

(Model.)

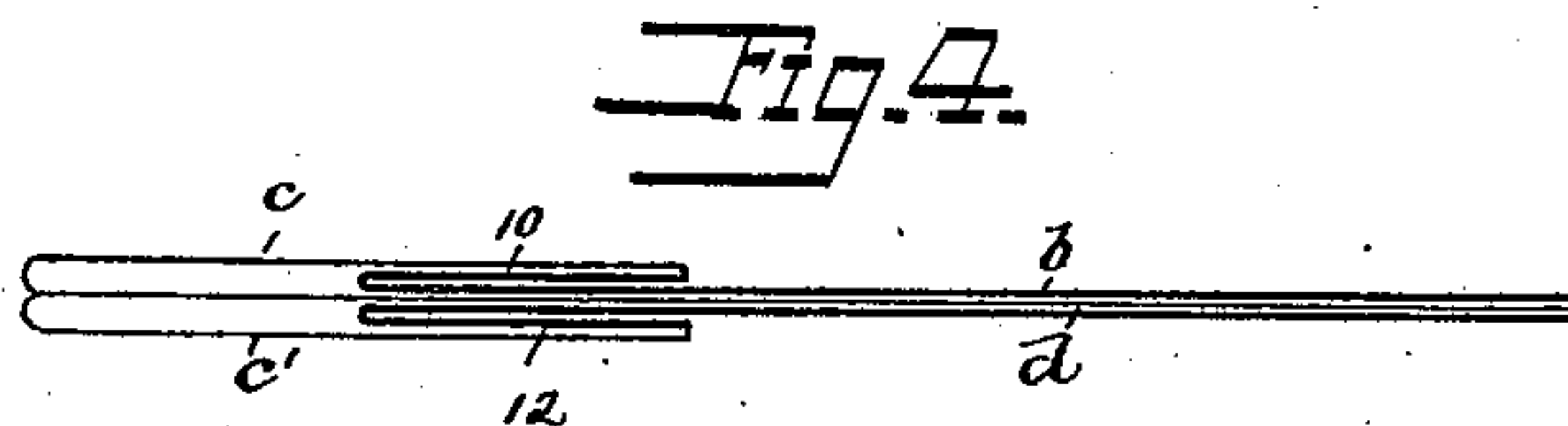
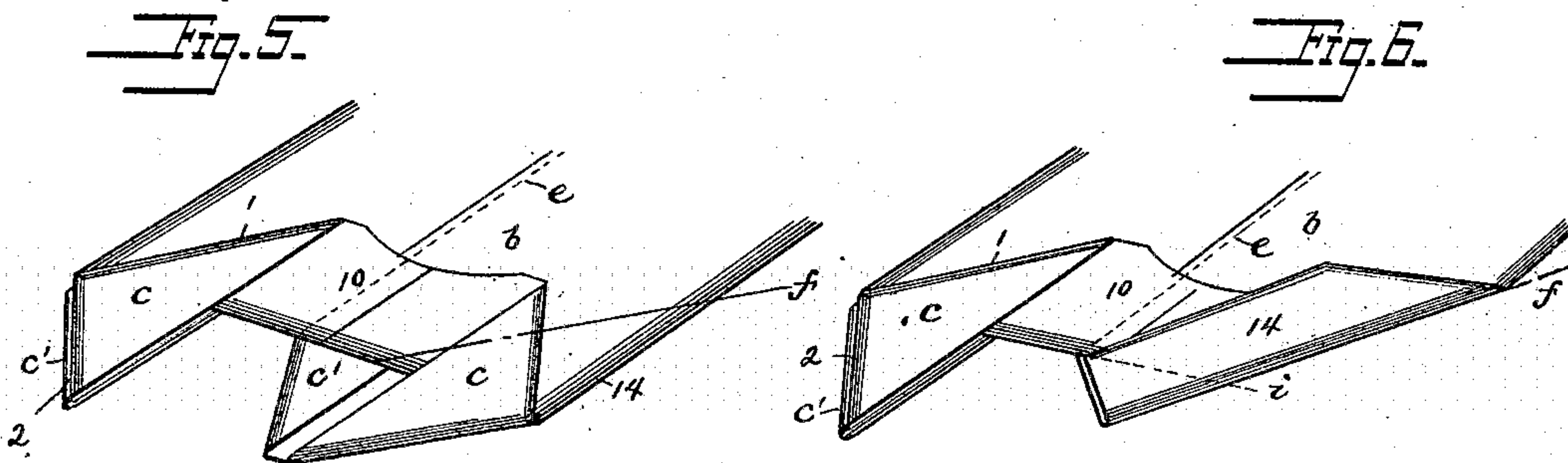
