

(No Model.)

3 Sheets—Sheet 1.

W. C. CROSS.

MACHINERY FOR THE MANUFACTURE OF SACHEL BOTTOM PAPER BAGS.

No. 336,474.

Patented Feb. 16, 1886.

Fig. 1.

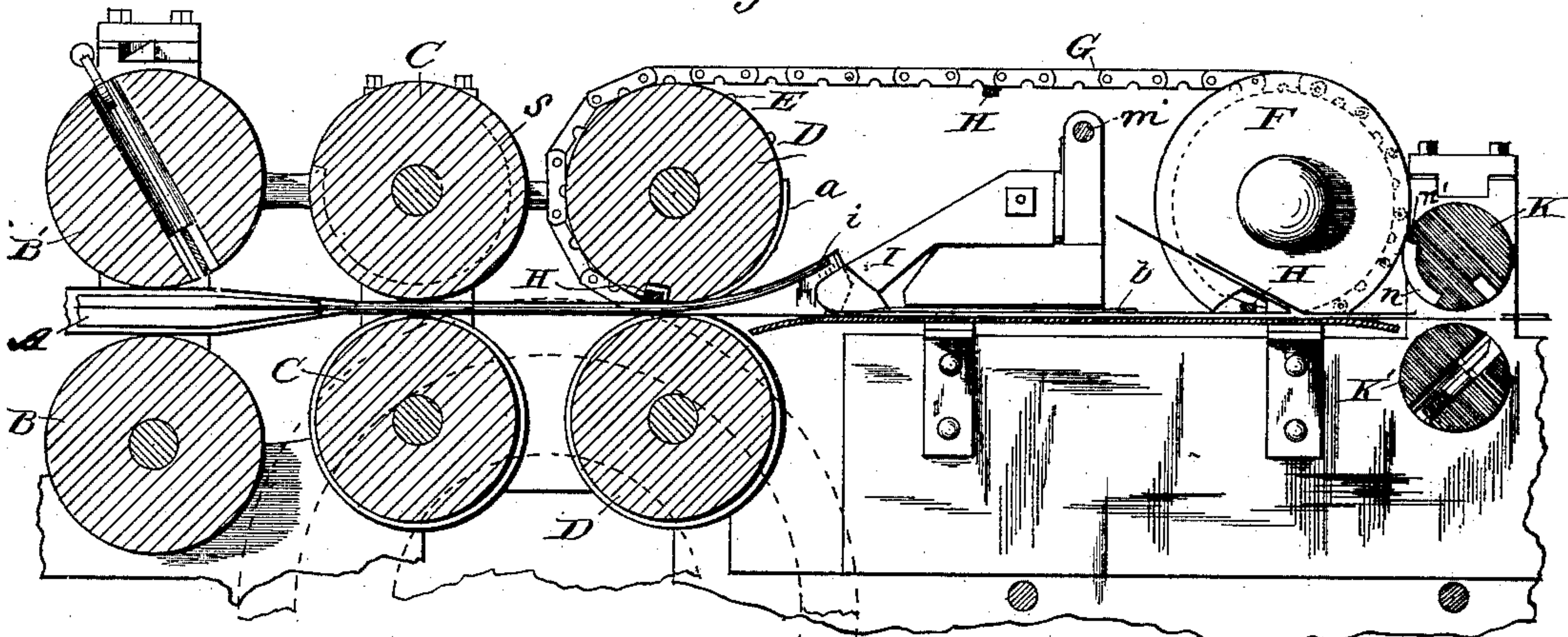
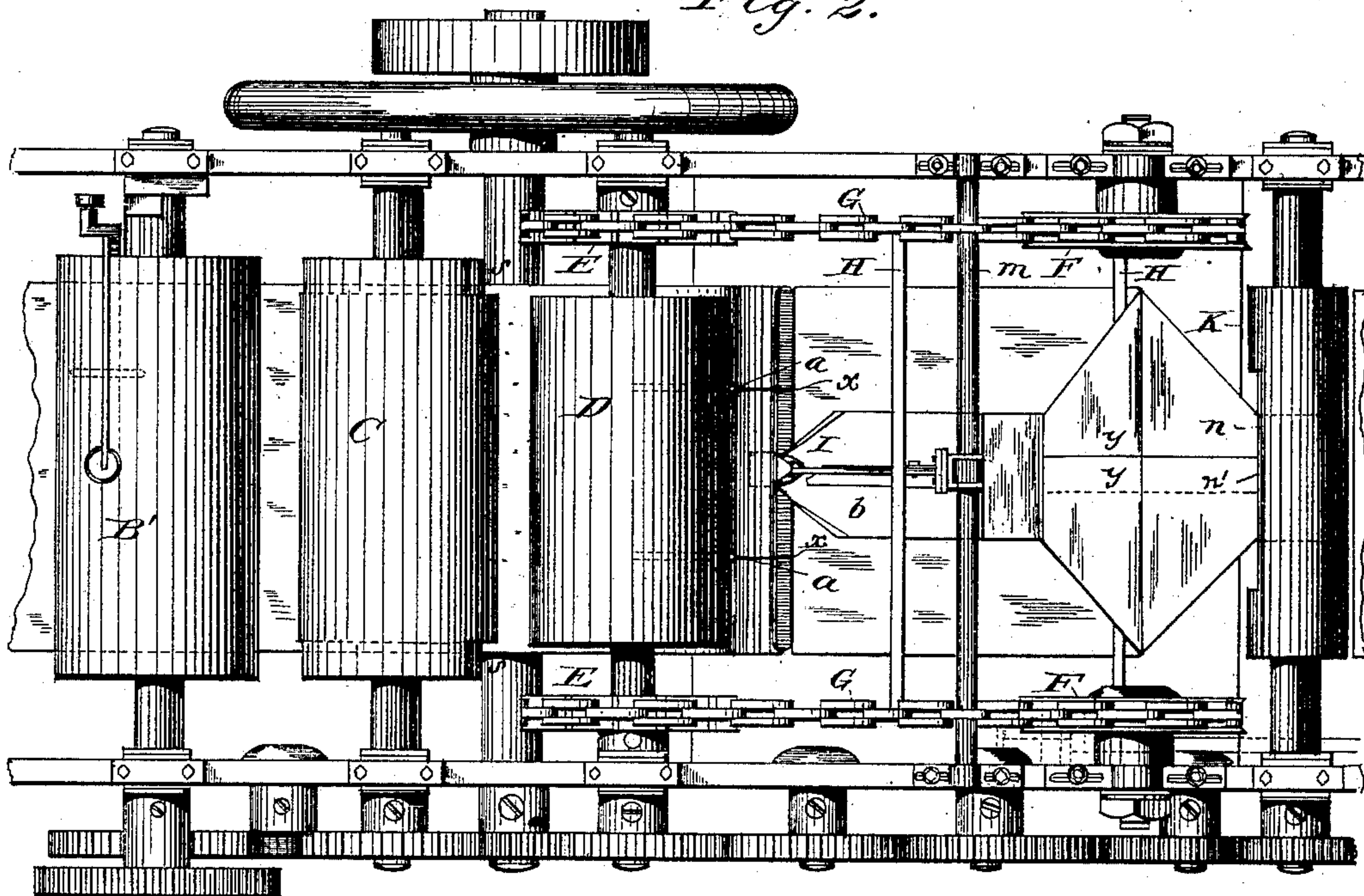


