Oct. 28, 1930. L. A. BECKER ET AL 1,780,142

METHOD OF PACKAGING ARTICLES

Original Filed July 19, 1929

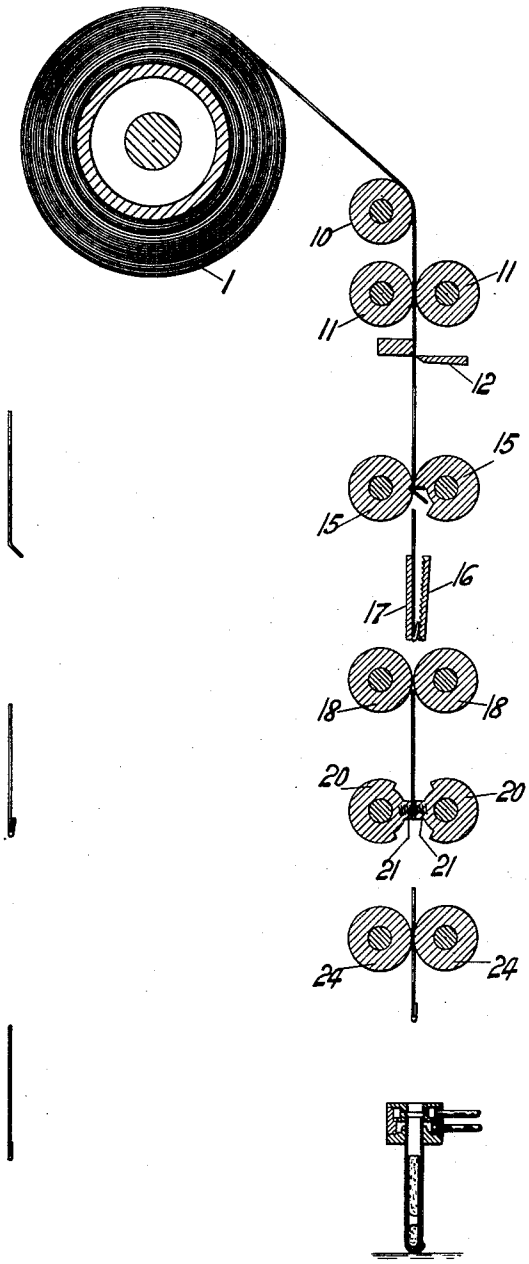

FIG. - 1

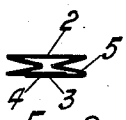

FIG. - 2

FIG. - 3

FIG. - 4

FIG. - 5

FIG. - 6

INVENTOR.
LOGAN A. BECKER
JOHN M. MUNSON.
BY Ely & Barrow
ATTORNEYS.

Patented Oct. 28, 1930

1,780,142

UNITED STATES PATENT OFFICE

LOGAN A. BECKER AND JOHN M. MUNSON, OF LAKEWOOD, OHIO, ASSIGNORS TO THE DOBECKMUN COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO

METHOD OF PACKAGING ARTICLES

Application filed July 19, 1929, Serial No. 379,423. Renewed May 10, 1930.

The present invention relates to the packaging or wrapping of articles in moisture-proof containers, usually of cellulose sheet material particularly regenerated cellulose which is known in the trade as "cellophane." While the invention is particularly illustrated and will be described for the packaging of cigars, it is adapted and may be used for the packaging of a large variety of articles.

The container or wrapping produced by the method herein described is neat and attractive in appearance because of its glossy appearance and, in addition, keeps the articles wrapped and displayed therein fresh and in good condition, the articles being visible at all times through the wrapping material.

The material used is preferably of the waterproof variety of "cellophane" which is coated with a light covering of paraffin which is fusible, and upon the application of heat and pressure will seal the surfaces of the sheet together. The invention, therefore, proposes the use of a hot sealing and pressing operation which adhesively secures the material together.

