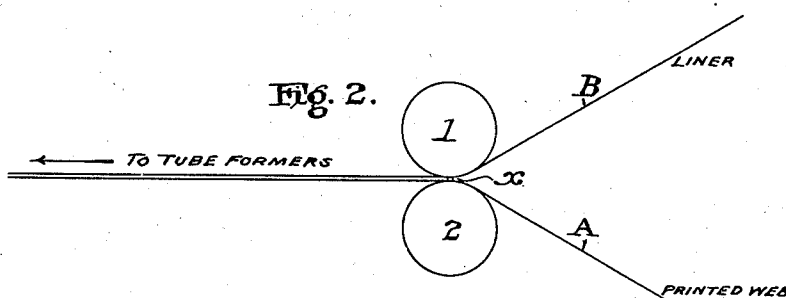
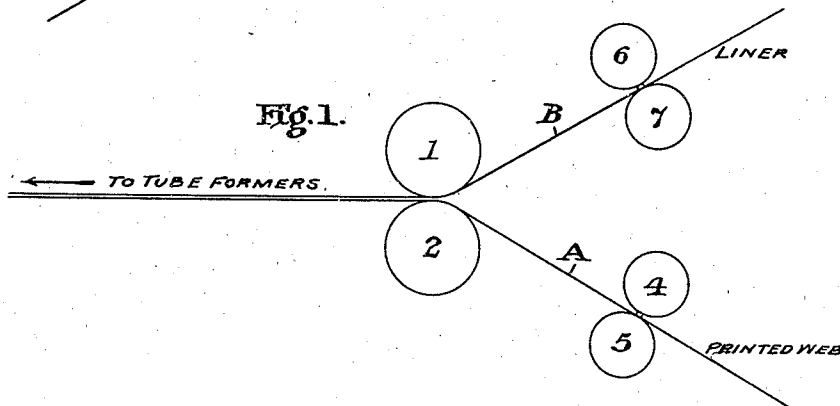
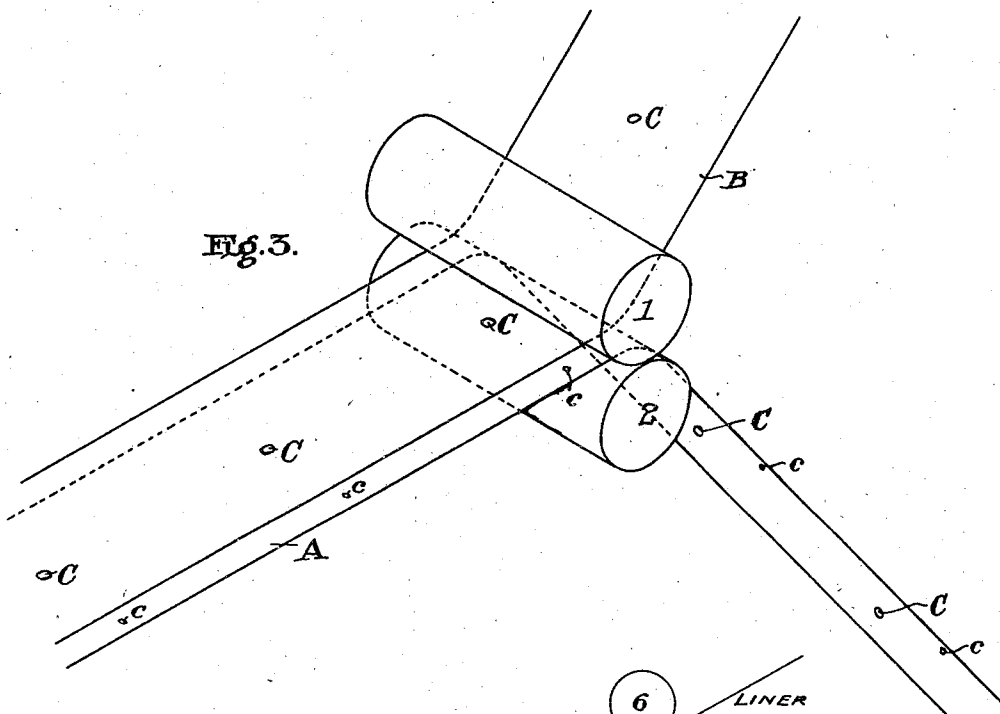


May 14, 1935.

