

(No Model.)

J. ARKELL.
SOFT TIE PAPER BAG.

No. 298,152.

Patented May 6, 1884.

Fig. 1.

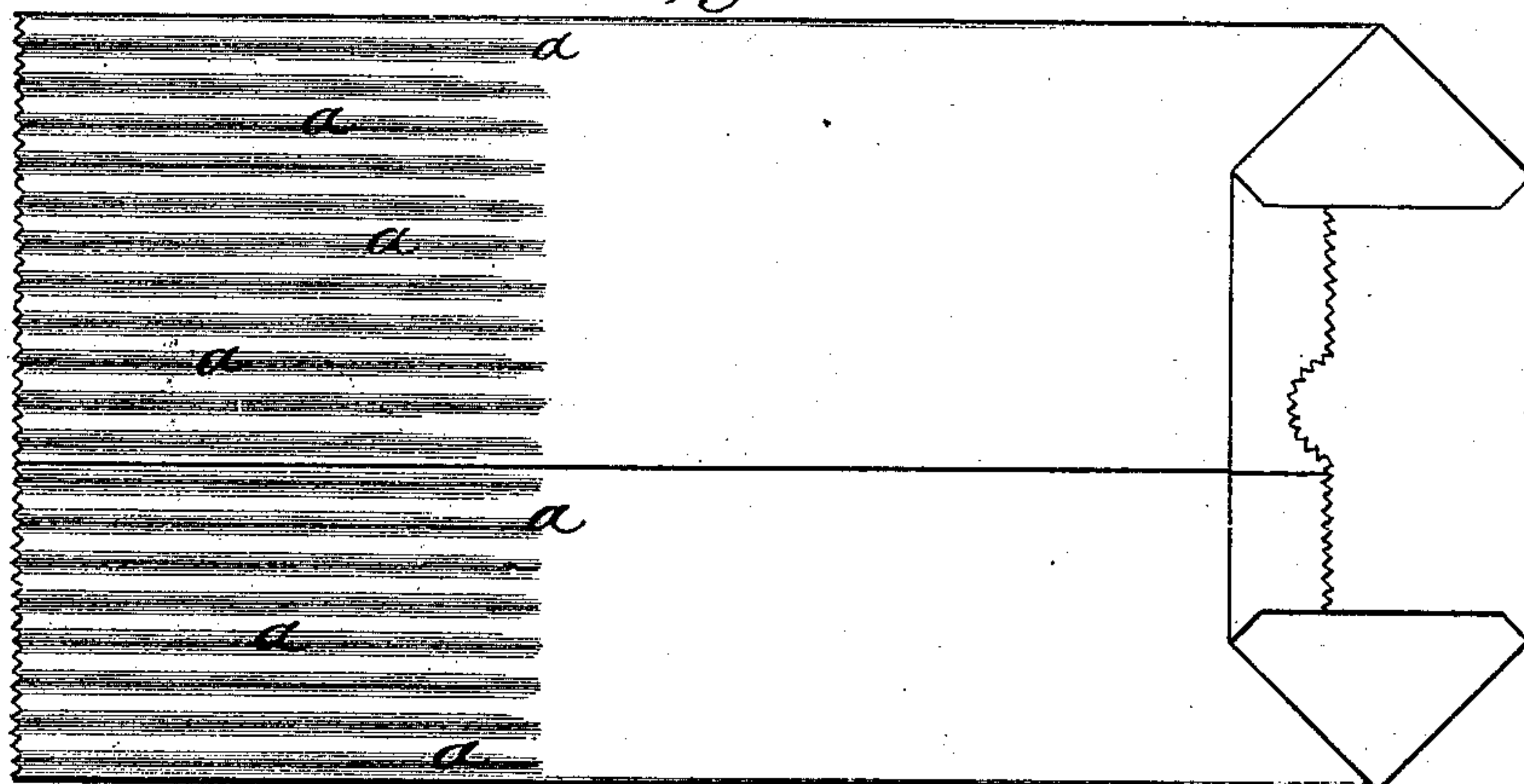


Fig. 2.

