Sept. 28, 1926.

W. E. ELLIOTT

1,601,566

REINFORCED BAG

Filed April 6, 1921

2 Sheets-Sheet 1

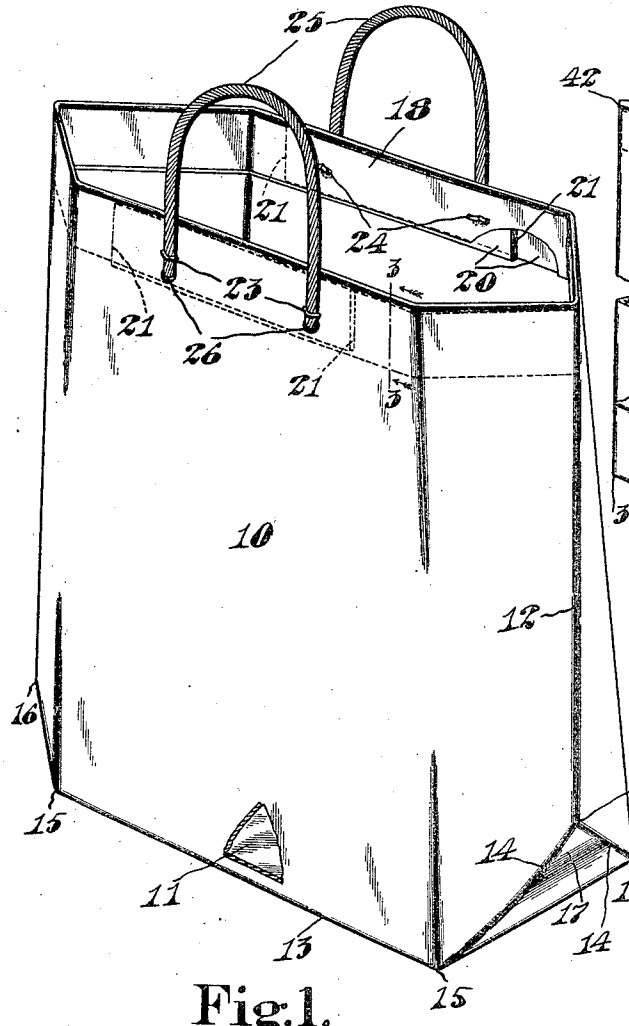


Fig.1.

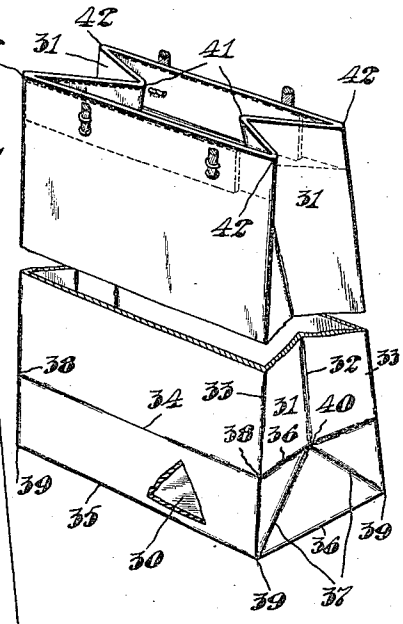


Fig.4.

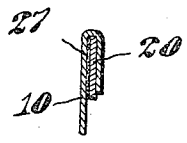


Fig.3.

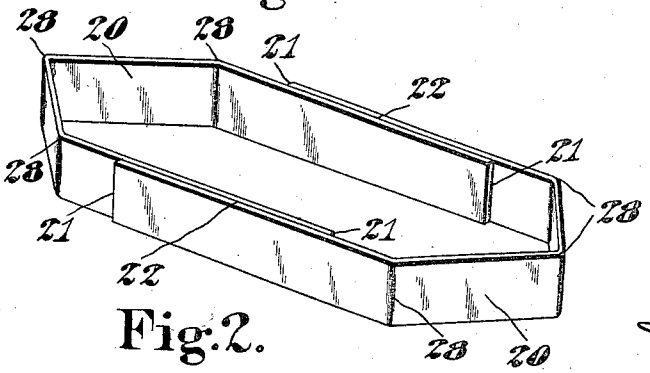


Fig.2.

INVENTOR.
WILLIAM E. ELLIOTT.

BY

ATTORNEY.

Sept. 28, 1926.

