(No Model.)

B. ARKELL.

BAG.

No. 565,587. Patented Aug. 11, 1896.

Fig. 1,

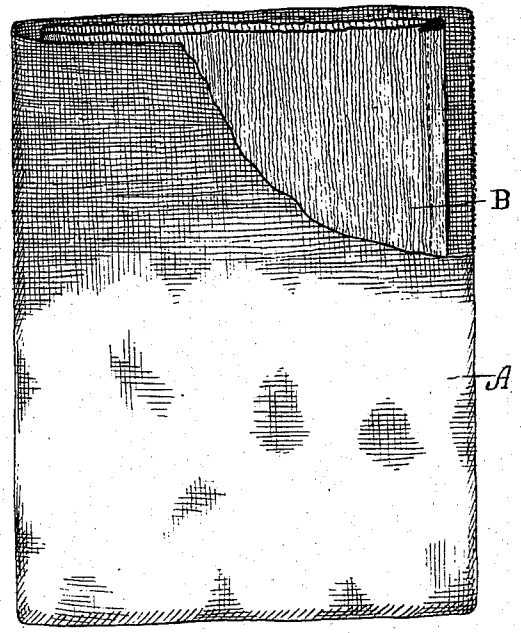

Fig. 2,

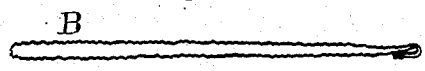

Fig. 3,

WITNESSES:

W. H. Haywood

E. Julius Pupke

INVENTOR

Bartlett Arkell

BY

Nicholas M. Goodlett Jr

his ATTORNEY

UNITED STATES PATENT OFFICE.

BARTLETT ARKELL, OF CANAJOHARIE, NEW YORK.

BAG.

SPECIFICATION forming part of Letters Patent No. 565,587, dated August 11, 1896.

Application filed December 5, 1895. Serial No. 571,170. (No model.)

To all whom it may concern:

Be it known that I, BARTLETT ARKELL, a citizen of the United States, and a resident of Canajoharie, Montgomery county, State of New York, have invented a certain new and useful Improvement in Bags, of which the following is a specification.

This invention relates to bags, and has for its object to provide a bag that is capable of expanding, so as to yield to sudden increases in the pressure of the inclosed substance.

The invention consists of an expansible bag made of an outer textile envelop and a lining of paper having a multiplicity of tight creases.

The invention also consists of such a compound bag, the creases in the paper lining being formed while the paper is wet.

It has long been desirable to provide a bag in which to safely pack a considerable weight, say one hundred pounds or more, of fine loose material, such as sugar, salt, flour, &c. Such a bag must have a substantial strength because when filled it is generally handled with a considerable degree of roughness, being often thrown or dropped with such force as would easily break an ordinary paper bag. Cotton bags for holding small quantities of material have been used with fairly satisfactory results, but their cost is too great for large bags because of the greater weight and better quality of the cotton cloth that would be required to withstand the strain. Moreover, the salt, sugar, or flour or similar substance packed in a cotton bag is liable to escape through the meshes of the cotton cloth unless the cloth is of the best quality, which would be too expensive. Burlap has been proposed for the purpose, but its meshes are too coarse and the fiber is liable to wear off and become mingled with the inclosed material, thereby injuring its quality, and its odor is objectionable. To remedy these evils it was proposed to employ a paper lining for a bag made of burlap or other strong textile fabric. It was found, however, that the great and sudden strain put upon the paper when the filled bag was thrown down in handling was more than sufficient to break the paper. In the present invention the objections of these old bags are completely obviated by providing a bag consisting of an outer textile bag or envelop and an interior expansible lining of paper provided with a multiplicity of tight creases. The paper has primarily a substantial degree of strength and the creases make it expansible, so that when put under sudden strain of even several hundred pounds, as by dropping a bag filled with a hundred pounds or more of material, some of the many creases unfold to accommodate the sudden congestion and crowding of the material in the bag, thus saving the bag from a breaking strain. Any kind of paper having a substantial degree of strength may be employed. I have found rope paper very satisfactory. Of course the strength of the paper need only be proportioned to the load to be carried, *i. e.*, if the load were to be ten pounds the paper would require less strength than if the load were twenty pounds or one hundred pounds. It would be sufficient, moreover, if the paper were just strong enough to transfer any strain to which it might be subjected to the work of unfolding the creases, for then the expansion of the paper would relieve it of the strain. I prefer to make the creases very fine and tight and say from ten to twenty to the inch. The creases being tight will not unfold except under considerable strain, and, being very numerous, enable the paper to expand sufficiently at any place where an increase of strain requires it and without the necessity of expanding elsewhere. Experiment has shown that a paper lining of a bag made in accordance with my invention may be made so as to expand from twenty per cent. to fifty per cent. according to weight of the paper lining. This is more than sufficient to enable a bag adapted to hold one hundred pounds to yield over and over again to any ordinary strain that might be put upon it in handling.

In the drawings, Figure 1 is an elevation of a bag embodying my complete invention, partly broken away. Fig. 2 is a transverse section of a paper bag designed to be used as a lining for an outer textile bag in accordance with my invention. Fig. 3 is a transverse section of an outer bag of textile material designed for use with a paper lining.

The bag A may be burlap, cotton, or other

textile material. It is provided with a lining in the form of a separate bag B, made of paper having numerous fine longitudinal creases, as described.

Instead of having the lining for the bag A in the form of a separate bag, this lining may be arranged in any suitable way, as by stitching a strip of the paper over the strip of burlap and then making the two strips up into a bag.

In carrying out the invention in what I believe to be the best manner I form the creases in the paper-stock while it is damp or moist and generally before the paper is finished and while the fiber is in a more or less plastic and unfelted condition. By forming the creases while the paper is in this condition the fiber is easily worked so as to dispose itself into the hollows and ridges of the creases without being broken or weakened. When the paper is dried, the creases remain tight and firm and unfold only under considerable strain, and the normal strength of the paper is preserved.

The bag may be made in any convenient form and may be employed to hold salt, sugar, flour, meal, or to hold any other substance which it is desired to pack in a bag.

The bag made up of a textile fabric and having a paper lining may be employed to pack the bristles or straws of brushes or brooms, and the bottom of the bag in this case might be closed or left open as desired.

What I claim as new, and desire to secure by Letters Patent, is—

1. A bag made of a textile fabric and having an expansible lining of paper provided with a multiplicity of tight creases, substantially as set forth.

2. A bag made of a textile fabric and having an expansible lining of paper provided with a multiplicity of tight creases, the creases being formed in the paper while the paper is wet, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BARTLETT ARKELL.

Witnesses:
W. I. MERRILL,
E. D. GREENE.