T. M. ROYAL
MANUFACTURE OF BAGS
Filed July 30, 1932

2,000,989

2 Sheets-Sheet 1



INVENTOR:

Thomas M. Royal,

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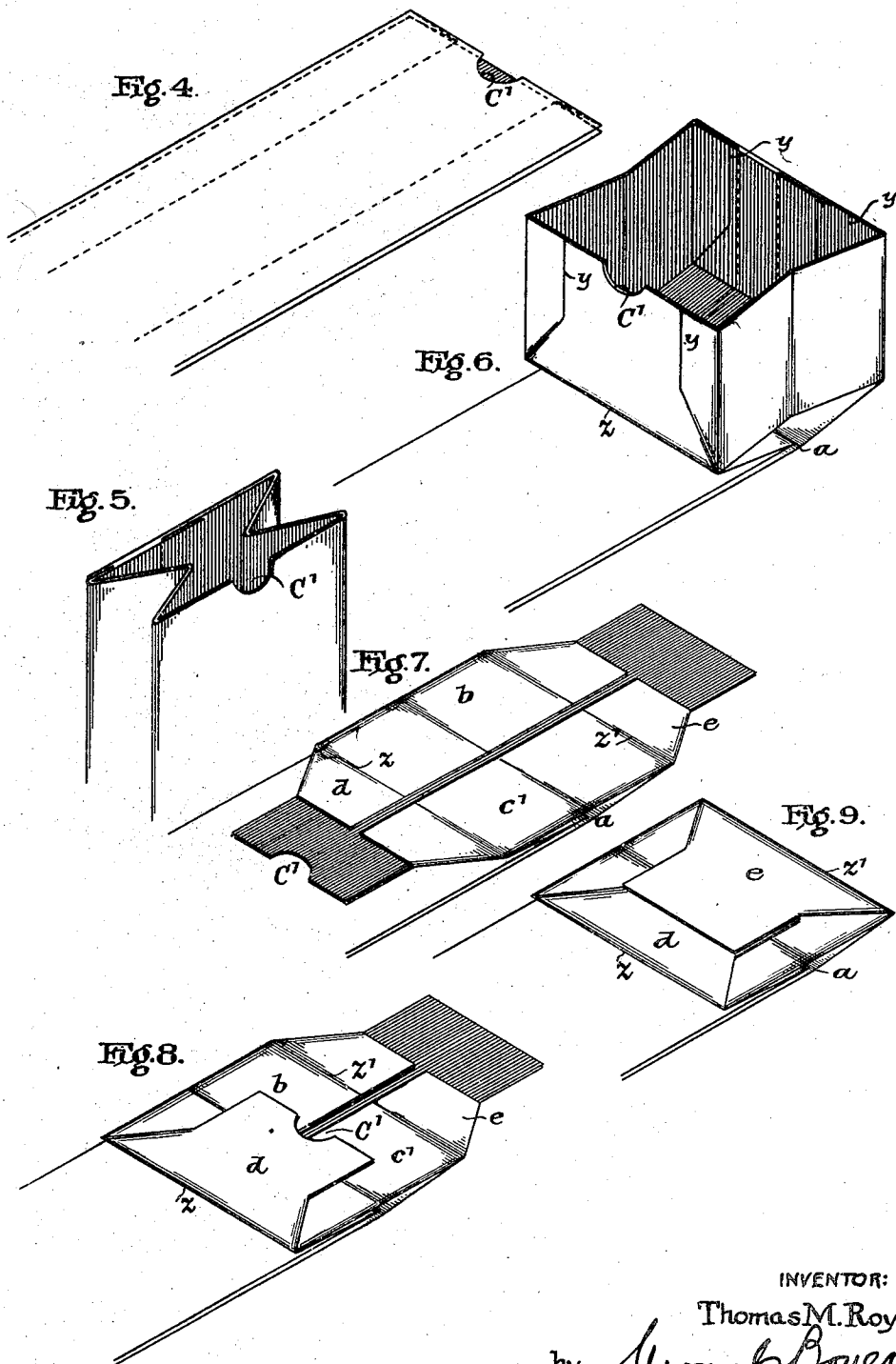
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INVENTOR:

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UNITED STATES PATENT OFFICE

2,000,989

MANUFACTURE OF BAGS

Thomas M. Royal, Philadelphia, Pa.

Application July 30, 1932, Serial No. 626,798

9 Claims. (Cl. 93—35)

My invention relates to the manufacture of bags of paper and other materials and may be applied to various types of bags; automatic, satchel bottom, square bottom, etc., including bags of the type comprising an outer wall or cover and an inner wall or lining.

An object of my invention is to provide the finished bag with a thumb notch or recess at one end of the same permitting ease of engaging the wall of the bag opposite the notched wall whereby opening of the bag is facilitated.

