J. ARKELL.
Paper-Bag.

No. 209,315. Patented Oct. 29, 1878.

Fig. 1.

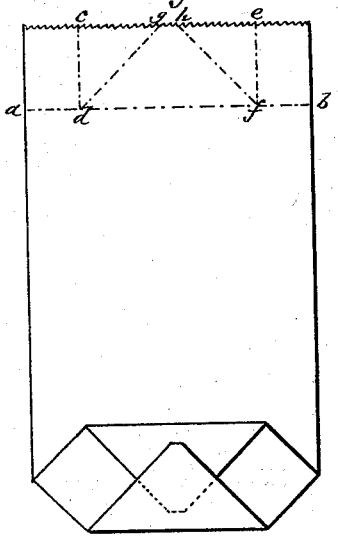


Fig. 2.

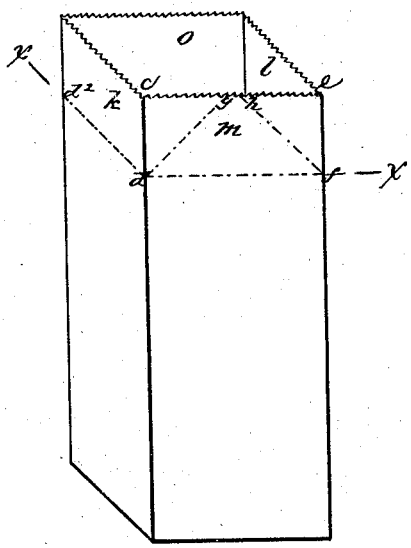


Fig. 3.

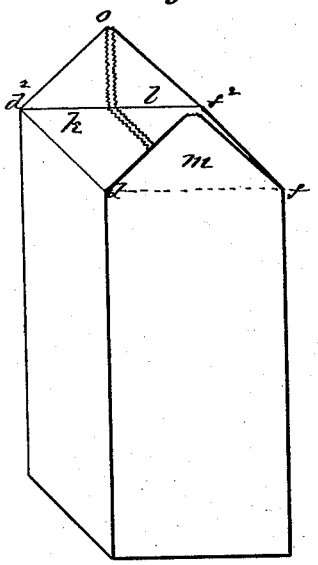
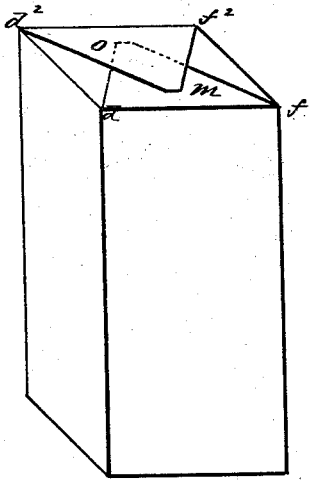


Fig. 4.



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UNITED STATES PATENT OFFICE

JAMES ARKELL, OF CANAJOHARIE, NEW YORK.

IMPROVEMENT IN PAPER BAGS.

Specification forming part of Letters Patent No. **209,315**, dated October 29, 1878; application filed May 21, 1878.

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 useful Improvement in Bags; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

It has become customary with millers and others, in putting up flour and other material in satchel-bottom bags or sacks for the market, to close the mouth of the filled sack by folding over and pasting down the material of which the sack is composed, so as to produce a securely-sealed package, presenting at each end substantially the same appearance and structure. This is frequently deemed, for many reasons, a much more desirable mode of closing the bag-mouth than that in which the closing of the package is effected by gathering together the material of which the bag is composed and tying it with a cord or other binding device; but previous to my invention considerable difficulty has been encountered in practicing that mode of closing the mouths of bags or sacks in which the packages are completed by folding over and pasting down the material, as just stated, because, in the first place, the material of which the sacks or bags are made is frequently of a character (especially where heavy paper is used) which renders it exceedingly difficult to break down and fold over the bag material onto the contained mass with that regularity as to the angles or corners formed and that precision as to the folds made which are necessary to produce a properly-sealed and marketable package, or one that has its closed mouth end folded up, so as to present a comparatively neat appearance; and, in the second place, whether the bag be of material that may be readily or with difficulty broken over and folded down in any desired shape, much difficulty is encountered on account of having always to form two opposite edges of the package by folds transverse to and bisecting the two folds or creases common to satchel-bottom bags in their usual flattened condition, and much skill and time required in order to effect the closing of the mouth of the bag, so that when closed it shall present the same shape and size substantially as the bottom or opposite end of the package; and it is important that it should correspond in contour with the bottom, for if the two ends of the closed bag are not of the same contour the package will not be perfectly shaped, and will therefore not present a desirable appearance, nor can the filled bags be piled in quantities in the mill or store-house, as is usual, with the same facility as when the bags or packages are such that all their sides are perfectly rectangular in contour.

My invention has for its main purpose to overcome the difficulties mentioned, and to provide a bag or sack in the use of which the mouth of bag may be readily folded over, not only with that degree of accuracy necessary to insure perfection in the sealing or closing of the mouth end of the package, but in such a manner that the closed end will so correspond in size and shape, or so match the bottom of the filled sack, that a package perfect in shape will be the result; and to this main object and end my invention consists in a satchel-bottom bag made in the usual flattened condition, but having the material of which it is composed so marked, creased, or otherwise treated or prepared in the vicinity of its mouth as to facilitate the folding over of the bag-mouth (to close or seal it) in a given manner, and in such a manner that, when closed, the mouth end of the bag shall present substantially the same size and shape as the other end, and the package thus formed have all its sides rectangular, as will be hereinafter more fully explained.

