(No Model.)

E. STANLEY.

METHOD OF MAKING PAPER BAGS.

No. 458,409. Patented Aug. 25, 1891.

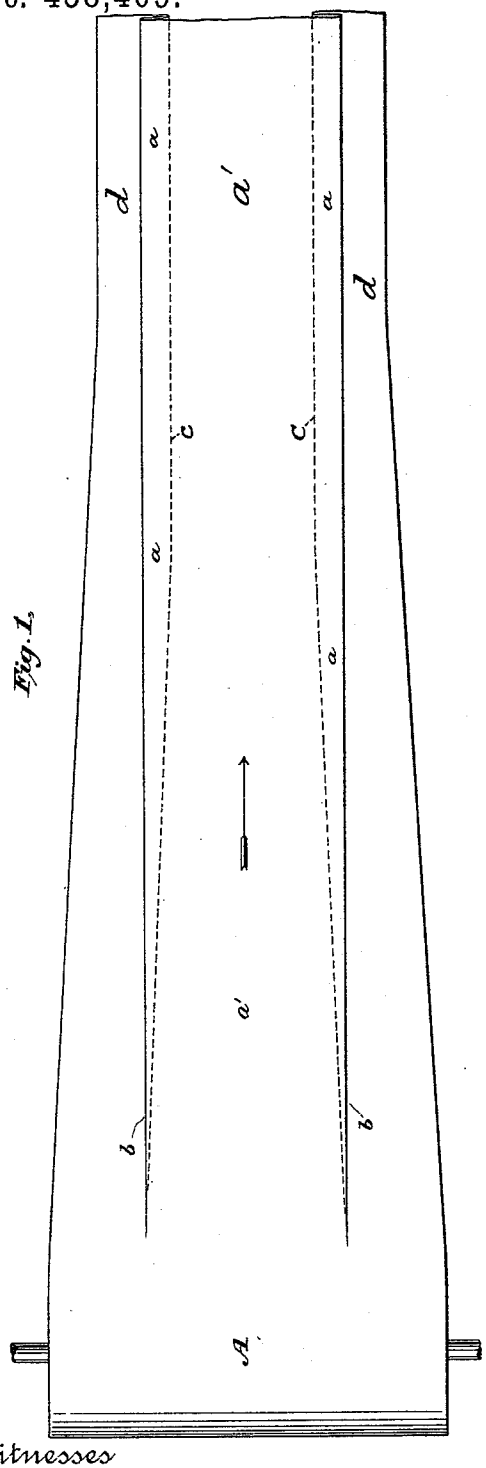


Fig. 1.

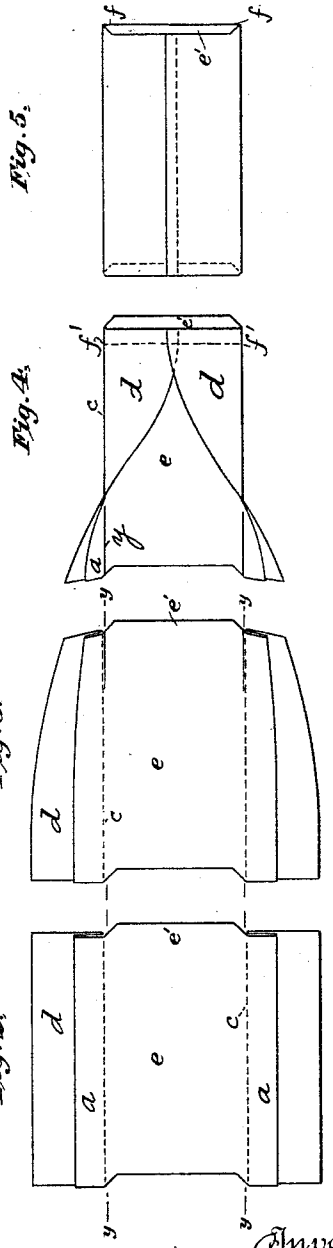


Fig. 5.