A further object of my invention is to provide a method or mode of manufacture whereby the notched portions may be developed by aperturing the web or webs of paper or other material from which the bags are made while the same is being printed, or at some point or step in the assembly of the webs constituting the plies of the bag before the formation of the tubing from sections of which such bags are produced.

When bags are made from printed webs it is a usual practice to punch small holes adjacent one edge of the web which holes, with mechanism of the bag-making machine cooperating therewith, serve as localizers and insure that the blanks will be cut at the proper points to space printed portions thereof in central or other desired positions in the wall of the finished package.

In the manufacture of bags of paper and other material according to my present improvements and in addition to the small apertures which are utilized in localizing or positioning the tubular sections subsequently formed into bags, I aperture the web at intervals throughout the length of the same in such position widthwise of such web that, in the finished tubing, such apertures will appear centrally or substantially so of one of the broad faces thereof and only in such wall. When such tubing is severed into tubular blanks, the cuts are made through such apertures, usually centrally thereof, with the result that the tubular blank in each instance will have half round or other shaped notches in one wall at each end of the same. The end that is folded to form the bottom will be so manipulated that the wall flap having the notched end portion may be folded down first to lie beneath the flap of the opposite wall, which thus covers and encloses such notched portion or, if desired the other flap will be first folded down.

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

Figure 1 is a view in elevation illustrating one manner of delivering two webs constituting duplex bag-forming material to guide rolls for passage to the tube-forming mechanism of a bag-making machine; such view also indicating means whereby apertures may be made in the respective webs.

Fig. 2 is a similar view showing the guide rolls provided with aperturing means designed to cut through both webs at a single operation.

Fig. 3 is a perspective view showing the relation of the pre-apertured webs as they are fed to the guide rolls and thence to tube-forming mechanism.

Fig. 4 is a perspective view showing a portion of a tubular blank from which bags made in accordance with my invention may be produced.

Fig. 5 is a perspective view of the open end of a lined bag made in accordance with my present invention, and

Figs. 6, 7, 8 and 9 are views illustrating successive stages in the formation of the bottom of a bag of the automatic type; Fig. 6 showing the walls of the bag in the distended position; Fig. 7 showing the several portions of the bag walls to form the bottom in the flat condition; Fig. 8 showing one flap folded down, and Fig. 9 showing the second flap folded down and the bottom of the bag in the final, finished condition.

In developing the outer web for the production of bags in combination with a liner therefor, such web may be delivered from a suitable point to a pair of guide rolls or similar means whereby such outer web may be associated with the inner or liner web; lines or patches of paste or other suitable cementitious or adhesive body being applied at intervals to one or the other of such webs so that when they are formed into the tubing from which the tubular bag blanks are produced they will be in such relation and association that each web may have its meeting edges brought into overlapping relation independently of each other and secured by an interposed layer of a suitable adhesive. When brought into association at the bite of the guide rolls, the respective webs are offset laterally with respect to each other so that this independent joining of the same may be effected as they are passed to the forming blades over which they are folded or other means whereby they are transformed into tubular shape and, in the case of bellows-folded bags, tucked or creased longitudinally to provide such bellows-folded condition.

In Figure 1 of the drawings I have shown a pair of guide rolls 1 and 2 between which the webs

A and B are passed on their way to the tube-forming mechanism of a bag-making machine. Prior to the introduction of the webs to these rolls, one of the webs has been provided with lines, patches, or other areas of adhesive which may be disposed longitudinally of the same so that when the webs are in meeting relation they will be permanently fastened together. The webs are offset with respect to each other as clearly indicated in the perspective view, Fig. 3, so that when formed into the tubing from sections of which bags are made, the web A, which may be a printed web and serve as the exterior of the bag or package, will be secured together at its opposite edges, and in like manner the liner web B, longitudinally folded with the outside web into tube formation, will overlap itself and be secured together at its opposite edges and lie within the web A which constitutes the outer wall of the bag. This is the common practice in the making of lined bags, and the relation of the wall seams is illustrated in Fig. 5.

In bags of this type it is highly desirable that they be provided with a thumb notch or recess at the open end whereby one wall of the bag may be readily grasped by the thumb and finger in order to open the same. Bags having notches in both walls are known, but the object of my invention is to form a notch in one wall only. For this purpose the webs are apertured at regular intervals throughout their extent prior to being presented to the tube-forming means, as indicated at C; such apertures being spaced through the web at regular bag-blank intervals. These apertures may be formed in the respective webs independently of each other in a manner, for instance, as indicated in Fig. 1 wherein separate sets of cooperating cutter rolls 4 and 5, and 6 and 7, are shown as operating upon the respective webs, A and B. After this aperturing operation the webs are delivered in engagement with each other so that such apertures in the respective webs will register, and when the webs are secured together by the lines or other areas of adhesive, such registry will remain. In lieu of this arrangement I may aperture the two webs simultaneously by cutting means x associated with the guide rolls 1 and 2, as indicated in Fig. 2.