To enable those skilled in the art to make and use bags embodying my invention, I will proceed to describe the latter more fully, referring by letters to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a view of an ordinary satchel-bottom paper bag or flour-sack in the flattened condition in which such bags are generally sent out from the manufactory. Fig. 2 is a perspective view of the same in a vertical position and distended condition, presenting about the appearance the bag would when filled with the flour or other article to be packed in it. Fig. 3 is a similar view, but with the mouth

end partially folded in to close the bag; and Fig. 4 is a similar view with the mouth end entirely closed up or sealed, to insure the retention of the contents in the completed package.

In the several figures the same devices and parts are indicated by the same reference-letter.

In the manufacture of the bag either creases, fold-marks, or lines are made in or upon the surface of the bag material at the mouth end, as illustrated in the drawing by the dotted lines *a b*, *c d*, *e f*, *g d*, and *h f*. These marks, creases, indentations, or lines are made at any localities at which it is necessary the paper or other material of which the bag is composed shall be bent or folded, in order to close the mouth of the bag after a fashion that will cause the mouth end of the closed package to present substantially the shape or appearance, or both, of the other end—*i. e.*, the bottom of the sack—and they serve in the case of mere lines as guides merely, by which the material may be creased and folded over in the operation of closing up the filled sack; or in the case of creases or weak portions in the stock they serve not only as guides, but also operate to facilitate and insure the breaking down and folding up of the distended bag-mouth in a given manner to produce the desired shape and structure of the mouth end of the completed package.

It will be understood that, as at Fig. 1, only one thickness or ply of the flattened bag is seen, only half of the marks or creases are illustrated by the dotted lines seen in that figure, and that the other half of the bag material (the other thickness of paper) is marked, creased, or otherwise similarly treated at lines which would be immediately beneath the dotted lines of that figure; and it will be understood that, as in the closing of this kind of bags, after distention and filling, two opposite folds (to form two opposite edges of the package) have always to be made transversely to the usual vertical creases of the flattened bag, which tend to form vertical corners or edges, the presence of guide-marks or creases, or both, to facilitate the formation of straight folds and edges at said two opposite edges, is very desirable.

It will be seen that when a bag thus made is distended, as shown at Fig. 2, and filled or packed up to the proper point—say to about the line *x x*—with the material to be enveloped, the mouth end may be easily broken down and folded in, and sealed by first folding inwardly and downwardly the two narrower sides *k l*, as seen at Fig. 3, and then folding inwardly and downwardly and pasting or otherwise fastening the two wider sides or flaps *m o*, as seen at Fig. 4.

In tucking in and folding down the portion *k*, the lines or creases at *a d*, *c d*, and *d g* of Fig. 1 (and the corresponding lines of the other thickness) are those, it will be seen, at which the paper is folded, the lines *a d* of the two plies forming, when the bag is distended, as at Fig. 2, the one line, d^2 *d*. (Seen in said figure, and also in each of the succeeding figures of the drawing.)

The portion *l*, it will be seen, is folded in by the corresponding set of lines to those just mentioned at the other side or opposite part of the bag, and the sort of V-shaped flaps *m* and *o* are folded inward and down by the lines or creases *d f* and d^2 f^2. (See Figs. 1 and 4.)

It will be observed by reference to the drawing that when, in the use of a bag made according to my invention, the mouth is folded over onto the contents, and the folded flaps or portions properly pasted or otherwise secured in place, (either by sticking the folded portions together or by cementing over them some auxiliary piece or device,) a package is presented having both ends about the same in structure and appearance, and it will be understood, of course, that this may be accomplished with bags of various structures and shapes of satchel-like bottom.

In practice, I have found it preferable to make the bag with such creases or lines as partially rupture the fiber of the stock or weaken the fabric of material at the exact localities where the folds should occur in the subsequent operation of closing up the bag-mouth; but it will be understood that much of the advantageous result of my invention may be derived from the use of lines or marks merely on the outer surface of the bag, and that where the bag is made of very light or flexible material such superficial marks only may be quite sufficient in carrying out the invention herein described, since the functions of the novel device with which the bag is made are, first, to indicate the lines at which the stock should be folded, and, second, (in the case of the use of heavy or stiff material,) to facilitate the bending or folding over of the stock at the proper lines. The guide-marks and creases for thus predetermining the shape of the closed mouth end of the bag and facilitating the folding down into the desired shape of the material may be made in any desired manner.

So far as I have yet practiced my invention, I have found it expedient to crease the material by machinery adapted to make indented marks simultaneously in the two plies of the flattened bag. This mode of creasing is, however, adapted to that kind of bags made from heavy paper and from a flattened tubular bag-blank.

In some instances, as I have remarked, mere lines drawn or printed on the fabric of bag may answer; and in the manufacture of bags in other ways—as, for instance, in the making of a bag over a former—the paper or other material might with more advantage be treated separately as to each thickness or portion of the article.

What I claim as of my invention, and de-

sire to secure by Letters Patent as an improved manufacture, is—

A satchel-bottom bag in the usual flattened condition, but having in the vicinity of its mouth end marks, creases, or equivalent devices operating to facilitate the folding of the material, after the distention of the bag, by filling into flaps adapted to close this end of the bag correspondingly in shape to the satchel-like bottom, as set forth and described.

In testimony whereof I have hereunto set my hand this 13th day of May, 1878.

JAMES ARKELL.

In presence of—
W. N. SMITH,
P. D. VAN O'LINDA.

Correction in Letters Patent No. 209,315.

It is hereby certified that in the original claim on file in the Patent Office, 1, the commas found in line 5 of the printed claim herein contained do not occur; 2, that the words "after the distention of the bag by filling" in said claim are inclosed in a parenthesis; and 3, that the word "up" succeeds the words "folding" and "close," as found in lines 4 and 6 of the printed claim respectively.

December 7, 1878.