

J. W. H. CAMPBELL.
GRAIN BAG.

No. 43,567.

Patented July 19, 1864.

Fig. 1.

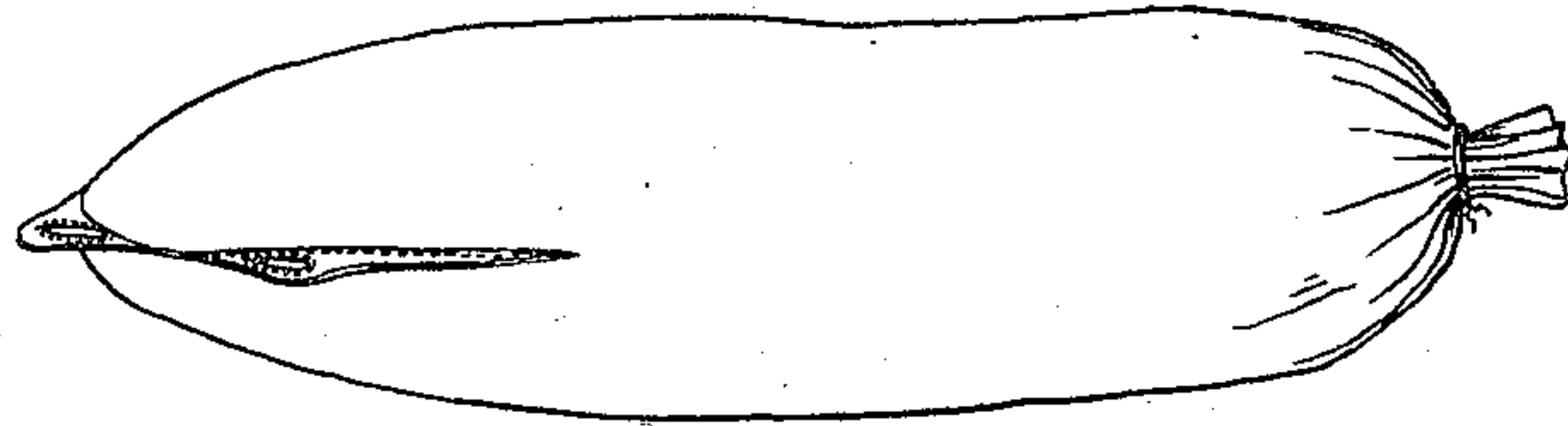


Fig. 2.

