

April 9, 1935.

J. M. DRIVER
MANUFACTURE OF BAGS
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Fig. 1

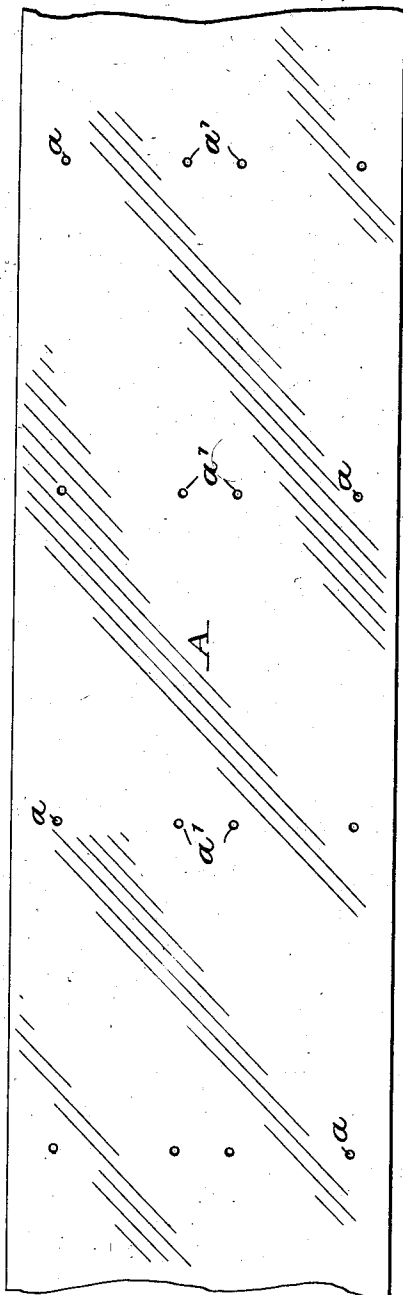


Fig. 2.

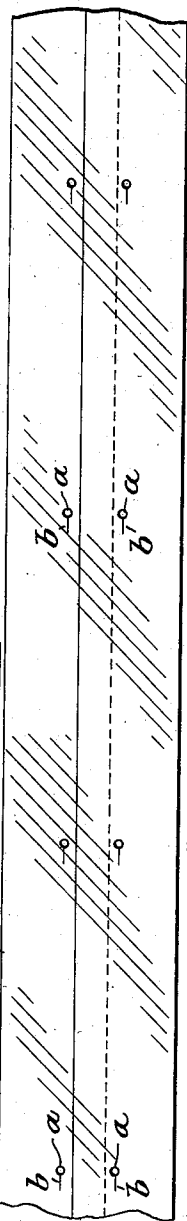


Fig. 3.

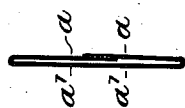


Fig. 4.

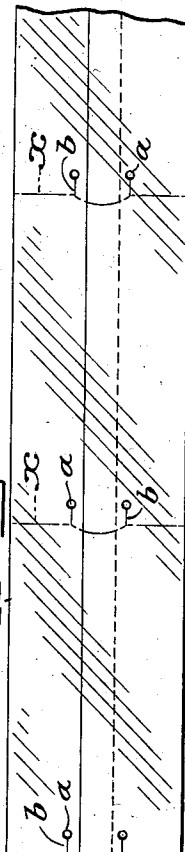
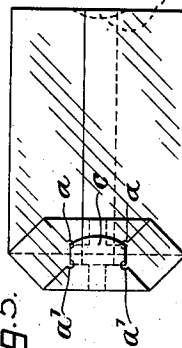


Fig. 5.



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MANUFACTURE OF BAGS

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9 Claims. (Cl. 93—35)

My invention relates to the manufacture of bags and other containers of thin paper or similar webs of other cellulosic material and more particularly to the manufacture of bags and similar containers from the thin film or pellicle familiarly known as "Cellophane".

One object of my invention is to facilitate the handling of thin webs or pellicles of paper or cellulosic material, notably "Cellophane", when employed in the manufacture of bags and other containers and wherein the necessary manipulation requires that the web or pellicle be cut, slit or otherwise ruptured to effect formation of the desired article.

A further object of my invention is to facilitate the formation of bottoms of the satchel or square type in the manufacture of bags or similar containers from thin paper or other material, particularly "Cellophane". The formation of bottoms of the satchel or square type requires that the wall of the tube from which these bags or other containers are made shall be slit lengthwise of the same in order that, in the finally folded form of such bottoms, the overlapping tabs which will be presented by reason of cutting or slitting the tube may be secured in place by pasting or otherwise to complete such bottoms without danger of tearing the material. In the formation of isolated cuts or slits in the body of thin material, especially material such as "Cellophane", which is without fibre and under certain conditions is liable to readily tear and will tear following such cuts or slits, it is necessary that some provision be made for preventing a continuation of these cuts or slits since a continuation of the same would seriously damage the bag bottom, prevent its formation in many instances, and utterly destroy its function.