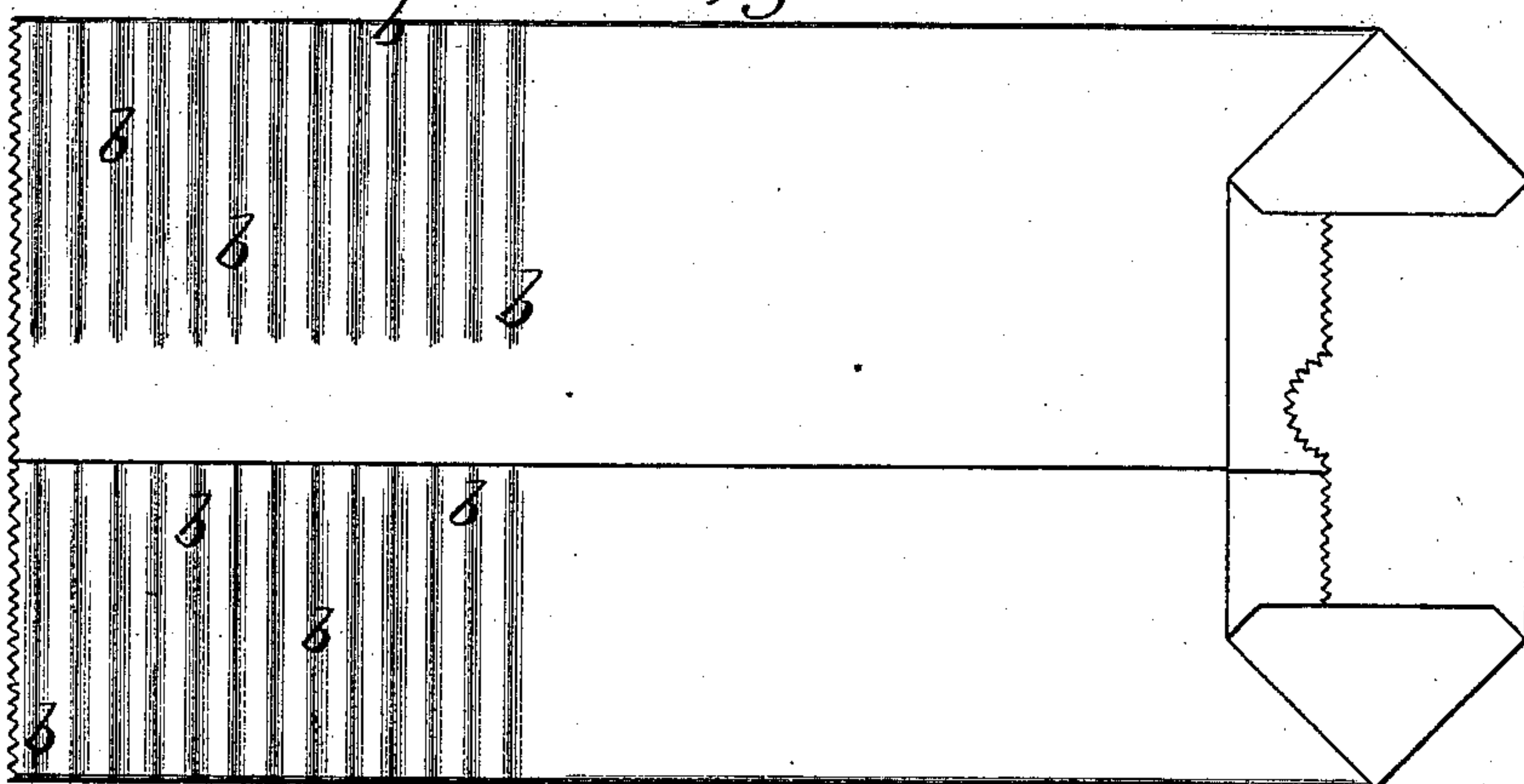
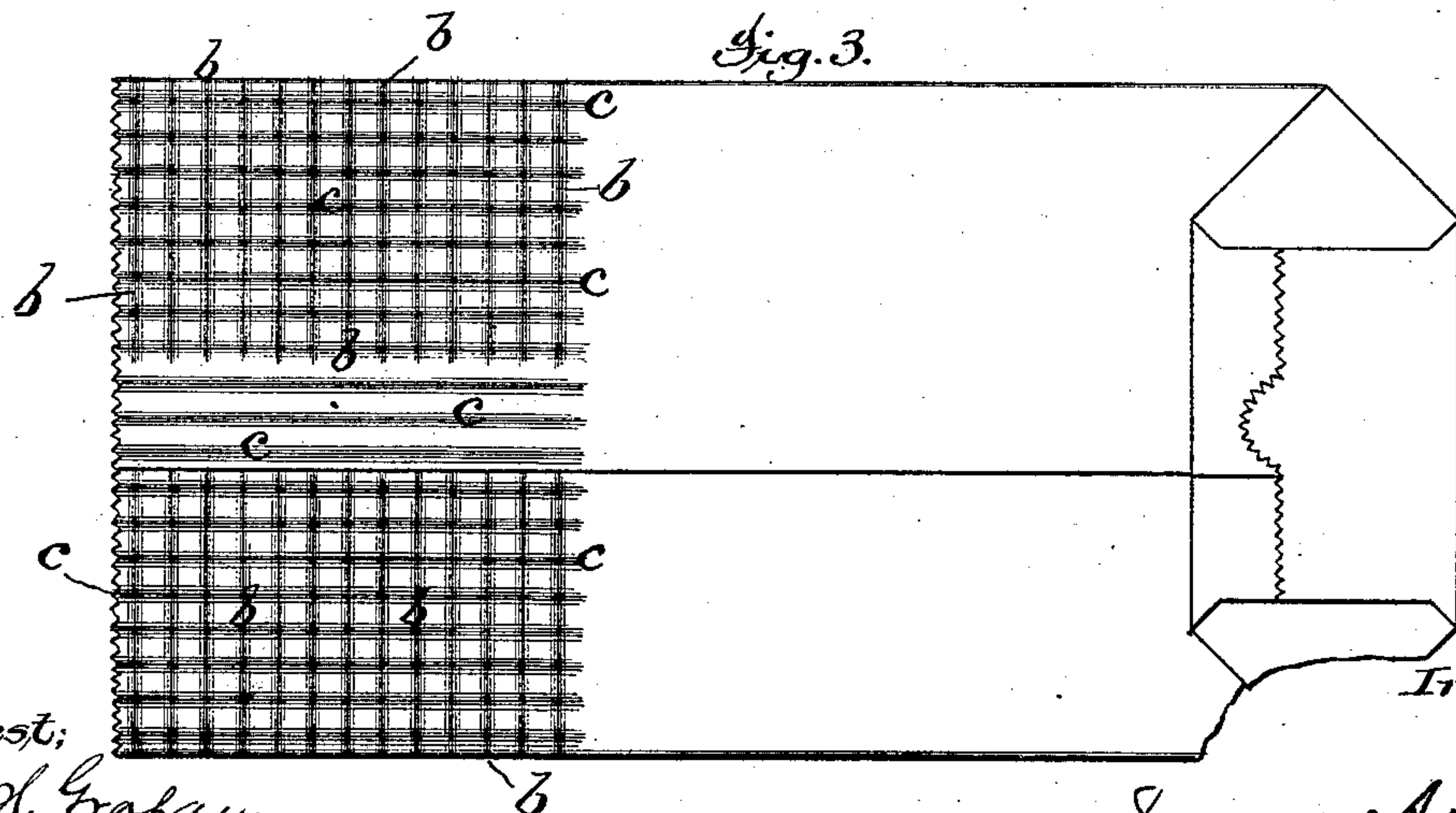


