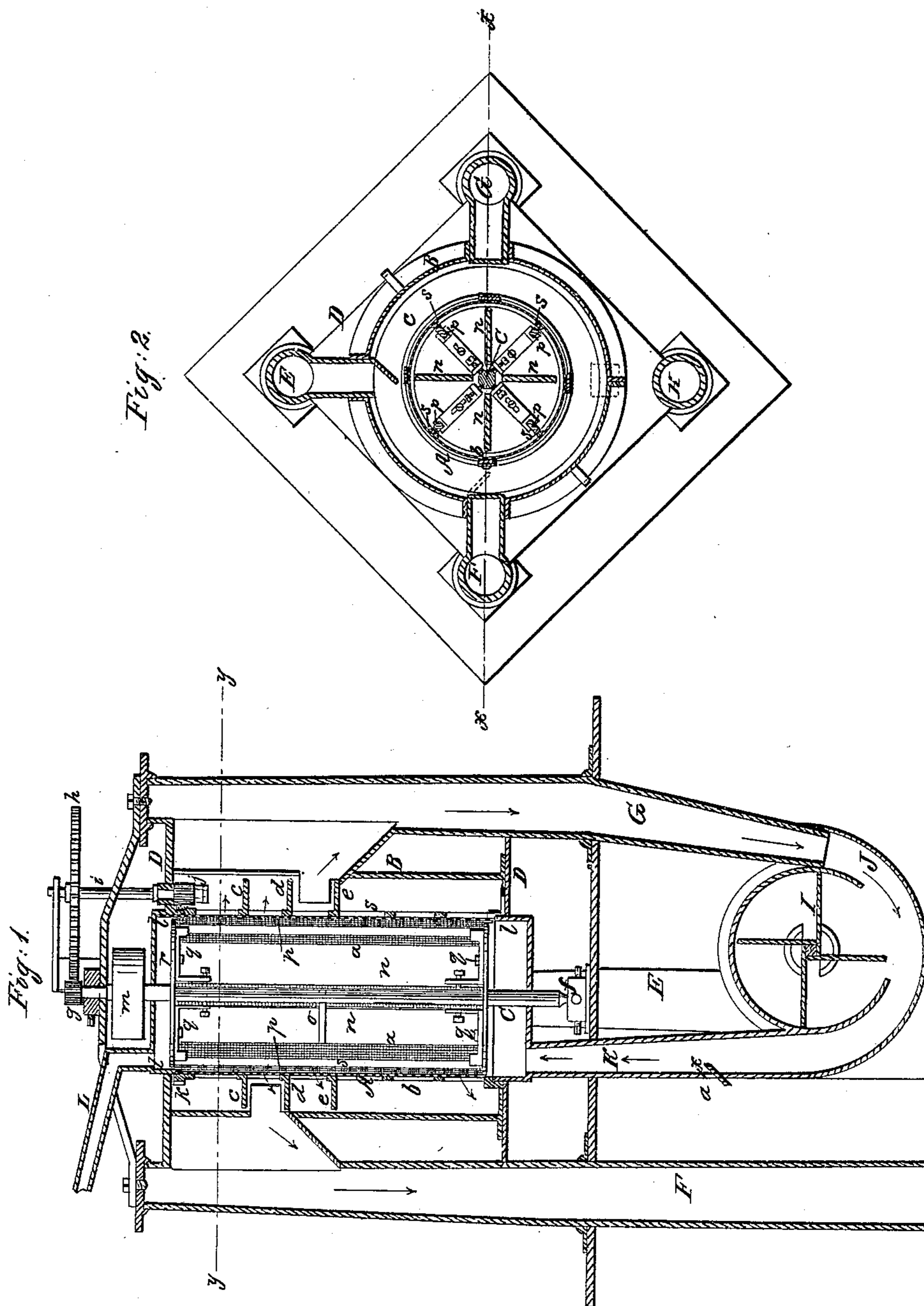


S. G. McMURTRY.

Flour Bolt.

No. 19,303.

Patented Feb. 9, 1858.



# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN FLOUR-BOLTS.

Specification forming part of Letters Patent No. 19,303, dated February 9, 1858.

*To all whom it may concern:*

Be it known that I, SAMUEL G. McMURTRY, of West Urbana, in the county of Champaign and State of Illinois, have invented a new and Improved Flour-Bolt; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical section of my improvement, *xx*, Fig. 2, indicating the plane of section. Fig. 2 is a horizontal section of the same, *yy*, Fig. 1, indicating the plane of section.

Similar letters of reference indicate corresponding parts in the two figures.

This invention has for its object the keeping of the meal at a proper temperature while being bolted, in order that it may be rapidly and perfectly bolted and the bolt prevented from being choked or clogged.

The invention consists in the employment or use of a fan in connection with spouts and a bolt peculiarly arranged, as will be hereinafter fully shown and described, for the purpose of attaining the object alluded to.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a vertical bolt, which is constructed by securing wire-cloth *a* to the inner side of a cylindrical frame *b*. This bolt is inclosed by a cylindrical case B, a suitable space being allowed between the outer side of the bolt and the inner side of the case. The upper part of the bolt-frame *b* is encompassed by three horizontal annular plates *c d e*, which are placed at suitable distances apart and one above the other, the edges of said plates nearly or quite touching the inner surface of the case B.

