

April 8, 1969

G. J. O. WELIN-BERGER

3,437,540

FILTERING BAG FOR BREWING COFFEE AND METHOD OF MAKING SUCH BAG

Filed May 5, 1966

Sheet 2 of 2

FIG. 2

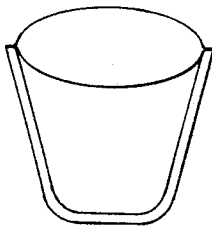
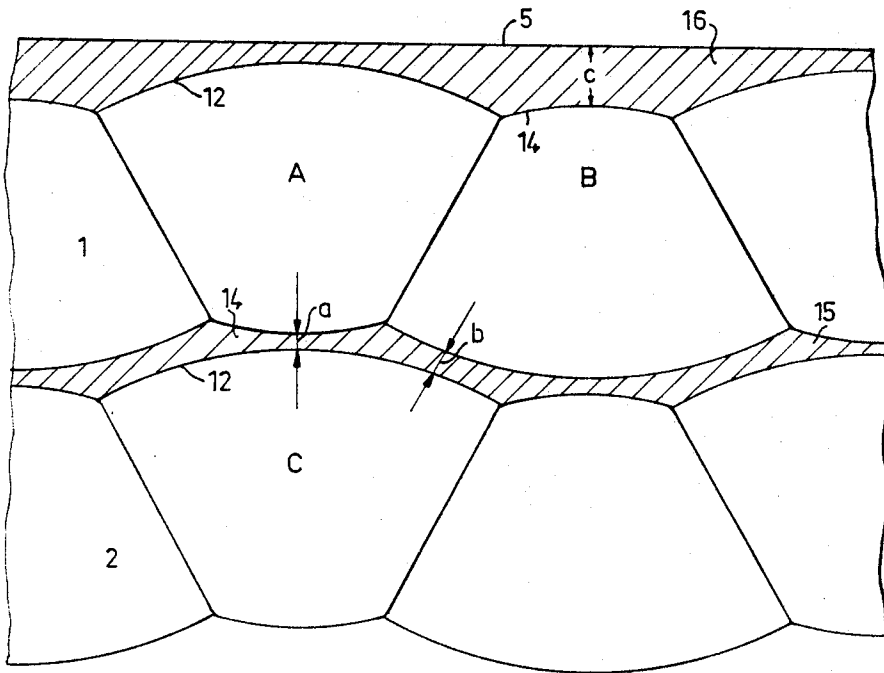


FIG. 3

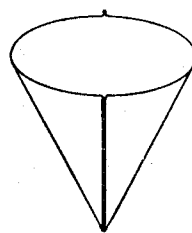


FIG. 4

INVENTOR.

GUY JOHN OLOF WELIN-BERGER

BY

Young & Thompson
ATTYS

1

2

3,437,540

FILTERING BAG FOR BREWING COFFEE AND METHOD OF MAKING SUCH BAG

Guy John Olof Welin-Berger, Parkgrand 4, Nacka, Sweden

Filed May 5, 1966, Ser. No. 547,935

Claims priority, application Sweden, May 7, 1965, 6,022/65

Int. Cl. B32b 7/14

U.S. Cl. 156—269

2 Claims

ABSTRACT OF THE DISCLOSURE

Coffee-brewing filter bags are formed of filtering paper by adhering together two elongated webs of filtering paper along alternately oppositely inclined lines with the more closely adjacent ends of the inclined lines interconnected by stripes of adhesive parallel to the length of the webs. Coffee bags are then cut out along lines that follow the middle of the lines of adhesive, with an open end cut out along a circular arc opposite the bottom edge of the bag. The bag blanks are thus cut from the webs in the pattern shown in the drawings to minimize waste of material.

This invention relates to a filtering bag for brewing coffee and has for its object to form such bag in a manner which renders possible simple production with a minimum of consumption of paper. The invention also relates to a manner of making the bag.