Fig. 2.



Witnesses:

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Inventor:

William C. Cross
by Marcellus Bailey
his attorney

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Fig. 3.

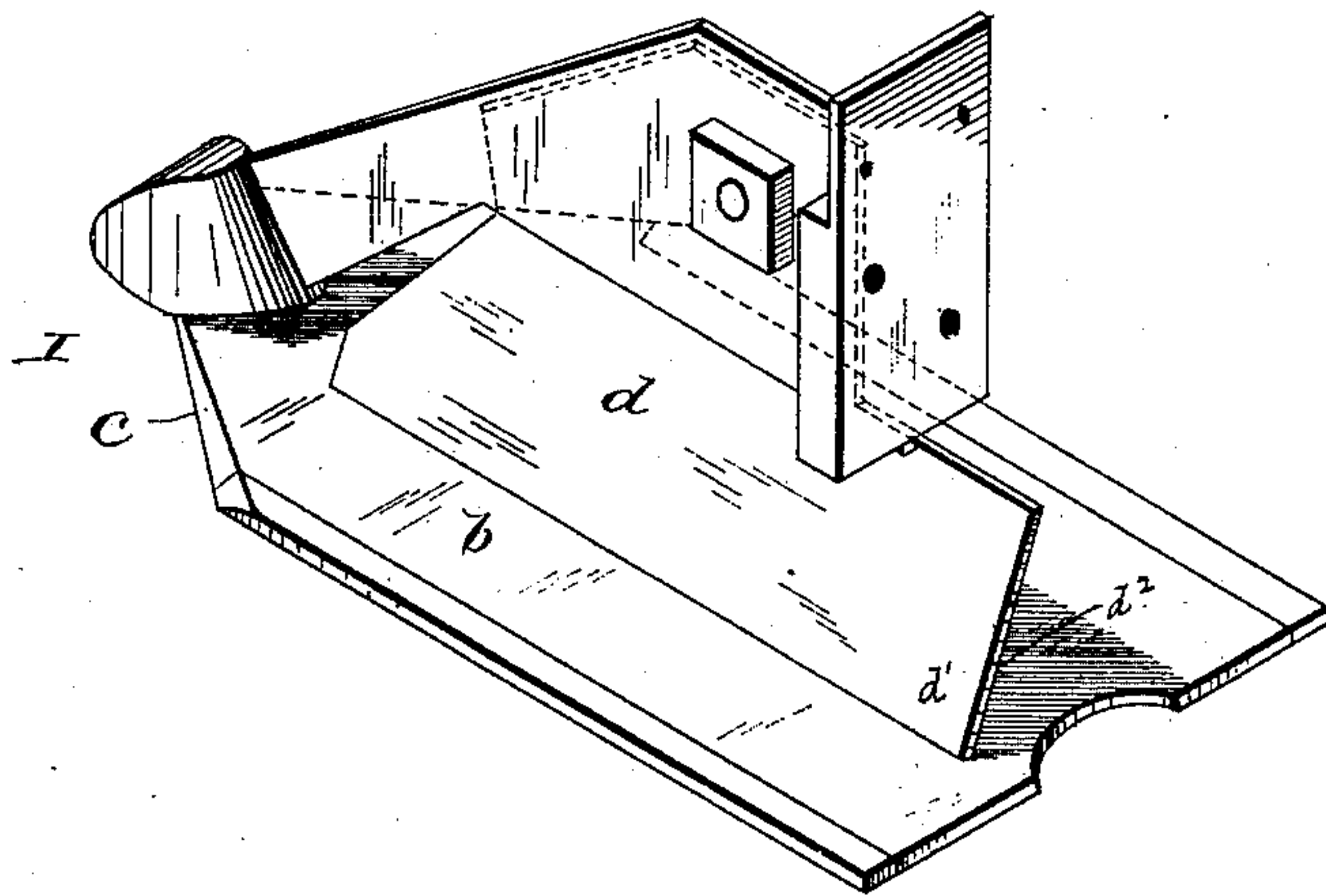
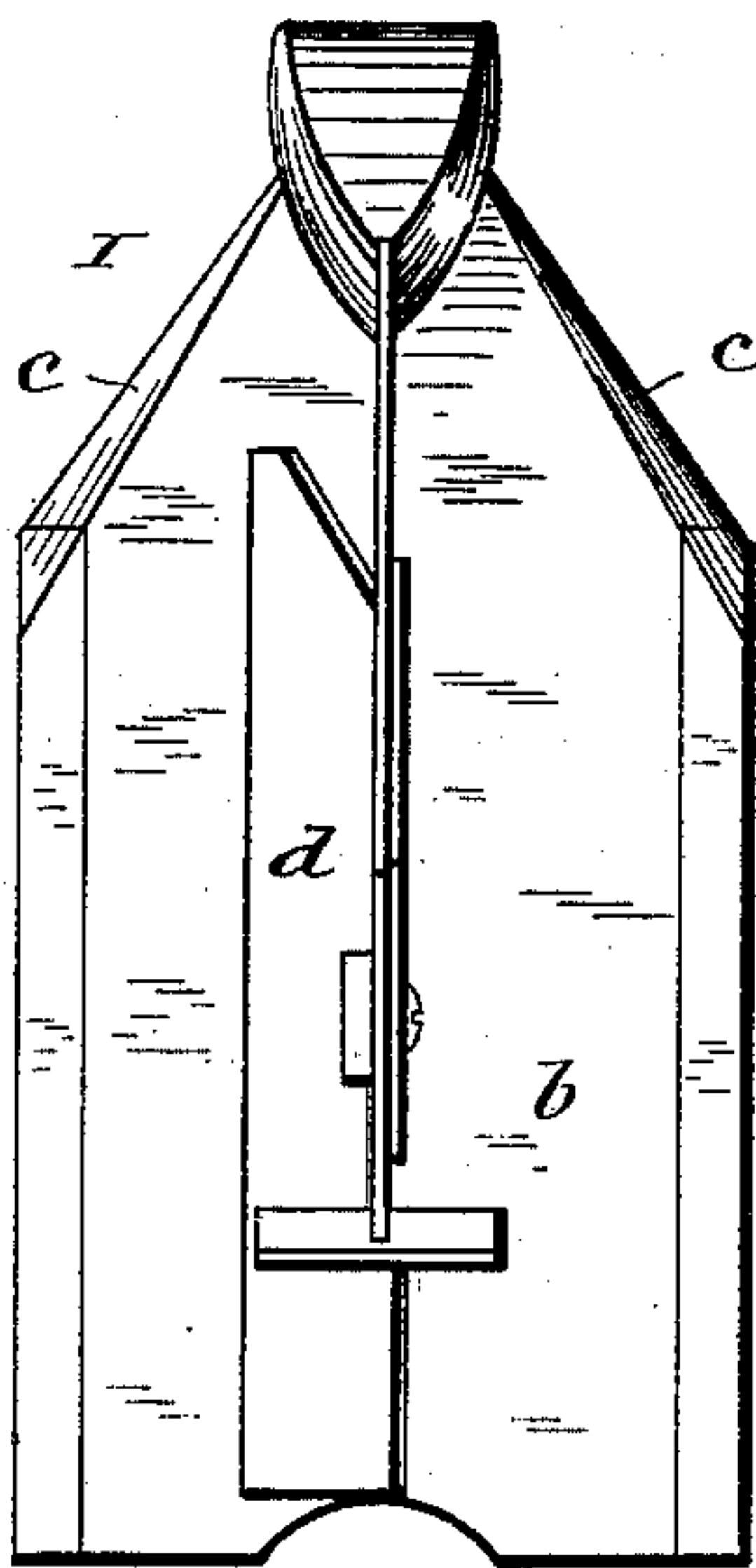


