

(Model.)

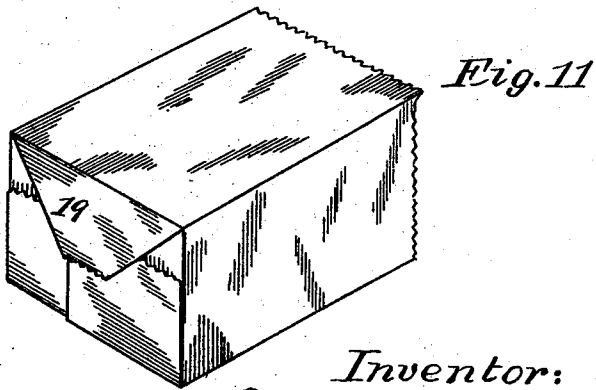
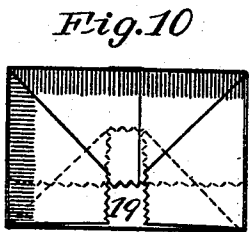
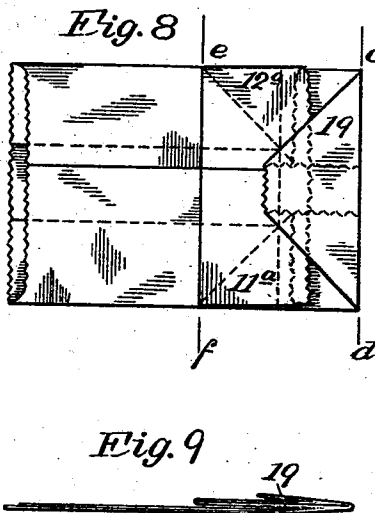
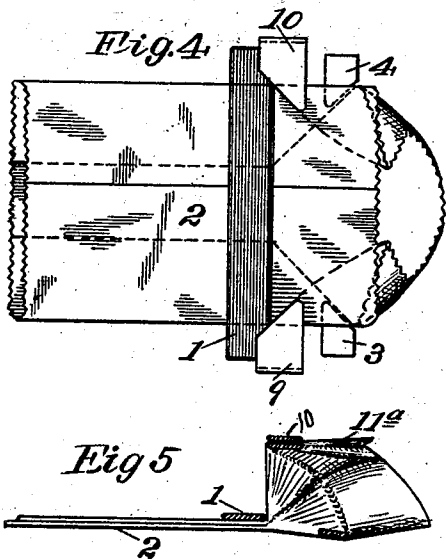
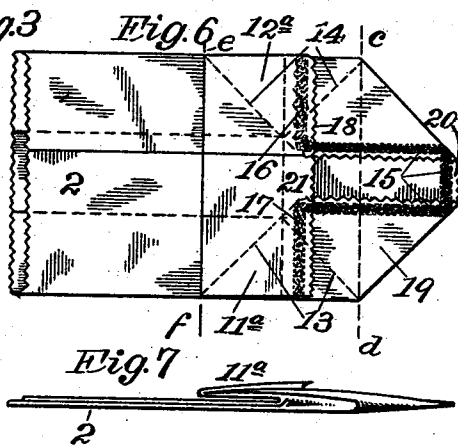
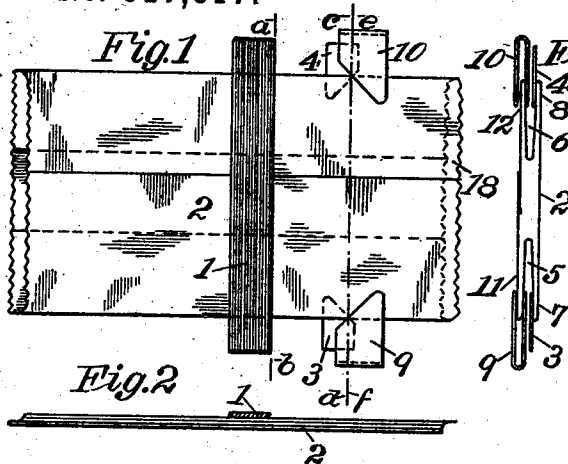
2 Sheets—Sheet 1.

W. A. LORENZ.

## PROCESS OF MAKING PAPER BAGS.

No. 517,617.

Patented Apr. 3, 1894.



*Witnesses:*

William H Honiss

Edward E. Claussen

*Inventor:*

William A. Lorenz.

(Model.)

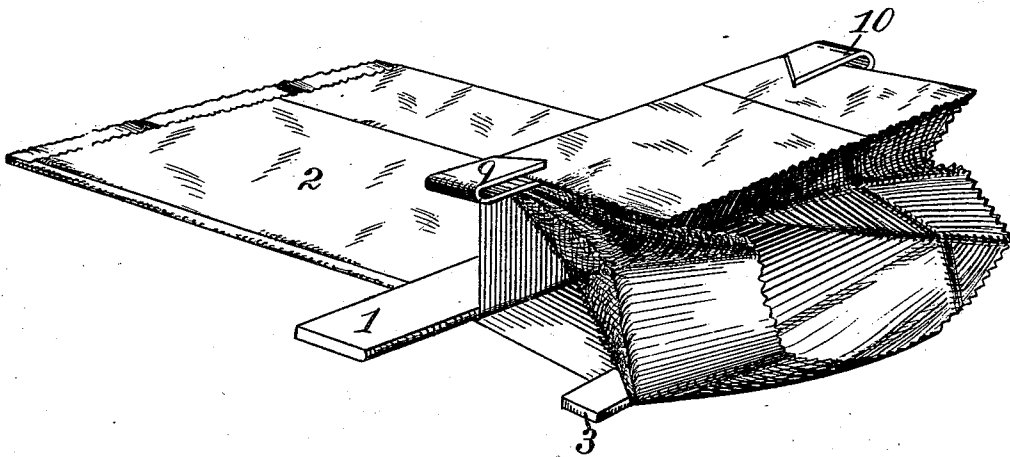
2 Sheets—Sheet 2.