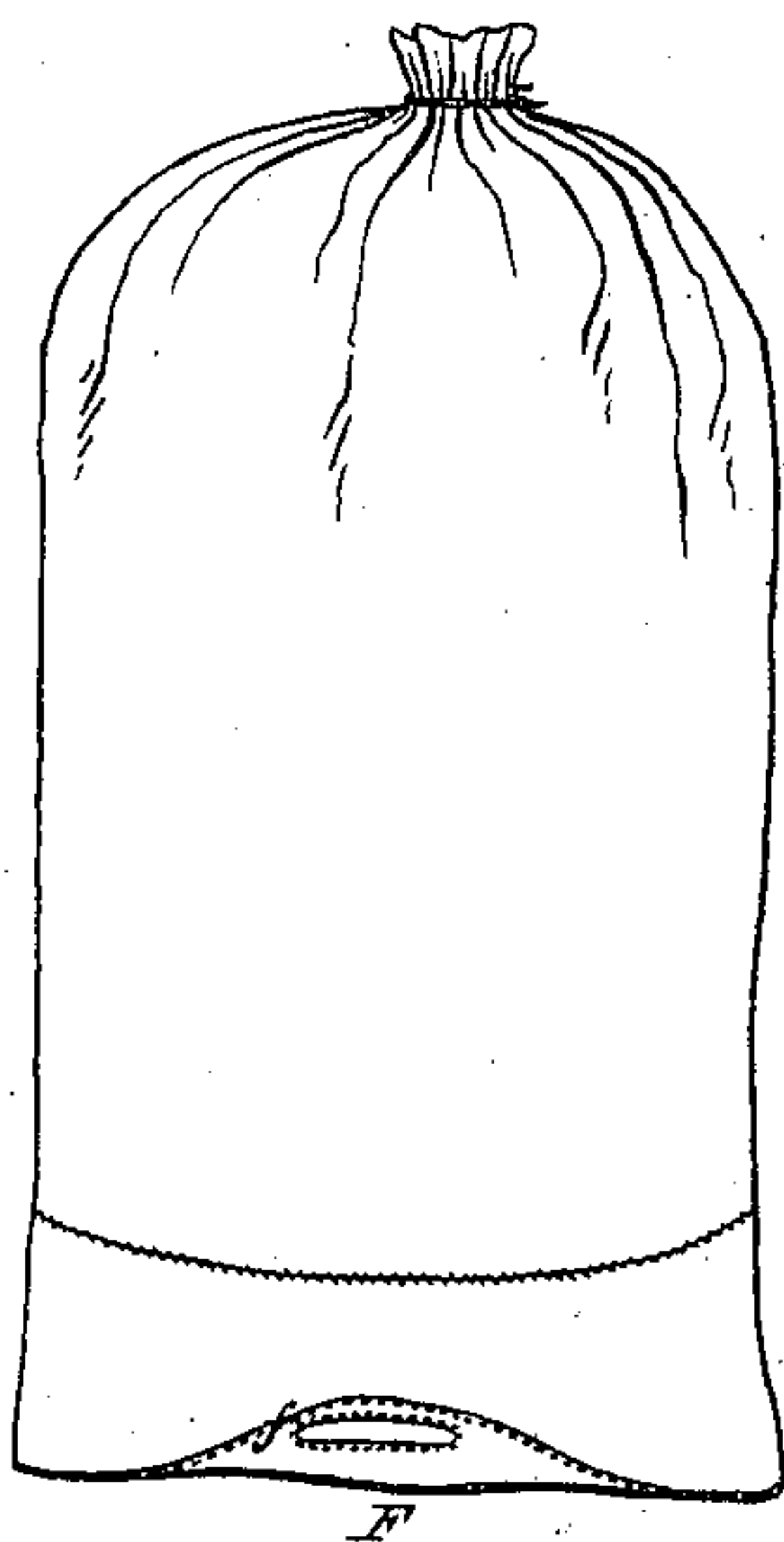


Fig. 3.