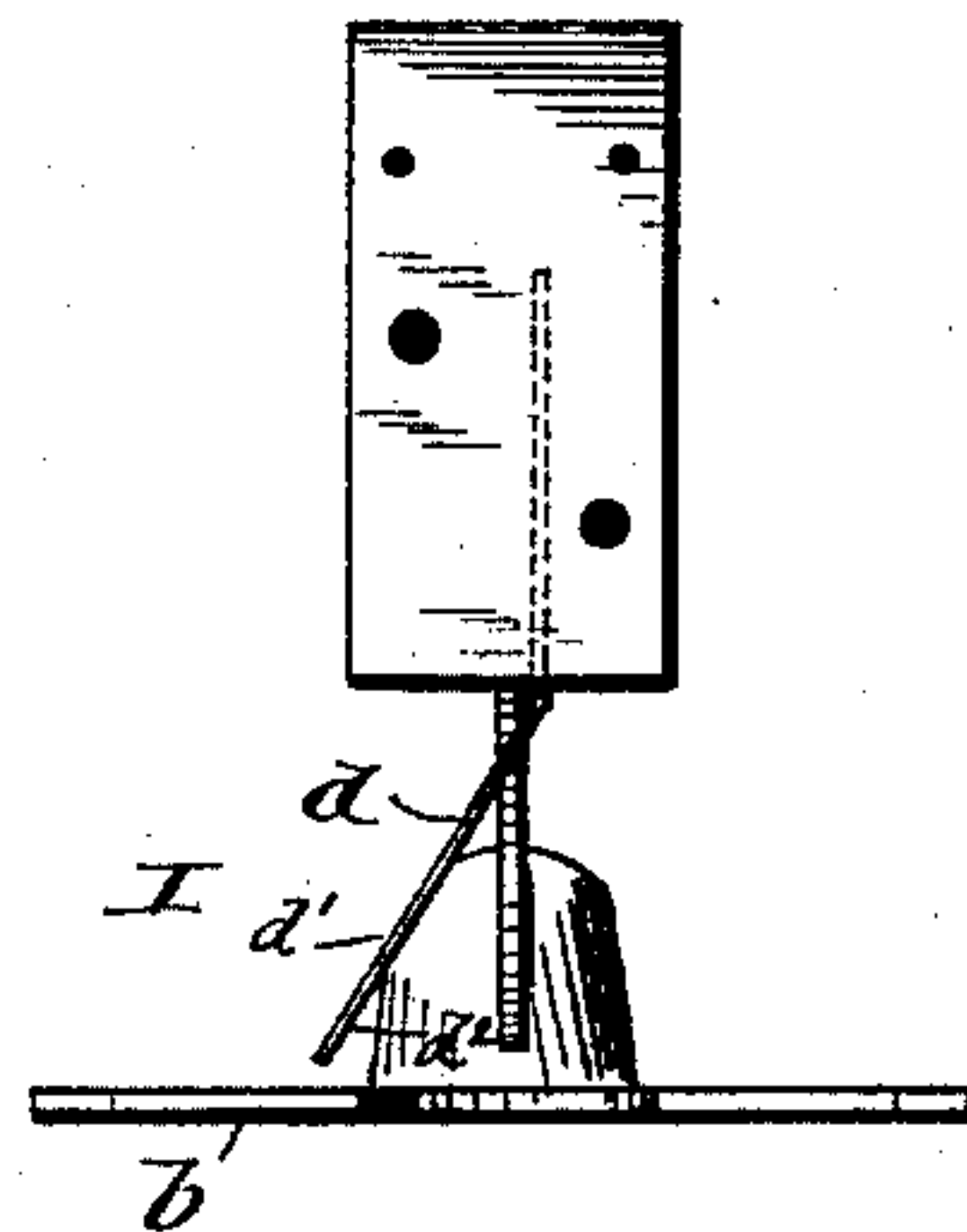
Fig. 4.



witnesses:

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Eveland, Mich

Fig. 5.



