

(No Model.)

W. A. LORENZ.
PAPER BAG.

No. 584,556.

Patented June 15, 1897.

Fig. 1

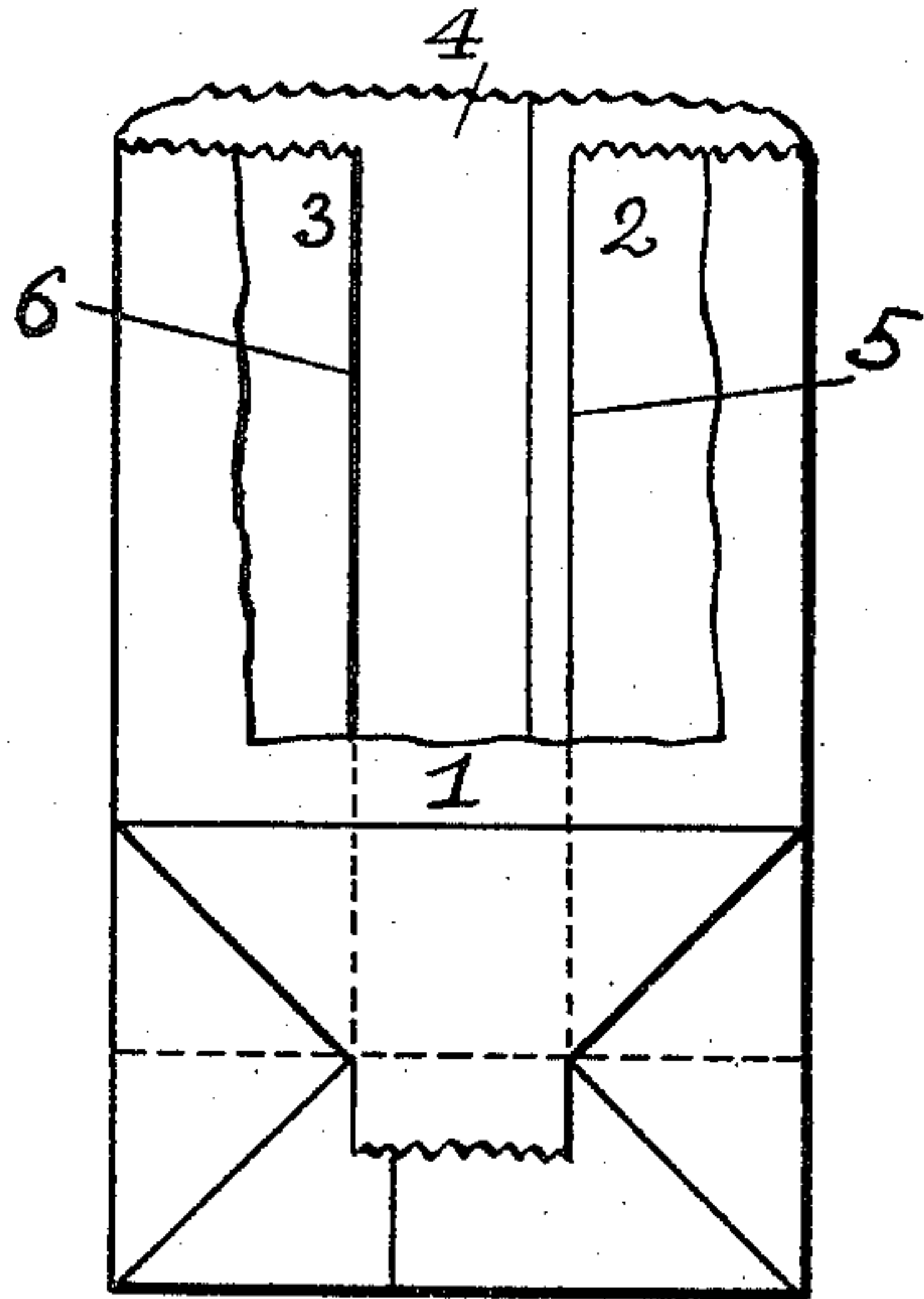


Fig. 2

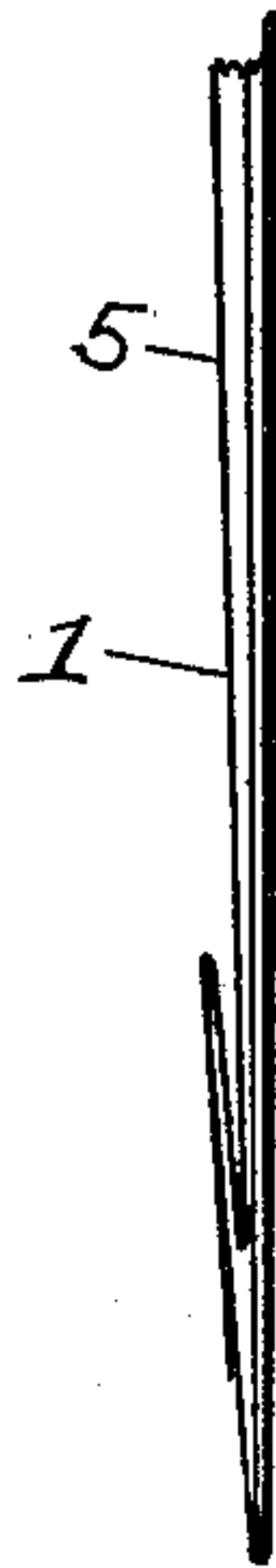


Fig. 8

