May 1, 1934. A. A. ABRAMSON 1,957,402

BAG

Filed Oct. 9, 1931

FIG. 1

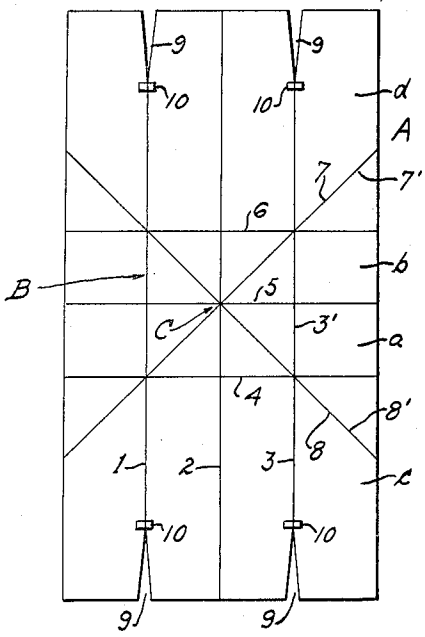



FIG. 2

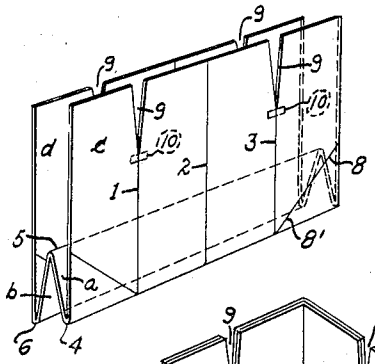



FIG. 3

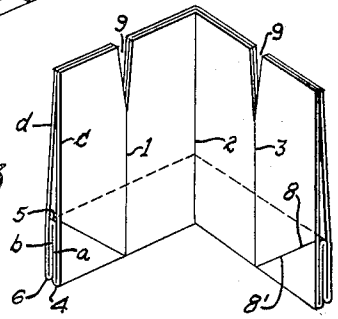



FIG. 5

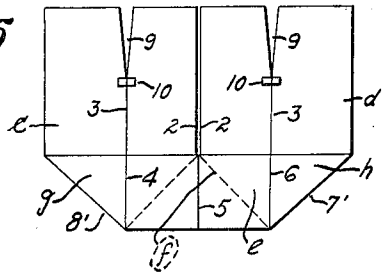



FIG. 4

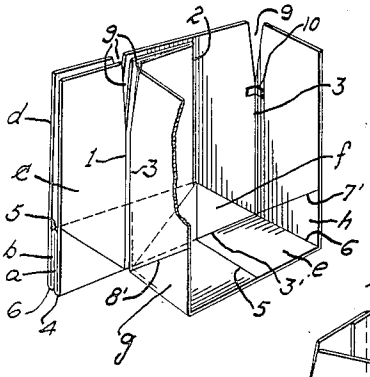



FIG. 6

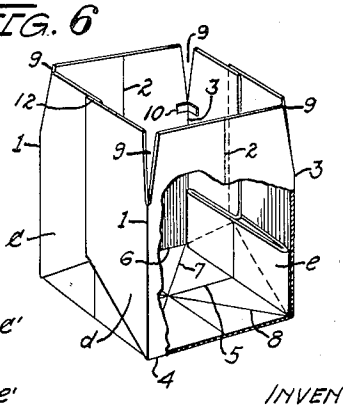
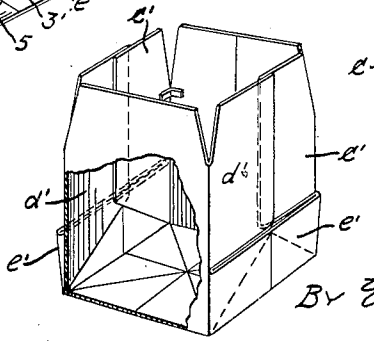



FIG. 7




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# UNITED STATES PATENT OFFICE

1,957,402

## BAG

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Application October 9, 1931, Serial No. 567,786

4 Claims. (Cl. 229—61)

This invention relates generally to bags formed of paper or like material and more specifically to a bag which is so constructed and arranged as to provide a rectangular-bottom container, the predominant object of the invention being to provide an improved bag having a rectangular bottom which instead of being formed by folded portions of the bag forming material, as was frequently the case heretofore, is provided by a solid unfolded portion of said bag-forming material.