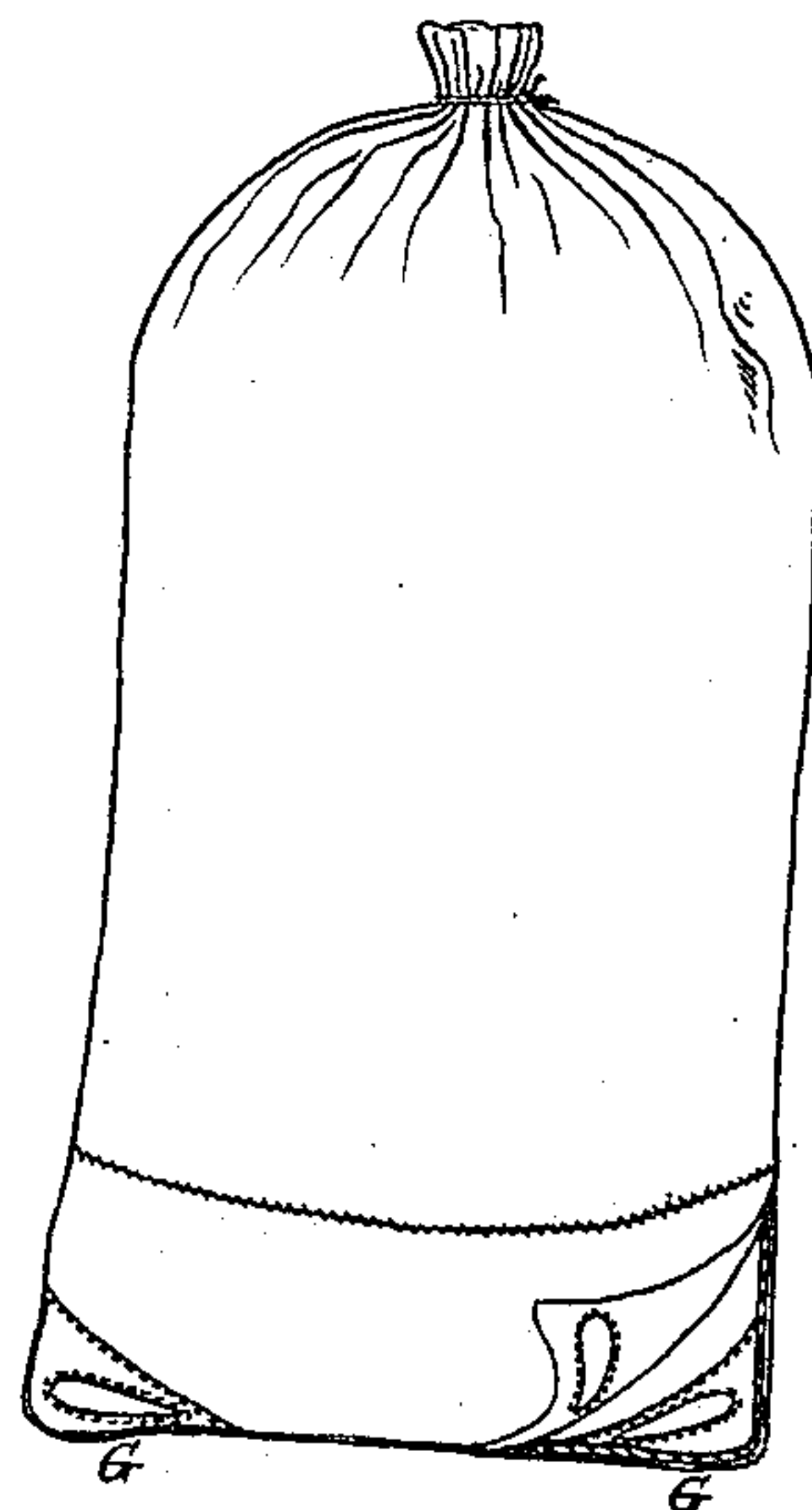
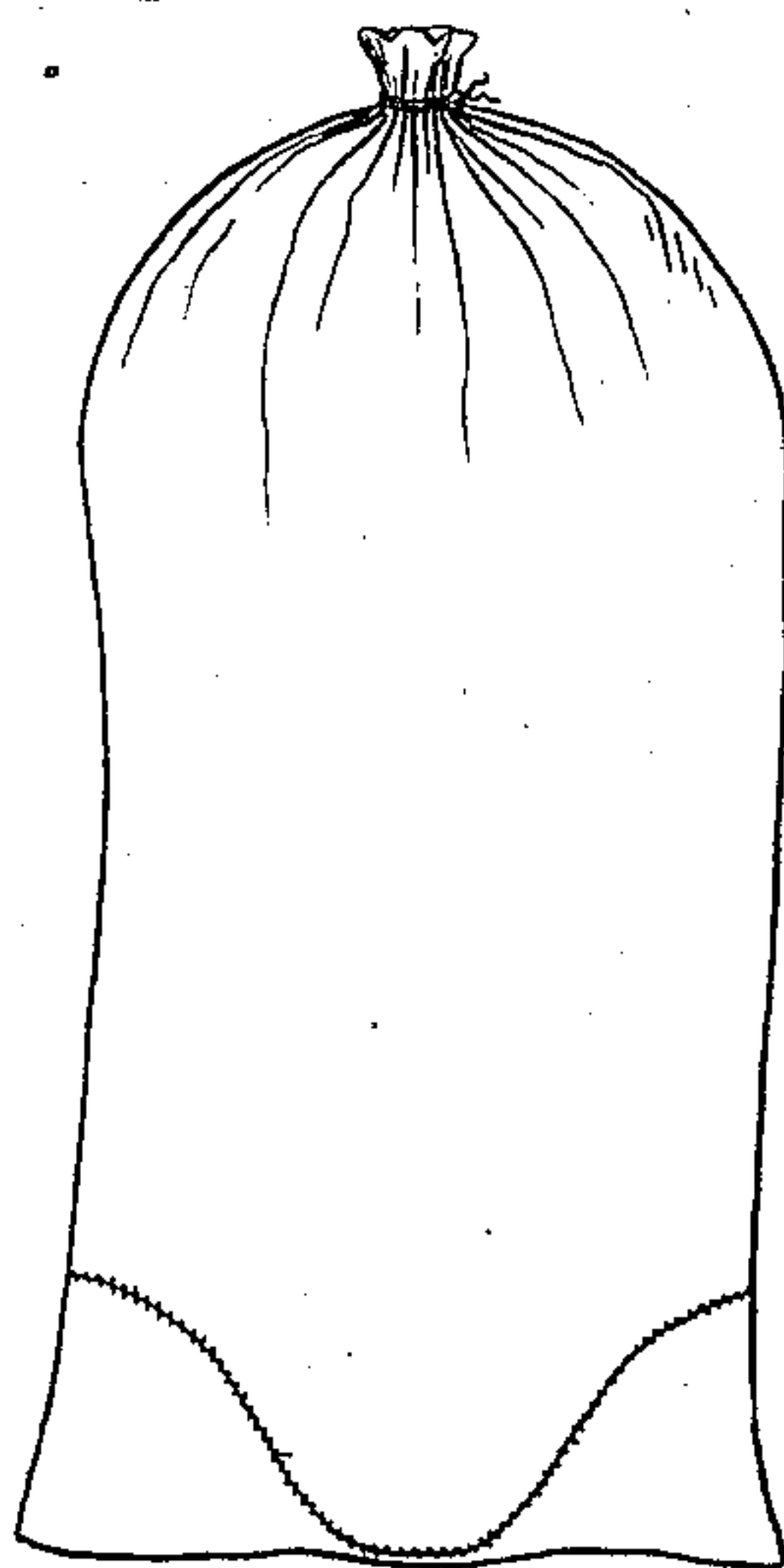