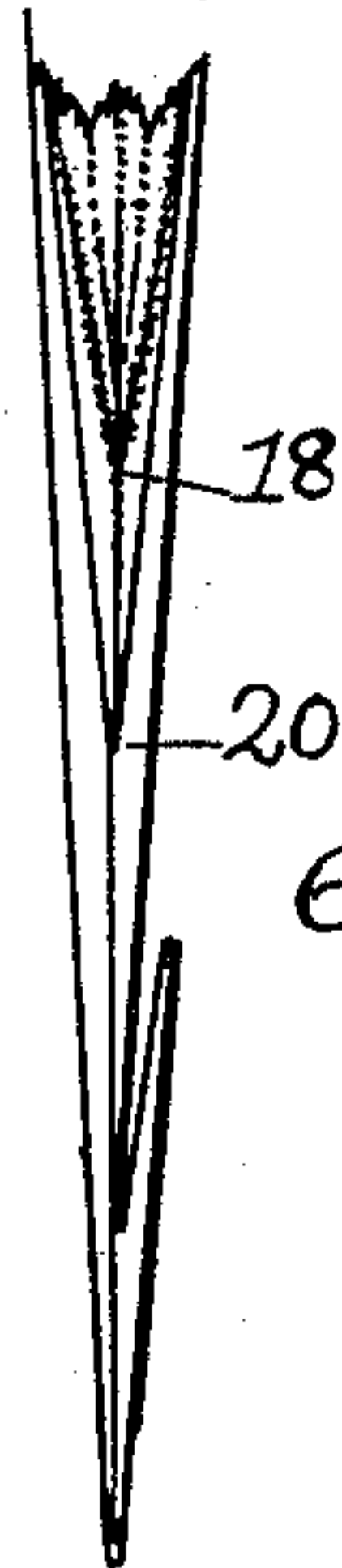


Fig. 7

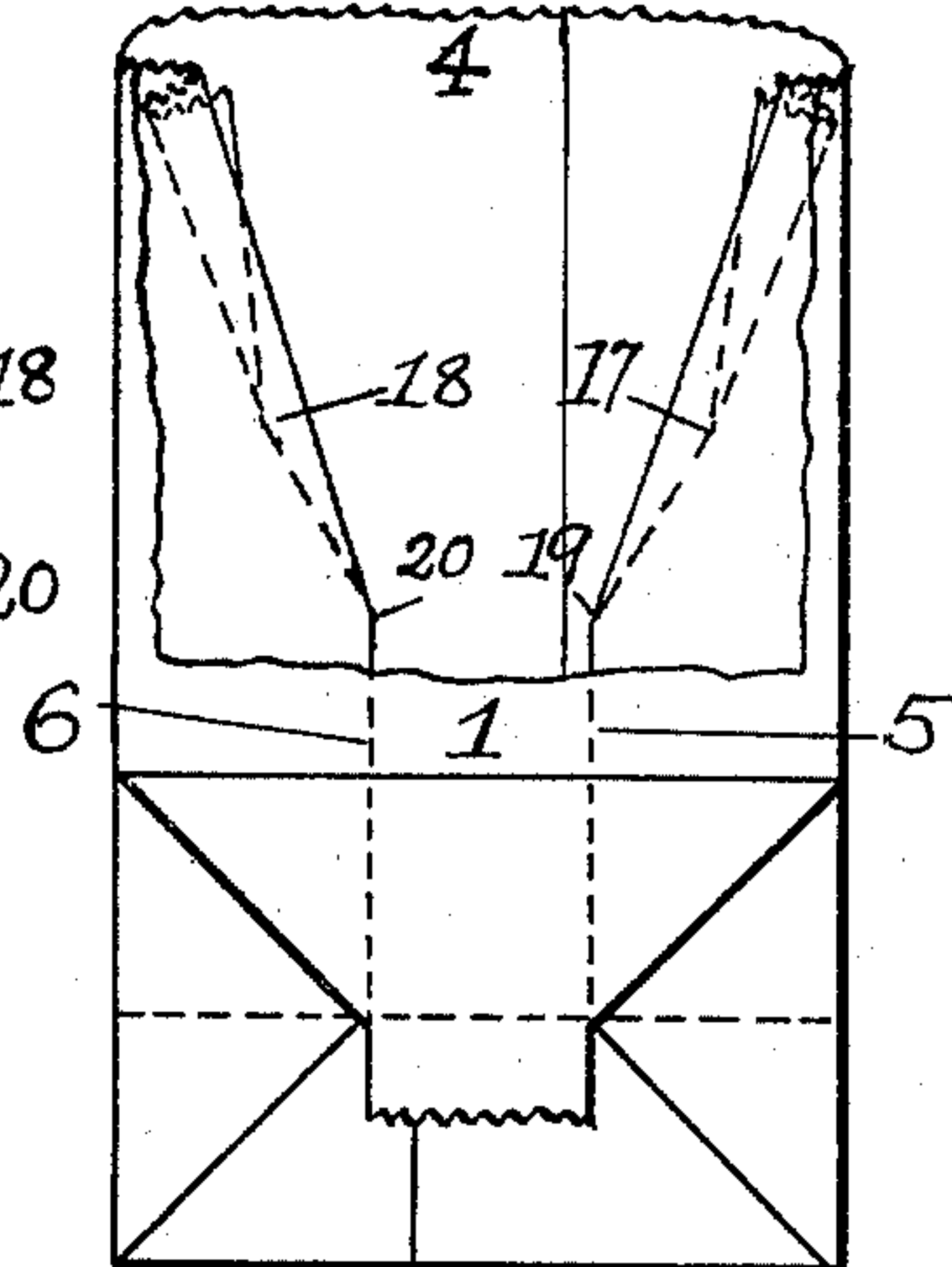


