

(Model.)

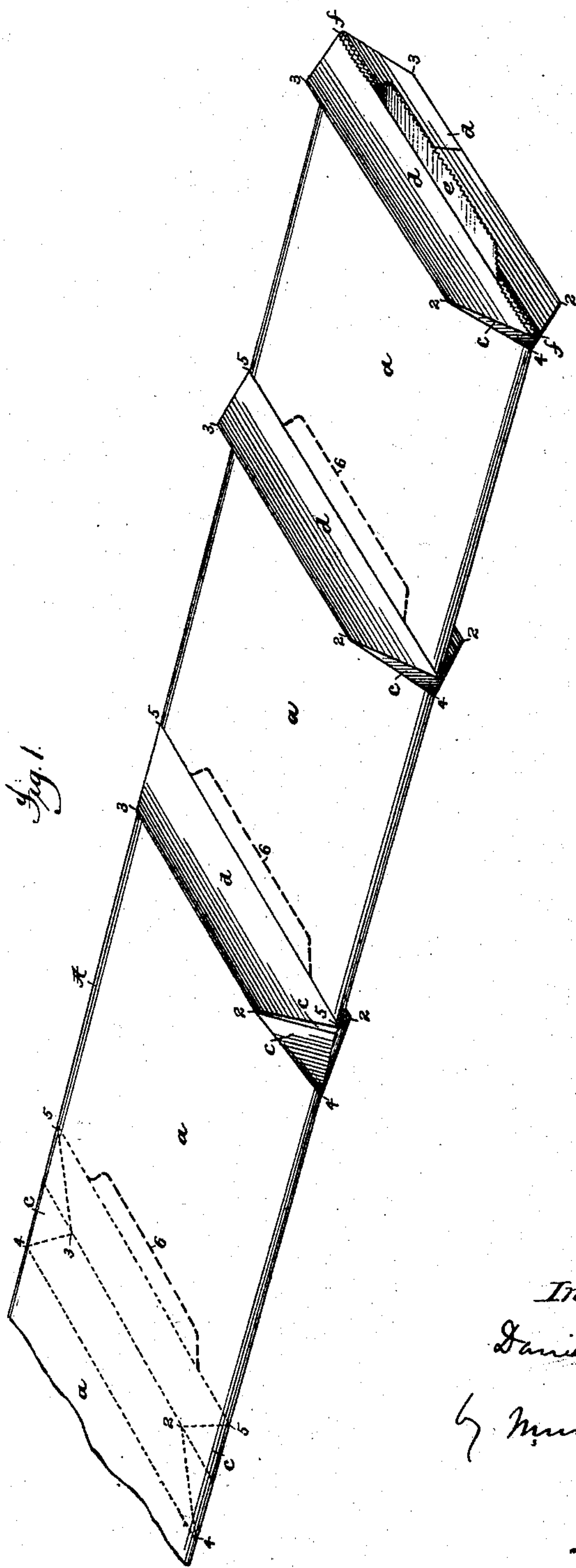
2 Sheets—Sheet 1.

D. APPEL.

# ART OF MAKING PAPER BAGS.

No. 388,613.

Patented Aug. 28, 1888.



Attest:  
Geo. H. Bott.  
J. A. Hovey.

Inventor:  
Daniel Appel.  
by Munson & Philpott.

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(Model.)

