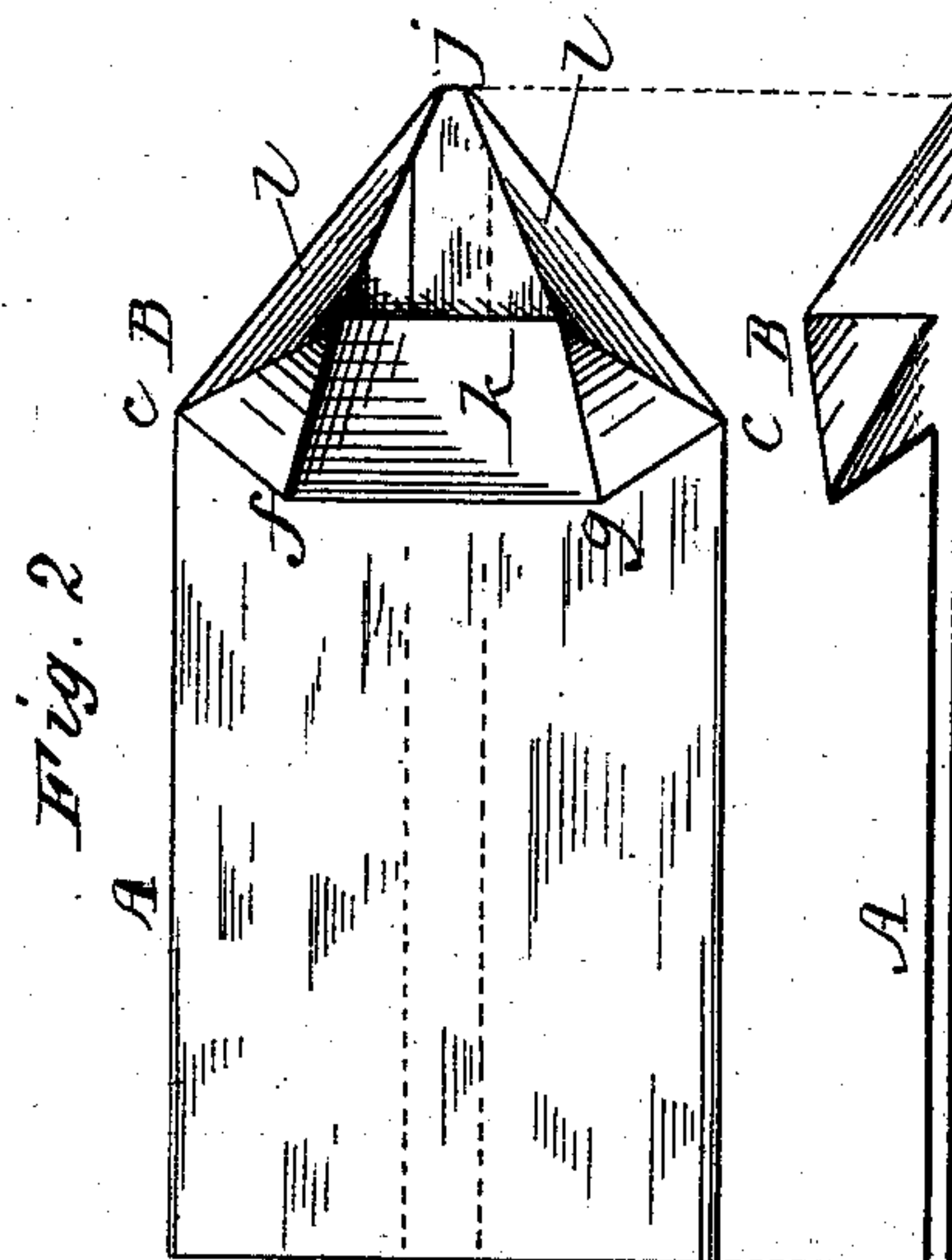