Fig. 3

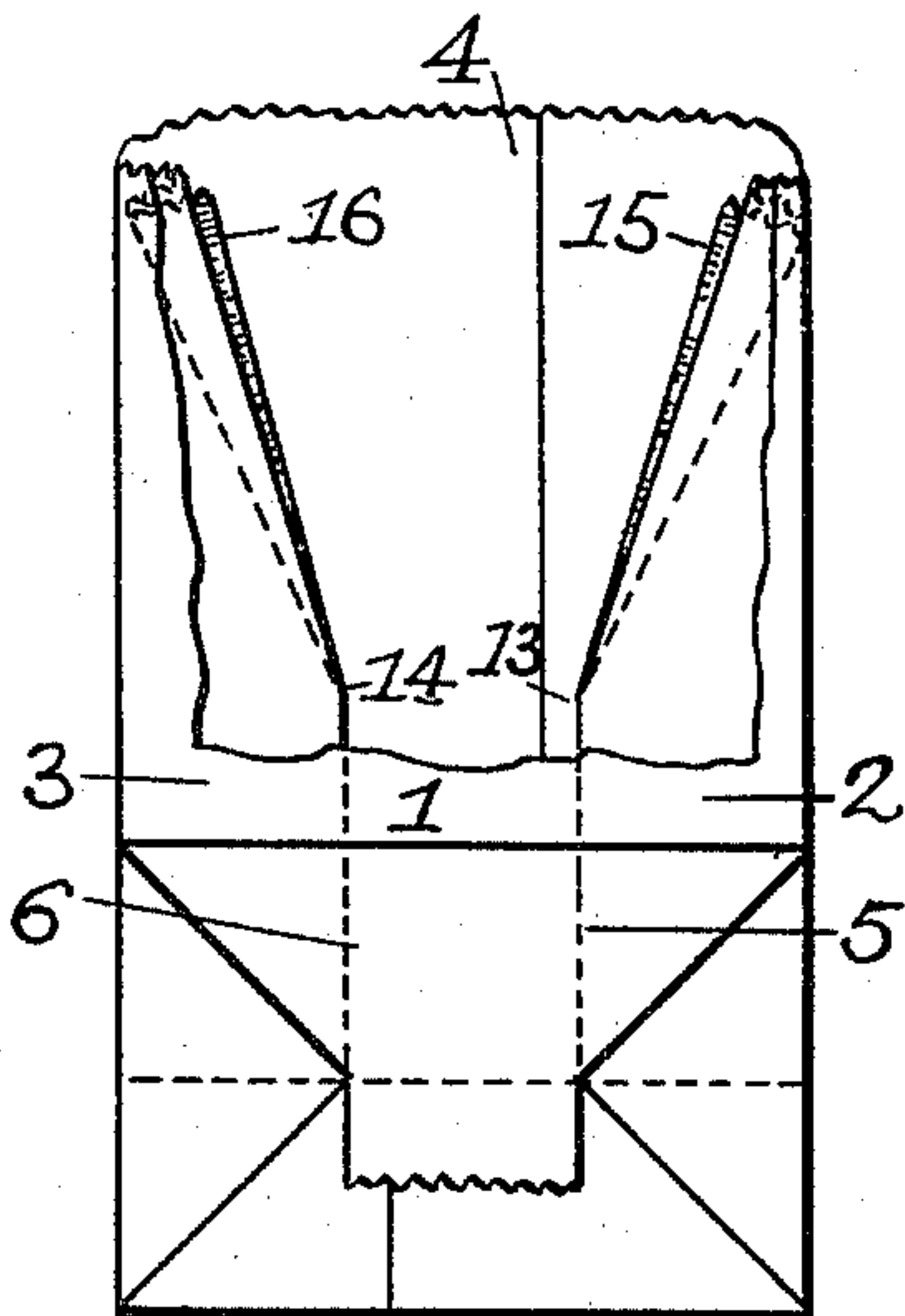
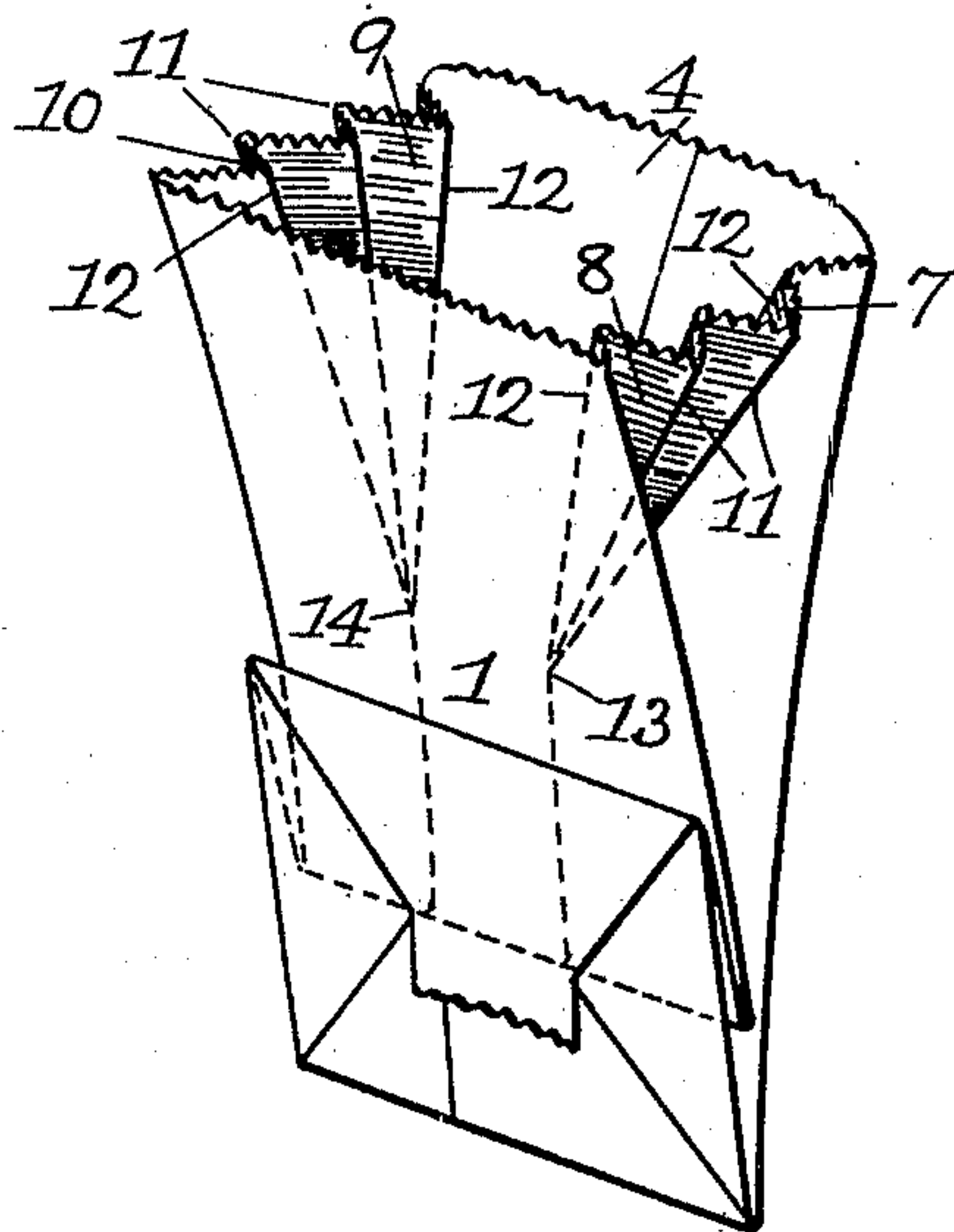


