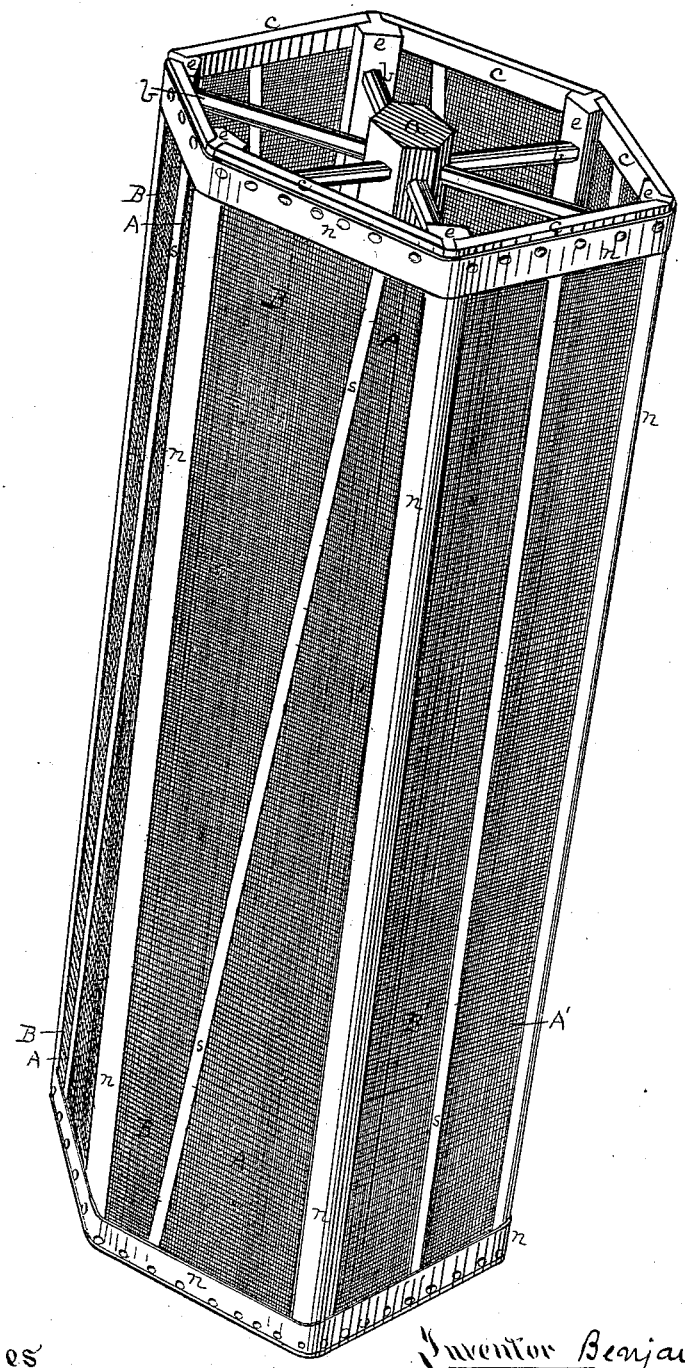
B. D. SANDERS.

Flour-Bolt.

No. 208,268. Patented Sept. 24, 1878.



Witnesses

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BENJAMIN D. SANDERS, OF WELLSBURG, WEST VIRGINIA.

IMPROVEMENT IN FLOUR-BOLTS.

Specification forming part of Letters Patent No. **208,268**, dated September 24, 1878; application filed July 31, 1878.

To all whom it may concern:

Be it known that I, BENJAMIN D. SANDERS, of Wellsburg, county of Brooke, State of West Virginia, have invented or discovered a new and useful Improvement in Bolts for Flouring-Mills; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, which is a perspective view of a bolting-reel carrying a bolt-cloth illustrative of my improvement.

My improvement relates to the construction of a graded bolting-cloth, designed for bolting flour, meal, and other similar articles.

It has been customary, in constructing bolts, to make use of cloths of different grades of fineness, and so arrange them upon the reel that the cloth of coarser mesh should encircle it, or cover a zone or belt at one end, (say the head,) and that of finer mesh cover or encircle the rest of the reel in like manner, (say the zone or belt toward the tail of the reel.) Bolts have also been made having a uniform grade of cloth throughout.