1,601,566

W. E. ELLIOTT

REINFORCED BAG

Filed April 6, 1921

2 Sheets-Sheet 2

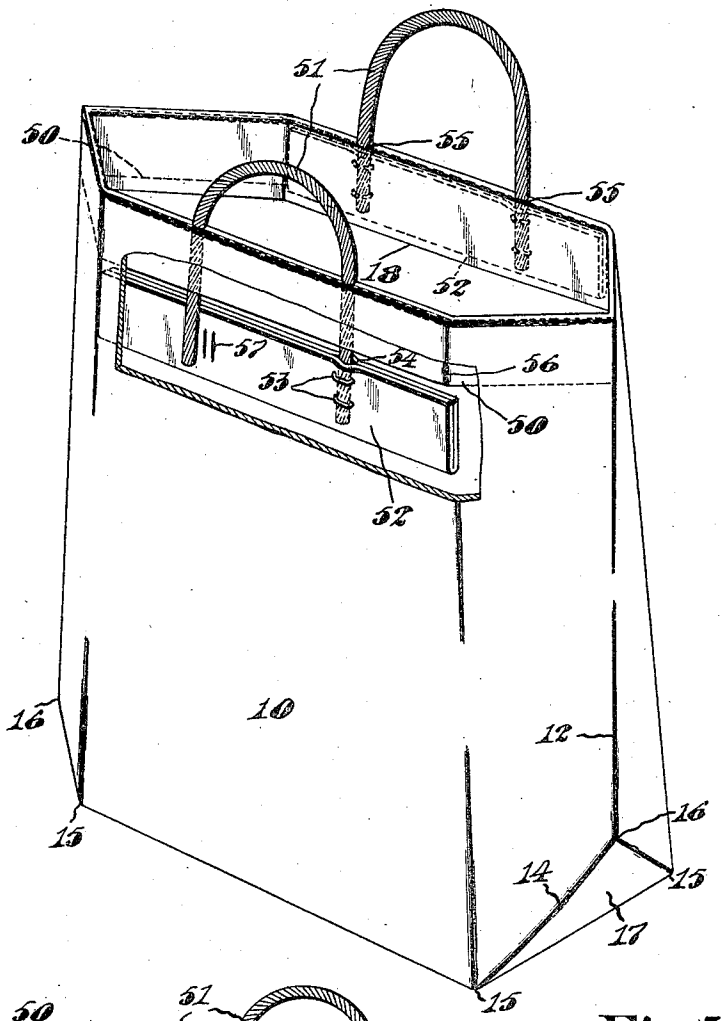


Fig.5.

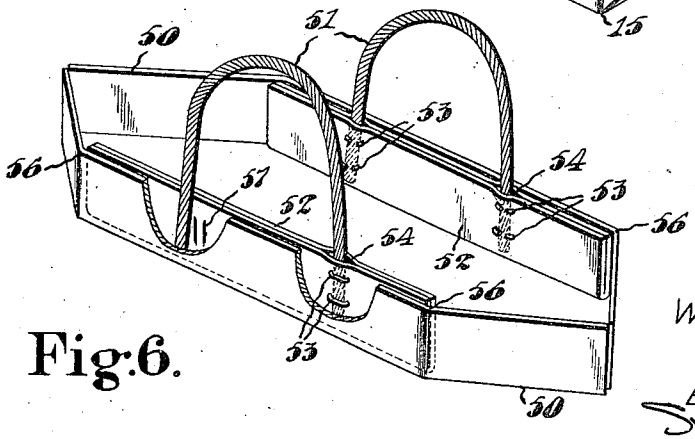


Fig.6.

INVENTOR.
WILLIAM E. ELLIOTT.

BY Sylvanus A. Cobb.
ATTORNEY.

Patented Sept. 28, 1926. 1,601,566

UNITED STATES PATENT OFFICE.

WILLIAM E. ELLIOTT, OF LYNN, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO MINNIE S. ELLIOTT, OF LYNN, MASSACHUSETTS.

REINFORCED BAG.

Application filed April 6, 1921. Serial No. 458,936.

In bags of such relatively frail material as paper, in which considerable weights of material are to be placed and which are to be carried or suspended by the edge surrounding the mouth, it has been customary to strengthen the points of suspension by turning in this edge. Moreover, when handles are attached to the edges, the mouths have been additionally reinforced by short stays of pasteboard placed between the inturned portion and the body of the bag, the handles being attached near the ends of the stays. While such constructions are advantageous, and while a stay of this character is useful in preventing the separation of the handle and bag by the direct pull of the contents, it is found that if the bag is continued in use for even a relatively short time, the contained weight, acting along lines terminating near the juncture of the handles with the body, causes the paper to fret through and tear at the ends of the stays, destroying the usefulness of the container. This defect I have effectively overcome by a simple and inexpensive construction hereinafter described and particularly claimed, and by means which, instead of interfering with the opening and closing of the bag, facilitates these operations.

