

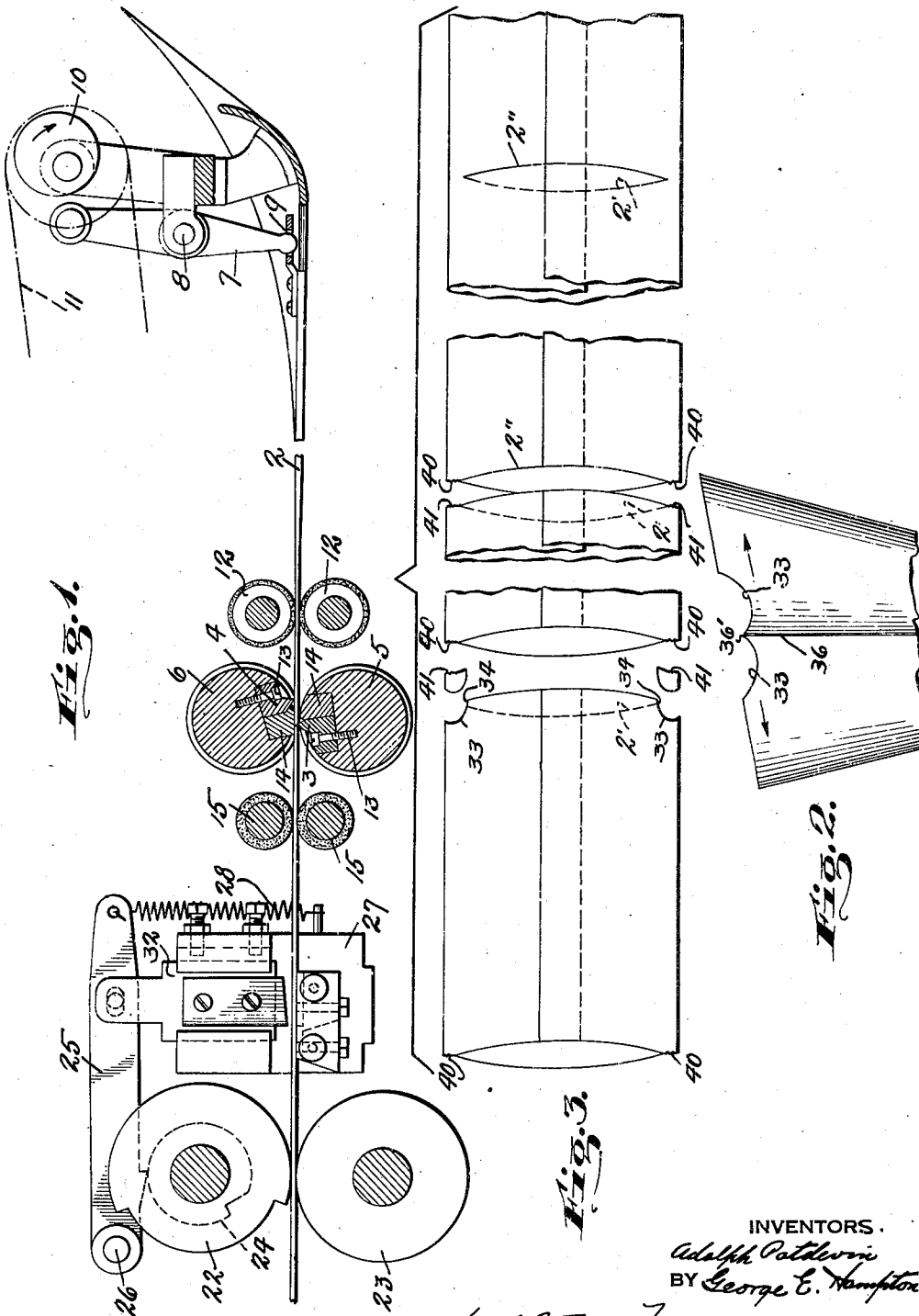
Aug. 31, 1937.

A. POTDEVIN ET AL

2,091,796

METHOD OF MAKING BAGS AND THE LIKE

Original Filed Sept. 29, 1934



INVENTORS.

Adolph Potdevin  
BY George E. Hampton

Kiddle, Beech and Montgomery, ATTORNEYS.

