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PROCESS OF MAKING BAGS

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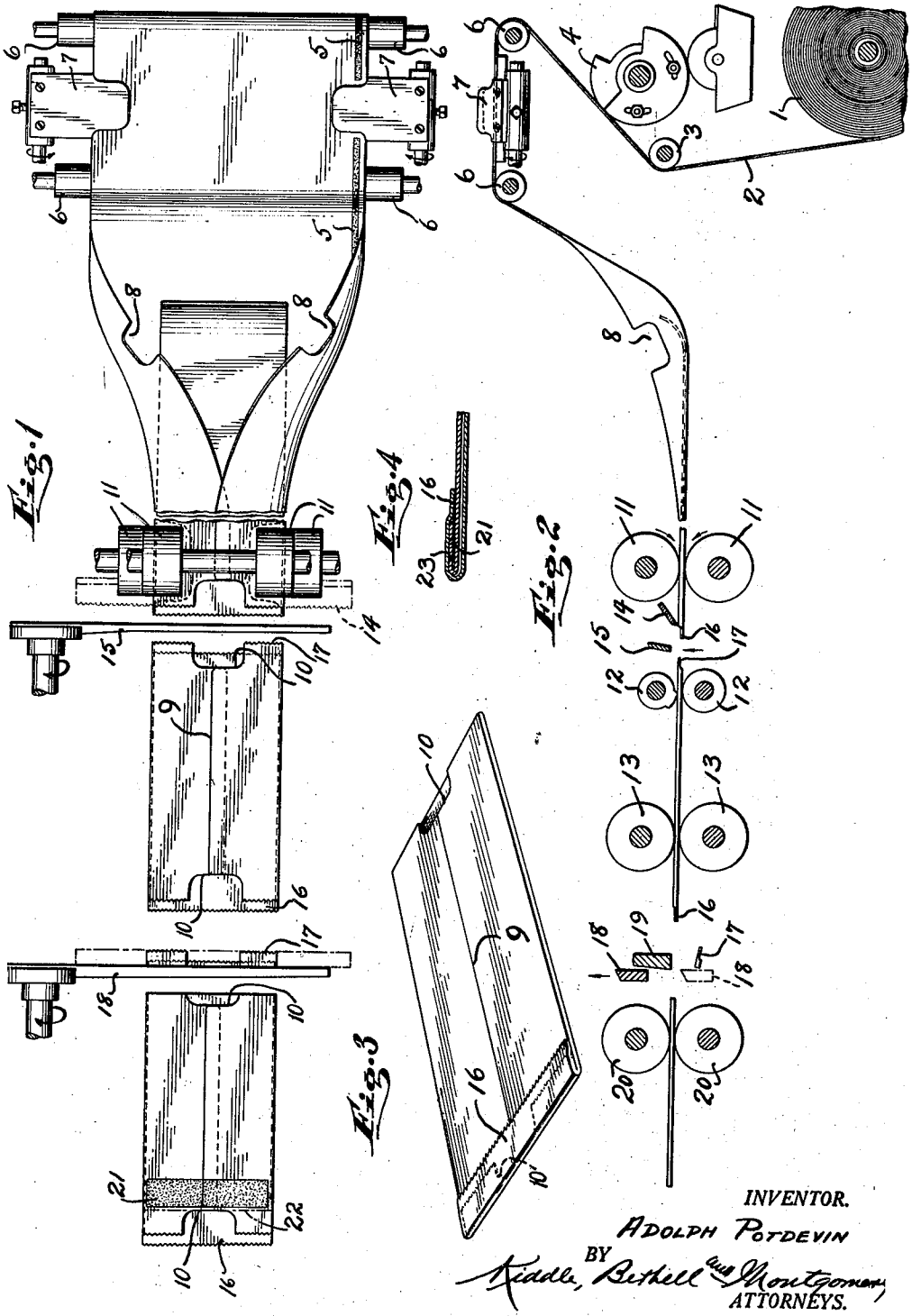


