May 2, 1933. T. M. ROYAL 1,906,813

MANUFACTURE OF BAGS

Filed July 28, 1932

Fig. 1.

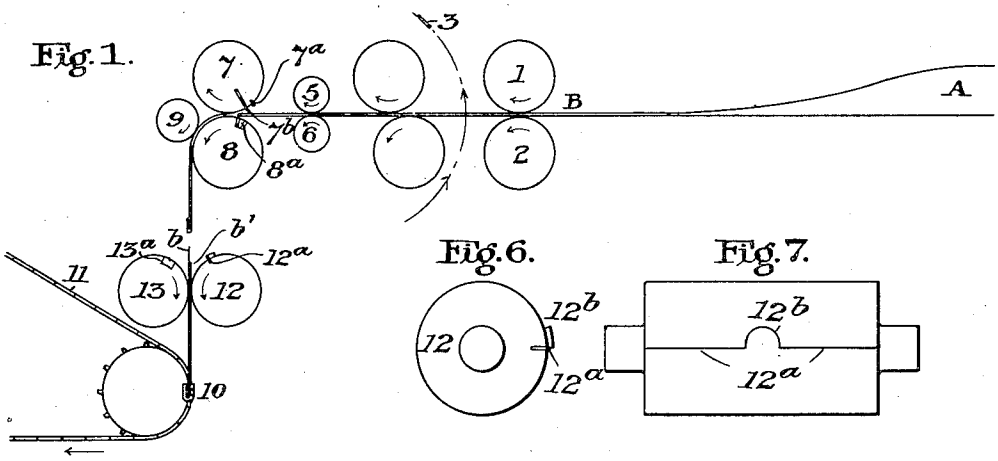


Fig. 6.

Fig. 7.

Fig. 2.

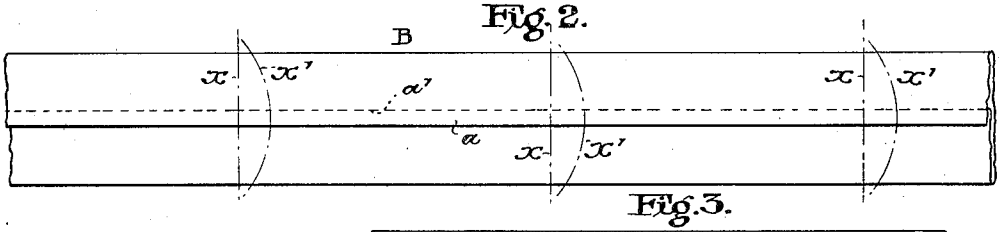


Fig. 3.

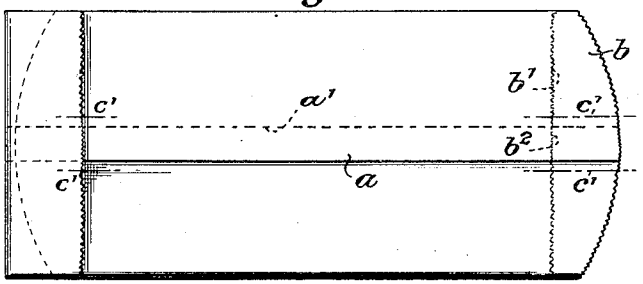


Fig. 5.

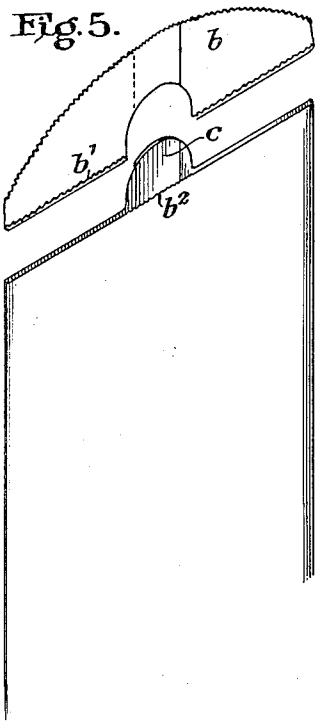
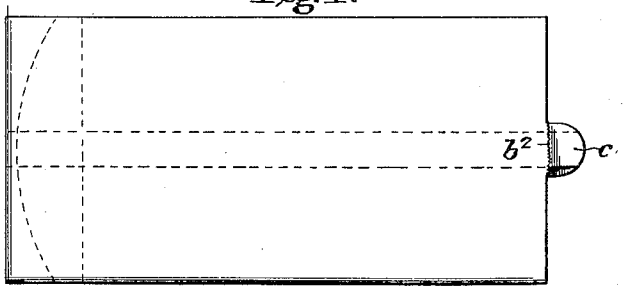