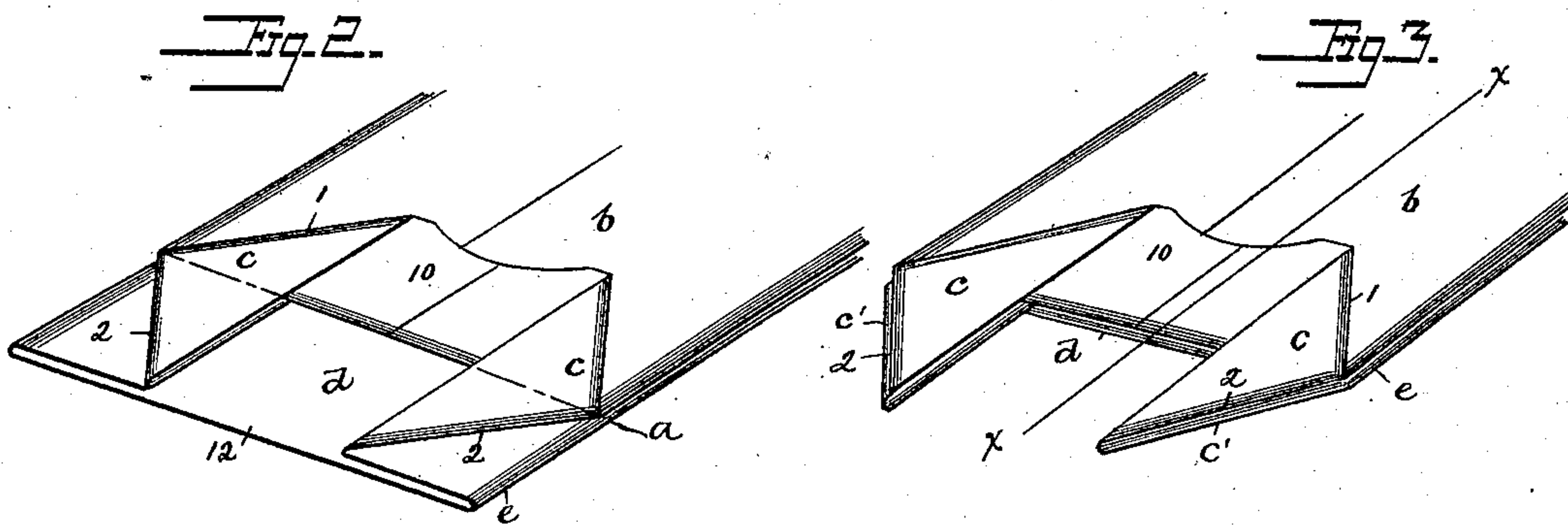
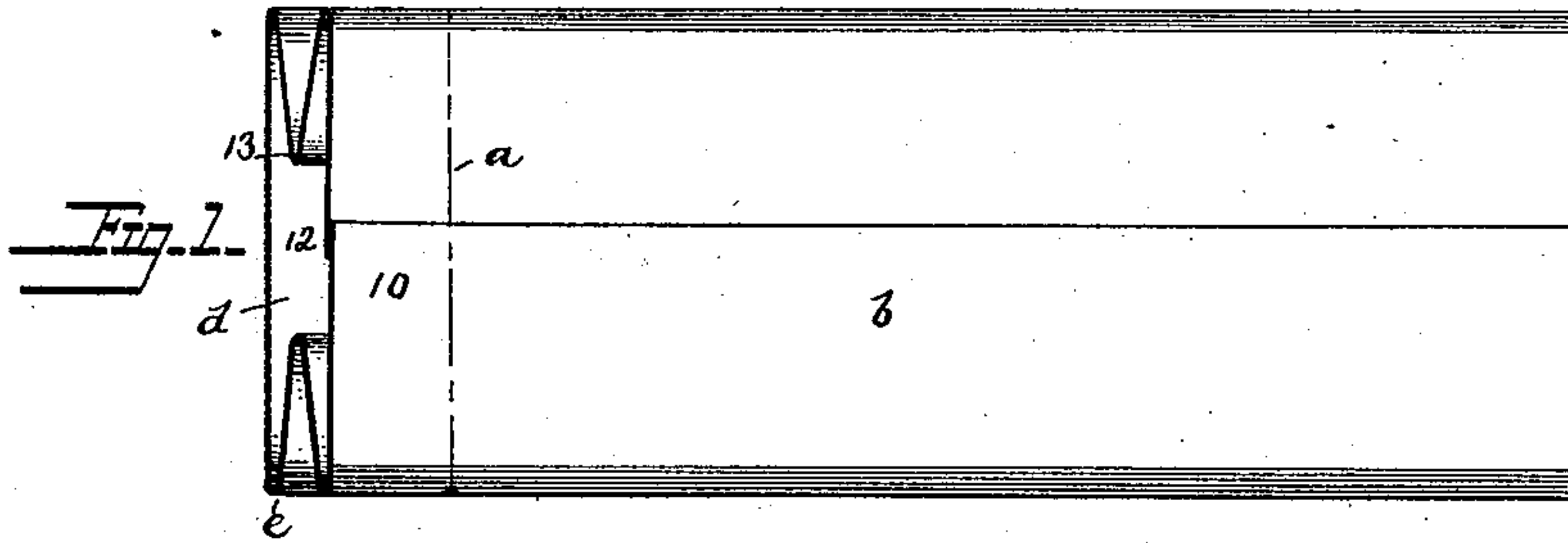
2 Sheets—Sheet 1.