In its broadest aspect the filtering bag according to the invention is characterized in that it consists of two layers of filtering paper which are pasted together along the bottom and two lateral margins of the bag.

In its broadest aspect the manner of making the bag is characterized by providing one of two layers of filtering paper with an adhesive along stripes corresponding to the bottom and lateral margins of the bag, pasting the layers together, punching or cutting the bag out from the layers so that the bag will consist of the two layers which are pasted together along the bottom and the lateral margins. Mass production is possible by providing one or both layers with adhesive stripes defining a plurality of bags such that the bottom portion of every second bag lies at one margin of the layers and the bottom portions of the other bags lie at an opposite margin of the layers. In this case the adhesive stripes for the various bag blanks can be placed close to each other at the lateral margins so that the paper can be effectively utilized. Advantageously the layer consists of paper webs to which adhesive stripes can be applied corresponding to a plurality of rows of bag blanks. The stripes of each row can be arranged such that the bottom edge of every second bag blank faces one longitudinal edge of the webs and that the bottom edges of the other blanks face the other longitudinal edge. Four or eight or even more rows can be arranged along the two webs.

The bag blanks can be punched out from the layer webs which are put together and connected to each other along the stripes, where the punched cuts are placed in the middle of each adhesive stripe or midway between two parallel adhesive stripes and further along an arcuate line defining the mouth of the bag.

Additional features of the invention and advantages obtained thereby will appear from the following description of an embodiment illustrated in the accompanying drawing. FIG. 1 is a plan view of a pair of paper webs pasted together along stripes such that the stripes contain a plurality of rows of bag blanks to be punched out from the webs. FIG. 2 shows how the bag blanks can be

punched out so as to reduce the wastage to a minimum. FIGS. 3 and 4 are perspective views of the finished bag.

In the example illustrated in FIG. 1 two webs of filtering paper are assumed to be placed in superimposed positions and pasted together along stripes which define figures substantially in the form of a V. Four rows of FIGURES 1, 2, 3 and 4 are illustrated, but any number of rows may be chosen. In each row V-shaped figures are arranged such that the "vertex" of the V corresponding to the bottom of the bag of every second figure faces one longitudinal side edge 5 of the webs and that the vertices of the V's of the other figures are facing the other side edge 6. Adhesive stripes 7, 8 located at the lateral margins of a bag extend on the bag blank parallel and close to adjacent corresponding adhesive stripes 9, 10 on the adjacent bag blanks in the same row. The chain-dotted line 11 denotes the outline of a bag blank. The bag blank is to be punched out from the webs along said outline. The punching line 11 extends midway between the adhesive stripes 7, 9 and the adhesive stripes 8, 10 and passes along the adhesive stripe at the bottom of the bag blank. The upper edge of the bag blank is defined by a punching line which is a curve 12 in the form of an arc of a circle. At this place there is of course no adhesive stripe because the bag is to be open.

FIG. 2 illustrates two rows 1, 2 of figures to be punched out. The row 1 comprises a pair of adjacent figures A and B. In the adjacent row 2 a figure to be punched out is denoted at C. The figure C in the row 2 is located opposite the figure A in the row 1 and has its mouth line edge 12 directed toward the bottom edge line 14 of the figure A. In order to reduce the wastage of paper material as much as possible, the distance between the rows at end 2 should be as small as possible. The distance is defined by the minimum distance a between the lines 12 and 14 that is allowed by the punching tool, and consideration has to be taken to obtaining neat edge lines. With regard to the wastage between the punching rows 1 and 2 it is desirable also to minimize the distance b between any mouth edge line 12 in a row, such as 2 and the confronting mouth edge lines of the figures in the row 1, the last-named lines being located on either side of the figure in the row 1 that registers with the said figure in the row 2. The ideal configuration with regard to the wastage of material between the rows is obtained if the distance a is equal to the distance b . However, consideration is also to be paid to the wastage of material at the margins of the paper webs. In FIG. 2 one edge line 5 only is indicated; but similar conditions apply to the other edge. The wastage of material between the rows 1 and 2 is represented by a hatched surface 15 and the wastage of material at the edge 5 is represented by a hatched surface 16. By displacing the figures to be punched out in the various rows with respect to each other it is possible to obtain positions of the figures relative each other and relative to the edge lines of the paper webs resulting in a minimum of wastage. Regarding the wastage at the margins and depending on the outlines of the bag blanks it may be possible that the distance b will be greater than the distance a . Otherwise, the distance c at the figure B in FIG. 2, between the punch figures which have their bottom edge line 14 facing the edge 5 of the web might become too great. By having the mouth edge lines of the figures to be punched out in each row in the manner described alternately directed toward and away from the edge of the web and by making the distance between the row, such as the row 1, located nearest the edge line and this edge line as small as possible and by making the distance between the rows as small as possible a minimum of wastage of material is ensured. In other words, the paper material can be utilized to the highest possible extent.