Fig. 4.



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Patented May 2, 1933 1,906,813

UNITED STATES PATENT OFFICE

THOMAS M. ROYAL, OF PHILADELPHIA, PENNSYLVANIA

MANUFACTURE OF BAGS

Application filed July 28, 1932. Serial No. 625,376.

My invention relates to the manufacture of bags and similar containers from paper and other cellulosic material such as glassine, "cellophane" or other transparent, translucent, or other forms of paper heretofore and commonly employed in the manufacture of bags.

My improved bag is made from tubular blanks which are severed from tubing by means of cutting implements so related to the former blade over which the tubing is fashioned or shaped that while one ply of the tubular blank is severed substantially at right angles to the longitudinal axis of the same, the other ply and usually that which includes the seam, is severed on the arc of a circle, and the wall portion of the same between its arcuate edge and the substantially straight edge of the other ply is the part that is turned over upon one wall of the blank and secured by a line of suitable adhesive to form the bottom of the finished bag. The means which cooperate to sever the tubing into tubular blanks include serrated edge portions or teeth and their effect is to leave the end portions of such tubular blanks with serrated edges.

Serrated edges at the open ends of bags are highly objectionable. They catch goods when they are placed therein and there is great danger of the bag tearing; especially when "cellophane" is the material employed in making the bags.

To overcome this I propose to make a clean cut across the open end of the bag after the same is finished and to leave by such cut a tab which projects from the end of the bag.

The tubular bag blanks are severed from the preformed tubing by the ordinary severing means usually having or including a member with a serrated edge. In making my improved bag I propose to use severing means having no teeth, (or very fine teeth which may be rounded), centrally of the operative effect of such means so that when the cross cut is made by such severing means, that portion of the edge of one bag wall centrally of the same and which will lie opposite the subsequently formed tab, will have no serrations at all, or very fine serrations and, by reason of the presence of the tab which may be grasped when opening the bag, will be less likely to tear.

These and other features of my invention are more fully described hereinafter; reference being had to the accompanying drawing, more or less diagrammatic in character, in which:

Figure 1 illustrates, diagrammatically, certain elements of bag-making mechanism with which the means I may employ in the manufacture of bags of the type to which my present invention relates may be associated.

Fig. 2 is a plan view of tubing formed from the bag material, illustrating also the lines of separation of the respective plies of the web when such tubing is severed into tubular blanks from which bags are made.

Fig. 3 is a plan view of a bag made from a tubular blank of a type such as illustrated in Fig. 2.

Fig. 4 is a plan view of a finished bag embodying my present invention, looking in the direction opposite that illustrated in Fig. 3.

Fig. 5 is a perspective view of the end of the finished bag, showing also the material removed from the end of the same in the operation of producing the tab.

Fig. 6 is an end view of one form of cutting roll which I may employ in carrying out my invention, and

Fig. 7 is a view in elevation of the roll shown in Fig. 6.

In the drawing, which is largely diagrammatic, A may represent a web of "cellophane" or other bag-making material which may be developed into tubing B, by folding the side portions of the web by the usual means in the usual manner over the usual forming blade, or in any usual way common to the manufacture of paper bags whereby one side portion *a* of such web is caused to overlie the other side portion *a'* thereof; the overlapping portions forming a seam and being secured together by an interposed line of adhesive applied adjacent to one edge of one of the side portions of such web, in the usual manner.

