(No Model.)

W. A. LORENZ.

PAPER FLOUR SACK.

No. 418,919. Patented Jan. 7, 1890.

Fig. 2.

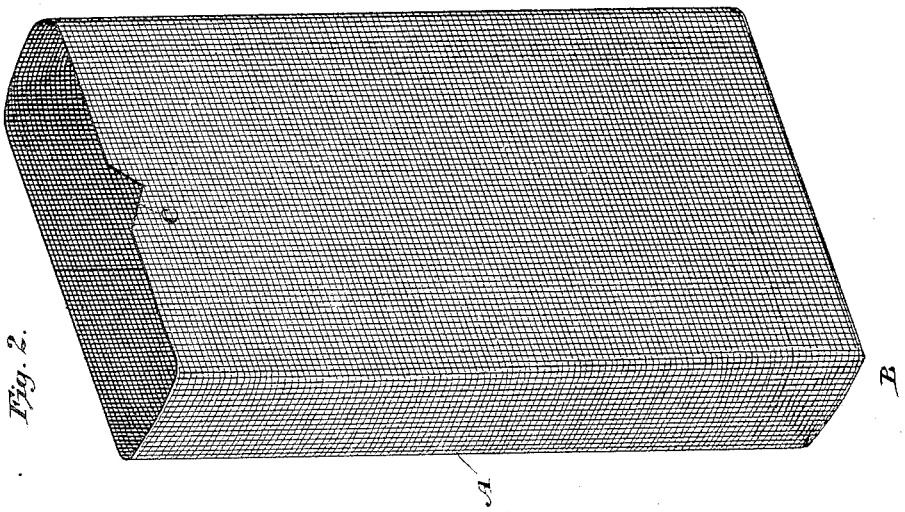
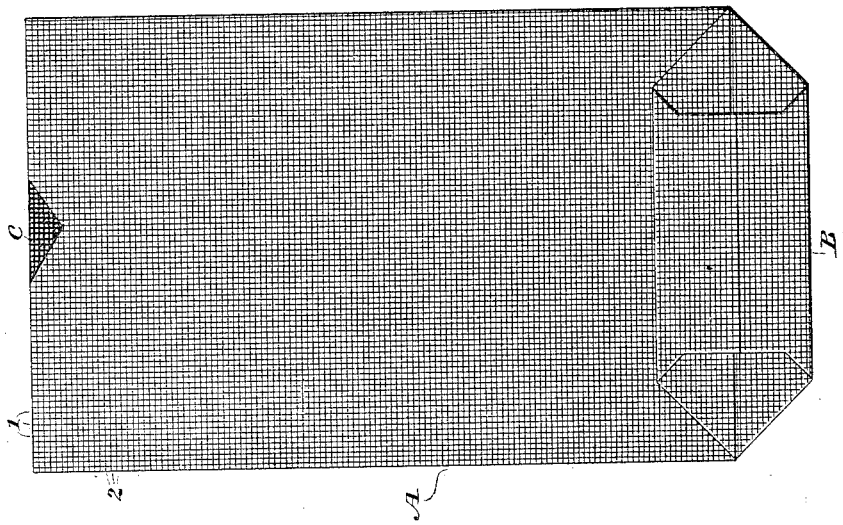


Fig. 1.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM A. LORENZ, OF HARTFORD, CONNECTICUT.

PAPER FLOUR-SACK.

SPECIFICATION forming part of Letters Patent No. 418,919, dated January 7, 1890.

Application filed November 18, 1889. Serial No. 330,657. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. LORENZ, of Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Paper Flour-Sacks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

As is well known to those familiar with the manufacture, sale, and use of flour-sacks, the main reason why the ordinary satchel-bottom paper flour-sack cannot be successfully manufactured and used in the trade in competition with the more expensive white cotton-cloth bag is on account of the unsightly appearance of the paper bag (no matter how well made or how much superficially ornamented with the advertising-labels of the flour manufacturer or dealer) in comparison with the ordinary cotton-cloth flour-sack of commerce. It has therefore for many years been sought by paper-bag makers to produce a paper flour-sack resembling sufficiently in appearance the ordinary white cotton-cloth bag to insure the use of the cheaper paper bag as a substitute for the more costly cotton one. No success has, however, ever been attained in this direction previous to my invention, for several reasons. In the first place, experience has demonstrated that to use a paper fabric light colored enough to even remotely resemble in appearance the cotton bag of commerce is impracticable, first, because the bleaching operation necessary to thus whiten, so to speak, the stock of which the paper is usually composed leads to such deterioration in the strength of the paper as to render it wholly unfit for the manufacture of flour-sacks, (they would not have sufficient strength and durability for the commercial purposes for which such bags are used,) and, second, even if it were possible to thus bleach the stock of which the paper is composed nearly white without destroying its strength and toughness, the cost of such bleaching would so greatly enhance the cost of the bag as to materially reduce the difference in cost of manufacture between the paper bag thus produced and the more acceptable cotton sack of the market.

I need hardly remark here, as every one skilled in the art knows the fact, that it is impossible to bleach the pulp or stock from which manila (*i. e.*, paper flour-sack) paper is made perfectly white, or as white as the cotton from which white cotton flour-sacks are made. I have, however, overcome this and other minor difficulties which have been insurmountable in all previous attempts to use manila paper to make a flour-sack so colorless in external appearance as to closely resemble the ordinary cotton-cloth flour-sack of commerce, and I have thus been enabled to accomplish the long-sought desideratum of providing for use a paper flour-sack which, while possessing the necessary or requisite degree of strength and durability and not involving in its manufacture any more expense than, if as much as, is involved in making the old-fashioned dark-colored paper bag, is a close imitation in appearance of the white cotton-cloth sack used in the flour trade. This desirable end I have accomplished by simply first superficially whitening in some suitable manner the ordinary dark-colored flour-sack paper, and then subjecting that surface which is to compose the exterior of the finished bag to an embossing operation, which produces a close imitation of the warp and weft threads of a woven fabric, and at the same time renders the coated fabric more pliable.