A particular embodiment of my invention and a modification thereof are illustrated in the accompanying drawing, in which Figure 1 shows in perspective a bag reinforced in accordance with my invention; Fig. 2 is a similar view of the double stay which is inserted in the bag; Fig. 3 is a transverse sectional detail on the line 3—3 of Fig. 1; Fig. 4 illustrates in perspective another form of bag embodying my invention; Fig. 5 is a perspective view of still another modification of my improved bag; and Fig. 6 shows in perspective the stays of this bag removed from the body.

Referring particularly to Figs. 1, 2 and 3, the numeral 10 designates the body of a bag or like container having an elongated, hexagonal bottom 11, the entire device being formed preferably from a single sheet of paper. This is folded in any usual or convenient manner. As is customary in this type, there may be single longitudinal folds 12 at the opposite ends of its maximum transverse dimension, and folds 13 and 14 between the bottom and sides, all these folds meeting at the apices 15, 15 and 16 at each end of the bottom. When the bag is opened, the bottom tends to assume a rectangular form, bounded by the folds 13, 13 and curved portions of the bottom between the apices 15, 15, there being turned up at each end of the bottom a triangular portion 17. In expanding the mouth of the bag to give access to its interior, the tendency, to give the most effective opening, is for the mouth to conform generally to the hexagonal contour of the bottom, folds already existing at 12 and developing in the operation, in alinement with the apices 15.

About the mouth of the bag is an inturned fold 18, between which and the body are two like stays or reinforcing strips 20, 20 of flexible material more resistive to tearing than paper. A suitable substance from which to make these stays is pasteboard, which, like paper, is light and cheap. Each stay continues unbroken about one of the transverse ends of the bag, terminating at 21, 21 at points between the centers of the sides of the bag and the ends, they thus furnishing overlapping portions 22, 22, as is best shown in Fig. 2 of the drawing. Through each of these portions 22, the fold 18 and the outer body of the bag, extends some such securing means as staples 23, 23, clinched at the inside at 24, and holding, by the engagement of their yokes, loop-handles, which may be furnished by pieces of cord 25. To give a neat appearance, openings 26 may be formed in the wall of the bag below the staples, to receive and conceal the loose ends of the handles. Preferably, the stays are secured to the body of the bag by a layer of paste or other adhesive indicated at 27 (see Fig. 3). When a weight is carried in this bag suspended by the handles, the directions of the principal stresses set up are from the center of the bottom to points at or near the attached ends of the handles. These are resisted at the mouth of the bag by the double thickness of the stay and the additional thickness of the doubled bag material, this resistance being effective not only at the points of attachment of the handles to prevent their pulling away from the bag, but also for considerable distances at each side of these points. Consequently, there is little liability to rupture at what is ordinarily the weakest part of such a bag. The tendency to tear is sufficiently resisted along the lines of less stress at the ends of the sides by the

single thickness of each stay, together with the doubled paper, coming outside the ends 21, 21 of the companion stay, without unduly increasing the weight of the bag or the rigidity of the mouth.

Beyond the ends 21 of the associated stay, the closed end of each stay has, substantially alined with the apices 15 and 16 of the bottom folds, transverse depressed lines at 28, these being produced in some such way as by indenting. When the sides of the mouth are separated to open the bag, these indented lines readily bend, causing the mouth to assume a polygonal form, or the same general hexagonal shape as the bottom portion, and thus giving full access to the contents, or permitting articles to be easily removed. When the opening force is released, the spring of the sides inclines them to return into contact, the portions 28 having little tendency to become permanently set. An effective closure of the bag is thus maintained, particularly when its weight is held by the handles, the continuous stays at the sides leaving no portion free to bulge. Since the indented portions of the stays are considerably removed from the points of maximum strain, where the handles are attached, they are not likely to be broken thereby.

Fig. 4 illustrates my invention applied to the type of bag having a rectangular bottom 30, with a re-entrant portion 31 formed in the transverse ends of its side walls by longitudinal central folds 32 and parallel folds 33, 33. Transverse side folds 34 and 35, transverse end folds 36, 36 and converging end folds 37 meet at the apices 38, 39 and 40. The reinforcement in this bag need differ in no essential particular from that already described, save that here an indented portion 41 of each stay is alined with the corresponding fold apex 40, and each of portions 42, 42 with the apices 38 and 39, while the portions 41 are bent in the opposite direction to the corresponding indented portion of the bag first described. The general effect in this case is, however, precisely the same as before.