3

A still better utilization can be obtained by a certain other scheme of the outline of the bag blank, viz., if the mouth edge lines 12 are straight instead of arcuate and located such as to coincide with the edge of the web. In this case the bottom edge line 14 may also be straight and parallel to the edge of the web. However, a straight punching line 12 for the mouth edge results in a bag having concave lips because the lateral margins are not parallel to each other whereas the punching line 12 in the form of an arc of a circle and results in a bag lip which in the finished bag lies in a single plane. For this reason a punching line 12 in the form of an arc of a circle is preferred.

To obtain a high capacity of the punching operation in a single punching machine, the machine may be constructed so as to be able simultaneously to punch a plurality of pairs of webs pasted together. In this case the various webs are suitably marked so that it is possible to make sure that the adhesive stripes of a web are registering with the adhesive stripes of the other webs or web.

In FIG. 1 an adhesive stripe is shown for each bag blank, and the punching line 11 extends between parallel adhesive stripes 7, 9 and 8, 10 elongated at the lateral margins of adjacent bag blanks. Instead of two parallel adhesive stripes a single wide adhesive stripe may be applied with the punching line extending midway thereof.

What I claim is:

1. A method of making coffee-brewing filter bags of filtering paper material having two symmetric side walls of generally V-shaped inclination to each other with a wide end edge substantially coinciding with a circle sector to form a circular arc and a narrow bottom edge located opposite to the circular arc end edge, the two side walls being glued together along the radially extending side edges and the bottom edges of the side walls, comprising the steps of applying a plurality of generally V-shaped stripes of adhesive material corresponding to said

4

side edges and bottom edges onto at least one of a pair of elongated webs, superimposing the webs to unite them along said V-shaped stripes and bottom edges, the V-shaped stripes being arranged to form a pattern between the two superimposed webs in which the symmetry axes of all the areas between the V-shaped stripes are positioned at right angles to the longitudinal direction of the webs and the stripes form at least two longitudinal rows of V-shaped stripes with the bottom edge stripe portions facing alternately to the one or other side edge of the webs to form a zig-zag shaped line of adhesive material in each row, all V-shaped stripes which have their bottom edge portions facing one of the side edges of the webs being located in transverse rows with the symmetry axes of the areas between the V-shaped stripes in each transverse row substantially coinciding with each other, and severing the two webs along said zig-zag shaped adhesive lines of each longitudinal row and along said circular arcs extending between the ends of the bottom edge stripe portions.

2. A method as claimed in claim 1, and applying said bottom edge stripes of adhesive and severing said bottom edges along lines substantially parallel to said longitudinal direction of the webs.

References Cited

UNITED STATES PATENTS

2,237,346	4/1941	Gilfillan	156—291
2,272,530	2/1942	Patterson	206—0.5
2,622,055	12/1952	Lieder	156—269
2,935,241	5/1960	Brady	93—35
3,172,796	3/1965	Gülker	156—269

DOUGLAS J. DRUMMOND, *Primary Examiner*.

U.S. Cl. X.R.

156—291; 93—35; 210—477