Fig. 1

Fig. 2

Fig. 3

Fig. 4

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PROCESS OF MAKING BAGS

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4 Claims. (Cl. 93—35)

This invention is directed to an improvement in a process of making bags, and has for an object the provision of a process wherein a thumb notch is formed in the seam wall of the bag length at each end thereof, the bottom of the bag length before the bottoming operation being provided with a projecting flap in the wall opposite to the seam wall, this flap being folded over the seam wall to bottom the bag length. Prior to the bottoming operation the end of the bag length which eventually is to constitute the top of the bag is trimmed, thereby to provide a bag, the top end of which is provided with a thumb notch, the edges of this end of the bag being free of the usual serrations.

In the accompanying drawing wherein I have illustrated an apparatus suitable for the carrying out of my invention and wherein I have illustrated a bag and the various steps of its manufacture:

Fig. 1 is a plan view more or less diagrammatic of the bag making apparatus;

Fig. 2 is a diagrammatic side elevation of the machine;

Fig. 3 is a perspective view of the completed bag; and

Fig. 4 is a section of a part of the bag showing the detail of the bottom end.

Referring to the drawing in detail, the material from which the bag is to be made and which may be paper or "Cellophane" or glassine or any other suitable material is taken from a supply roll 1, the web 2 advancing continuously about an idler roller 3 and thence to and in contact with a gluing segment 4 which applies spaced stripes of glue or other adhesive 5 extending longitudinally of the web and adjacent one edge thereof. The gluing segment 4 is adjustable circumferentially as well as axially on its shaft so as to vary the location of the adhesive stripes 5.

After passing the gluing mechanism the web next passes over a pair of guide rollers 6. Intermediate this roller and the gluing segment I provide at each side of the machine rotary notching devices 7 rotating about an axis parallel to the web travel and driven in the direction of the arrows on Fig. 1. These notchers are adjustable on their respective shafts and provide notches shown at 8 in each side of the web intermediate the adjacent ends of the adhesive stripes 5.

The web then passes to tubing mechanism of usual construction where it is tubed to provide a center seam 9 extending lengthwise of the tubing, the opposed notches 8 in this operation being brought together in the seam wall of the tubing as will be evident.

After the notching and tubing operations the tubing passes between feed rollers 11, holdback rollers 12 and forwarding rollers 13.

Intermediate the feed rollers 11 and the holdback rollers 12 I provide cut-off mechanism which conveniently comprises a stationary blade 14 and a striker bar 15. This cut-off mechanism is adapted to divide the tubing into bag lengths, severing the upper wall of the tubing along a line meeting the ends of the notches 8 intermediate the sides of the notches to provide a thumb notch in the seam wall at each end of each bag length, and to sever the bottom wall of the tubing along a line which is in advance of or to one side of the line of severance of the upper wall so as to provide a plain projecting flap 16 on the lower wall of each bag length at the leading end thereof and a projecting flap 17 with a thumb notch 10 in it at the trailing end of each bag length. Such a bag length appears in plan in Fig. 1.

The bag lengths are advanced continuously by the forwarding rollers 13 past trimming mechanism conveniently comprising a rotary bar 18 and a fixed cutter 19 by which the trailing end of each bag length is trimmed, as seen in Fig. 1, to remove the flap 17 and trim the ends of both walls of the bag length, so that this end, which ultimately is to be the top of the bag is smooth, i. e., unserrated, with a thumb notch 10 in the seam wall.

Forwarding rollers 20 then advance the trimmed bag length to bottoming mechanism (not shown) but which may be of any suitable construction, which applies glue 21 to the leading end of the seam wall of the bag length and folds the end of the bag over along the line 22 to bring the flap 16 over upon the pasted area 21 to bottom the bag length. The finished bag is shown in Fig. 3.