W. A. LORENZ.  
PROCESS OF MAKING PAPER BAGS.

No. 517,617.

Patented Apr. 3, 1894.

*Fig. 12*



*Witnesses:*

*William H. Honiss.*

*Edward E. Claussen.*

*Inventor:*

*William A. Lorenz.*

# UNITED STATES PATENT OFFICE.

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

## PROCESS OF MAKING PAPER BAGS.

SPECIFICATION forming part of Letters Patent No. 517,617, dated April 3, 1894.

Application filed August 18, 1892. Serial No. 443,359. (No specimens.)

*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 Processes of Making Paper Bags, of which the following is a full, clear, and exact specification.

This invention is a new and useful process of making square-bottomed paper bags from tucked tubing, which bags have novel folds in the bottom.

Figure 1 is a plan view of a length of tucked paper tube such as is well known in the art of making paper bags; in this view are also shown various instrumentalities to aid in folding that length of tube into a square-bottomed bag. Figs. 2 and 3 are side and end views respectively of what is shown in Fig. 1. Fig. 4 is a plan view of the blank of Figs. 1, 2 and 3, after the first folding of the bottom by my new process has been partly performed thereon; and Fig. 5 is a view of the lower edge of Fig. 4, with the various instrumentalities in section. Fig. 6 is a plan view of the blank of Figs. 4 and 5, when the first folding of the bottom has been completed and paste has been applied to it, and Fig. 7 is a view of the lower edge of Fig. 6. Fig. 8 is a plan view of the blank of Figs. 6 and 7, after the forward flap has been folded over upon the bottom of the blank, and pressed thereon, thus completing the bag. Fig. 9 is a view of the lower edge of Fig. 8. Fig. 10 is a view of the bottom of the interior of the bag of Figs. 8 and 9 after that bag has been expanded. Fig. 11 is an isometric view of the completed bag, opened out into a rectangular form. Fig. 12 is a perspective view, showing the blank, and the plates and grippers in the position shown in Figs. 4 and 5.

The following is a description of my new process: A plate, 1, is placed upon the blank, 2, with its forward edge at the line  $a-b$ , leaving a sufficient amount of the blank beyond that edge to produce the bottom of the bag. A pair of bevel-pointed plates, 3 and 4, are inserted into the tucks, 5 and 6, of the blank, 2, the beveled edge of the plates crossing the edges of the lower plies, 7 and 8, of that blank at the line  $c-d$ , at a distance beyond the front

edge of the plate 1, equal to the depth of the tucks 5 and 6. A pair of beveled grippers, 9 and 10, are applied to the blank, as shown in Figs. 1 and 3, with their beveled edges crossing the edges of the blank at the line  $e-f$  of Fig. 1, which in that view is superimposed upon, and coincides with, the line  $c-d$ . The grippers 9 and 10 are then grasped so as to hold the upper plies 11 and 12 and the portion 11<sup>a</sup>, 12<sup>a</sup> of the upper tuck plies. Keeping them in a horizontal position the grippers are raised and carried backward, so that the upper plies are folded backward at the line  $a-b$ , against the front edge of the plate 1, and are folded forward upon the line  $e-f$  drawn between the points where the beveled edges of the grippers cross the outer edges of the plies. That motion of the grippers is continued until the line  $e-f$  has been made to describe an arc of one hundred and eighty degrees about the line  $a-b$ , passing through the position shown in Figs. 4 and 5 to that shown in Figs. 6 and 7. The various instrumentalities are then removed and the blank appears as in Figs. 6 and 7, having two triangular shaped portions 11<sup>a</sup> and 12<sup>a</sup> lying upon the folds 13 and 14. During the operation just described the lower plates 3 and 4 may be slightly depressed as seen in Fig. 5 to facilitate the forming of the triangular folds 13 and 14. It is also preferable to crease the blank before folding, on the line  $c-d$ ,  $e-f$ , and on the diagonal lines which define the triangular folds 13 and 14. Paste is then applied at 15, on the forward part of the blank, and at 16, 17, under the lip 18 of the blank 2. The paste at 16 and 17 may be applied to the blank upon the lip 18 previous to any folding of the bottom, and while the blank is in tuck tube form.

The next step in the folding of the bottom consists in folding the forward flap, 19, over on the line  $c-d$  and pressing it down upon the bottom of the bag so as to securely cement it together, thus completing it fully, as shown in Figs. 8 and 9.

The last step in the completion of the bottom of the bag may be slightly modified by entering the forward part, 20, under the part 21 of the bottom of the blank, instead of over it; but in this case the paste should be omitted from the forward part of the flap 19, and

paste should be applied entirely across, under the lip 18. The flap 19 may also be variously slitted to produce slightly modified forms, without departing from the spirit of the invention.

The characteristic features of this process consist of the steps which are taken in folding the blank of Figs. 1, 2 and 3 into the blank of Figs. 6 and 7, and from that blank into the completed bag of Figs. 8 and 9.

I claim as my invention—

That process of making a paper bag from a

tucked tube, which consists in first folding one end of the upper ply of the tube together with the upper plies of the tucks over upon the body of the blank, thus producing the folds 11<sup>a</sup> and 12<sup>a</sup> over the triangular folds 13 and 14, and then completing the rectangular bottom of the bag by folding over the forward flap; all substantially as described.

WILLIAM A. LORENZ.

Witnesses:

EDWARD E. CLAUSSEN,

RALPH M. GRANT.