Bags of this type are usually of the bellows-folded types, and are intended largely for the packaging of coffee and various other forms of foodstuffs whose aroma or flavor it is desirable to retain, hence the liner employed may be of the coated type, wax-coated, for instance, in order to be grease-proof. The other web associated with the liner web may be printed in advance and such printing occupies localized portions of the web at regularly succeeding intervals. The tubing made from this duplex web is severed at definite points between successive printed impressions so that the tubular blanks will be the same length on the one hand and the printed material will appear centrally of such blanks, or in such relation thereto that after the bottom has been formed and the package has been filled, the indicia, name, trade-mark, etc., will occupy the proper relative position on the outer faces or walls of the bag.

To effect this positioning of the tube relatively to severing means, one practice has been to perforate one of the webs at regular intervals throughout its length, as indicated at c , and to associate such perforations with localizing means which serve to speed up or retard the web as it passes to the bag-making machine severing means and insure separation at the desired points. In

lieu of this arrangement or as an additional means of effecting localization of the web so that tubes will be cut at proper intervals, I may utilize the special apertures formed in the webs and indicated at C, in Fig. 3.

When the tube is completed the apertures C will be found in one wall only of the same, and these apertures bear such relation to the indicia printed upon the tube that the tubular blank severing means cuts through the same, usually centrally thereof, so that for each tubular blank produced, one wall of the same will present a notched portion at each end.

In forming the so-called automatic or square bottoms for tubular blanks of the bellows-folded type, the procedure is substantially along lines graphically illustrated in Figs. 6, 7, 8 and 9; such views being entirely diagrammatic, and illustrating operation upon a single-walled structure. In Fig. 6 the end of the blank has been folded on the line a , and the walls of such end have been opened or distended and disposed in a substantially vertical position, with creases, and cuts y , along lines which the folded portions of the bottom are to occupy when such bottom is completed. In Fig. 7 the side portions have been laid down in a flattened condition; such side portions including the parts b and c' and the end flaps d and e , which are foldable on the lines z and z' . The flap d is that portion containing the semicircular or other shape notch representing a portion or one-half of one of the apertures indicated at C; the balance of which forms the notch at the open end of the preceding bag. This flap d may be folded down first after suitable areas of adhesive are applied over the parts b and c' , and Fig. 8 shows the position of such flap d after it has been folded down. In Fig. 9 the flap e has been folded over and upon the flap d and secured by an adhesive and such view illustrates the finished bottom of the bag; such flap e covering and enclosing the notched portion of the flap d . If desired, the flap e may be folded down first, and the flap d laid down over the same and secured thereto.

The opposite or open end of the bag is clearly illustrated in Fig. 5, wherein the semicircular notch is indicated at C'; such view showing the open end of a lined bag.

While I have illustrated a particular embodiment of my invention it will be understood that I do not wish to be limited to the exact arrangement disclosed and that modifications thereof may be made without departing from the spirit of my invention and the scope of the appended claims.

I claim:

1. The method of making lined bags with a smooth-edged thumb notch in one wall of the open end thereof, which consists in providing a pair of independent webs of bag material; pre-forming circular apertures in said webs substantially centrally of the same; bringing said webs together and in superposed relationship with one edge of each web extending beyond the adjacent edge of the other web and said apertures in registry; developing such duplex web into flattened tubular form with said registering apertures in one wall only of the same; severing such tube by straight transverse smooth-edged cuts diametrically through said registering apertures, such operation producing successive bag blanks with a notch in one wall at each end of the same, and thereafter folding and securing one end of said blanks to form a bag bottom.

2. The method of making lined bags with a smooth-edged thumb notch in one wall of the open end thereof, which consists in providing a pair of independent webs of bag material which are brought together in superposed relationship with one edge of each web extending beyond the adjacent edge of the other web; said duplex bag material having circular apertures in registering position and substantially centrally thereof; developing such duplex web into flattened tubular form with said registering apertures in one wall only of the same; severing such tube by straight transverse smooth-edged cuts passing diametrically through said registering apertures, such operation producing successive bag blanks with a notch in one wall at each end of the same; and thereafter folding and securing one end of said blanks to form a bag bottom.