Fig. 4.

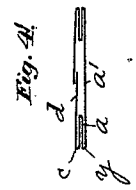


Fig. 4.

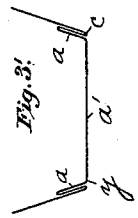


Fig. 3.

Fig. 3.

Fig. 2.

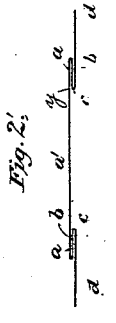


Fig. 2.

Witnesses
Geo. W. Breck.
Edward Thorpe.

Inventor
Edward Stanley
By his Attorneys
Baldwin, Davidson & Wright

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EDWARD STANLEY, OF BRIDGEPORT, PENNSYLVANIA.

METHOD OF MAKING PAPER BAGS.

SPECIFICATION forming part of Letters Patent No. 458,409, dated August 25, 1891.

Application filed June 27, 1889. Serial No. 315,715. (No model.)

To all whom it may concern:

Be it known that I, EDWARD STANLEY, of Bridgeport, in the county of Montgomery, State of Pennsylvania, have invented an Improved Method of Making Paper Bags, of which the following is a specification.

My invention relates to the manufacture of what are known as "square bags." The purpose is to manufacture rapidly and economically perfect square bags, each having the usual opening-lip and a clean-cut bottom flap, which when folded up and pasted makes a perfectly-formed bottom from a continuous web of paper that is first formed with parallel tucks or plaits, and then while still flat is cut into bag-blanks that are folded into tubular form, after which the bags are completed by the folding of the bottoms.

The invention consists in an improved method of folding and cutting the bag-blanks from the web, hereinafter specifically described, whereby these results may be accomplished.

In the accompanying drawings, Figure 1 is a view showing a roll of paper with a portion of the paper drawn from it formed with parallel plaits or tucks or folded inwardly and then outwardly in two parallel lines to partially form the bellows sides of the bag. Figs. 2 and 2′ show a bag-blank severed from the flat-tucked web of paper, the contour of the cut edge being the same or similar to that made in making the ordinary well-known flat bag. Figs. 3 and 3′ are views showing the flat-tucked bag-blank illustrated in Fig. 2, partly folded over upon itself in the folding of the blank into tubular form. Figs. 4 and 4′ are views showing the tucked bag-blank with the final fold to complete its tubular formation partly completed. Fig. 5 is a view showing the completed bag, the bottom flap being folded over.

A, Fig. 1, indicates a continuous flat web of paper drawn from a roll and formed with two parallel tucks *a*, one on each side between the center and edges. These tucks, which constitute parts of the bellows sides in the completed bag, are formed as follows: At *b* the paper is folded or plaited inwardly toward the smooth central part *a′* of the web a distance equal to the depth of the bellows folds in the completed bag, and the side flaps *d* extend outwardly a suitable distance from fold-lines *c*. Thus are formed the central fold and one of the outside folds of each of the bellows sides, and the central part of the web lying between the inner edges of the plaits is left equal in width to the width of the bag when completed, being in fact one of the sides of such completed bag. The tucked web is then preferably passed between rolls to press the tucks flat. From the flat-tucked web thus formed a bag-blank *e*, Fig. 2, is severed by any suitable means, with the ordinary projecting lip or bottom lap *e′*, which of course forms a corresponding opening lip at the mouth of the completed bag formed from an adjoining blank. The projecting lip or bottom lap *e′*, however, is formed entirely by the unfolded central part of the paper between the fold-lines *c* or the inner edges of the plaits, the line of the cut extending from each edge of the web inwardly through the plaits before curving or turning to form the lip, as clearly seen in Figs. 2 and 3. This blank is now treated as if it were a flat blank for the formation of an ordinary flat bag, and is folded by any suitable mechanism into tubular form. The parallel folds are, however, made in the smooth central part of the paper between the side tucks upon the lines *y y*, even with the fold-lines *c*—that is, the tucks or plaits are turned entirely over upon the central part of the blank and the folds *y y* and the previously-formed fold-lines *c* form the outer edges of the bag, Figs. 3′ and 4′. As will be observed, the fold-lines *y y* are in line with the ends of the lip *e′*, and when the folding is completed, Fig. 4, the lip *e′* projects from the blank, being sharply and clearly cut and separated from the side plaits. In Fig. 3 the folding is shown partly completed, and in Fig. 4 the folding is completed, the side flaps *d* being folded one upon the other, and the tubular formation of the bag completed. The bottom is now formed by folding the blank transversely—as, for instance, upon the line *f f* or the line *f′ f′*. The pasting of the sides *d*, as well as of the bottom, may be done in any usual manner. All these operations may be performed by any suitable mechanism; but that which I prefer to employ is shown