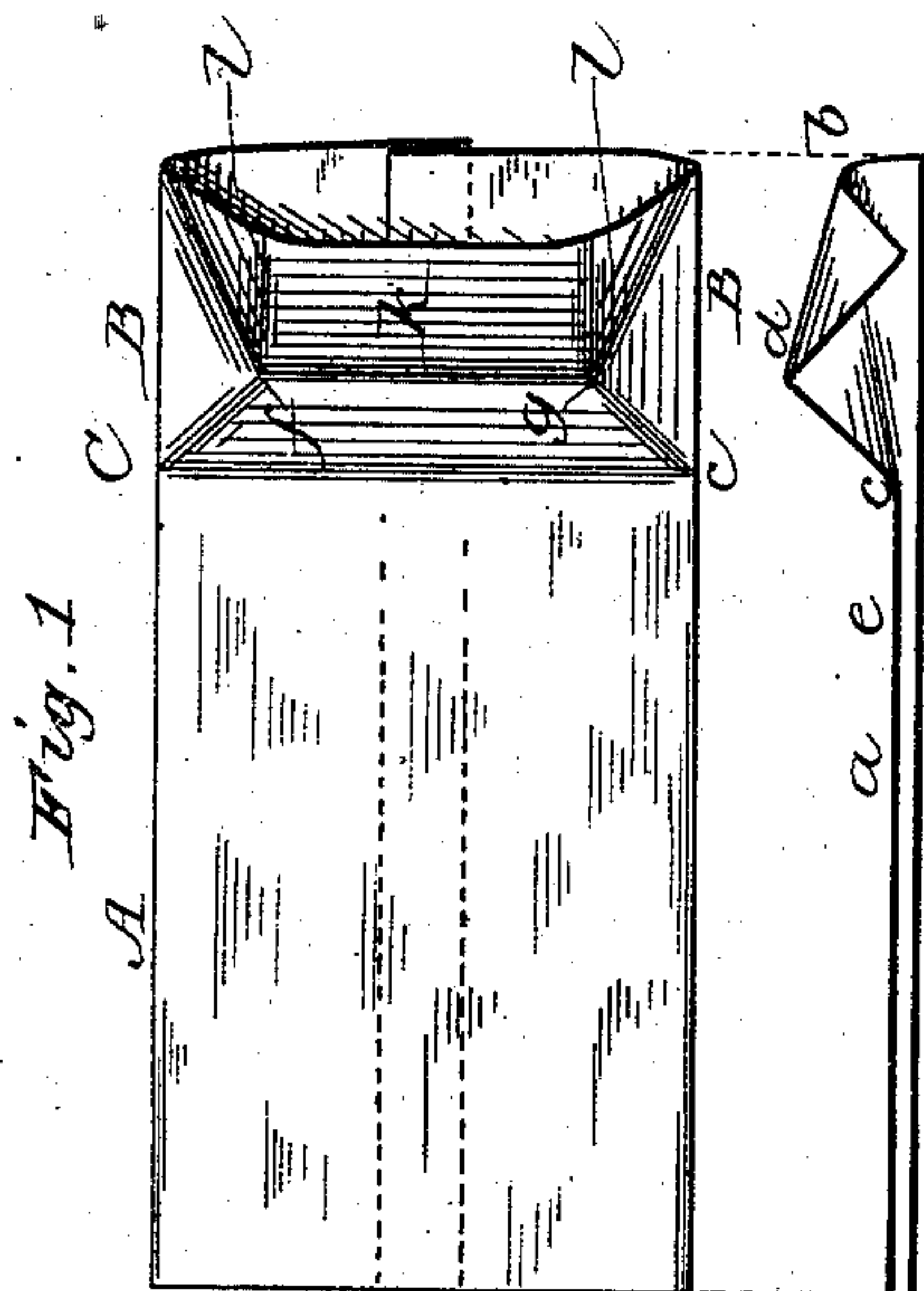