In carrying out my invention, the tubing of "cellophane" or other material, indicated at B, and which may be formed from the web

A in the usual manner common in the operation of bag-making machines or otherwise, may be carried forward by draft rolls 1 and 2 and presented to a blade 3 which rotates in such an arc as to pass through the plies of the tube and in cooperation with the former blade or plate and/or other means associated with or over which such tubing is formed, sever such blank along lines x and x', substantially as indicated in Fig. 2. From the rolls 1 and 2, the severed tubular blanks pass to forwarding rolls 5 and 6, and from the latter they may be delivered to cooperating paste-applying and bottoming rolls 7 and 8. The upper roll 7 may carry a paste-applying element 7^a extending longitudinally of such roll, with a creasing and tucking blade 7^b parallel therewith, which creasing blade is adapted to engage the body of the tubular blank adjacent to the forward end thereof and press such end in folded relation between gripping elements 8^a carried by the roll 8 which gripping elements are presented thereby in open position to receive such folded portion; such gripping elements being subsequently closed and holding the folded end of the tubular bag blank and carrying it forward for subsequent engagement by a small pressing roll 9. Just before the folded end of the blank reaches the roll 9 the gripping means carried by the roll 8 are released and the folded end of the tubular bag blank automatically springs out of contact therewith and momentarily occupies a position with the folded end free and ready for presentation to the small press roll 9 as shown in Fig. 1; the latter roll serving to press the folded end of the blank against a transversely applied line of adhesive, previously applied to one face or wall of the blank by the element 7^a. The rear portion of the tubular bag blank is still within the bite of the rolls 7 and 8 and is being advanced thereby before the roll 9 engages the same against the surface of the roll 8, as shown in Fig. 1, and from said rolls 8 and 9 the tubular bag blank with the bottom fold may pass to and be caught successively by gripping members 10 carried at properly spaced intervals by an endless belt 11, of suitable character, diagrammatically indicated in Fig 1; being held by such gripping elements as such belt 11 advances, until the pasted portions are sufficiently set to retain the folded portions in definite position to complete the bag.

By reason of making the transverse cuts across the tubing and severing the same into tubular blanks, one wall or ply of such tube of the successive blanks will project beyond the other; the open end of the bag, for instance, in the form in which it passes the rolls 8 and 9, having one portion of the wall, b for instance, which includes the seam, projected beyond the serrated edge b' of the opposite wall of the bag. Under usual conditions, the bag with serrated edges at the open end would pass to and be successively engaged by the gripping elements 10, carried by the belt 11, and passed to a point of delivery.

Before the bags are carried away by such gripping elements, however, I provide means for making a transverse cut across the open end of the bag, which means may be in the form of a pair of rolls 12 and 13 set in advance of the point of engagement with such gripping elements 10; the roll 12 carrying a cutting blade 12^a which, in the present instance, is straight for the greater portion of its extent and has a central curved or other shape portion 12^b disposed laterally of the aligned straight portions, as clearly indicated in Figs. 6 and 7. This cutting blade cooperates with an anvil 13^a carried by the roll 13 and is designed to effect a cut across the open end of the bag; the straight portion of such cut being just below the substantially straight transverse serrated edge b' while the curved or other shape portion of the blade cuts through the seamed wall of the projecting portion b at the open end of the bag; producing the tab c, clearly indicated in Figs. 4 and 5.

The severing means including the moving blade 3 and/or means cooperating therewith which have served to separate the tubing into tubular blanks, may be provided with very fine serrations in such position with respect to the operative effect of such separation that such fine serrations will come at the central part of the cuts made on the lines x, x', so that the serrated end edges of the bag will have, centrally of the same, within a dimension indicated substantially by the lines c'—c', the very fine serrations indicated at b^2 which, in the completely finished bag, (Fig. 5) will lie opposite the tab as clearly indicated in Figs. 3, 4 and 5; Fig. 3 showing the bag before the cut to produce the tab c has been made. These finer serrations occupy a position opposite the tab which may be grasped when opening the bag, and their position is such that there will be little tendency to engage the same when opening the bag, hence little or no danger of tearing the bag. The coarser serrated edge portions would be highly liable to do so, and these have been removed by the transverse cut in the formation of the tab c. In lieu of the fine serrations disposed centrally of the severing blade, or at any other desired position, these serrations may be omitted altogether at such central portion by the provision of severing means omitting teeth centrally thereof or at such other point as may be desired, so that in severing the tubular blanks from the tubing a plain clean cut edge will be left at the end of one wall of the bag opposite the tab.