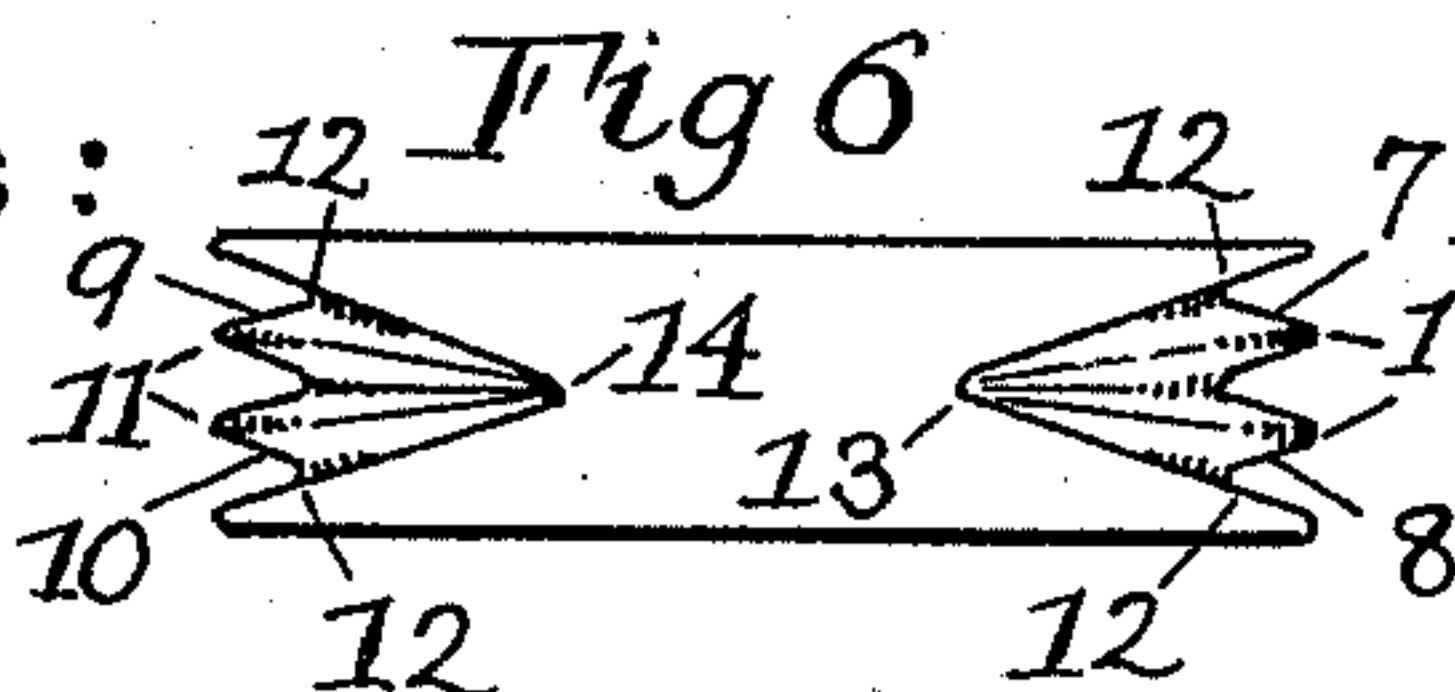
Fig. 4



Fig. 5



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Inventor:
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By his Attorney
W. H. Honiss.

UNITED STATES PATENT OFFICE.

WILLIAM A. LORENZ, OF HARTFORD, CONNECTICUT, ASSIGNOR TO ALBERT H. WALKER, TRUSTEE, OF SAME PLACE.

PAPER BAG.

SPECIFICATION forming part of Letters Patent No. 584,556, dated June 15, 1897.

Application filed June 19, 1896. Serial No. 596,191. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. LORENZ, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Paper Bags, of which the following is a full, clear, and exact specification.

This invention relates to improvements in the form of bellows-sided paper bags which ordinarily have their opposite sides tucked inwardly in order to enable the bag to be collapsed into a flat state for greater convenience in packing, storing, and transportation. The formation of these bellows sides in the bags is not intended to serve any purpose connected with the actual use of the bags, and therefore the utility of thus tucking the bellows sides inwardly ceases as soon as the bag is required for use, becoming, on the other hand, an objectionable feature while the bag is being filled, the inwardly-projecting tucks serving to contract the mouth-opening of the bag and to render the filling operation slower and more difficult.

In an application, Serial No. 596,190, executed and filed contemporaneously herewith I have shown, described, and claimed an invention the object of which is to obviate or minimize this objectionable feature by reversing the upper end of each of the tucked sides on their central fold-lines, thus converting the upper ends of the inner portions of those tucks into outwardly-projecting re-entrant tucks.

The invention herein set forth has also for its object the lessening or minimizing of the objectionable feature above set forth without thus reversing the inwardly-projecting tucks upon their central fold-lines. This object is accomplished in the present invention without reversing the central inward fold-line of the tucks by swinging the inwardly-projecting tucks outwardly at their upper ends, forming in each of the four zones into which the tucked sides of the bags are originally divided by their central fold-lines a reversed ply, substantially triangular in outline, which is folded upon and bounded by lines which extend from the original central fold-line of the tucked side of the bag at