L. D. BENNER.

BAG.

No. 396,388.

Patented Jan. 22, 1889.



Attest:  
Jno. G. Hinkel, Jr.  
Sidney Johnson

Inventor:  
Lorenzo D. Benner  
by John & Freeman  
attys

(Model.)

2 Sheets—Sheet 2.

L. D. BENNER.

BAG.

No. 396,388.

Patented Jan. 22, 1889.

Fig. 7.

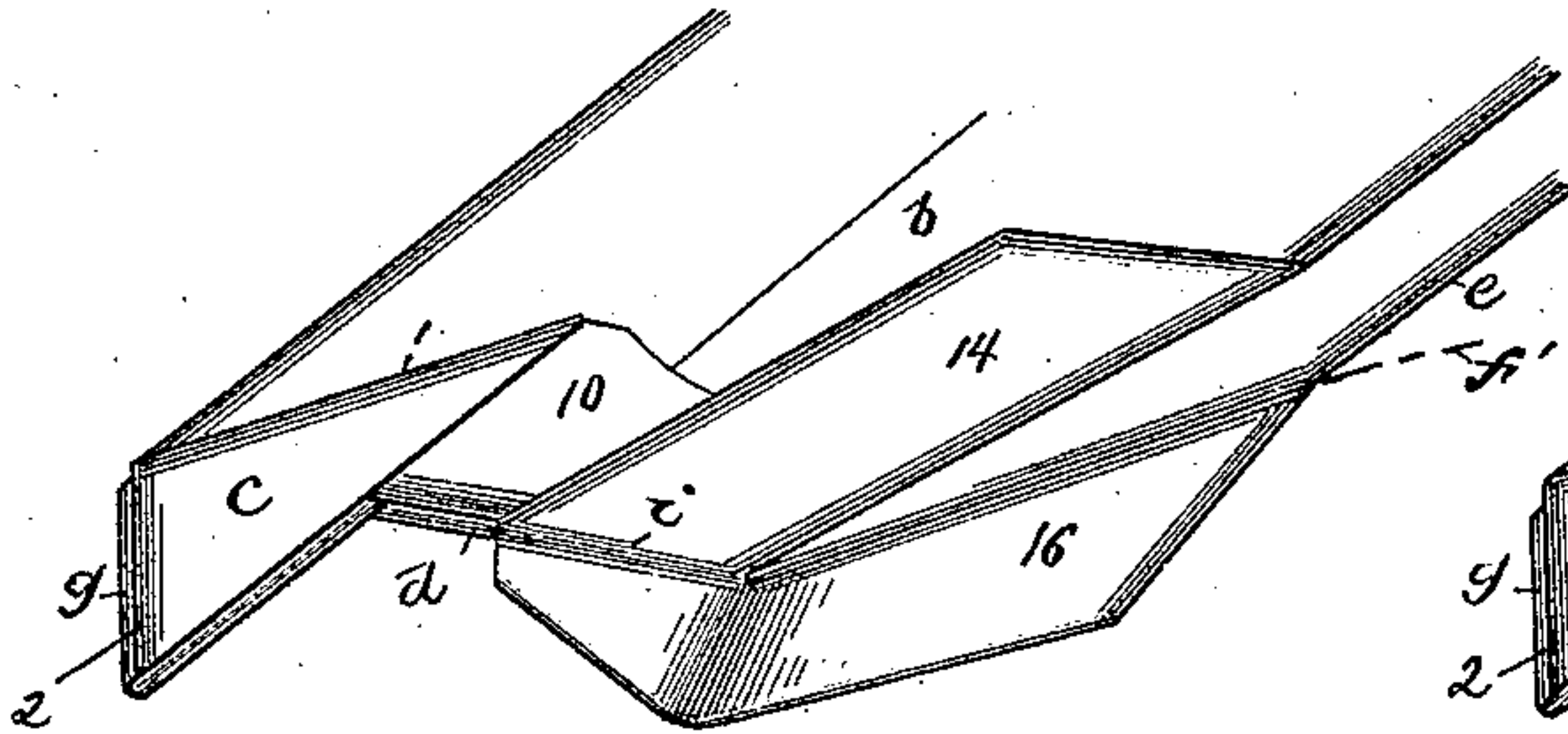


Fig. 8.

