when the slide is moved to unlock the cover it will also move the folders out from underneath the plate 60.

I claim:

1. A device for forming tearing strips on wrappers which comprises means for adherently securing a tape and a wrapper strip, means for infolding portions of the wrapper strip underneath the strip to form a box pleat enclosing it, and means for pressing the assembly in flattened form.

2. A device for forming tearing strips on wrappers which comprises a body portion, a tapering rib on the body portion, a plate secured to the rib and overhanging the tapered end thereof, a cover removably secured to the body portion, folding members mounted on the cover and adapted to underlie the plate when the cover and body portion are assembled, and means for separating the folding members to permit removal of the cover.

3. A device for forming tearing strips on wrappers which comprises a body portion, a tapering rib on the body portion, a plate secured to the rib and overhanging the tapered end thereof, a cover pivoted to the body portion, folding members movably mounted on the cover and adapted to underlie the plate when the cover and body portion are assembled, a latch carried by the cover and engageable with the body portion to hold the cover in position, and connections between the latch and the folding members to move the latter out of their underlying relation with the plate when the latch is shifted to disconnect the cover from the body portion.

4. A method of making a wrapper provided with a tearing strip which comprises coating one side of the tearing strip with a sealing liquid, applying the coated side of the strip to the wrapper, folding the wrapper in reverse folds at the side of the strip, and pressing the reversely folded portion of the wrapper over the strip to form a shield non-adherently covering the strip.

5. A device for making a wrapper provided with a tearing strip, which comprises means for coating one side of a tearing strip with a sealing liquid, means for pressing the coated side of the strip against the wrapper, a folding device operable to fold that portion of the wrapper adjacent the adhering strip into reverse folds, and means to press the reversely folded portion of the wrapper flat against the uncoated side of the strip.

FRANCIS ROSS CLARK.