The container or wrapper is so constructed that the cigar will fill it out and yet will not cause the end thereof to flare, whereby the cigars may be neatly packed in boxes without overlapping of adjacent wrappers. This is done by providing the container or wrapper with oppositely located longitudinal bellows folds. The function of these folds is to secure a square end upon the container, and, therefore, they need not extend the full length of the container, as shown in the specific form of the invention illustrated herein.

The present invention relates to a process for packaging the articles and is particularly illustrated and described as adapted for the covering of cigars.

In the drawings in which the preferred form of the invention is shown:

Figure 1 is a diagrammatic view of the invention showing the several steps in the operation thereof;

Figure 2 is a cross-section of the stock;

Figures 3, 4 and 5 are views illustrating the several stages; and

Figure 6 is a cross-section of a cigar wrapper with the cigar therein.

In the operation of the process, the material may be received in a flat sheet and tubed in the form, such for example as that shown in Figure 2, as a preliminary step in the process, but for the purpose of convenience in illustration and also for the purpose of illustrating one method by which the invention may be practised, the drawing is intended to show a length of folded tubing in a supply roll or package 1. This tubing, as shown, is formed with flattened top 2 and bottom 3 which contains the seam 4 and the sides of which are provided with the bellows-like folds 5. These folds or plicated sides permit the package to be expanded to receive the articles or goods without destroying the essentially flat condition of the top and bottom of the package.

The strip of material in the form shown in Figure 2, either in the roll as shown at 1 or made up in this form as a step in the process, is conducted past a guiding roll 10 and between the two feed rolls 11. It is then cut off into the required lengths by the knife 12. The forward or leading end of the tube is then conducted between creasing rolls 15, one of which is provided with a creasing blade which turns up the leading end of the tube as shown in Figure 3.

The next step consists in turning back the end of the tube into a position for the subsequent rolling and sealing operation. This step is preferably accomplished by conducting the leading end of the tube into the converging plates 16 and 17, one of which is provided with teeth on the side next to the fold so that the end of the tube is folded back, as shown in Figure 4, onto the main portion of the tube by the movement of the tube along the plates.

The end of the tube is now rolled down between the rolls 18. These are ironing rolls which are adapted to iron the crease in the tube formed by the rolls 15 and plates 16 and 17, these rolls being adapted to give considerable or quite heavy pressure to the preformed

crease in the tube and to feed the tubes along for the next operation thereon.

The tube is next conducted to the sealing rolls 20, which are operated under only sufficient pressure to seal the bottom portion of the tube. These rolls have located therein electrically heated areas or spots 21 which register with the folded end of the tube and squeeze it down and by the application of the heat and pressure, melt the fusible coating throughout the thickness of the tube at the bottom and press the material together so that it seals the ends of the tube.

The sealed tube is then passed between the final pressure rolls 24 which complete the sealing operation holding the end of the tube in position during the cooling and setting of the fused coating. These rolls are also adapted to give quite heavy pressure to the bottom of the tube. The fused coating material not only seals the turned up end of the tube, but also seals the several layers of the tube to one another.

The tube is now complete and is ready for the filling operation. This may be accomplished in the device shown in Figure 1 in which the upper end of the tube is opened and held in open position by the combined action of an air blast to open the upper end of the tube and suction to hold the walls thereof while the tube is being filled. For this purpose, the device shown in our copending application Serial No. 352,424, filed April 4, 1929, may be employed, although other devices may be used. In this condition, the articles may be loaded into the package or container, the end being sealed in any appropriate manner.

It will be noted that the application of heat to the end of the tube not only serves to fuse the coating material and thereby seal the tube, but renders the regenerated cellulose sheeting limp and flexible so that the closure will take a set in its folded over condition during the cooling of the fused waterproofing and sealing coating. This is a feature of the invention, which is particularly valuable, owing to the peculiar characteristics of the material being treated, which when cold is quite springy and tends to straighten out. When heat is applied, however, the material becomes limp and flexible and if held in position while cooling, as by the rolls 24, the closure will not spring open. As the end of the wrapper sets in its folded position, it is as easy to place a row of them in the box at a single operation as it is to place the unwrapped cigars therein.