The main object of my invention is to provide means in the preparation of the material for bag making whereby these isolated slits or cuts will not extend beyond the dimensions of the same initially intended.

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

Figure 1 is a plan view of a section of web from which bags and similar containers may be made in accordance with my invention.

Fig. 2 is a plan view of a tube formed from a web of the character shown in Fig. 1.

Fig. 3 is a cross-sectional view of the tube on line III—III, Fig. 2.

Fig. 4 is a diagrammatic view illustrating certain of the steps of bag formation, and

Fig. 5 is a plan view of a finished bag of the satchel bottom type.

In the manufacture of many types of bags and similar containers from paper and the like, a web is unwound from a reel, passed to tube-forming mechanism, thence to blank severing means, and thence to bottoming mechanism. In the manufacture of a great many types of bags, it is desirable to effect the formation of a square bottom or a bottom of the satchel type, and in both instances it is necessary to slit or cut the walls of the tube at isolated points for the purpose of developing tabs which are overlapped and pasted down in the final formation of such bottoms.

In carrying out my invention, I propose to make bags of "Cellophane" with satchel or square bottoms. The clean-cut edges of "Cellophane" resist a tearing action to a marked degree. The slits employed in preparing the bag blanks for the formation of satchel or square bottoms, however, break through the body of the material and it can be well understood, therefore, that if plain slits or cuts are provided in the body of a tube made from a web of "Cellophane", the manipulation of the end of the tube blank where such slits would appear, in the formation of the bottom, would result in a continuation of such slits throughout the portion intended for the bottom and extend to the sides and preclude the possibility of the development of a proper bottom.

I propose to overcome this difficulty by arranging the slits or cuts in such position that one terminal of the same longitudinally of the blank will be at the open end of the bag being formed, while the other terminal meets a preformed aperture cleanly cut through the walls of the body of "Cellophane"; thereby preventing extension of the slit beyond the clean-cut edge of the aperture into which one end of such slit opens.

In Fig. 1, the web is indicated as A, with a series of apertures *a* and *a'* formed therein at bag-length intervals. It will be understood, of course, that the view is entirely diagrammatic and that the width of the web indicated is purely relative, for illustrative purposes only, and that the bag-length intervals may be changed as desired.

Fig. 2 shows the web in tube formation, the apertures *a*, adjacent the margins, registering with the apertures *a'*, which are disposed centrally of the web. After the web has been formed into a tube, which is done by suitable and well known tube-forming mechanism, it is passed to slitting or cutting mechanism; the slits indicated at *b*

being relatively of the length indicated with reference to the apertures which they meet at one end of the same.

The tube then proceeds to the transverse cutting or severing means which severs such tube by clean cuts into bag lengths and such cutting means may be of any suitable character but preferably of a type which will cut through the walls of the tubular web substantially on the line *x*, at the ends of the slits or cuts *b* opposite the apertures and at the same time produce a clean cut that will provide a projecting portion *c* at the transverse edge of one wall of the bag blank and a recess *c'* at the adjacent end of the preceding blank which serves as a notch at the open end of the bag produced therefrom facilitating opening of the same when put into use.

From this point, the bags are presented to bottoming mechanism of the usual type employed in the formation of satchel or square bottoms and which, in the case of satchel bottoms, may present a bottom of the type indicated in Fig. 5, wherein the tabs, produced by the longitudinally arranged slits or cuts *b* and the transverse cuts on the line *x* which sever the blank into bag lengths, are shown in overlying position centrally of such bottom. It will be noted that the side edges of such tabs are produced by the slits or cuts *b* and that such slits or cuts terminate in the preformed apertures and are prevented thereby from extending further into the body of the web.

While I prefer that the preformed apertures shall be circular in contour, it will be understood that apertures of other shapes are within the scope of my invention, provided such apertures have clean-cut edges. In all instances, the apertures will be so positioned in the tube that the slit-forming implements in passing through the walls of the tube will just enter such apertures so as to insure that there will be no breaking of the clean-cut edge of the same beyond the slit.

While I have referred particularly to the manufacture of bags and other similar containers from thin webs or pellicles and particularly from the material known as "Cellophane", it is within the purview of my invention to employ the preformed apertures in connection with isolated slits or cuts made in the body of such webs whether the latter are subsequently formed into tubes for the production of bag blanks, made into bags or similar wrappers or other containers, or made into envelopes, and/or the like.

Reference is made in the specification and claims to "clean-cut" apertures and this term is employed to describe the character of the apertures made in the web of "Cellophane" whose edges are entirely smooth, without break or serration from which a tear might start. It will be understood, however, that such apertures may be formed in any manner that will insure this condition and that I do not desire to be limited to the specific means described herein for producing said apertures.