In use, it is customary and desirable, whether the bolt is graded or not, to run or rotate it at such speed that the meal will be carried up by the ascending side, and, dropping down over or on the opposite side of the main shaft, it will fall upon and slide over a part of the cloth at the bottom of the bolt. In this way some of the meal is passed through the cloth, or bolted, not only as it drops on the cloth, but also as it slips or slides over the same. An objection to bolts constructed either of a uniform grade of cloth or of two or more grades, when arranged as described, arises from the fact that, the meshes in a given zone or belt being the same in size, more offal or speck will be forced through the cloth at the point where the meal falls than through the part over which the meal slides. This is caused in part by the momentum which the meal acquires in its fall. This unequal passage of offal through the cloth renders the flour uneven and inferior in quality.

I overcome this difficulty by making the bolting-cloth of longitudinal strips of different grades of fineness, or of strips of cloth of different grades, ranged lengthwise of the reel; and I so arrange them that the meal shall fall upon a fine grade of cloth, (say Nos. 11–14, more or less,) and, as the bolt revolves, slide from this to and over a coarser grade of cloth, (say No. 9 or 10, more or less.) In this way the fine cloth, upon which the meal falls, will prevent the undue passage of offal, while the coarser cloth, over which the meal slides, will facilitate the process of bolting, without passing more offal than passes the fine cloth at the fall. Thus a more even and uniform grade of flour is secured, as well as an increase of bolting capacity.

In the drawing, *a* represents the shaft of the bolt-reel, which may be mounted and driven in the usual or any convenient way. A skeleton-frame is built around this shaft, consisting of radial arms *b*, end pieces, *c*, and longitudinal strips or ribs *e*. A frame of other construction may be used, however, giving, by preference, a polygonal form in cross-section, as shown. I cover this frame or bolt-reel with a bolt-cloth made of strips of cloth of different grades of fineness, as A and B, arranged alternately and longitudinally of the reel, in which A represents the finer grade, and B the coarser grade. These strips are stitched together in any convenient way, using stays *s* to strengthen the seams, if desired. This cloth, being arranged as described, is stretched on the reel and secured in the usual way, using the usual trimmings *n* along the head, tail, and ribs for strengthening the cloth. Knowing the rate of revolution the bolt is to have, it is a matter within the skill of the ordinary millwright to so arrange this cloth that the meal, on being carried up by the bolt, as it accumulates against the ribs *e*, will fall at regular intervals upon the strip of finer cloth below; or, by properly adjusting the speed of the bolt, the finer grade of cloth, A, may be arranged next following each rib *e*, (reckoned from the direction of motion of the bolt,) and the meal will fall from the forward edge or side of the rib above to the rear side of the rib below upon such finer cloth, and as the bolt revolves this fallen meal will slide over the coarser cloth B next following, and lodge against the front edge of the succeeding rib, and be again carried up and dropped, as before. This action is continued until the

meal has passed the length of the reel and the offal and unbolted meal discharged at the tail, in the usual way.

As the meal passes toward the tail of the bolt the relative proportion of offal increases, and there is a corresponding tendency of such offal to pass through the cloth. In order to counteract this tendency, I prefer to increase the width of the strips of finer cloth A toward the tail of the reel, and correspondingly decrease the width of the coarser strips B, as is plainly shown in the drawing, by making the upper end of the figure the head of the reel. I do not limit myself, however, to such proportionate change, as the strips may, when preferred, be of uniform width from end to end, as at A′ B′; or they may be varied in other ways, and still come within my invention.

If desired, the arrangement of grades of cloth, as above described, may be made in connection with the grading in zones or belts, as heretofore practiced, and such modification I consider as coming within my invention. Neither do I limit myself in the application of my improvement to a bolt-reel of the construction shown and described, nor to any particular method of mounting or driving the same, as these features may be varied as desired, and still retain the longitudinal arrangement of strips of cloth of different grades of fineness in the bolt, as above described.

It will be observed that the longitudinal ribs *e* divide the bolting-surface into a succession or series of faces or panels, and as regards the longitudinal arrangement of different grades of cloth, my invention contemplates simply the use of such different grades on the same panel. Covering one panel with one grade of cloth and the succeeding panel with a different grade of cloth will not accomplish the work I have in view.

I claim herein as my invention—

1. A bolt for bolting meal, flour, &c., having a bolting-cloth made of strips of different grades of fineness, arranged lengthwise of the bolt, both grades of cloth being on the same panel, substantially as set forth.

2. A bolt for bolting meal, &c., having a cloth made of strips of different grades of fineness, arranged lengthwise of the bolt, the finer grade or grades increasing in width and the coarser grade or grades correspondingly decreasing in width toward the tail of the bolt, substantially as and for the purposes set forth.

In testimony whereof I have hereunto set my hand.

BENJAMIN D. SANDERS.

Witnesses:
J. J. McCORMICK,
CLAUDIUS L. PARKER.