## UNITED STATES PATENT OFFICE

2,091,796

## METHOD OF MAKING BAGS AND THE LIKE

Adolph Potdevin, Garden City, and George E. Hampton, New York, N. Y., assignors to Potdevin Machine Company, Brooklyn, N. Y., a corporation of New York

Original application September 29, 1934, Serial No. 746,082. Divided and this application September 11, 1936, Serial No. 100,276

5 Claims. (Cl. 93—35)

This invention relates to a method of making bags and is particularly adapted for making bags of cellulose acetate, cellulose hydrate, glassine and the like. The present application is a division of our copending application Serial No. 746,082, filed September 29, 1934.

In general, the present invention is directed to a method of making bags in which the tubed bag material is partially severed into bag lengths, this partial severing operation being completed by placing the tubing under longitudinal tension sufficiently high to finish the dividing operation.

The present invention also provides for trimming the corners of the bag length, that is to say, the corners of that end of the bag length which is to become the top or open end of the bag. This is of material advantage in connection with the making of bags of cellulose acetate, cellulose hydrate, glassine and the like in that these materials are brittle and are likely to crack in the severing operation. By trimming out the corners of the end of the bag length which eventually is to become the open end of the bag, any cracked or splintered material at the corners of the bag length will be removed thereby reducing to a minimum likelihood of tearing the bags at the corners when the same are used.

In the accompanying drawing:

Fig. 1 illustrates in sectional elevation an apparatus suitable for performing the method of this application;

Figs. 2 and 3 are more or less explanatory views showing the tubing in the various stages of being fabricated into bag lengths in accordance with this invention.

Referring to the drawing in detail, the material from which the bags are to be made is fed to the machine and as it passes into the machine is tubed, the tubing mechanism being a well known commercial apparatus.

The material is tubed about a cut-off plate designated 2. This is a thin flat plate having upper and lower plane faces. The plate is adapted to be reciprocated lengthwise of the machine in timed relation with the other mechanism of the machine as will be brought out hereinafter.

The forward advance of the cut-off plate, that is to say, the advance of the cut-off plate in the direction of the travel of the material is effected by cut-off blades or cutters 3 and 4 mounted in cut-off rollers 5 and 6, respectively, the plate being retracted by a lever 7 pivoted at 8, one end of this lever extending through the tail of the cut-off plate 2, as shown at 9. The plate engaging end of the lever 7 is positively actuated by a cam

10 driven by chain 11, for instance, the cut-off plate 2 being retracted in timed relation to the operation of the cut-off blades or knives 3 and 4.

Forwarding rollers 12 are provided between the tail or rear end of the cut-off plate 2 and the cut-off rollers 5 and 6. The function of these rollers is to advance the tubed material continuously through the machine to the cut-off rollers 5 and 6.

The cutters 3 and 4 are set into the face of the rollers 5 and 6 and held in place therein by screws 13. A land 14 is set into the face of each roller beside the cutter.

It will be understood, of course, that when the cut-off plate 2 is not being advanced by the cutters 3 and 4 and the lands 14 the plate is free to be retracted positively by the lever 7. The rollers 5 and 6 are so set with respect to each other that the cutter 3, for example, will perform its operation ahead of the cutter 4, thereby to provide a projecting flap on the lower wall of the bag tubing. Of course this order of operation of the cutters may be reversed if desired. The cut-off rollers 5 and 6 are adjustable circumferentially so as to vary the operation of the knives or cutters 3 and 4. The latter are smooth edged, that is to say, are not serrated and are curved as viewed in plan.

When the machine is in operation, as the leading cutter 3, for instance, engages the lower wall of the tubed material 1, it will roll over the plane face of the hard metal cut-off plate 2 to cut through the lower wall of the tubed material with a smooth rolling pinch cut. The cut is designated 2' in Fig. 3 and extends transversely of the tube from a point adjacent one edge thereof to a point adjacent the opposite edge. The cut-off plate at this time is bearing against the land 14 in the upper cut-off roller 6 so as to be carried forward or advanced at cutter speed during the cutting operation. This operation is followed by a similar operation of the cutter 4 which rolls over the upper plane face of the cut-off plate 2 partially to divide the upper wall of the tubed material 1 with a rolling pinch cut shown at 2'', the plate 2 in this operation bearing against the land 14 in the lower roller 5 and moving forward at cutter speed. During this partial severing or dividing operation the bag tubing is being engaged by rollers 15 which are behind the cut-off rollers 5 and 6.

Inasmuch as the cutters 3 and 4 engage only the plane faces of the cut-off plate 2, it will be appreciated that the edges of the tubed material

for a distance at least equal to the thickness of the cut-off plate are still uncut. This is apparent from the showing at the right hand end of Fig. 3.