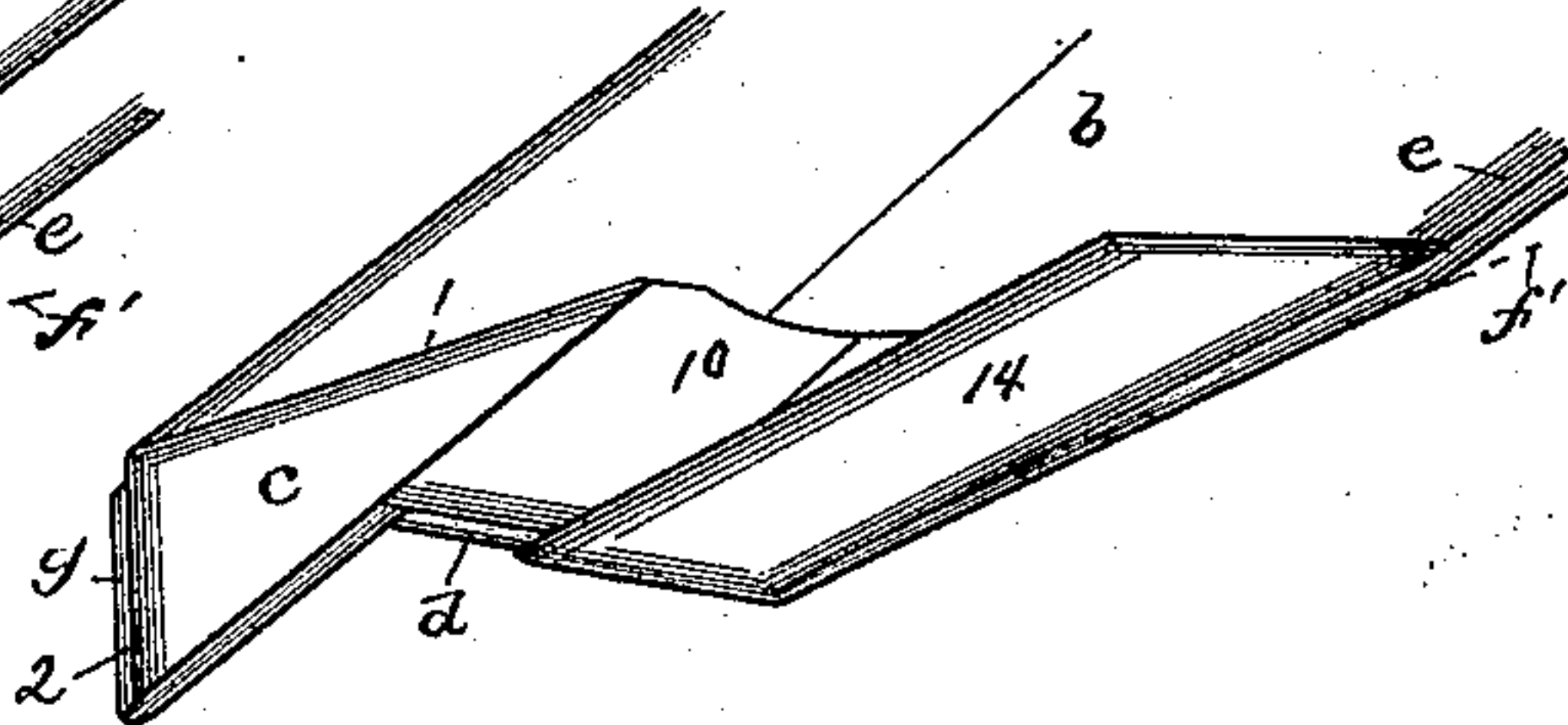


Fig. 9.