Fig. 4.



Witnesses.

H. C. Heald
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Inventor, by his attorney
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UNITED STATES PATENT OFFICE.

J. W. H. CAMPBELL, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN GRAIN-BAGS.

Specification forming part of Letters Patent No. 43,567, dated July 19, 1864.

To all whom it may concern:

Be it known that I, J. W. H. CAMPBELL, of San Francisco, in the State of California, have invented a new and improved method of constructing bags designed for the storage and transportation of grain; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which the different figures represent different methods of applying my improvements.

The nature of my invention consists, first, in so strengthening the bottom portion of grain-bags by attaching additional thicknesses of suitable material thereto, or by increasing the thickness of the cloth at the proper points in weaving the same, as to render the bag much more durable; and, second, admit of the attachment of handles for the purpose of facilitating the handling of them when filled.

It is a well-known fact that bags used for the storing and transportation of grain invariably "wear out" first at the bottom and lower corners, in consequence of standing "up" when filled, and in removal being frequently dragged instead of carried. So great is the difference between durability of the bottom and other portions of the bag that it is a common practice among farmers to cut open the bottom when it gets worn and sew up the mouth of the bag, thus "changing end" and causing the bag to last twice as long as it otherwise would do. It is also a well-known fact that the labor of handling bags of grain is excessively severe—a point which will be touched upon and the cause pointed out farther on.