Through the center of the bolt A a shaft C passes, the lower end of said shaft being stepped, as shown at *f*. The upper end of the shaft C has a pinion *g* placed on it, and this pinion gears into a toothed wheel *h*, which is placed on the upper end of a shaft *i*, said shaft having a pinion *j* at its lower end, which pinion gears into a toothed rim *k* on the upper end of the bolt-frame *b*. The bolt-frame *b* is fitted on annular flanges *l l*, which are attached to or formed on parallel plates D D. (See Fig. 1.) The bolt-frame is allowed to

turn freely on the flanges *l l*. On the upper end of the shaft C a driving-pulley *m* is placed.

On the shaft C, within the bolt-frame *b*, four radial beaters *n* are placed. These beaters are formed of sheet-metal plates attached to horizontal arms *o*, which are secured to the shaft C. Four brush-bars *p* are also attached to the shaft. These brush-bars are attached to arms *q*, which are secured to the shaft C. The upper and lower ends of the beaters *n* are attached to circular plates *r r*, which are secured to the shaft C. The brush-bars have a series of bushes *s* fitted in their outer sides, and the brush-bars may be so arranged as to be adjustable and made to bear with a greater or less pressure against the wire-cloth *a*. The outer edges of the beaters *n* do not touch the wire-cloth.

E F G H represent vertical spouts, which are attached to the angles of the lower plate D and extend upward just above the upper plate D. The spout E communicates with the interior of the case B just above the upper plate *c*. The spout F communicates with the interior of the case just above plate *d*. The spout G communicates with the interior of the case just above plate *e*, and the spout H communicates with the lower part of the case B.

I represents a fan, which is placed within a suitable box or case J. The case J has a spout K attached to it, and the upper end of this spout communicates with the lower end of the bolt A just below the lower plate *r*. To the upper end of the bolt A spout L is attached.

The operation is as follows: The meal is fed into the blast-spout K at *a*<sup>x</sup>, (see Fig. 1,) and is carried upward by the blast generated by the rotation of fan I, and comes in contact with the lower plate *r*, which by its rotation scatters the meal and carries it upward along the sides of the wire-cloth *a*, through which it is brushed by the brushes *s*. The lower plate *r* prevents the blast from passing up centrally through the bolt, and the beaters *n* prevent the meal from passing inward toward the center of the bolt. The bolt rotates quite slowly compared with the speed of the brushes and beaters; but both rotate in the same direction. The relative speed of the bolt and brushes will be seen by referring to the gearing in Fig. 1. The superfine flour passes through the lower part of the bolt and passes down the

spout H. The second quality passes out through the cloth *a* upon the plate *e* and passes into the spout G. The third quality passes through the cloth *a* upon plate *d* and down through the spout F, and the poorest quality passes upon plate *c* and down through spout E, the flour passing into the spouts in consequence of the plates *c d e* rotating with the bolt in connection with stationary plates *b<sup>x</sup>*, attached to the spouts and projecting over said plates. The bran is blown through the spout L, and either of the inferior qualities of flour may be rebolted by having the proper spout lead into the fan-case J, (see Fig. 1,) in which the spout G is so represented.

By this improvement the bolt is prevented from being injured by foreign substances, for they are too heavy to be forced upward through the bolt by the blast and will fall through the opening *a<sup>x</sup>*. The meal is kept close to the wire-cloth by means of the lower plate *r*, so that the flour cannot be blown through the center of cylinder, the draft being only at the periphery.

In cold weather a blast of warm air is to be used, and in summer cool air is employed. It is essential that the meal, in order to be perfectly bolted, should be at a certain temperature, and by means of the fan this can be accomplished.

It is well known that the meal should be kept while being bolted at a certain temperature to insure good work; but they have not been generally used on account of the difficulty attending their practical application to the bolt. The wind passing directly through the bolt would certainly blow out a portion of

the flour unbolted, and if the blast be made so light as not to effect this it would be useless, as neither cool nor warm air could be forced into the bolt in sufficient volume to effect the desired purpose. By my improvement the blast is used as a vehicle to convey the meal up through the bolt and to discharge the bran as well as a regulator of the temperature of the meal.

I am aware that fans have been previously applied to bolts to effect the purpose herein described, and I do not therefore claim the employment or use of the fan in itself considered, nor do I claim the employment or use of the rotating beaters and brushes within the bolt, for they have been previously used; but,

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The arrangement of the bolt-frame *b*, bottom plate *r*, flanges *ll*, plates *c d e*, and spouts E F G H, substantially as herein described, whereby the current of air is prevented from drawing through the center of the bolt, but is spread so as to pass along near the surface of the bolting-cloth, while the flour is not only suspended in a current of dry air, but is conducted through the cloth out upon the annular plates and down the peculiarly-arranged air-tight spouts to the place of storing, nothing whatever being able to escape except through the proper channel.

SAMUEL G. McMURTRY.

Witnesses:

A. M. WHITNEY,  
H. C. WHITNEY.