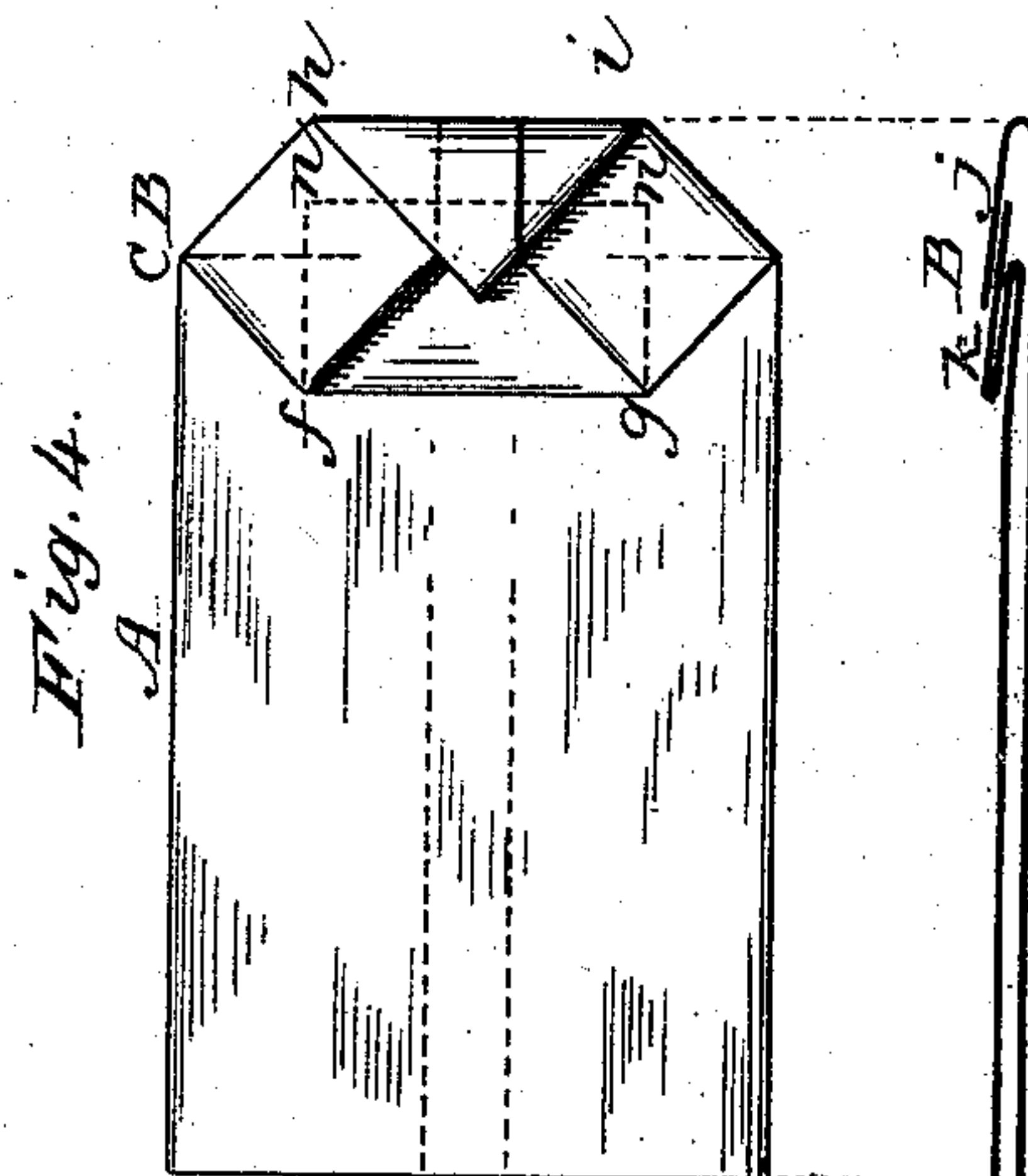