Fig. 3.



Attest;

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by
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Att'y.

UNITED STATES PATENT OFFICE.

JAMES ARKELL, OF CANAJOHARIE, NEW YORK, ASSIGNOR TO ARKELL & SMITHS, OF SAME PLACE.

SOFT-TIE PAPER BAG.

SPECIFICATION forming part of Letters Patent No. 298,152, dated May 6, 1884.

Application filed September 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES ARKELL, of Canajoharie, in the county of Montgomery and State of New York, have invented a new and Improved Soft-Tie Paper Bag; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this application.

Previous to my invention that kind of paper bags which is manufactured from comparatively heavy paper, and used mostly for the purposes for which flour-sacks are used, has been made with that portion of the body nearest the mouth or open end of the bag softened or rendered more pliable than the rest, to facilitate the tying up (with a binding cord or string) of the mouth end of the sack after the latter may have been filled with flour or other material. Paper bags or flour-sacks thus made are and have for years been known to the trade as "soft-tie" paper sacks, and were originated, I believe, by myself and Benjamin Smith, and were patented to us by United States Letters Patent, No. 48,036, of the year 1865.

I have learned by experience and experiment that soft-tie paper bags made according to the plan which has been followed in the manufacture ever since my prior invention do not possess, to the most desirable extent, the capacity to be easily tied up and securely closed at the mouth end by the usual tying cord or band, on account of the tendency of the cord or string to slightly slip. The lack of that perfect pliability and softness which is to be found in the cotton or other cloth sack renders the paper sack less capable of being easily and securely tied up, even when softened with longitudinal creases or partially-crushed parallel strips, such as are used in the formation or manufacture of soft-tie bags. At the same time I have found it impracticable, until lately and until the devisement of a method that I have lately invented of softening the paper composing the sack, (and made the subject of another application for Letters Patent filed simultaneously with this,) to render the upper portion of the sack-body any softer than it has heretofore been made without great liability

of rupturing the stock so as to spoil the bag. By my present invention I am enabled to provide for use heavy paper bags or sacks with their mouth ends so softened or rendered so pliable that they can be tied up with the same ease, and as securely, as can be the mouths of cotton or other cloth bags.