I construct my bags in any of the usual ways, and having provided suitable strips, (which may properly be of the same material as the bag itself,) they are sewed to the bags across the bottom in such a manner as to project upward on either side a distance of several inches, or far enough to cover the bottom when the bag is standing filled or being dragged across the floor. The edges of this piece are securely stitched to the sides of the bag, as is shown in Figures 2 and 3, thus doubling or trebling the strength, thickness, and durability of that part of the bag; and as the cost of a new bag must be much greater than the cost of the addition of this strengthener, it must appear obvious that bags provided with this

improvement must ultimately be much the more economical, as one bag so provided will at least last twice as long as a bag made in the ordinary way.

It has been said that the labor of handling bags of grain is extremely severe. This arises from the fact that a well-filled bag only presents a part which can be readily grasped at one end when the mouth is gathered and tied, and as a bag of grain weighs from one hundred and forty to one hundred and seventy pounds two men are required to work together in handling them. When the bag can be grasped by the gathered end, that portion of the labor is not severe, for a man may without difficulty lift one-half of one hundred and seventy pounds, but when it is necessary to grasp the bottom end of the bag, as one or the other must do, the case is materially changed, for no place can be found for the hands to grasp but the smooth round surface, hard and unyielding. The difficulty of this operation will be fully appreciated by any one who has ever participated in or even seen the operation of handling bags filled with grain or other hard substances.

The corners of the bag form the only part where it is possible to take hold of it at the bottom, and the sore fingers, stiff muscles, and torn nails of the workmen sufficiently attest the laborious character of this work. The corners being, when filled, in the form of very obtuse cones, must, it is obvious, be of the worst possible form for the hand to grasp. It is to obviate this difficulty and to render the labor less severe that I propose to construct my bags with handles, as represented in drawings hereunto attached. This result I accomplish either by stitching all the thicknesses together in a line marked *f* in Fig. 2, or by stitching the thicknesses together around the corners, as shown in Fig. 3. A flap, *F* or *G*, is thereby produced, through which I cut holes, as in Figs. 1, 2, and 3. These holes are securely stitched around or their edges otherwise firmly secured, to prevent raveling or tearing.

If the bag is of large size, a cord may be laid in the edge, as shown in Fig. 3, where the outside piece is turned up for the purpose of showing the said cord. These holes form excellent handles, and are so situated that they may be readily grasped. They will not un-

duly strain the bag and will not be liable to "catch" if the bag be drawn or dragged over the floor.

If the material of which the bag is made is woven thicker at the bottom portion, then the handle may be attached in the manner shown in Fig. 4, the central portion of the added piece being left loose, so that the hand may be inserted between it and the bag, or they may be made in the same way as described and as shown in Fig. 1, and this method of weaving the cloth for making bags I intend to make the subject of a separate application for a patent.

The importance to be attached to my improvement may be estimated when it is considered that two men can handle sacks of grain when handles are attached with about half the labor required when handles are not attached, (this I give as the judgment of laborers who have expressed an opinion upon the subject,) and when it is considered that in the single State of California alone about (\$2,500,000) two and a half millions of dollars are annually expended for grain sacks, and that

these sacks are handled by men over and over again many times before reaching their final destination, in many cases the cost of handling exceeding the cost of the sack, it will be conceded that a saving of even one-quarter of the cost of handling the immense number of sacks of grain is a matter of no small consequence, to which should be added also the increased durability of the sacks.

It is obvious that the bag may be made with the handles, as shown, without the addition of the extra thickness at the bottom, and when a cheap bag for temporary use is desired it may be an object so to construct them; but for the ordinary purposes of a grain-sack I prefer and contemplate the use of the additional thickness of cloth.

Having thus described my invention, what I claim is—

As a new article of manufacture, a grain-bag constructed as described.

J. W. H. CAMPBELL.

Witnesses:

JAS. T. CUNNINGHAM,
GEO. H. BELL.