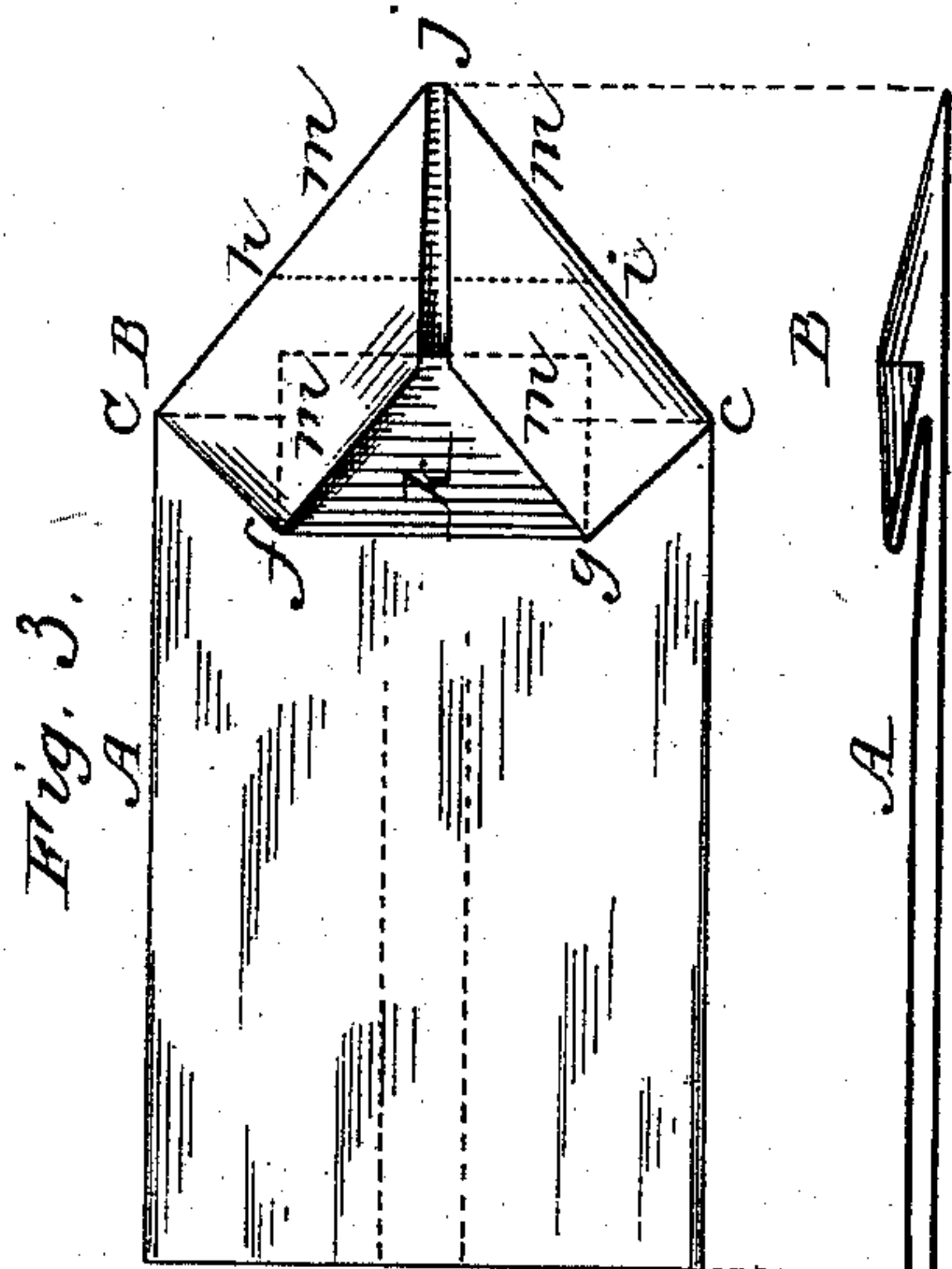