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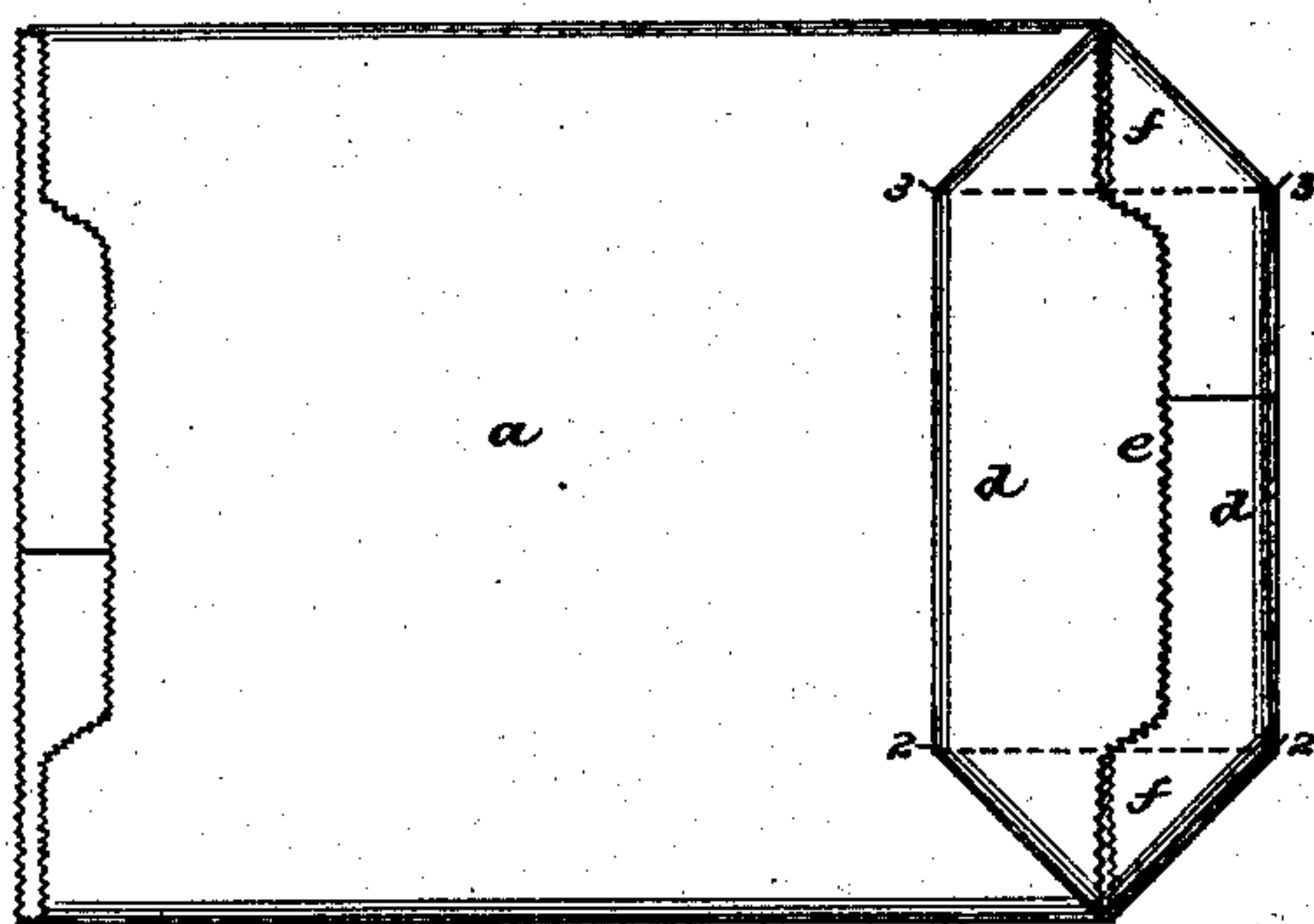
D. APPEL.

ART OF MAKING PAPER BAGS.