While I have shown a bag of the flat type as having been provided with a tab c, it will be understood that my improvements may be

applied to bags of the square type or other types, having bellows-folded sides.

Various departures may be made from the above-described embodiment of my invention without departing from the spirit and scope thereof as set forth in the following claims.

I claim:

1. The method of making bags which comprises forming a flattened tube from a web of bag material; severing said tube into bag blanks, said severing operation comprising cutting one face of the tube along a curved line whose chord is at right angles to the longitudinal axis of said tube and cutting the other face along a line transversely of said longitudinal axis; each of said cuts having serrated edges and the serrations adjacent the longitudinal axis of said tube in the face having the straight cut being of less size than the other serrations, foldably closing the end of said blank to make a bag, and thereafter cutting through said bag adjacent said open end; said last-named cut being so positioned and shaped that the larger serrations along said straight edge are cut off and the finer serrations left, and the other side is cut along a straight line except for a portion opposite said finer serrations whereby a tab is left on said side opposite said finer serrations.

2. The method of making bags which comprises forming a flattened tube from a web of bag material; severing said tube into bag blanks; said severing operation comprising cutting one face of the tube along a curved line whose chord is at right angles to the longitudinal axis of said tube and cutting the other face along a line transversely of said longitudinal axis; each of said cuts having serrated edges with a non-serrated space adjacent the longitudinal axis of said tube in the face having the straight cut, foldably closing the end of said blank to make a bag, and thereafter cutting through said bag adjacent said open end; said last-named cut being so positioned and shaped that the larger serrations along said straight edge are cut off and the non-serrated space left, and the other side is cut along a straight line except for a portion opposite said non-serrated space whereby a tab is left on said side opposite said non-serrated space.

3. The method of making bags which comprises forming a bag having a closed end and an open end; one side of the bag adjacent the open end being formed as an arc of a circle with a serrated edge and the other side adjacent said open end being formed substantially as a chord of the arc of the first-mentioned side, said chord being at right angles to the longitudinal axis of the bag; and cutting through the first-mentioned side of the bag along a line parallel to said chord except adjacent the median line of said side, whereby a tab is formed adjacent said median line.

4. The method of making bags which comprises forming a bag having an open end and a bottom; the edges of said bag being serrated at the open end thereof, and the edge of one face being shaped substantially as an arc and that of the other face as a chord of said arc; and severing said bag adjacent said open end substantially parallel and adjacent to said chord except adjacent the median line of said bag, whereby a tab is formed adjacent said median line at the end of the side of the bag having the arc-shaped end.

5. The method of making bags with projecting tabs disposed at the open end of the same which comprises forming a web of material into a tube; severing such tube at regular intervals into bag blanks having one wall or ply projecting beyond the other wall or ply at the open end of the same; completing the bag by folding one end over and securing it to one wall to form a bottom; and then cutting through the walls of the bag at the open end of the same, such cut being shaped to form a tab from the projecting portion of one wall or ply of such bag.

6. The method of making bags which comprises forming a bag having a closed end, one side of the bag adjacent the open end being formed as a curve with a serrated edge and the other side adjacent said open end being formed substantially as a straight line; said straight line being at a right angle to the longitudinal axis of the bag; and cutting through the first-mentioned side of the bag along a line parallel to said straight line except adjacent the median line of said side, whereby a tab is formed adjacent said median line.

In witness whereof I have signed this specification:

THOMAS M. ROYAL.