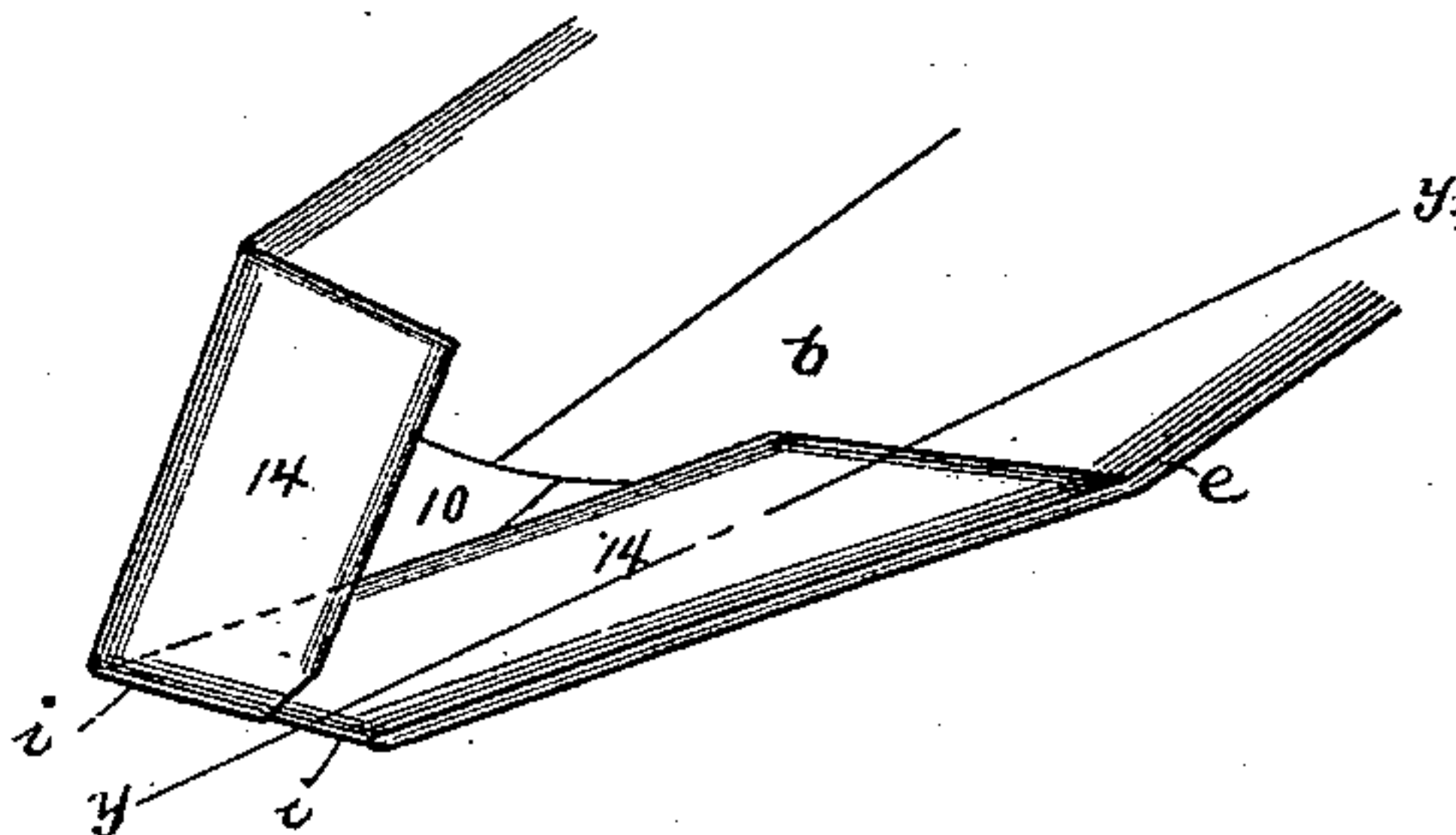


Fig. 10.

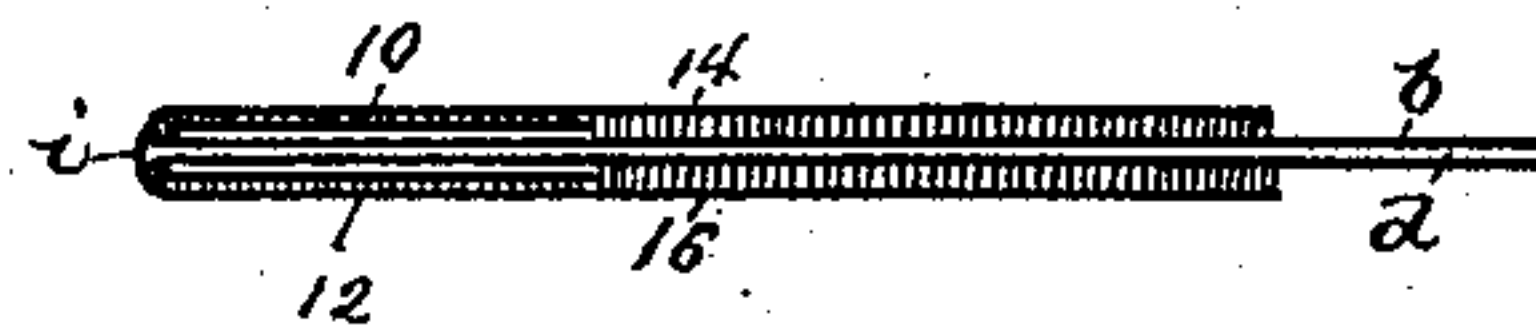


Fig. 11.