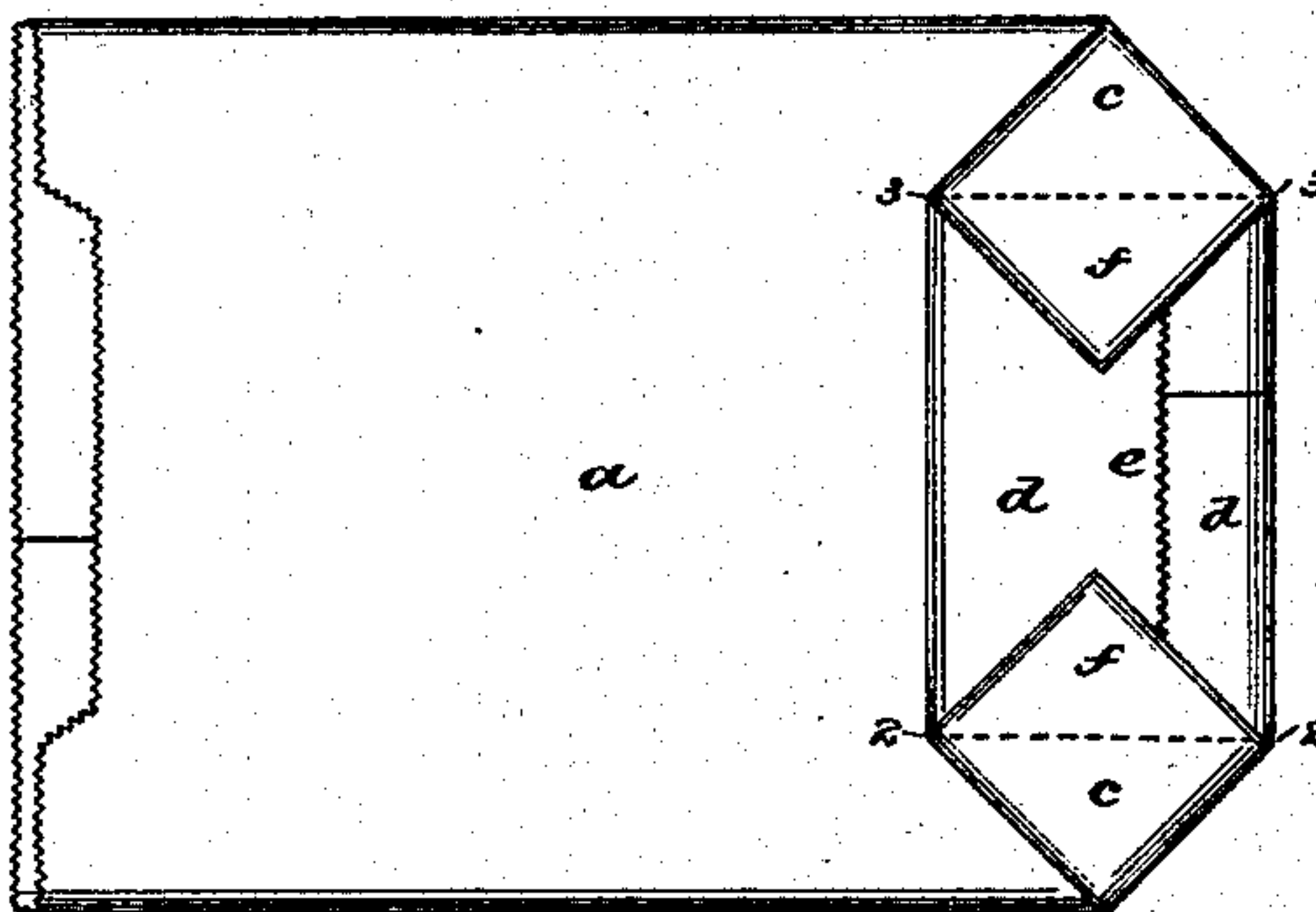
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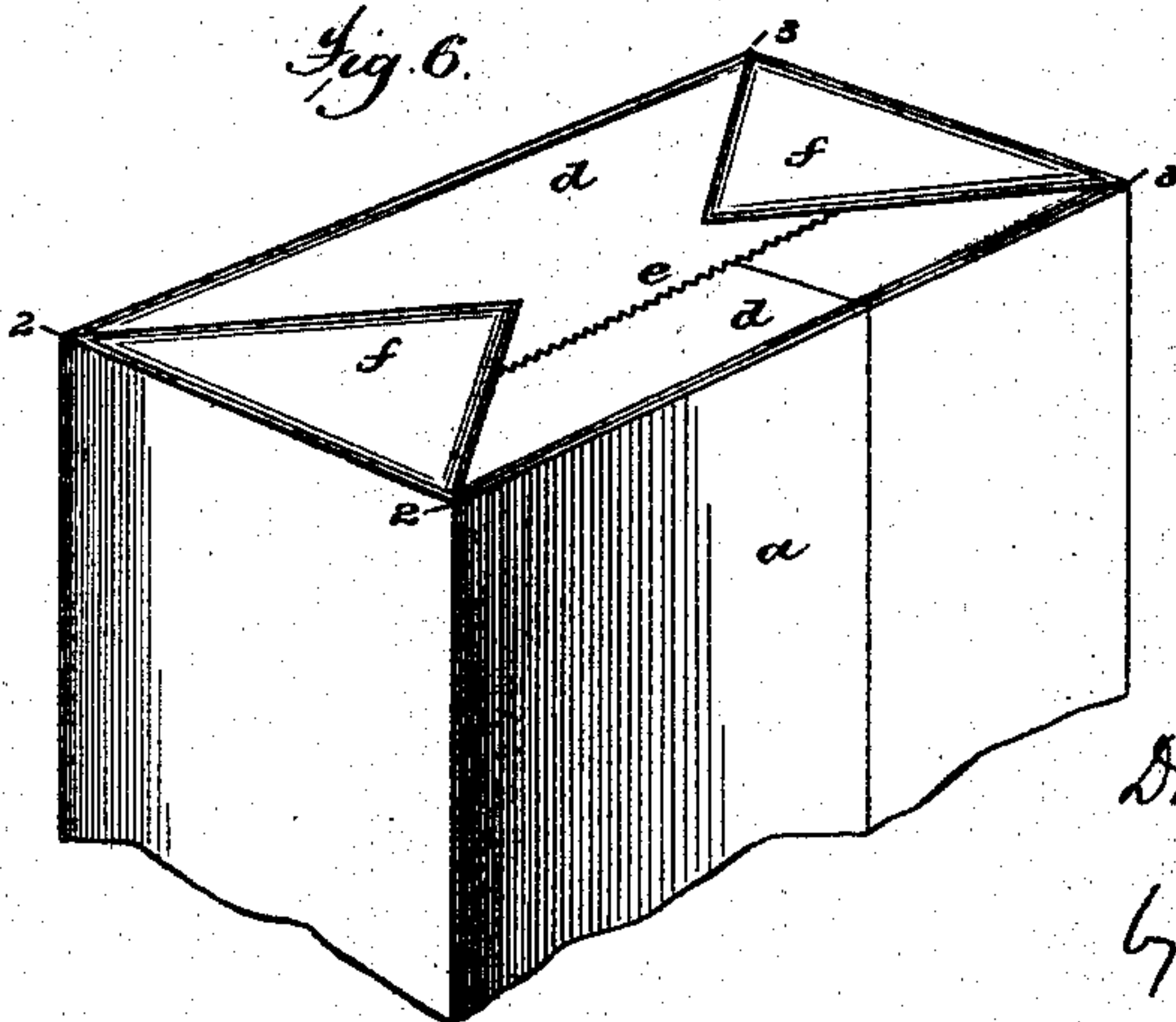
*Fig. 2.*