Inventor:

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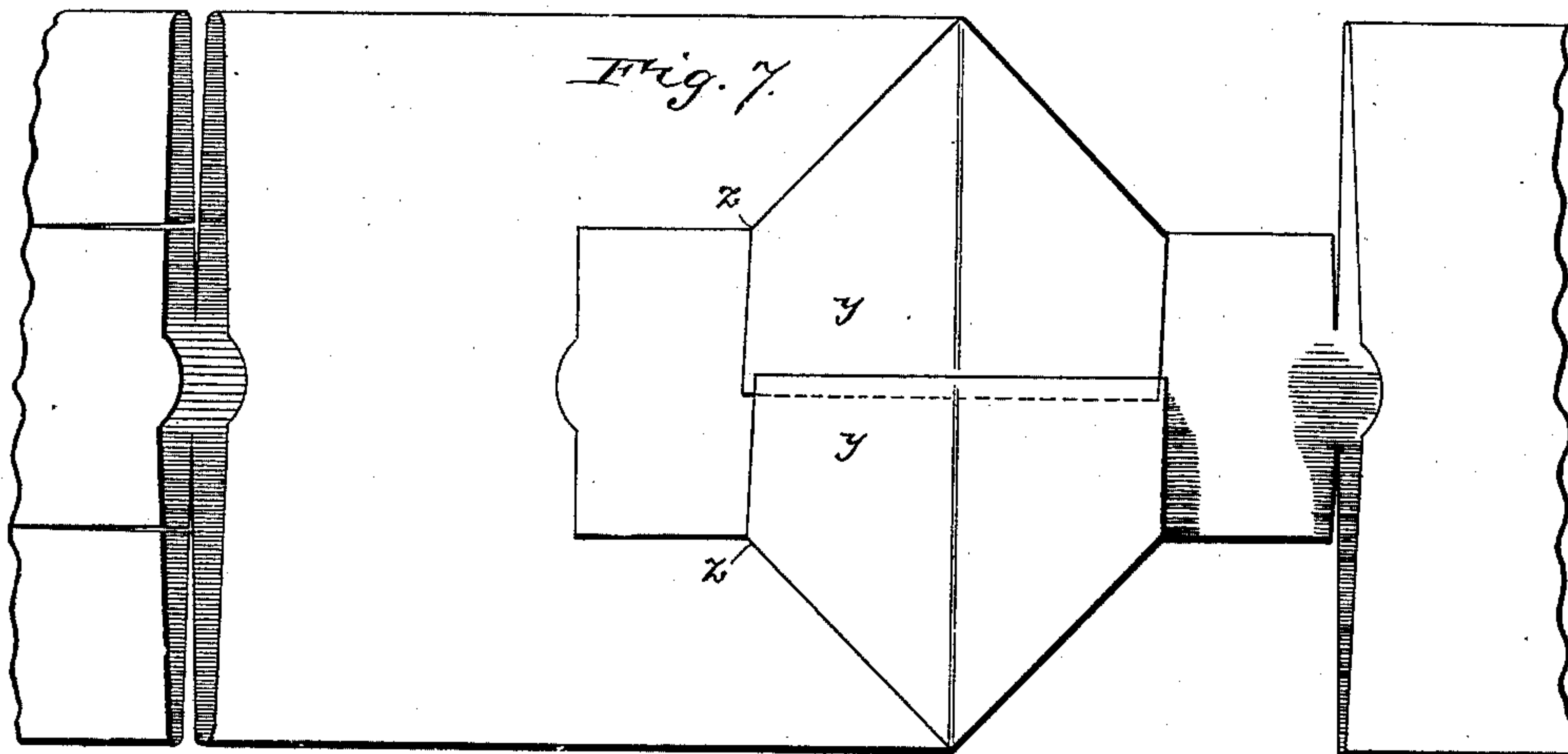