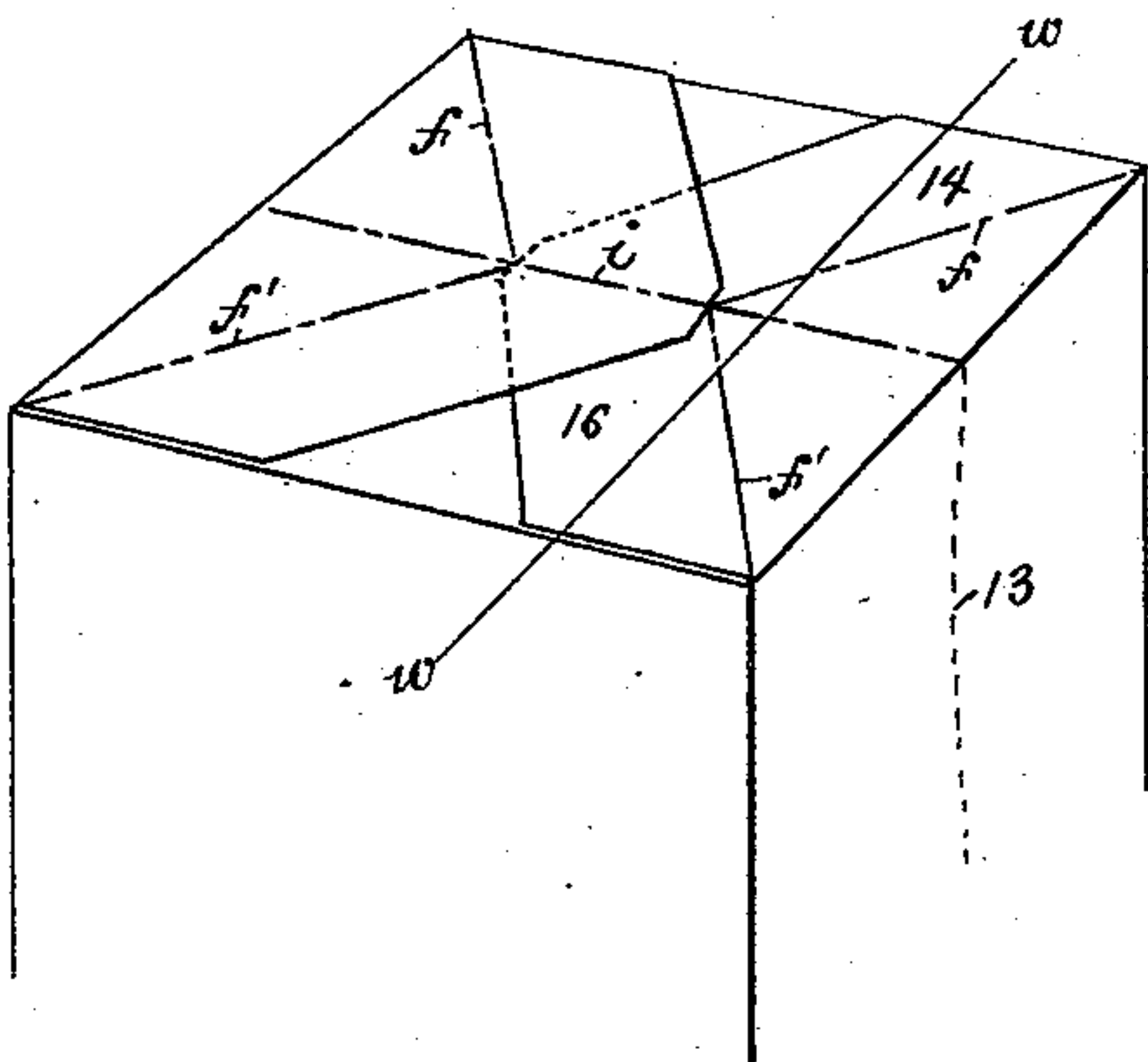
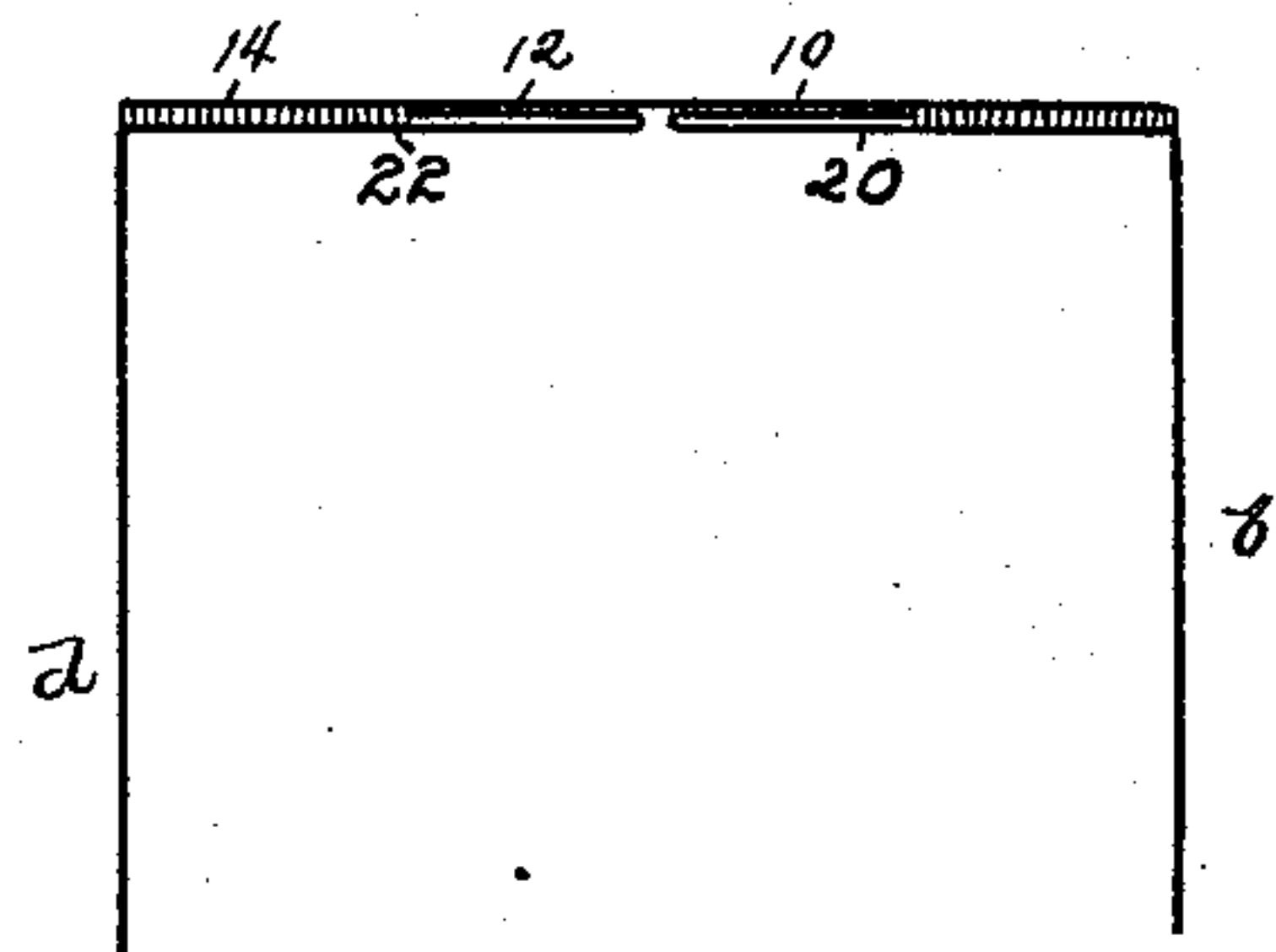