5 Beyond the rollers 15 are a pair of rollers 22 and 23. These rollers are driven at a higher peripheral speed than the rollers 15 so that when they engage the partially severed tubed material a sudden tension will be placed on the material  
10 in the direction of its length to finish the dividing operation by tearing through the corners or edges of the tube as shown at 40 and 41 in Fig. 3. This procedure is followed by cutting out or trimming the corners of the trailing end of each  
15 bag length.

The segmental rollers 22 above referred to are equipped with cams 24 for controlling cutter or punch operating levers 25 each of which is pivoted at 26. A die plate 27 lies below the advancing bag length and springs 28 have one end secured to this die plate and their other ends to the free ends of the lever 25, as seen in Fig. 1. Attached to the levers 25 are die plungers 32 cooperating with the die plate 27 to cut out or  
25 trim the corners of the trailing end of the bag length as shown at 34. The die plungers 32 are so shaped that the bottom 33 of each of the cut-outs 34 when the tubed material is lying flat, as illustrated in Fig. 3, will be below the outer edge of each cut-out, that is, below the edges of the  
30 tube so that when the tubed material is opened up as illustrated in Fig. 2 the bottom of each notch is in the form of an inverted V which we have designated 36. Consequently if tension is  
35 placed on the tube in the direction of the arrows on Fig. 2 tending to tear the tube at the corners the tension is transferred from the edge of the end of the tube to below the apex 36' of the inverted V's 36 practically necessitating bursting  
40 of the material of the tube below the apex of each V before a tear can start.

It will be seen from all of the foregoing that the top end of the bag length, that is, that end which is to form the top or open end of a finished  
45 bag, is free of sharp corners thereby reducing to a minimum likelihood of the bag tearing at the corners of the top. We have found our method has great merit when dealing with materials such as cellulose acetate, cellulose hydrate,  
50 glassine and the like in that by cutting back or trimming the corners of the tube the splintered material, if any exists, is removed.

What we claim is:—

1. In the making of bags and the like, the  
55 method which comprises tubing the bag material, cutting through the upper and lower walls of the tubing transversely of the tubing from adjacent one edge of the tubing to adjacent the other edge with a smooth cut, partially to divide  
60 the tubing into bag lengths, placing the tubing

under longitudinal tension to complete the dividing operation, and then trimming one end of the bag length in an area confined to the corners thereof.

2. In the making of bags and the like, the  
5 method which comprises tubing the bag material while continuously advancing the same, cutting through the upper and lower walls of the advancing tubing transversely of the tubing  
10 from adjacent one edge of the tubing to adjacent the opposite edge with a smooth cut, partially to divide the tubing into bag lengths, placing the advancing tubing under longitudinal tension to complete the dividing operation, and then trimming the corners of the trailing end of the bag  
15 length with an inwardly curved cut confined to the bag length corners.

3. In the making of bags and the like, the  
20 method which comprises tubing the bag material while continuously advancing the same, cutting through the upper and lower walls of the advancing tubing transversely of the tubing from adjacent one edge of the tubing to adjacent the opposite edge with a smooth cut, partially to divide the tubing into bag lengths, placing the  
25 advancing tubing under longitudinal tension to complete the dividing operation, and then trimming the opposed corners of the trailing end of the bag length where the dividing operation was completed, with an inwardly curved cut which  
30 is confined to the bag length corners.

4. In the making of bags and the like, the  
method which comprises tubing the bag material, cutting through the upper and lower walls  
35 of the tubing transversely of the tubing from adjacent one edge of the tubing to adjacent the other edge, partially to divide the tubing into bag lengths, placing the tubing under longitudinal tension to complete the dividing operation, and then trimming the opposed corners of the  
40 trailing end of the bag length to provide cut-backs so shaped that the bottom of each of them forms an inverted V when the bag length is opened.

5. In the making of bags and the like, the  
45 method which comprises tubing the bag material while continuously advancing the same, cutting through the upper and lower walls of the advancing tubing transversely of the tubing from adjacent one edge of the tubing to adjacent the  
50 opposite edge, partially to divide the tubing into bag lengths, placing the advancing tubing under longitudinal tension to complete the dividing operation, and then trimming the opposed corners of the trailing end of the bag length to provide cut-backs so shaped that the bottom of each of them forms an inverted V when the bag  
55 length is opened.

ADOLPH POTDEVIN.  
GEORGE E. HAMPTON. 60