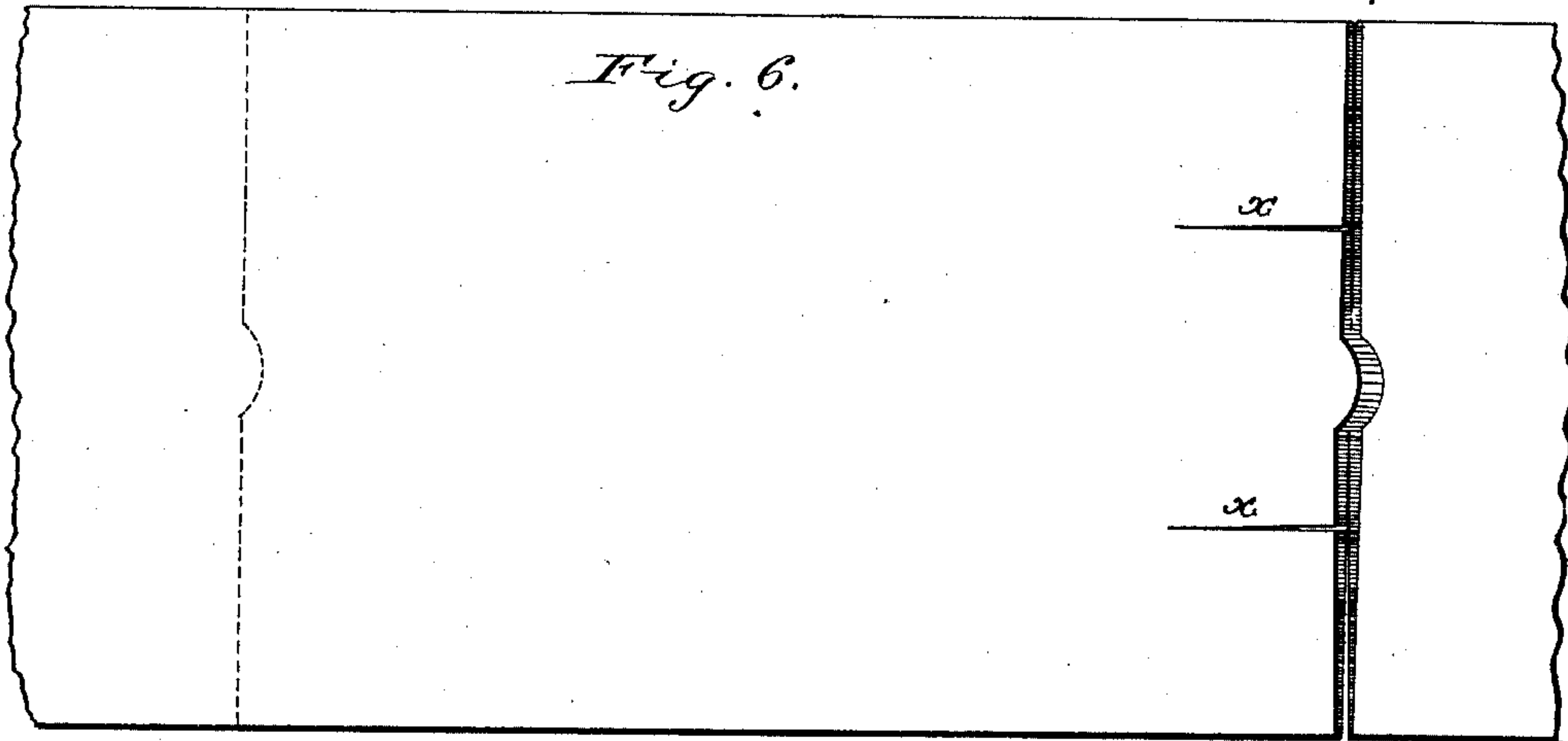
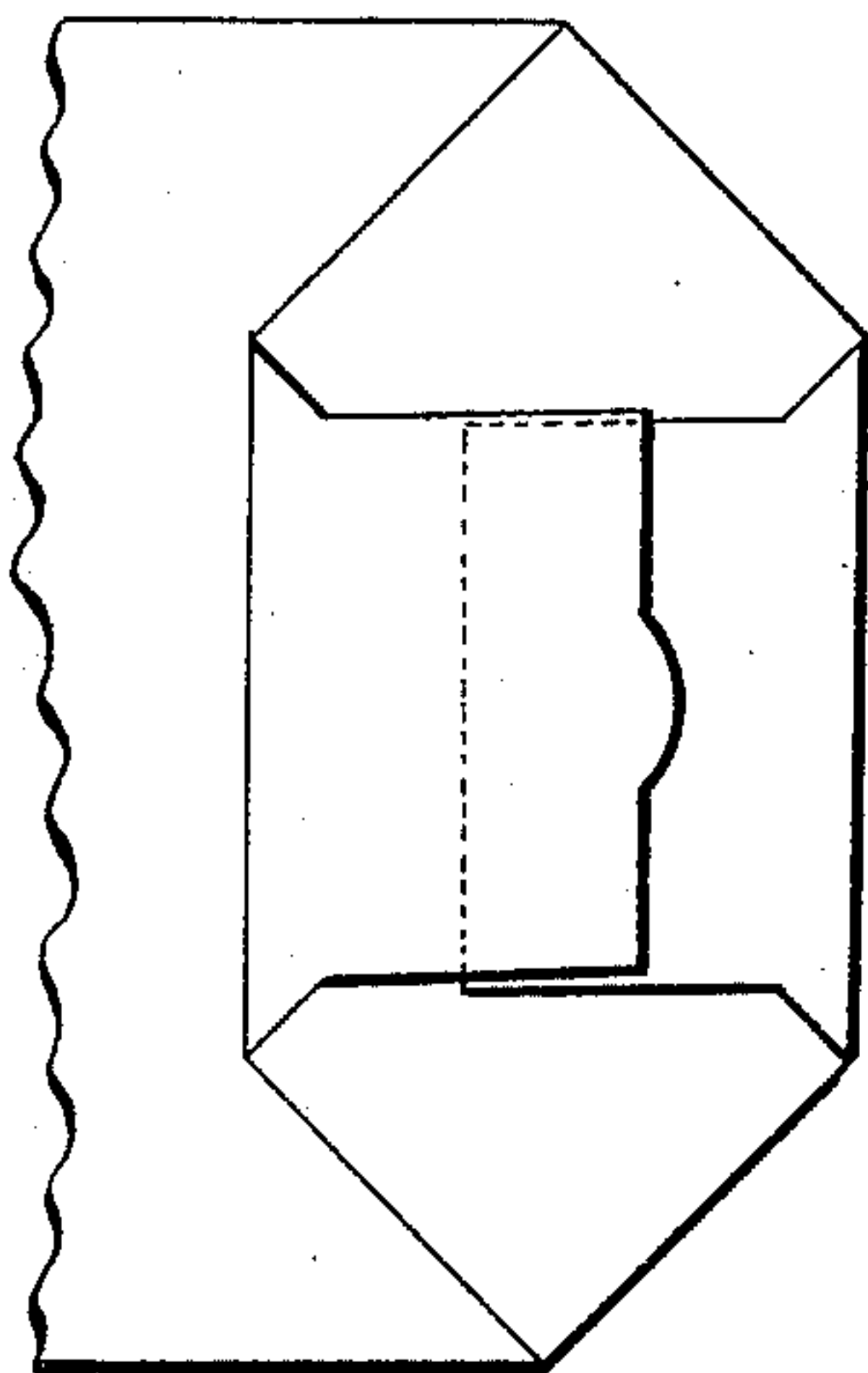