Figure 1 is a plan view of a blank of material utilized in producing the improved bag.

Figure 2 is a perspective of the blank illustrated in Figure 1, showing said blank in a partly folded condition.

Figure 3 illustrates the folded sheet shown in Figure 2 after its condition has been slightly modified.

Figure 4 is a perspective showing a bag-forming blank after the operation of folding same has progressed beyond the point illustrated in Figure 3.

Figure 5 is a view illustrating the next step of the folding operation following the stage of said folding operation illustrated in Figure 4.

Figure 6 is a perspective illustrating a completely folded bag, a wall portion thereof being broken away to reveal the inner folding arrangement of the bag.

Figure 7 is a perspective of a modified form of my improved bag.

In the drawing, wherein is shown for the purpose of illustration, merely, two embodiments of the invention A designates a sheet of paper, or like material, of the proper dimensions to produce a bag of the desired size. The sheet of paper A is provided with fold lines 1, 2, and 3, which are extended longitudinally thereof, the fold line 2 being extended longitudinally of the sheet at the approximate transverse center of said sheet, and the fold lines 1 and 3 being spaced transversely of the sheet in opposite directions with respect to the fold line 2. The sheet A is provided also with fold lines 4, 5, and 6, which are extended transversely of said sheet. The fold line 5 of the last mentioned group of fold lines is extended transversely of the sheet A at the approximate longitudinal center thereof so that said fold line 5 intersects the fold line 2 at the precise center C of the sheet A, and the fold lines 4 and 6 are spaced longitudinally of the sheet A with respect to and at opposite sides of the fold line 5.

Extended diagonally of the sheet A is a pair of fold lines 7 and 8. The fold lines 7 and 8 intersect each other and cross the longitudinal fold line 2 and the transverse fold line 5 at the center C of the sheet, and said diagonal fold lines extend to the opposite side edges of the sheet A as shown clearly in Figure 1. Portions of the fold lines 1—3—4—6 which are located at the center of the sheet A produce a substantially square figure B which defines the bottom of the bag when said bag is in a folded condition, and the diagonal fold lines 7 and 8 intersect the four corners of the square figure B.

At the opposite ends of the longitudinally extended fold lines 1 and 3 the sheet of material A preferably is notched as indicated at 9 in the drawing and the inner end of these notches produce a more or less weak point at which the sheet of material may be accidentally torn. I, therefore, apply to the sheet of material A at the inner end of each notch 9 a piece of paper or other suitable material 10 which serves to reinforce the sheet of material at the points mentioned. Preferably the pieces of reinforcing material 10 are secured to the sheet of material A at the inner face thereof by a suitable adhesive, and because of the presence of said pieces of material the likelihood that the sheet A will be torn at the inner ends of the notches is rendered quite remote.

When a sheet of paper A has been prepared as illustrated in Figure 1 and it is desired to fold said sheet to produce a bag the sheet A is folded on the fold lines 4, 5, and 6 as illustrated in Figure 2; that is to say, the portions *a* and *b* are folded inwardly so that said portions and the fold line 5 at the inner ends thereof are disposed between the portions *c* and *d* of the sheet A. The sheet folded as in Figure 2 is then folded on the fold line 2 so as to bring the right hand half of the folded sheet to a position where it is arranged at an approximate right angle with respect to the left hand half of said folded sheet as shown in Figure 3.

The opposed, parallel sections of the displaced right hand half of the folded sheet are then spread apart as shown in Figure 4, the adjacent sections of the portions *a* and *b* being folded on the portion 3' of the fold line 3 to provide the flat bottom *e* of the spread right hand half of the folded sheet A, and the portion *f* of the portions *a* and *b* located to the rear of the bottom *e* of the spread right hand half of the folded sheet A being extended from said bottom portion *e* to a point where it merges into the sections of the portions *a* and *b* which are located between the sheet portion *c* and *d* of the left hand half of the folded sheet. The bottom *e* of the spread left hand half of the folded sheet together with the lower portions *g* and *h* of the opposed parallel side portions

of said spread left hand half of the sheet are folded upwardly, flat against the folded sheet as shown in Figure 5, the bottom *e* being folded on the fold line 3' and the opposed side portions being folded on the portions 7' and 8' fold lines 7 and 8. The opposite outer sections of the right hand half of the sheet which is now folded flat as shown in Figure 5 are folded inwardly so that they overlap each other at their inner ends whereupon folding of one half of the bag is completed.