E. B. STOCKING.
Satchel-Bottom Paper-Bag.

No. 223,959.

Patented Jan. 27, 1880.



Witnesses:

E. A. Wick
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Inventor:

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UNITED STATES PATENT OFFICE.

EDGAR B. STOCKING, OF SYRACUSE, NEW YORK.

SACHEL-BOTTOM PAPER BAGS.

SPECIFICATION forming part of Letters Patent No. 223,959, dated January 27, 1880.

Application filed November 22, 1879.

To all whom it may concern:

Be it known that I, EDGAR B. STOCKING, a legal resident of Syracuse, New York, temporarily residing at Washington, District of Columbia, have invented a new and useful Improvement in Satchel-Bottomed Bags, and in the method of making the same, of which the following is a specification.

The class of satchel-bottomed bags to which my invention relates may be said to comprise those in which the bottom consists of two outer triangular flaps secured to two inner substantially rectangular flaps, and those in which the bottom consists of four substantially rectangular flaps, and in fact all satchel-bottomed bags in which is involved the formation of a diamond fold during the manufacture thereof.

The method of making this class of bags, as heretofore practiced, is substantially as follows: A sheet of paper of suitable dimensions to produce a bag of the desired size is folded longitudinally to form a tube open at both ends, and in practice a tube is also formed by similarly folding a continuous sheet or web of paper, from which tube bag-lengths are cut, producing what I shall herein term "tubular blanks"—that is, a tube of sufficient length to make the body and bottom forming portions of a satchel-bottomed bag. The bottom-forming portion of this tubular blank is then formed into what is known as the "diamond fold," as follows: One of its plies is lifted, drawn back, and laid down upon that portion of itself which forms a part of the body portion of the bag, such lifting, drawing, and laying down being at the transverse center of that end of the tubular blank which constitutes the bottom-forming portion thereof, and in such manner that a transverse fold in such ply, at a distance from its end equal to about one-third its length, or about one-half its width, and two diagonal folds extending from said transverse fold and meeting, or nearly meeting, at said transverse center, are made, and in the other ply two similar diagonal folds are made, and the intermediate material is, by such lifting, drawing back, and laying down, so disposed that the ends of the plies lie parallel to each other and to the sides of the tubular blank.

The above-mentioned transverse fold I shall hereinafter designate as the central transverse fold of the diamond.

That portion of the tubular blank which is in diamond form is properly pasted, and two transverse folds are made at equal distances from the central transverse fold, the points overlapping, and the contiguous parts are secured together. This completes the bag.

It will be noticed that in the above-described method a motion is required in opening the tube to the diamond form through a semicircle, the radius of which is equal to about one-third of the length or about one-half the width of the entire blank. This is objectionable, for various manifest reasons, either in making bags by hand or by machinery. In the latter case the formation of the diamond fold necessitates either the stoppage of the feeding mechanism or a rapid extended movement of devices out of and in a direction the reverse to that of the line of the feed, and causing in both hand and machine work an undue strain upon the material and a projection of a part thereof from its main portion so great as to render the operation difficult and increase the liability of the escape of the material from the control of the operator or the operating mechanism.

The object of my invention is to obviate these difficulties and objections, and with this purpose in view I have devised the method herein disclosed.

It consists, broadly, in the manufacture of satchel-bottom paper bags of the class referred to without making any diamond fold.

I deem it proper to state that I am not aware of any instance before my invention of the making of a satchel-bottomed bag of said class without, at some stage of the manufacture, forming a diamond fold.

I accomplish the object of my invention by introducing a new step or procedure in the art in lieu of forming a diamond fold, which step is forming and, if desired, flattening an intermediate transverse fold in the bottom-forming portion of the blank, such fold being located on a line constituting in the completed bag the junction of a side and an internal flap of the bottom, which step I consider an important feature of my invention.

By an "intermediate transverse fold" I mean a transverse fold which does not extend throughout the entire width of the ply in which it is formed, and the fold-line of which does

not extend across or include the side edges of such ply, whether they are parallel, diverging, or converging relatively to each other.

What I have designated as the "central transverse fold" of the diamond and those folds usually made across the front and rear points of the diamond are illustrations of transverse folds, which are not intermediate, because they extend the entire width of the ply or plies in which they are formed and their fold-lines cross, embrace, and involve the edges of such ply or plies.

The substitution or introduction of this new step in the manufacture of satchel-bottomed bags from plain tubular blanks results in an article which is new and improved, and which might be made by other methods than that herein disclosed.

My invention therefore consists, also, in a satchel-bottom bag the bottom of which consists of an intermediate transverse fold, two interposed diagonal folds, and a covering-flap, the former underlying the printing-field of the bag, and the V-shaped outwardly-projecting portions of the diagonal folds located outside of said field.

