

J. ARKELL & B. SMITH.

PAPER BAG.

No. 48,036.

Patented June 6, 1865.

Fig. 1.

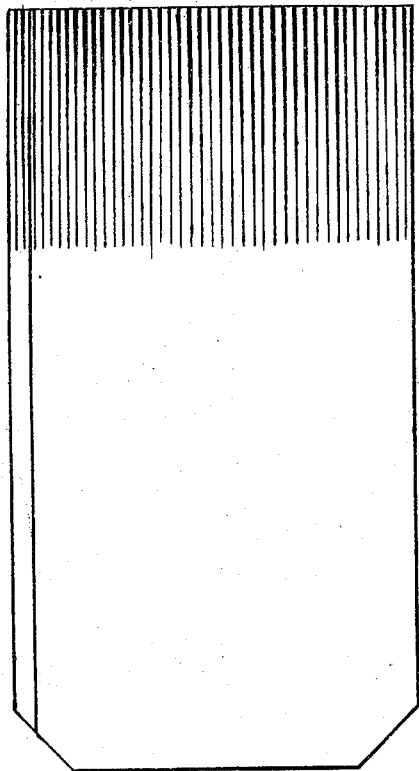
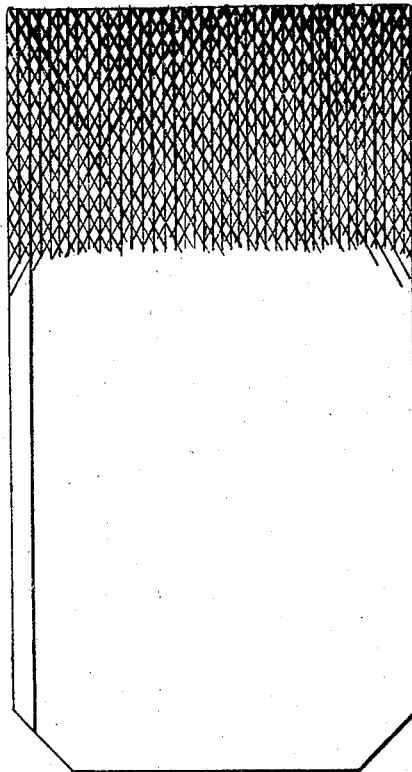


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

JAMES ARKELL AND BENJAMIN SMITH, OF CANAJOHARIE, NEW YORK.

IMPROVEMENT IN PAPER BAGS.

Specification forming part of Letters Patent No. 48,036, dated June 6, 1865.

To all whom it may concern:

Be it known that we, JAMES ARKELL and BENJAMIN SMITH, of Canajoharie, in the county of Montgomery and State of New York, have invented a new and useful Improvement in Paper Bags; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a paper bag which illustrates the principle of our invention. Fig. 2 gives another illustration thereof.

Similar letters of reference indicate like parts.

This invention consists in making or preparing paper bags in such a way as to give to them at their upper ends a flexible character, so that when properly filled with flour or other substances the sides of the bags at their upper ends will come together after the manner of the sides of a cloth bag.

In putting up flour, sugar, and other articles in bags it is desirable that the mouth of the bags be gathered up and tied, so that they can be handled and transported in safety. This is the easiest and most suitable way of securing the mouths of cloth bags; but it has not been found the most suitable way, or even a safe way, of securing the mouths of paper bags as usually made, because the paper is liable to crack along the lines where it is bent or folded in compressing its sides together, and the angles of the bends and folds are so prominent and exposed that they are liable to be chafed and cut and broken by the cord which is tied about them, and a good deal of force is required to compress and bring the sides together into the small compass desired to close the bag. The last-named difficulty—that is, the force required to close the mouth of the bag—is very considerable in the case of the larger bags, which are intended to hold fifty or one hundred pounds of flour or other articles, and the labor is quite severe upon those who are constantly employed in putting them up, such as millers and grocers. Paper bags of the proper size for such uses need to be made of strong material, well prepared and strengthened by sizing or other equivalent

means, so as to be capable of holding a great weight and of resisting a great strain, it being required that some bags be strong enough to sustain a weight of more than two hundred pounds. If the upper part of the paper bag is made more flexible and yielding by reducing the strength and closeness of its texture, or by using poor material, or by lessening the quantity or removing part of the "sizing," or using unsized paper, there is danger that the bag will be made unsafe, since bags are often handled by taking hold of their tops, where they are tied, and lifting them thereby.

We prepare paper bags of every size and quality and strength of paper in such a way as that their top parts can be gathered and brought together in easy lines and with uniformity toward a common center, much after the manner of gathering the top of a bag made of cloth. We accomplish this result by making the upper part of the bag flexible or soft, but without lessening the strength and toughness of the material.

The drawings show side views of two bags which have had this character of flexibility and softness imparted to their top parts by mechanical means. In these illustrations of our invention we have produced this result by subjecting those parts to a crushing or bruising action between corrugated surfaces, the depth of the corrugations or the degree of pressure being greatest at the highest part or edge of the bags and decreasing gradually from such edges downward, so that the line of the termination of the corrugations or of the limits of pressure will be, as near as possible, insensible or imperceptible. If the softening process is effected in any other manner—as, for instance, by chemical action—the same result is to be produced—that is to say, the soft or flexible character of the top of the bag is to be least along its lowest lines, and is to be increased thence upward to the edges or top of the bag, where it is to be greatest. By this means we avoid any abrupt change in the character and condition of the material, and also avoid an abrupt enlargement of the diameter of the bag, or, in other words, an abrupt expansion of its sides. When mechanical means are used to effect this change in the top parts of the bag, the crushing or bruising action may be made in vertical lines like those

shown in Fig. 1, or in several series of lines, one of which may be vertical and others angular or oblique. These may be made in successive operations, repeated until the rigid character of the paper is sufficiently subdued and the parts operated upon are made sufficiently pliable to allow the mouth of the bag to be gathered and tied with ease and safety, as above explained.

We claim as new and desire to secure by Letters Patent—

Softening the upper parts of paper bags and making them pliable, substantially as and for the purpose above described.

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Witnesses:

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