The partly folded bag is then turned over and the other half of the folded sheet A is subjected to the same folding operation just described with the result that the bag will be completely folded. Adhesive material is then applied to the bag to secure the over-lapping portions 12 at opposite sides thereof together, and also the folded portions within the bag at opposite sides thereof which include the rectangular portions *e* already referred to are secured to the adjacent side walls of the bag by adhesive material.

When the bag has been folded as described and secured in its folded condition and said bag has been opened to its effective position the resultant container is provided with a solid unfolded bottom of rectangular shape which is defined in Figure 1 by the rectangular figure B. Bags of this type are capable of a great variety of applications and because of its simplicity of manufacture and efficiency in use my improved bag fills a long felt want.

Instead of folding the sheet as just described to produce a bag such as that illustrated in Figure 6, I may, if desired, modify the manner of folding the sheet slightly so as to produce the bag illustrated in Figure 7. In producing the bag shown in Figure 7 the sheet of bag forming material is folded in the exact manner illustrated in Figures 2, 3, and 4. However, instead of folding the opposite end portions of the folded sheet over the outer face of the portion *e* of the sheet so as to locate said portion *e* at the inner sides of said opposite end portions as illustrated in Figure 5, I will, in producing the bag shown in Figure 7, fold the opposite end portions *c'* and *d'* of Figure 7 inwardly and thereafter fold the portion *e'* of Figure 7 upwardly into contact with the outer faces of said portions *c'* and *d'*. By folding the sheet as just described the rectangular portions *e'* are located at outer faces of the completed bag instead of at inner faces of said bag as shown in Figure 6. The folded sheet illustrated in Figure 7 is secured by adhesive as already explained to produce the completed bag.

I claim:

1. A sheet of bag forming material provided with an uneven number of fold lines extended longitudinally of said sheet and having an uneven number of continuous fold lines extended transversely of the sheet from one to an opposite edge of said sheet, the transverse fold lines intersecting the longitudinal fold lines and the point of intersection of a pair of transverse and longitudinal fold lines being located at the approximate center of the sheet, and a pair of diagonally extended fold lines each of which extends continuously in one direction from one to the other side edge of the sheet, said diagonally extended fold lines intersecting each other at the point of intersection of the longitudinal and transverse fold lines which intersect each other at the approximate center of the sheet.

2. A sheet of bag forming material provided with three fold lines extended longitudinally of said sheet and having three continuous fold lines extended transversely of the sheet from one to an opposite edge of said sheet, the transverse fold lines intersecting the longitudinal fold lines and the point of intersection of the intermediate transverse fold line and the intermediate longitudinal fold line being located at the approximate center of the sheet, and a pair of diagonally extended fold lines each of which extend continuously in one direction from one to the other side edge of the sheet, said diagonally extended fold lines intersecting each other at the centrally located point of intersection of the intermediate transverse and intermediate longitudinal fold lines.

3. A sheet of bag forming material provided with an uneven number of fold lines extended longitudinally of said sheet and having an uneven number of fold lines extended transversely of the sheet, the transverse fold lines intersecting the longitudinal fold lines and the point of intersection of a pair of transverse and longitudinal fold lines being located at the approximate center of the sheet, a pair of diagonally extended fold lines each of which extends continuously in one direction from one to the other side edge of the sheet, said diagonally extended fold lines intersecting each other at the point of intersection of the longitudinal and transverse fold lines which intersect each other at the approximate center of the sheet, said sheet of material being provided with notches at edges thereof which are located at ends of certain of said fold lines, and means for reinforcing said sheet at said notches.

4. A sheet of bag forming material provided with three fold lines extended longitudinally of said sheet and having three fold lines extended transversely of the sheet, the transverse fold lines intersecting the longitudinal fold lines and the point of intersection of the intermediate transverse fold line and the intermediate longitudinal fold line being located at the approximate center of the sheet, a pair of diagonally extended fold lines each of which extends continuously in one direction from one to the other side edge of the sheet, said diagonally extended fold lines intersecting each other at the centrally located point of intersection of the intermediate transverse and intermediate longitudinal fold lines, said sheet of material being provided with notches at edges thereof which are located at ends of certain of said longitudinal fold lines, and means for reinforcing said sheet at said notches.

ALVIN A. ABRAMSON.