Fig. 12.



Attest:

Wm. G. Shink, Jr.  
Sidney Johnson

Inventor:

Louise D. Benner  
by John & Seaman  
attys



# UNITED STATES PATENT OFFICE.

LORENZO D. BENNER, OF PEORIA, ILLINOIS.

## BAG.

SPECIFICATION forming part of Letters Patent No. 396,388, dated January 22, 1889.

Application filed May 20, 1887. Serial No. 238,876. (Model.)

*To all whom it may concern:*

Be it known that I, LORENZO D. BENNER, a citizen of the United States, and a resident of Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Bags, of which the following is a specification.

This invention relates generally to the formation of the bottoms of paper bags, and particularly to the formation of the bottoms of that class of bags known as "bellows-sided" bags and set forth in Letters Patent No. 123,811 to L. C. Crowell. As is well known to those acquainted with this art, it has been a great desideratum to so form the bottoms of this class of bags that the necessary creases shall be imparted to the bag at its bottom, which will cause the bag-bottom, when the bag is distended to be filled, to assume a rectangular form. Many methods have been proposed by which this has been accomplished; and the present invention consists in so forming the bottom that these desired creases will be imparted to the bag during its formation and thus obviate any after-manipulation thereof.

In the accompanying drawings, Figure 1 is a view of an ordinary bellows-sided tube or bag-blank. Figs. 2 to 8, inclusive, represent, by perspective views and a sectional view taken on the line  $x x$ , the formation of the bag-bottom. Fig. 9 is a perspective view of the completed bag-bottom in its flat condition, and Fig. 10 a section of the same, taken on the line  $y y$ . Fig. 11 is a perspective view thereof, the bag being distended and looking at its bottom; and Fig. 12 is a vertical section taken on the line  $w w$ .