Fig. 8.



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Inventor:
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by Marshall Bailey
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UNITED STATES PATENT OFFICE.

WILLIAM C. CROSS, OF BOSTON, MASSACHUSETTS.

MACHINERY FOR THE MANUFACTURE OF SACHEL-BOTTOM PAPER BAGS.

SPECIFICATION forming part of Letters Patent No. 336,474, dated February 16, 1886.

Application filed October 23, 1885. Serial No. 180,722. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. CROSS, of Boston, Massachusetts, have invented certain new and useful Improvements in Machinery for the Manufacture of Satchel-Bottom Paper Bags, of which the following is a specification.

I have heretofore patented a variety of machinery for the manufacture of satchel-bottom paper bags.

My present invention relates to machinery of a like general class, although the bag which it is intended to make, while it may be considered a satchel-bottom paper bag in the sense that the front end of the bag-blank is opened and folded back in approximately diamond shape to form the first fold, and then the front and rear flaps of said first fold are folded inwardly, one upon the other, to form the second and final folds, nevertheless differs in some respects from the ordinary satchel-bottom paper bag described in my previous patents.

In the bag to the manufacture of which my present invention is mainly directed the front end of the blank is opened and laid back as usual; but preliminary to this operation there are formed in the front end portion of the bag-blank two parallel longitudinal slits passing through both sides or plies of the blank, and of a length equal or nearly equal to that which it is desired the flaps for the second and final folds should have. The consequence of this is, that when the first fold is laid this fold has not the customary diamond form, but at its front and rear terminates not in points, but in flaps. The longitudinal meeting edges of the parts which make up the body of the first fold also overlap. It is to properly lay a fold of this character that I have devised my present invention.

The organization in which I prefer to embody my invention is that described in my Letters Patent No. 325,059, of August 25, 1885. I use the same instrumentalities, operating together in the same way, as in said Letters Patent. I however add cutters for making the longitudinal slits referred to, and I also modify the guide-finger and add to it certain instrumentalities to enable it to efficiently lay a first fold of the kind above generally described. It is in these changes in and addi-

tions to the guide-finger that my invention mainly is comprised, although it also embraces other features, hereinafter described, which conduce to the proper laying of the fold.

The invention can best be explained and understood by reference to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section, and Fig. 2 is a plan, of so much of the machine shown in my aforesaid Letters Patent No. 325,059 as needed for the purpose of illustrating my present invention. Fig. 3 is a view on enlarged scale of my improved guide-finger detached. Fig. 4 is a plan, and Fig. 5 is a rear elevation, of the same. Figs. 6, 7, and 8 are views of the blank.

In the drawings, A is the former. BB' are the lip-cutting rolls. CC are the feed-rolls. DD are the rolls carrying sprocket-wheels EE. FF are sprocket-wheels, which, in conjunction with EE, carry sprocket-chains GG, on which are mounted the plate-knife folders HH. KK' are the rolls by which the first fold is pressed down and the uncut central portion that connects successive blanks is severed. I is the spring opener-strip, and J is the guide-finger. The general construction, combination, and mode of operation of these parts are the same as described in my aforesaid Letters Patent, with reference to the correspondingly-lettered parts therein shown, and require, therefore, no explanation here. I consequently proceed to describe the parts in which my invention is comprised.