an acute angle to that central fold-line, and to each other, across the zone of the side tuck to the upper or mouth-end margin of that zone. The width of the upper end of this new reversed ply is preferably about one-third that of the original depth of the tucked sides of the bag, and it extends from that mouth end to a considerable distance toward the bottom of the bag, which when opened will have a tapering funnel-shaped mouth, the opening of which at the top is substantially coextensive with the entire cross-sectional area of the fully-opened bag, tapering thence toward the bottom to an extent sufficient to allow of the easy entrance of the goods.

Figure 1 of the drawings is a side view of a collapsed paper bag similar to that shown and described in Letters Patent No. 353,307, dated November 30, 1886, to W. H. Honiss, a portion of the front ply being torn away so as to show the extent to which the inwardly-extending side tucks of this type of bag project into and contract the effective opening of the mouth end of the bag. Fig. 2 is an edge view of the bag of Fig. 1. Fig. 3 is a side view, and Fig. 4 an edge view, of a bag similar in other respects to that of Figs. 1 and 2, but having its upper or mouth end folded in accordance with my present invention, the front ply of the bag being torn away in Fig. 3 in order to show by comparison with the bag of Fig. 1 the extent to which the inwardly-tucked sides are thus carried back at the mouth end of the bag. Fig. 4 is an edge view of the bag of Fig. 1. Fig. 5 is a perspective view showing the bag of Figs. 3 and 4 with its upper or mouth end partially expanded, showing the outline obtained by thus folding the side tucks. Fig. 6 is a plan view of the upper end of the bag of Figs. 3, 4, and 5 in a partially-expanded condition, showing the position, extent, and relation of the novel reversed plies and of the lines on which they are folded. Fig. 7 is a side view, and Fig. 8 an edge view, showing a modified arrangement of my improved folds, differing from the bag shown in Figs. 3, 4, and 5 in the circumstance that the lines of fold are not coterminous at their lower ends.