I claim:

1. In the utilization of thin webs of cellulosic material in the manufacture of bags, containers and the like wherein tab-like portions are provided in the blanks for overlapping relation in the bottom formation of such bags or containers; providing said web with a plurality of sets of apertures adapted to register when the web is folded and disposed at regular intervals transversely of the same, each of said apertures having a clean-cut marginal edge; slitting the web longitudinally

thereof to provide such tab-like portions; and terminating one end of each of said slits in a preformed aperture, the opposite ends of said slits opening through a wall of the bag blank.

2. In the utilization of "Cellophane" in the manufacture of bags, containers, and the like wherein tab-like portions are provided in the blanks for overlapping relation in the bottom formation of such bags or containers; providing said web with a plurality of sets of apertures at regular intervals transversely of the same, each of said apertures having a clean-cut marginal edge; slitting the "Cellophane" web longitudinally thereof to provide such tab-like portions; and terminating one end of each of said slits in a preformed aperture, the opposite ends of said slits opening through a wall of the bag blank; and folding said web to bring a plurality of said openings and slits into registering relation.

3. In the utilization of thin webs of cellulosic material in the manufacture of bags and other containers wherein tab-like portions are provided in the blanks for bottom formation; providing said web with a plurality of sets of apertures at regular intervals transversely of the same, each of said apertures having a clean-cut marginal edge; slitting the web body at regular intervals longitudinally of the same; and transversely severing the web at the termination of one end of such slitted portion by clean-cuts, the opposite ends of each of such slits terminating in a preformed aperture formed in such web and pairs of said apertures being disposed in registering position when the web is folded.

4. In the utilization of "Cellophane" in the manufacture of bags and other containers wherein tab-like portions are provided in the blanks for bottom formation; providing said web with a plurality of sets of apertures at regular intervals transversely of the same, each of said apertures having a clean-cut marginal edge; slitting the "Cellophane" web at regular intervals longitudinally of the same; folding said web to bring a plurality of said openings and said slits into registering relation; and transversely severing the web at the termination of one end of such slitted portion by clean-cuts, the opposite ends of each of such slits terminating in a preformed aperture formed in such web.

5. In the manufacture of bags and similar containers from thin and transparent pellicles of cellulosic material; providing said material with a plurality of sets of apertures adapted to register when the web is folded and disposed at regular intervals transversely of the same, each of said apertures having a clean-cut marginal edge; tubing such material; and forming satchel or square bottoms for such bags, such bottom portions including overlapping tabs narrower than the width of the bag and prepared by slitting the body of the web from which such bag is formed, the opposite ends of such slits terminating in the preformed apertures having clean-cut marginal edges and such slits forming the side edges of such tab-like portions.

6. In the manufacture of bags and similar containers from "Cellophane"; providing the "Cellophane" with a plurality of sets of apertures at regular intervals transversely of the same, each of said apertures having a clean-cut marginal edge; tubing the "Cellophane" and bringing pairs of said apertures into registering relation; and forming satchel or square bottoms for such bags, such bottom portions including overlapping tabs narrower than the width of the bag and prepared

by slitting the "Cellophane" web from which such bag is formed, the opposite ends of such slits terminating in the preformed apertures having clean-cut marginal edges and such slits forming the side edges of such tab-like portions.

7. The method of making bags and similar containers from a web of thin cellulosic material, which consists in preforming a plurality of clean-cut apertures in said web at bag length intervals, feeding such web to bag-forming mechanism, folding said web longitudinally of the same in tubular form whereby pairs of said apertures are brought into registering position in opposite walls of said tube, slitting said tube in line with said sets of registering apertures; one end of said slits terminating in said apertures, and thereafter severing said tube by transverse cuts into bag length units, and bottoming said units; said transverse cuts being taken at the ends of said slits opposite the apertures in which their other ends terminate.

8. The method of making bags and similar containers from a web of "Cellophane", which consists in preforming a plurality of clean-cut apertures in said web of "Cellophane" at bag-length intervals, folding said web longitudinally of the

same in tubular form whereby pairs of said apertures are brought into registering position in opposite walls of said tube, applying short slits to said tube in line with said sets of registering apertures; one end of said slits terminating in said apertures, and thereafter severing said tube by clean transverse cuts into bag-length units, and bottoming said units; said transverse cuts being taken at the ends of said slits opposite the apertures in which their other ends terminate.

9. In the utilization of thin webs of cellulosic materials in the manufacture of bags and like containers; the steps of providing groups of clean-cut apertures at regular intervals transversely of the web; slitting such material longitudinally of the same and terminating one end of each slit in a preformed aperture; tubing such material to bring the slits and apertures of opposite walls into registering position; severing such tubing at regular intervals by transverse cuts at the end of the slits opposite the apertures to form the blanks; and thereafter forming the slitted ends of the blanks into bottoms for the bags.

JOHN M. DRIVER.