My present invention, which will be more specifically defined in the claim of this specification, consists, essentially, in a paper bag or sack the mouth or open-end portion of which is softened by two sets of parallel creasings or flutes, one set running longitudinally and the other transversely of the bag, and having the effect of not only facilitating the gathering in of the stock to tie up the bag, but of also preventing any slip of the binding cord or string, all as will be hereinafter more fully explained.

To enable those skilled in the art to which my improvement relates to fully understand and practice my invention, I will now proceed to further explain the latter, referring to the accompanying drawings, which make part of this specification.

In said drawings I have shown at Figure 1 a soft-tie bag, such as is now and has for a long time been made and sold in this country. It will be observed from this figure that the paper or stock is softened or partially crushed by a series of longitudinal flutes or creases only, (marked *a*.)

At Figs. 2 and 3 I have shown a similar paper sack, except as to the soft-tie feature, which is produced according to my present invention, and consists of two sets of parallel flutes or creasing, one running crosswise, (marked *b*,) and preferably made first as seen at Fig. 2, the other running longitudinally, (marked *c*,) and, by preference, made after the cross-creasing shall have been done. (See Fig. 3.)

In making the transverse flutes *b*, I prefer to have them not across the side seam of the sack, (where the paper is double,) because of the possibility in forming the flutes with corrugated rolls of rupturing the paper where doubled and pasted up lengthwise.

In the manufacture of my improved soft-tie bag with the two sets of parallel flutings or creasings *b* and *c*, as seen at Fig. 3, I prefer to first produce the cross-flutes *b* by passing the

mouth-end portion of the bag along (endwise of the bag) between either a pair of corrugated or fluted rolls or between one corrugated and one plain-faced roll, substantially as heretofore used to make a soft tie bag such as seen at Fig. 1, and then subsequently passing the same portion of the bag along in the same direction between a pair of rolls, one or both of which may have circumferential grooves and ridges, to roll in the longitudinal flutes or creasings *c*.

I have in another case filed simultaneously with this, and to which reference is herein made, fully described that mode of procedure and those means which I now deem the most desirable for carrying into effect the invention made the subject of the claim of this case; but other means for corrugating the paper and other methods of forming the two sets of creasings may of course be adopted and the order herein stated of forming the two sets of fluting may be changed, without departing from the principle of the invention made the subject of this application.

In a paper soft-tie bag such as shown at Fig. 3, not only will the stock be softer or more pliable than in one such as seen at Fig. 1, but the superficial condition of the paper will be such that the string or cord tied around the closely-gathered portion of the filled sack will get a bite in and be held against any slip (endwise of the bag) by the encircling or transverse corrugations or creasings *b*. The longitudinal flutes serve to permit (as heretofore) the gathering together of the body of the sack at the locality where it is to be tied round, while the cross-creasing not only augments the flexibility of the stock to render this operation easier, but

also serves as circumferential creases in which the binding-cord can get a bite, and by which the said cord will be prevented from slipping (after tied on) toward the end of the bag. In gathering together and tying up a soft-tie bag having longitudinal flutes or creasings, said flutes usually and naturally assume a somewhat spiral form, (in the gathered stock,) which rather tends to assist any natural tendency of the cord or string to slip or work toward the open end of the bag; but in a bag having also the cross-fluting, (as at *b*, Fig. 3,) the latter, although when the bag shall have been gathered in to tie they may not run exactly circumferentially of the waist (so to speak) of the gathered bag, will effectually serve as stop-like depressions into which the binding cord or string will bite, and by which the cord wrapping will be better held in place than it is practicable to hold it in the case of a soft-tie bag not having transverse or cross flutings, substantially such as shown at *b*.

Having now so fully explained my improved soft-tie bag that those skilled in the art to which my invention relates can practice the latter, what I claim as new, and desire to secure by Letters Patent, is—

A soft-tie paper sack having both longitudinal and transverse flutes or creasings, substantially as and for the purpose set forth.

In witness whereof I have hereunto set my hand this 27th day of August, 1883.

JAMES ARKELL.

In presence of—

W. A. SMITH,

P. D. VAN O'LINDER.