My invention may therefore be said to relate to an improved paper flour-sack, and to consist, essentially, in a paper sack or bag made of the usual strong and dark-colored manila paper, but having on its exterior surface an imitation of the ordinary white cotton-cloth flour-sack of commerce.

In another application by me (Serial No. 319,875) I have shown, described, and claimed as an improved article of manufacture a paper flour-sack composed of the usual dark-colored, strong, and durable manila paper heretofore commonly used in making such sacks, but having its exterior surface whit-

ened merely by the application thereto of an enameling or whitening preparation, so as to render the exterior of the bag quite as colorless as that of the cotton-cloth bag, and I would here remark that it is only proposed to cover by the present application, as an improvement (so to speak) on the invention claimed in my said other application, the idea of having the bag both whitened exteriorly to render it as colorless as the cotton bag and also embossed to imitate a woven fabric such as the latter is made of.

To enable those skilled in the art to which my present improvement relates to make and use paper flour-sacks embodying my said invention, I will now proceed to more fully describe the latter, referring to the accompanying drawings, which form part of this specification, and in which I have shown my invention carried out in that form in which I have so far successfully practiced it.

In the drawings, Figure 1 is a face view or elevation of a "flattened" satchel-bottom paper flour-sack made in accordance with my invention. Fig. 2 is a perspective view of the same bag distended ready for filling, and illustrating, by the contrast of the inner heavily-shaded surface of the bag with the lighter exterior, the feature of the colorless external surface.

In both figures the same parts will be found designated by the same letters of reference.

A is the body portion, B the satchel-bottom, and C the usual thumb-notch, of a paper flour-sack made by folding and pasting the paper in substantially the mode or method practiced in the manufacture of what is well known to the trade as a "satchel-bottom flour-sack." In the manufacture, however, of a paper flour-sack of the type shown (and thus well known to the trade) according to my present invention, the sack, though composed of the ordinary dark-colored and very strong manila paper usually employed in the manufacture of such flour-sacks, has its outer surface coated or enameled, (with a liquid preparation of china-clay or other suitable stuff,) so as to give it a nearly or quite white appearance, and then has said surface subjected to an embossing process or operation, whereby the said whitened surface is made to look like that of a woven fabric, as indicated at Fig. 1, where the two sets of fine lines 1 2, which transversely cross each other, represent the warp and weft threads of such a fabric. This coating over of the surface of the paper to whiten it may be done in any of the modes known in the arts for coating over the surface of a paper fabric, and can be done to the web of paper (in bulk) as it travels from the roll toward and to the action of suitable embossing-rolls or devices preparatory to the manufacture of the web into the usual flattened tubular bag-blanks by machinery, or it can be done to the paper after the latter shall have been made up into bag-blanks, or it can be done to the finished bags, though I prefer the first-named method of procedure in practicing my present invention. I also prefer to subject the enameled or white-coated paper to the embossing operation in bulk or in the web, and immediately before the web passes to the mechanism employed to fold, paste, and cut the thus whitened and embossed paper into flattened tubular bag-blanks.

The coating over of the paper not only operates to make the outer surface of the finished product nearly or quite colorless, like that of a white cotton-cloth bag, but it also renders the bag less pervious to moisture, and, furthermore, increases the tensile strength of the fabric about twenty per cent. the weak way of the paper, thus greatly increasing the utility of the completed article of manufacture. This coating of the outer surface of the sack with the whitening compound or material, or, in other words, this white enameling of the paper, operates, it is true, to slightly impair the natural flexibility and pliability of the fabric composing the bag, which is a slight objection to the use of the enameling operation; but by the subsequent embossing process to which the enameled paper must be submitted to produce the appearance of a woven fabric peculiar to my improved flour-sack not only is this defect wholly cured, but, further than this, the finished bag is rendered even more pliable, (without any deterioration in strength and durability,) and hence is a more desirable article in point of utility than the most approved manufacture of paper flour-sacks heretofore made.

Of course it will be understood that in carrying my invention into effect more or less of the fruits or advantages thereof may be gained without following strictly what I have herein described as the preferable mode of carrying into effect my improvement, the gist of which lies in the idea of a paper flour-sack made of the usually-employed strong manila paper, either wholly unbleached or very partially bleached, but having its exterior surface whitened, or rendered quite or nearly colorless, and then embossed in imitation of a woven fabric.

I am aware, of course, that paper and paper boards have been made of comparatively coarse fibrous stock, and with one or both of the surfaces given a "finish" by the application thereto of variously-colored enameling substances, and also that paper has been embossed in imitation of a woven fabric for the purposes of the manufacture of paper collars, &c.; but

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

As an improved article of manufacture, a paper flour-sack composed of the dark-colored, strong, and durable manila paper usu-

ally employed in the manufacture of such sacks, but having its exterior or exposed surface whitened, as specified, and also embossed in imitation of a woven fabric, whereby the finished sack is caused to present the appearance of a white cotton-cloth sack, and is also rendered stronger, less pervious to moisture, and extremely pliable, all as hereinbefore set forth.

In witness whereof I have hereunto set my hand this 13th day of November, 1889.

WILLIAM A. LORENZ.

In presence of—
WM. J. MCCONVILLE,
HENRY S. BARBOUR.