3. The method of making multiwall bags with a smooth-edged thumb notch in one wall of the bag at the open end thereof, which consists in providing a pair of independent webs of bag material which are assembled in superposed relation, preforming clean-cut apertures which appear at regular intervals substantially centrally of the duplex web from which such bags are made, developing such duplex web into a tube in which such apertures are disposed in one wall of the same, and severing such tube by straight, transverse smooth-edged cuts passing through said apertures to form bag blanks; such operation producing a blank with a smooth-edged notch in one wall at each end of the same, and thereafter folding and securing one end of said blank to form a bag bottom.

4. The method of making a multiwall bag with a smooth-edged thumb notch in one wall of the bag at the open end thereof, which consists in providing a pair of independent webs of bag material which are assembled in superposed relation, preforming clean-cut circular apertures which appear at regular intervals substantially centrally of the duplex web from which such bag is made, developing such web into a tube in which such circular apertures are disposed in one wall only of the same, and severing such tube by straight, transverse smooth-edged cuts passing diametrically through said circular apertures to form blanks; such operation producing a blank with a smooth-edged thumb notch in one wall thereof at each end of the same, and thereafter folding and securing one end of said blank to form a bag bottom.

5. The method of making multiwall bags with a smooth-edged thumb notch in one wall of the bag at the open end thereof, which consists in providing a pair of independent webs of bag material which are assembled in superposed relation to form a duplex web, preforming clean-cut circular apertures which appear at regular intervals substantially centrally of said duplex web, developing such duplex web into a tube in which such apertures appear in one wall only of the same, severing such tube by straight, transverse smooth-edged cuts passing diametrically through said apertures to form bag blanks having one wall notched at each end, and thereafter bottoming such bag blanks by folding and securing one end of the same.

6. The method of making a multiwall bag with a smooth-edged thumb notch in one wall of the bag at the open end thereof, which consists in providing a pair of independent webs of bag material to form a duplex web, preforming clean-cut circular apertures at regular intervals sub-

stantially centrally of said duplex web from which such bag is made, assembling such webs in superposed relation, developing such duplex web into a tube in which such registering apertures appear in one wall only of the same, severing such tube by straight, transverse smooth-edged cuts passing diametrically through said apertures to form bag blanks thumb-notched at each end, and thereafter bottoming such bag blanks by folding and securing one end of the same.

7. The method of making lined bags with a smooth-edged thumb notch in one wall at the open end thereof, which consists in providing a pair of independent webs of bag material from independent rolls thereof to form a duplex web, preforming registering apertures circular in shape at regular intervals substantially centrally of the bag material from which such bags are made, developing such duplex web into a tube in which such registering apertures appear in one wall only of the same, severing such tube by straight, transverse smooth-edged cuts passing diametrically through said registering apertures to form bag blanks; such operation producing successive blanks with a notch in one wall at each end of the same, and thereafter bottoming such bag blanks and enclosing in such bottom the complementary portion of an aperture of a succeeding blank; the open end of the bag presenting one wall with a smooth-edged notch substantially centrally disposed.

8. The method of making a lined bag with a smooth-edged thumb notch in one wall at the open end thereof, which consists in providing a duplex web from independent rolls of bag material, preforming clean-cut circular registering apertures at regular intervals substantially centrally of the sections of said duplex web from which such bag is made, bringing the apertured sections together to form such duplex web and developing the same into a tube in which such registering apertures appear in one wall only of the same, severing such tube by straight, transverse smooth-edged cuts passing diametrically through said registering apertures to form bag blanks; such operation producing successive blanks with a thumb notch in one wall thereof at each end of the same, and thereafter bottoming such bag blanks and enclosing in such bottom the complementary portion of an aperture of a succeeding blank; the open end of the bag presenting one wall with a clean-cut thumb notch substantially centrally disposed.

9. The method of making lined bags with a smooth-edged thumb notch in one wall of the open end thereof which consists in providing a pair of independent webs of bag material which are assembled in superposed relationship to form a duplex web with one edge of each web extending beyond the adjacent edge of the other web; developing such duplex web into flattened tubular form; preforming clean-cut apertures in the bag material which appear at regular intervals substantially centrally of the duplex web from which the tube is formed prior to such tube formation, said apertures appearing in one wall only of the same; severing such tube by straight transverse smooth-edged cuts diametrically through said apertures, such operation producing successive bag blanks with a notch in one wall at each end of the same; and thereafter folding and securing one end of said blanks to form a bag bottom.

THOMAS M. ROYAL.