The numeral 1 in the drawings indicates in a general way a paper bag which is provided

with a collapsed square bottom, as shown and described in the Honiss patent above referred to, and is provided with inwardly-projecting bellows sides 2 and 3, terminating in the corner fold-lines 5 and 6, respectively. When in the operation of opening the bag shown in Fig. 1 it is seized by its lip 4 and the mouth is partially expanded, the corners 5 and 6 of the bellows sides project into the mouth of the bag to a considerable extent, and thus interfere with its easy and rapid filling.

The improved folds of my present invention are made without reversing the side tucks 2 and 3 upon their inner fold-lines 5 and 6 by pushing their upper ends outwardly from the longitudinal center of the bag, forming in each of the zones into which the bellows sides of the bag are divided by their central fold-lines 5 and 6 the reversed or reëntrant plies 7, 8, 9, and 10, each of which is folded upon and bounded by an outer line 11 and an inner line 12.

The upper ends of the lines 11 and 12 divide each of the zones into substantially three equal widths, the central widths of the four zones forming the plies 7, 8, 9, and 10, respectively, while the inner widths lying between the line 11 and on either side of the lines 5 and 6 form what remains of the original inwardly-projecting side tucks. Therefore these widths when folded together by the collapsing of the bag, as in Fig. 3, form a superimposed series of folds which extend from the outer side margins of the bag to an extent substantially equal to one-third of the original depth of the side tucks. The individual plies which form these tucks are preferably triangular in form, terminating at the points 13 and 14, as shown in Figs. 3 and 5, although it is not essential that their lines of fold shall be exactly superimposed. In fact I consider it preferable to have some of the folds extend slightly beyond the others, as represented by the exposed edges 15 and 16 of Fig. 3, as these edges when thus allowed to project do not so greatly increase the thickness of the collapsed bag, a desirable feature when considered in connection with the matter of packing them in bundles.

It will be observed that the paper which forms the triangular folds 7, 8, 9, and 10 are the only portions of the original tucked sides which are reversed from the relative position occupied by them in the blank shown in Fig. 1. The inner triangular central portions of the tucks immediately adjacent to the fold-

lines 5 and 6 and lying between the plies 7 and 8 and 9 and 10, respectively, are merely moved or swung outwardly from the position shown in Fig. 1 to that shown in Figs. 3, 5, and 6, the paper which is displaced by thus swinging these inner central tucks outwardly being taken care of by forming them into the tucks 7, 8, 9, and 10.

It is not an essential feature of this invention that the lower ends of the lines 11 and 12 shall be coterminous.

In Figs. 7 and 8 a modification of this invention is shown in which the lines 11 converge and terminate at the points 17 and 18, while the lines 12 converge and terminate at the points 19 and 20. In this instance those portions of the original fold-lines 5 and 6 lying between points 17 and 19 and 18 and 20, respectively, are reversed with the reversal of the plies 7, 8, 9, and 10. My preferred arrangement, however, is that shown in Figs. 3 to 6, inclusive, in which all of the plies are substantially coterminous.

I claim as my invention—

1. A collapsible bellows-sided paper bag, having in each of the four zones which form its tucked sides a reversed ply substantially triangular in outline, folded upon, and bounded by, two diverging lines which extend from the original central fold-line of the tucks at acute angles to that line, and to each other, running to the upper or mouth end of the zone, substantially as described.

2. A collapsible funnel-mouthed paper bag formed by swinging outwardly the upper portions of the central inwardly-projecting tucked sides of a bellows-sided paper bag, so that the inner edges 5 and 6 of those tucks form acute angles with the longitudinal center of the bag, the paper thus displaced by the outward movement of the central tucks being disposed in acute-angled folds on either side of, and adjacent thereto, substantially as described.

3. A collapsible bellows-sided paper bag, having the folds 7, 8, 9 and 10 formed in its tucked sides on either side of, and adjacent to, the inwardly-projecting central fold, whereby the latter is swung outwardly at its upper or mouth end, for the purpose specified.

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Witnesses:

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