On the upper roll, D, are two blades, *a a*, extending partly around the roll, parallel with one another, and of such length and at such distance apart as to form parallel slits of the proper length in the blank at the proper points. Fig. 6 represents a blank thus slitted, the slits *x x* extending through both plies of the blank. The guide-finger J is attached to the cross-bar *m*. To it is connected a flat plate, *b*, which I term the "former-plate." This former-plate is beneath the guide-finger, and extends from the tip of the latter back a suitable distance. It is of a width about equal to the distance between the slits *x x* in the blank, and its front edges, *c c*, slant backward and divergently from the tip of the finger, and are made sharp, for a purpose hereinafter ex-

plained. Between the finger (in rear of its tip) and the former-plate intervenes a plate, d , inclined as shown, which plate—termed by me the “lap-guide”—is intended to insure the proper lapping of the meeting edges of the parts which form the body of the first fold.

The blank, as it is slitted at x , passes to the guide finger, (its mouth being held open by the opener i ,) and by the conjoint action of the finger and one of the plate-knife folders the first fold is laid. As this fold is being formed, the former-plate, which is of the width of the flaps formed by slits x and is adjusted in line with the flaps, presses upon or holds the central portion of the fold, whereby the latter is brought ultimately to the shape shown in Fig. 7, which represents the blank after the first fold is laid. It will be noted that the longitudinal meeting edges of the two parts $y y$, which form the body of the first fold, overlap. It is with a view to insure this overlapping that the lap-guide d is made use of. The parts y (which may in a sense be considered side flaps) pass above the former-plate, and their meeting edges pass one on each side of the finger. They thus travel along in contact with opposite faces of the lap-guide, and, owing to the inclination of the latter, the edge which travels along the face d' will be held higher than the edge which travels in contact with the face d'' , so that as the two edges pass beyond the lap guide and are permitted to come together the higher one will lap over the other with certainty. The sharpening of the edges c is intended to allow the former-plate to slightly cut the blank at the points z in case the blank should be not exactly in line with said plate.

The blank, with the first fold laid, passes beyond the guide-finger to the rolls $K K'$. To prevent the upper roll, K , from butting or pushing against the front edges of the parts y , and thus disturbing the fold, I recess this roll at the point n , the recess being so placed that it will come opposite to the blank at the time the latter has traveled far enough to bring the parts y up to the rolls $K K'$. The front edges of the parts y consequently will not contact with the upper roll, K , but the latter at the front wall, n' , of the recess will take hold of the parts y at a point back of their front edges.

To facilitate the laying of the first or diamond fold, I recess the feed-rolls C at the ends, as indicated at s , with a view to breaking down and creasing the side edges of the yet unfolded blank from the front or forward end of the blank to a point—say x' , Fig. 6—just at or in advance of the cross-line of fold determined by the plate-knife folder, leaving the side edges in rear of that point uncreased. The object of this primarily is to obtain what may be termed a “hinge-point,” on which the top ply or flap can readily turn over and down upon the plate-knife folder. I find also in practice that the creasing of the edges between the points x' and the forward end of the

blank facilitates and renders more easy the operation of laying the fold.

I have shown and described the former-plate as attached to and carried by the guide-finger. It may, however, be carried by an independent support. The same is true also of the lap-guide. I prefer, however, to mount both of them on the guide-finger. I have also described and prefer to use a plate-knife folder rotating or moving continuously in one direction; but other known arrangements of this device might be employed.

After the blank passes the rolls $K K'$ the first fold is pasted in the usual way, and the end flaps are then by suitable mechanism folded inwardly, so as to overlap, thus finishing the bag, the bottom of which will have the form illustrated in Fig. 8. These pasting and folding operations can be performed by the mechanism described in my Letters Patent No. 325,059, hereinbefore referred to, or by any other instrumentalities suitable for the purpose.

Having described my improvements and the best way at present known to me of carrying the same into effect, what I claim herein as new and of my own invention is—

1. The combination of the guide-finger, the former-plate, and the plate-knife folder, substantially as and for the purposes hereinbefore set forth.
2. The combination of the slitting-rolls, the guide-finger, the former-plate, and the plate-knife folder, substantially as and for the purposes hereinbefore set forth.
3. The guide-finger provided with a former-plate, as hereinbefore shown and described.
4. The lap-guide, in combination with the guide-finger and former-plate, substantially as and for the purpose hereinbefore set forth.
5. The combination, substantially as hereinbefore set forth, of the slitting-rolls, the guide-finger, the former-plate, the lap-guide, and the plate-knife folder.
6. The combination, with the former, the plate-knife folder, and the guide-finger, of the feed-rolls C , recessed at the points specified, to break down or crease the side edges of the blank from the front end thereof to a point just in advance of the cross-line of fold determined by the plate-knife folder, substantially as and for the purposes set forth.
7. The combination, with the plate-knife folder, the former-plate, and the guide-finger, of the roll K , recessed at the point specified, to provide a bearing-edge, n' , which shall overlap the front edges of the parts y of the blank, substantially as and for the purposes hereinbefore set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 2d day of October, A. D. 1885.

W. C. CROSS.

Witnesses:

MARCELLUS BAILEY,
J. E. VAN DOREN.