and claimed in my patent, No. 432,742 of July 22, 1890, the application for which was filed simultaneously herewith.

Heretofore in making square bags from flat bag-blanks having parallel plaits therein the inner edges or folds of the plaits have been brought into relatively close proximity. In all such cases the tubular formation has been completed by folding over the side flaps only in line with the outer edges or fold-lines of the plaits. It is therefore impossible to form a bag in the manner above described for the following reasons: If the transverse cut extends inwardly from each edge of the blank through the plaits and is then curved or turned to form a bottom lap, the width of the lap, which of course could only be equal to the distance between the inner edges of the plaits, would be exceedingly narrow and only equal in width to a fraction of the width of the bag. It could not therefore serve as a bottom lap. If the transverse cuts extending in from each edge extend only to the outer edges of the plaits and are then curved outwardly to form a lap, the lap would necessarily be composed of the three layers of paper forming the plaits, and of course only that layer which would be next to the body of the bag when the lap is folded up against it could be pasted thereto, and opportunity might thus be given for the powdered contents of a bag to sift out through the unpasted cracks or openings. It is therefore impossible to form bags of the character herein described by this method of folding, and some special way of cutting and folding the bottom must be adopted, as seen, for instance, in the patent of Appel, No. 340,075.

Square bags of the character herein described have been made by first forming a continuous tube with bellows-fold sides, the tube being completed by folding over the side flaps, as last above mentioned; but however the tube may be formed, the tubular-bag blanks are severed from it by cutting the upper and lower sides of the tubes on different transverse lines, and the paper at the edges of the tubular blank, which extends from one transverse cut to the other, is torn away. This is the case where the ordinary revolving striker is employed in connection with plates having serrated edges against which the top and bottom of the tube are cut. The tearing of the paper at the edges is not always evenly and properly done, and ragged places or double thicknesses, due to the presence of the side plaits, occur, which interfere with the pasting of the bottom and produce imperfect bags.

Where bag-blanks are cut from a continuous tube by special knives operating at different points to cut the upper and lower sides of the tube in different transverse lines, the operation is not more satisfactory and considerable additional mechanism is required. But in either case the operation is slower than my improved method of operation and requires more elaborate machinery.

I claim as my invention—

The herein-described method of making a square paper bag, which consists in forming parallel plaits in a continuous web of paper by tucking the paper inwardly toward the center of the web on each side, thereby forming on each side the central and one of the outside folds of the bellows sides and leaving the central part of the web between the inner edges of the plaits equal in width to the width of the completed bag, then severing therefrom a flat plaited bag-blank by a transverse cut that extends from the outer edges of the web inwardly through the plaits and then curves or turns to form the bottom lap, then folding the blank into tubular form by folding the plaits over upon the central part of the blank on lines even with the inner edges of the plaits in the flat blank, and then completing the folding of the bag by folding the bottom lap up against the side of the bag.

In testimony whereof I have hereunto subscribed my name.

EDWARD STANLEY.

Witnesses:
EDW. HAUGH,
GEO. W. BRYANT.