In Figs. 5 and 6 a modification of my improved reinforcement is shown in connection with the type or bag appearing in Fig. 1. Here the reinforcement also fully encircles the mouth of the bag, it consisting of two stays 50, 50, which do not overlap, but which extend into contact with each other at the folds 12, 12 the entire length of both sides of the mouth. In this bag the handles 51, 51 are each attached to a short doubled stay 52, which is inserted with the corresponding stay 50 within the folded-over portion 18 of the bag-mouth. The open side of this stay 52 is preferably at the outer edge or top of the bag, and has between its sides the ends of the handles 51, which are stapled through said sides at 53 and pass outwardly between the separated edges of the short stay at 54 and through openings 55 in the edge of the folded-over portion 18. The length of each stay 52 may be equal to the distance between the apices 15, 15 of the bag at one side, and, coinciding with the ends of these stays 52, the stays 50 preferably have indented or suitably indented portions 56. This, similarly to the bag of Fig. 1, facilitates the opening and closing of the bag at its natural folds.

In assembling the structure, the procedure indicated at the front wall of the bag of Fig. 5 may be followed. One of the handles 51 is secured by its staples 53 at one extremity to the stay 52. The point of attachment of the handle to the stay is made evident to the operator by indicating marks 57, which may be stamped or impressed in any desired manner upon the outer wall of the stay. Then the free end of this handle is passed through one of the bag-openings 55 from within the fold 18, and then through the other opening at the same side of the bag, into and through the fold. Now this end may also be stapled to the stay at points indicated by the marks 57 upon this portion. Thus attached, the stay may be drawn up into place beneath the fold, the long stay 50 inserted, and the attachment of the two stays to the body and fold of the bag completed by the application of an adhesive and the pressure of the parts together. A similar course is followed for the opposite side of the bag. It will be observed that by the provision of the indicating marks at the correct points, when the stays 52 are made, the attached handles will be caused to exactly register with the bag-openings 55 and the ends of the stays 52 with the bag-folds which start from the apices 15, this without special consideration on the part of the workman.

Whatever the particular form of bag thus reinforced, it presents, with an almost negligible addition to the cost and weight, a much greater security of the attachment of the handles, freedom from tearing of all portions of the mouth, and a general stability of the part which must be most handled, while at the same time increasing the facility with which the mouth may be opened to give access to the interior, and furnishing an effective closure for maintaining the opposite edges of the mouth parallel and in close proximity to each other when the bag is being carried.

I claim:

1. A bag comprising a body of paper, and a reinforcement encircling its entire mouth and consisting of a plurality of overlapping strips of material similar to the body but more resistive to tearing and carrying means for supporting the weight of the bag upon the overlapping portions of the reinforcing strip.

2. A bag comprising a body of paper, a reinforcement encircling its entire mouth and consisting of a plurality of overlapping strips of material similar to the body but more resistive to tearing, and handles secured to the body and overlapping portions of the reinforcement at opposite sides of the mouth.

3. A bag comprising a body portion, and a reinforcement consisting of two sections overlapping at opposite sides of the mouth and extending in opposite directions about the ends of the mouth.

4. A bag comprising a body portion, a reinforcement consisting of two sections overlapping at opposite sides of the mouth and extending in opposite directions about the ends of the mouth, and handles secured to the overlapping portions of the reinforcement.

5. A bag comprising a body portion, a reinforcement consisting of two sections overlapping at opposite sides of the mouth and extending in opposite directions about the ends of the mouth, loop-handles situated at opposite sides of the mouth of the bag, and staples securing the extremities of the loops to the body and to both reinforcements near the ends of the sections.

6. A folded bag comprising a body of paper, a reinforcement consisting of two sectional strips of pasteboard overlapping at opposite sides of the mouth and extendng in opposite directions about the ends of the mouth, said reinforcing strips being weakened along lines corresponding to portions of the folds, loops situated at opposite sides of the mouth, and staples securing the extremities of the loops to the reinforcements near the ends of the sections and at points removed from the weakened portions.

7. A folded bag comprising a body of paper having an inturned edge surrounding its mouth, a reinforcement consisting of two sectional strips of pasteboard situated between the body and edge of said reinforcement and overlapping at opposite sides of the mouth and extending in opposite directions about the ends of the mouth, said reinforcing strips being weakened along lines corresponding to portions of the folds, an adhesive securing the reinforcement to the body, loops situated at opposite sides of the mouth, and staples securing the extremities of the loops to the reinforcements near the ends of the sections and at points removed from the weakened portions.

8. A folded bag comprising a body of paper having longitudinal folds at the opposite ends of its maximum transverse direction and a bottom presenting a rectangular base and triangular end portions extending from the ends of said base having their apices in said longitudinal end folds, longitudinal folds in said body extending from the corners of said base to the top of the bag, a plurality of reinforcing strips having overlapping portions extending along the opposite sides of the bag and provided with indented lines in alinement with the longitudinal fold lines of said bag and handles secured to the overlapping portions of said reinforcing strips.

Signed at Boston, in the county of Suffolk and State of Massachusetts, this 29th day of March, 1921.

WILLIAM E. ELLIOTT.