*Fig. 4.*



*Fig. 6.*



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# UNITED STATES PATENT OFFICE.

DANIEL APPEL, OF CLEVELAND, OHIO, ASSIGNOR TO THE UNION PAPER BAG MACHINE COMPANY, OF PHILADELPHIA, PENNSYLVANIA.

## ART OF MAKING PAPER BAGS.

SPECIFICATION forming part of Letters Patent No. 388,613, dated August 28, 1888.

Application filed November 12, 1886. Serial No. 218,671. (Model.)

*To all whom it may concern:*

Be it known that I, DANIEL APPEL, a citizen of the United States, residing at Cleveland, county of Cuyahoga, and State of Ohio, have  
5 invented certain new and useful Improvements in the Art of Making Paper Bags, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 This invention relates to the manufacture of that class of paper bags which are known as "satchel-bottomed" bags. The ordinary satchel-bottomed bags, which are in very extensive use at the present time, are made from  
15 a plain tubular blank which is closed at one end and is so folded in the operation of closing as to form the satchel bottom of the bag. Various methods have been devised for forming the satchel bottoms of this class of bags; but  
20 the method most commonly practiced consists in first opening out or drawing apart the sides of the bottom-forming end of the tube, so as to form what is known as the "diamond fold," and then folding over and securing the  
25 points of the diamond, so as to close the end of the tube and complete the bag. These bags can readily be, and frequently are, made from detached blanks; but in order to carry on the manufacture in a rapid and economical man-  
30 ner it has been found desirable to operate upon a continuous tube, the bottom of the bag being formed upon the leading end of the tube, and most or all of the operations involved in forming the bottom of the bag being performed  
35 before the blank is severed from the tube. In all of the methods that have heretofore been proposed for making this class of bags from a continuous tube it has been necessary to sever or nearly sever one bag or bag-length  
40 from the tube before commencing the operation of forming the bottom upon the next succeeding bag. This necessity for operating upon the free or nearly free end of the tube to form the bottom involves certain difficulties  
45 in controlling the travel of the tube through the machine which it is desirable to avoid, and to avoid these difficulties is the object of the present invention.

To that end the invention consists in a method  
50 of forming satchel-bottom bags from a continuous tube, as will be hereinafter explained

and particularly claimed, by which the above-mentioned difficulties are overcome.