Bags of this class are commonly made from an endless web of paper, or other suitable material, that is folded on longitudinal lines, by suitable means, into bellows-sided tubular form, as shown in Fig. 1, in such manner that the edges of the web meet over the center of the tube and are united by a longitudinal line of paste, said tube being afterward severed transversely into bag-blanks ready to be formed into bags by the formation of the bottoms. The manner of thus forming a bellows-sided tube or bag-blank is now too well known to need particular description thereof. It

suffices to say that, so far as the present invention is concerned, it contemplates the employment in practice of an endless web or sheets or blanks, as the circumstances of manufacture may require. Thus, with the understanding that the bellows-sided tubular bag-blank shown in Fig. 1 may be formed in any of the well-known ways, the formation of the bottom thereof will now be described.

The bag-blank previous to the formation of the bottom is preferably creased on the line  $a$  to aid in making the preliminary folds shown in Figs. 2 and 3. To effect this the end 10 of the upper ply,  $b$ , of the blank is turned rearward on said line  $a$ , so as to lie upon the body of the blank or those portions thereof which in the completed and distended bag, Fig. 12, form underlying intumed portions 20 22, and thus draw inwardly the edges of the said upper ply, so as to form the triangular portions  $c$ , which are defined by fold-lines 1 2, as seen in Fig. 2. The end 12 of the lower ply,  $d$ , of the bag is similarly turned rearward on said line  $a$ , so as to lie upon the body of the blank, as best seen in Fig. 4, similar triangular portions,  $c'$ , and defined by similar fold-lines, being thus formed as the like portions  $c$  on the upper ply,  $b$ . The ends of each ply being thus folded back upon the bag-body, the edge  $e$ , say, of the under ply is folded over longitudinally onto the body of the blank approximately on the inner fold-line, 13, of the bellows, so that said bellows is opened and its triangular fold  $c'$  is presented uppermost adjacent to the mouth of the bag, as in Fig. 5. In this position of the material the blank is creased on the line  $f$ , and the portion 14, of rhomboidal form, is folded over on said line  $f$  onto the body of the blank, as seen in Fig. 6. The edge  $e$  of the under ply is now returned from its position in Figs. 5 and 6 to its normal position at the edge of the blank, and by so doing, the under ply of the blank having been creased (if desired) on a line,  $f'$ , similar to line  $f$ , previously described, to provide a rhomboidal portion, 16, (see Fig. 7,) similar to 14, the said rhomboidal portion will be caused to fold down upon the under ply of the blank, thus bringing the material along the line  $i$  (which, in fact, is a portion of inner fold-line, 13, of the bellows-fold) over



a portion of the mouth of the tube end, as seen in Figs. 7 and 8. In like manner the opposite edge, *g*, of the under ply of the blank is folded longitudinally back onto the body of the blank, as was the edge *e*, and the blank similarly manipulated to form a second set of rhomboidal portions, 14 16, on the opposite sides of the blank, the line *i* joining said two portions, and enveloping the unclosed portion of the tube end, as seen in Figs. 9 and 10, thus completing the formation of the bag.

Of course suitable lines of paste will be applied to the folded-over ends 10 12 and the triangular portions *c c'*, so that when the rhomboidal portions 14 are folded down the meeting surfaces of the material will be cemented together, as in Figs. 10 and 12.

The disposition of the material forming the bag-bottom, as thus described, is such that the four corner portions of the end of the blank are each folded back upon the body of the blank adjacent to such corner portions, a portion of the inner folded line, 13, of the bellows-folds being brought over the end of the blank, so as to close it, as seen in Fig. 10, without leaving any loose flaps within the bottom of the bag in which the material with which it is filled will lodge; and from this disposition of the material it will be seen that, so far as the ultimate closing of the bottom is concerned, the portions 10 12 and triangular portions *c* and *c'* may be omitted—that is to say, those portions at the end of the blank might be absent.

No claim is made herein to the bag shown, described, and claimed in my pending appli-

cations filed February 3, 1888, Serial No. 262,890, and March 10, 1888, Serial No. 266,798.

What is claimed is—

1. The herein-described bellows-sided bag, the bottom whereof is provided with the portions 10 12, folded back upon the underlying portion of the bag, and the portions 14 16, folded over and cemented to the portions 10 12, substantially as described.

2. The herein-described bellows-sided bag, the bottom whereof when distended is formed by the two folded-back portions 10 12, the underlying intumed portions, and the folded-over and overlapping portions 14 16, substantially as described.

3. The herein-described bellows-sided bag, the bottom whereof when distended is formed by the oppositely folded-back portions 10 12 and the oppositely folded-over portions 14 16, the said portions 10 12, contiguous with the portions 14 16, being folded over upon themselves on diagonal lines *f f'*, substantially as described.

4. The herein-described bellows-sided bag, the bottom whereof is formed by folding back the end portions, 10 12, leaving projecting side pieces, which are folded back on diagonal lines *f f'* onto the body of the bag, so as to close the mouth of the bag.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LORENZO D. BENNER.

Witnesses:

GEORGE M. GIBBONS,  
F. W. VOIGT.