It will be appreciated that the successive steps of the process may be varied or altered, and that exact conformity with the details of the process is not essential to the practising of the invention. While a package for a single cigar only is shown, the package may be of sufficient width to hold several cigars or other articles.

What is claimed is:

1. The process of packaging articles comprising forming a tube of indefinite length, said tube having pleated sides, cutting lengths of the tube to make a single container, folding one end of the tube to make a closure, sealing the end under heat and pressure, and expanding the sealed tube to receive the articles.

2. The process of forming containers comprising forming a tube of indefinite length from a material having a fusible coating thereon, cutting lengths of the tube to make a single container, folding one end of the tube against a side thereof, and applying heat and pressure to the folded end to form an adhesive seal from the coating.

3. The process of packaging articles comprising providing a roll of material in tubular form, the said roll comprising a length of material having flat top and bottom surfaces and plicated sides and being of a material having a coating which may be rendered adhesive by the application of heat, folding one end of the tube against a side thereof, applying heat and pressure to the folded end to form an adhesive seal from the coating material, and expanding the open end thereof to receive the articles.

4. The process of forming packages comprising withdrawing a length of tubular stock from a supply, cutting lengths of said stock and folding one end thereof against a side of the stock, and sealing the end against the stock by heat and pressure without the addition of adhesive other than carried upon the surface of the stock.

5. The process of forming packages comprising withdrawing a length of tubular stock having four sides, two of which are provided with inwardly extending folds, from a supply, cutting lengths of said stock and folding one end thereof against a side of the stock, and sealing the end against the stock by heat and pressure without the addition of adhesive other than carried upon the surface of the stock.

6. The process of forming packages comprising withdrawing a length of tubular stock of moisture-proofed cellulose sheeting from a supply, cutting lengths of said stock and folding one end thereof against a side of the stock, and sealing the end against the stock by heat and pressure without the addition of adhesive other than carried upon the surface of the stock.

7. The process of packaging articles comprising withdrawing a length of tubular stock from a supply thereof, the said stock having a fusible waterproofing coating upon its surface, folding one end of the tube against a side thereof and cutting to length, and applying heat and pressure to the folded

end whereby the coating material on the surfaces will fuse and adhesively seal the end of the tube.

8. The process of packaging articles comprising withdrawing a length of tubular stock from a supply thereof, the said stock consisting of a cellulose sheeting having a fusible waterproofing coating upon its surface, folding one end of the tube against a side thereof and cutting to length, and applying heat and pressure to the folded end whereby the coating material on the surfaces will fuse and adhesively seal the end of the tube.

9. The process of packaging cigars or the like, comprising forming a tubular container from regenerated cellulose sheeting having a fusible waterproof coating thereon and sealing the end of the container during the application of heat thereto, by pressing the end of the container together and folding it against the side of the container, while the sheeting is in pliable condition and the coating adhesive from the heat applied thereto.

10. The process of packaging cigars or the like, comprising forming a tubular container from regenerated cellulose sheeting having a fusible waterproof coating thereon and sealing the end of the container during the application of heat thereto, by pressing the end of the container together and folding it against the side of the container, while the sheeting is in pliable condition and the coating adhesive from the heat applied thereto, and holding the folded closure during the cooling thereof.

11. The process of packaging cigars or the like, comprising forming a tubular container from regenerated cellulose sheeting having a fusible waterproof coating thereon, comprising folding the end of the container against the side thereof, and applying heat and pressure to the end of the container to fuse the coating and render the sheeting pliable and holding the end thereof in folded condition while cooling.

12. The process of forming a wrapper for cigars, comprising making a tubular container of regenerated cellulose sheeting having a fusible coating thereon with sides of the container tucked inwardly in oppositely located longitudinal bellows folds to eliminate flaring of the end of the filled container, folding the end of the container transversely through a portion containing the longitudinal folds, applying heat to the end to fuse the coating whereby a sealed end is obtained and the natural springiness is temporarily removed from the cellulose sheeting and retaining the end in folded position for a sufficient interval to cause it to acquire a set in folded position.

LOGAN A. BECKER.
JOHN M. MUNSON.