As a full understanding of the invention can be best given by a detailed description of the  
55 operations involved in carrying the method into practical operation in forming satchel-bottomed bags from a continuous tube, such description will now be given, reference being had to the accompanying drawings, in which— 60

Figure 1 is a perspective view of a plain tube  
of sufficient length to form a number of satchel-bottomed bags, illustrating the principal op-  
erations involved in the method. Fig. 2 is a  
65 side view of the bag after it is severed from the tube and after the bottom is partly closed. Fig. 3 is an end view of the bottom of the bag when in the condition shown in Fig. 2. Figs.  
4 and 5 are views similar to Figs. 2 and 3, re-  
spectively, showing the completed bag; and 70  
Fig. 6 is a perspective view of the bottom of the completed bag, showing it distended to receive its contents.

Referring particularly to Fig. 1, it is to be understood that A represents an ordinary plain  
75 tube, which may be produced in any of the common ways. To produce satchel-bottomed bags from this tube according to the present method, the sides *a* of the tube are, while the tube is still in an unsevered condition and  
80 while the portions of the tube forming the bodies of the bags are retained in their flat condition, drawn apart or distended upon the lines 2 3, as indicated at the left center of the figure. This operation, in addition to folding  
85 the sides *a* upon the lines 2 3, also folds the sides upon the lines 4 4 and 5 5 and draws inward the triangular portions *c* at the sides of the tube, which are bounded by the lines 2 4, 2 5 and 3 4, 3 5. This operation being con-  
90 tinued, the portions *d*, forming the bottom of the bag, will be brought against the adjacent portions of the sides *a*, and the triangular portions *c* will be folded centrally upon the lines 2 2 and 3 3, so as to lie between the portions  
95 *a d*, as shown at the right center of the figure. When the tube is in this condition, the under ply is severed on the line 5 5 and the upper ply upon the line 5 5 and the line 6, thereby providing the projecting lip *e* and leaving the  
100 satchel bottom formed upon the end of the tube, as shown at the right of the figure. All



that is necessary to then complete the bottom of the bag is to turn or wipe down the lip *e* and paste it to the portion *d*, as shown in Fig. 2, and then turn inward the loose points *f* on the lines 2 2 and 3 3 and paste them onto the lip *e* and the portions *d*, as shown in Figs. 4 and 5. This completes the bag-bottom. At the same time that the projecting lip *e* is folded or wiped down against the portion *d* the satchel bottom may and preferably will be brought into line with the body of the bag, as shown in Figs. 2 and 4.

It will be seen that by this method the satchel bottom of one bag is formed before the preceding bag is severed from the tube, thereby allowing the tube to be more readily and positively controlled during this operation.

The side *a* of the tube may, if preferred, be cut on the line 6, so as to provide the loose lip *e* before the satchel bottom is formed, or this cut may be made to provide the lip *e* before the tube is formed.

Some or all of the lines upon which the material is folded in the formation of the satchel bottom may be creased in advance to aid in forming the folds, if in any case it should be found necessary or desirable to do so, as indicated by the dotted lines at the left of Fig. 1.

The bag thus formed possesses the same general characteristics as any of the ordinary satchel-bottomed bags, the fold-lines 2 2, 3 3, and 2 3 serving to define the four edges of the bottom, so that the bag will readily assume the square or rectangular form shown in Fig. 6 when it is filled.

The distending or carrying apart of the sides

*a* upon the lines 3 4 may be accomplished by any suitable means arranged either to grasp the material upon those lines and draw the sides apart at those points, or by any suitable means arranged to act upon the inside of the tube, or both, the sides of the tube being at the same time held together on the lines 4 4 and 5 5 by any suitable means.

What I claim is—

1. The herein-described improvement in the art of forming a satchel-bottomed bag from a continuous tube, which consists in distending or carrying apart and folding the sides of the tube at the lines 2 3, which define two edges of the bag-bottom, while the main part of the tube is retained in its flat condition, substantially as described.

2. The herein-described improvement in the art of forming a satchel-bottomed bag from a continuous tube, which consists in distending or carrying apart and folding the sides of the tube at the lines 2 3, which define two edges of the bag-bottom, while the main part of the tube is retained in its flat condition, and then severing the tube and folding over the lip *e* and folding inward the projecting points *f* and securing them to the bottom of the bag, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

DANIEL APPEL.

Witnesses:

E. H. BOHM,  
SAMUEL S. MARSH.