It will be appreciated to those skilled in this art that by notching the web so that the notches appear in the seam wall of the tubing, the danger of tearing the web as it is pulled over the former plate in the tubing operation is very remote. This of course is of particular advantage with narrow bags.

It will be appreciated, furthermore, that by trimming the bag lengths prior to the bottoming operation, that is, in the passage of the bag lengths through the machine, the trimmings may be readily disposed of and the machine operated at the very high speeds desirable in bag making machines. It will be obvious also that by notching the bottom of the bag there will be a lesser number of thickness of material at the seam side or wall so that a better pasting of the bottom results.

It will be seen also that by severing the tubing intermediate the sides of the notches **8**, so that a notch **10** will appear in the bottom end of the bag length, in the seam wall thereof, the pasting area available, so far as the lower wall of the bag length is concerned, is materially increased, when folding the leading end of the bag length over along the line **22**, upon the seam wall, in the bottoming operation. This insures a very strong bottom and does away with the necessity of projecting tabs on the flap **16**. In other words, the lower wall material available for pasting purposes is increased by the provision of the notch **10** to an extent equal to the area of that notch.

It is to be understood that various changes and modifications may be made in the apparatus and the process herein described without departing from the spirit and scope of my invention.

What I claim is:—

1. The process of forming a bag which consists in making non-rectilinear cuts in a web, folding the web into a bag tube so that said cuts are central of the seam wall thereof, severing the other wall of the tube from side to side, severing the seam wall along a line which meets the outer ends of the said non-rectilinear cuts to provide a bag length with a thumb notch in one wall at each end, the other wall projecting beyond the notched wall, and subsequently severing the top of the bag length including both walls along a line within the top of the shorter bag wall and then bottoming.

2. The process of forming a bag which comprises applying paste along one edge of a web, making non-rectilinear cuts in opposed edges of the web, folding the web transversely to bring the opposed edges into overlapped relation to form a seam and to bring said cuts central of the seam wall thereof, severing the unseamed wall of the tube from side to side, severing the seam wall along a line which meets the outer ends of the said non-rectilinear cuts to provide a bag length with a thumb notch in the seam wall at each end of the bag length, the other wall projecting beyond the seam wall, subsequently severing the trailing end of the bag length including both walls along a line within the top of the shorter bag wall but above the bottom of the thumb notch therein, and subsequently folding the bottom end of the bag length over upon the notched seam wall and pasting the same thereto to provide a bag bottom.

3. The process of forming a bag which comprises applying paste along one edge of a web, forming notches in opposed edges of the web, folding the web into a bag tube with the pasted edge overlapping the opposite edge and so that the said notches are central of the seam wall thereof, severing one wall of the tube from side to side along a line which meets the outer ends of the said notches at a point intermediate the sides of said notches and severing the other wall along a line offset with the first mentioned line of severance so as to provide a bag length with a projecting flap at each end provided by one wall and a notch in each end of the other wall, subsequently trimming the trailing end of the bag length within the trailing end of the shorter notched wall but above the bottom of said notch, folding the flap at the other end of the bag length over upon the seamed notched wall to bottom the bag length.

4. The process of forming bags from a web of continuously advancing material, which process comprises applying adhesive stripes in spaced relation aligned longitudinally of the web adjacent one edge thereof, notching opposite edges of the web, the notches lying abreast of each other and those in the edge of the web to which adhesive has been applied lying in the spaces between adjacent ends of the adhesive stripes, folding the notched edges of the web toward each other into overlapped relation to tube the web and to bring the notches into one wall of the web in overlapped relation, said notches terminating short of the tube edges, severing one wall of the tube transversely between the sides of said notches and severing the other wall along a line offset with respect to the first mentioned line of severance so as to provide a bag length with a projecting flap at each end provided by one wall and a notch in each end of the seam wall, trimming the end of the bag length which eventually is to constitute the top of the bag within the trailing end of the shorter notched wall but above the bottom of the notch, and finally bottoming the other end of the bag length.

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