The advantage of a bag of this construction is realized when printed matter is put upon its body portion, the flaps of the bottom which lie against the body of the bag being more evenly and broadly disposed. The intermediate transverse fold extends entirely across and directly underlying the usual field for printed matter, and each outwardly-projecting V-shaped portion of the interposed diagonal folds is outside of said field, and facilitates the printing of the bag, when completed, down to its extreme bottom edge, thus obviating the necessity of printing upon the web or tubular blank before folding.

To enable those skilled in the art to practice my method and to construct my improved satchel-bottomed bag, reference is made in the following more particular description to the accompanying drawings, making a part hereof, in which like letters refer to like parts, and in which—

Figure 1 represents, in plan and central section, the tubular blank as it appears at the commencement of the folding operation; Fig. 2, the same intermediately transversely folded; Fig. 3, the same thus folded and flattened, and Fig. 4 the completed bag.

A indicates the body-forming portion, and B the bottom-forming portion, of a plain tubular blank of the usual form and construction used in the manufacture of that class of satchel-bottomed bags which I have selected to illustrate my invention, and is distinguishable from other classes in that it has plain edges or sides instead of bellows sides, which are sometimes used.

As heretofore stated, the usual method is, forming the diamond fold by lifting, for instance, the upper ply and turning it back and

down upon itself through a semicircle, *b a*, Fig. 1, (section,) about a center, *c*, coinciding with the central transverse fold-line of the diamond; whereas by my improved method the semicircle *d e*, through which I move the material, has a radius one-half that of the semicircle *b a*, and proportionally is reduced the strain upon the material. This results from the introduction of my new step—namely, forming the intermediate transverse fold, *f g*, about the center *c*, as clearly shown in Fig. 2, and then as seen flattened in Fig. 3. At the commencement of the formation of the intermediate transverse fold the ply in which that fold is made immediately retreats longitudinally from the end of the other ply of the tube, thus permitting access thereto for the purpose of retaining it in a horizontal or relatively unchanged position, and those portions of the first-mentioned ply outside of the limits of the intermediate transverse fold (indicated by *l*) are drawn or curled inwardly by the formation of said fold, producing in the bottom-forming portion of the tubular blank the diagonal folds *m m*, and a substantially triangular outline to the entire bottom, Fig. 3, the part *k* being partly covered by said folds *m m*. Only one step remains—viz., making the transverse fold *h i*. This may be done when the blank is in the condition shown in Fig. 2, or the blank may, if desired, be first flattened, as shown in Fig. 3. The flattening of the intermediate transverse fold necessarily results from the formation of the fold *h i*. Therefore said flattening may be performed previous to or at the time of making said fold *h i*.

I have not indicated the parts where paste is to be applied, as it is obvious that these may vary in location and extent, contiguous parts being essential, and otherwise the place, manner, and time of applying paste being non-essential. One manner or place may be stated as being only on the point *j*, which, for some purposes, is sufficient to secure the covering-flap to the intermediate transverse fold and retain the interposed diagonal folds in position. Another may be stated as being upon all points of the exterior surfaces of the bottom flaps, such surfaces being also interior relatively to the outside of said flaps.

I have shown, for the purpose of illustrating my method, the intermediate transverse fold raised or formed in the upper ply; but it is evident that it may be formed in the lower ply as well, and that ply may or may not, as desired, be the seam-ply of the tubular blank; and I would further add that an intermediate transverse fold may be made advantageously in other than plain tubes, such as what I have herein termed "bellows-sided tubes," and its employment in any method of forming the bottoms of that class of blanks I should deem as involving my invention when the result is to obviate the formation of the diamond fold, the extended movement of the means employed, or

the projection of the material, as hereinbefore explained.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A step in the art of making satchel-bottomed bags, which consists in taking up and laying back an intermediate transverse fold, substantially as set forth.
2. The method of making satchel-bottomed bags which consists in taking up and laying back an intermediate transverse fold, forming two diagonal folds and a transverse fold, substantially as set forth.

3. A satchel-bottom bag the bottom of which consists of an intermediate transverse fold, two interposed diagonal folds, and a covering-flap, the former underlying the printing-field of the bag, and the V-shaped outwardly-projecting portions of the diagonal folds located outside of said field.

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Witnesses:

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