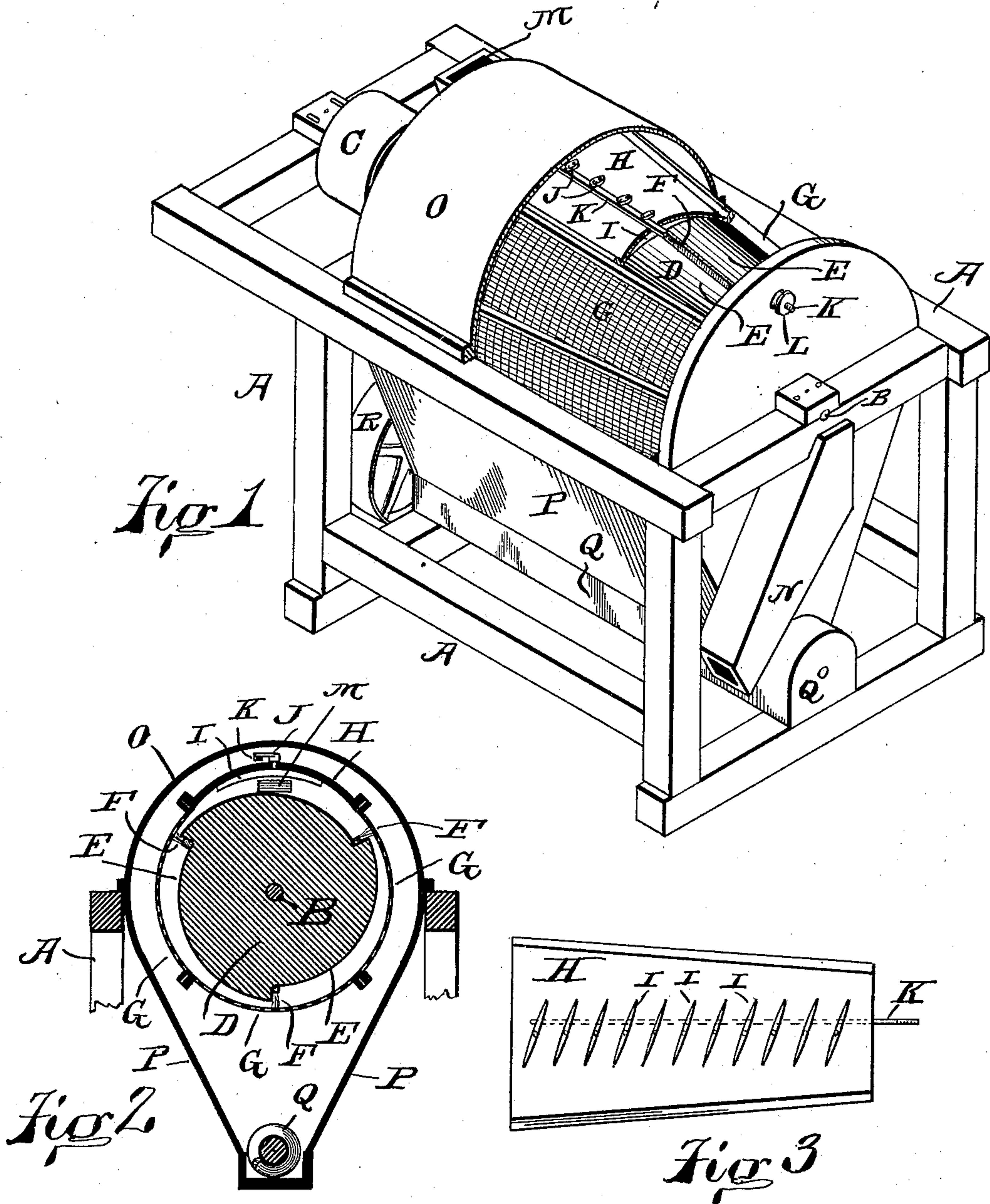


(No Model.)

S. HUGHES.
CENTRIFUGAL BOLTING REEL.

No. 308,613.

Patented Dec. 2, 1884.



Witnesses:

W. A. Seward
W. S. Boyd

Stephen Hughes Inventor
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UNITED STATES PATENT OFFICE.

STEPHEN HUGHES, OF HAMILTON, OHIO, ASSIGNOR TO THE STEPHEN HUGHES MANUFACTURING COMPANY, OF SAME PLACE.

CENTRIFUGAL BOLTING-REEL.

SPECIFICATION forming part of Letters Patent No. 308,613, dated December 2, 1884.

Application filed April 12, 1884. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN HUGHES, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Centrifugal Bolting-Reels, of which the following is a specification.

This invention pertains to a machine for bolting or dusting milling products.

The invention will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a perspective view of a machine embodying my improvements, portions of the same being broken away to exhibit the interior of the structure; Fig. 2, a vertical transverse section of the main parts of the machine, and Fig. 3 a view of the interior surface of the feeding-stave H of the jacket.

In the drawings, A represents the framework of the machine; B, a horizontal shaft journaled longitudinally in the upper part of the frame; C, a driving-pulley on the rear end of the shaft; D, a rotary cylinder fast upon the shaft; E, the periphery of the cylinder divided into three eccentrically-spiral surfaces, as shown in Fig. 2; F, brushes arranged longitudinally upon the cylinder and projecting somewhat from its spiral faces; G, a closed jacket, of wire-cloth or other bolting material, surrounding the rotary cylinder, and of such size as to be engaged by the brushes, and made up in separate staves; H, the top stave of the jacket, solid instead of being of wire-cloth like the other staves of the jacket; I, a longitudinal series of obliquely-arranged pivoted vanes upon the inner surface of this top stave, H; J, crank-arms upon the journals of the vanes; K, an adjusting-rod connected with the crank-arms; L, an adjusting-nut upon the adjusting-rod outside the casing of the machine; M, the inlet-spout by which the product to be treated is admitted to the interior of the jacket G; N, the outlet-spout by which the coarser product leaves the interior of the jacket; O, the main casing around the jacket; P, downward continuations of the main casing at the sides; Q, a conveyer at the extreme bottom of the outer casing; R, the pulley by which the conveyer is driven by belt from a pulley on the main

shaft of the machine. (Not shown in the drawings.)

The material to be bolted is admitted into the jacket, wherein rotates the cylinder, through the inlet-spout M. The centrifugal action of the cylinder throws the material to the jacket-cloth, and the brushes, sweeping the interior surfaces of the cloth, cause the finer material to pass through the cloth, whence it falls within the casing to the conveyer below to be carried away, as desired. The brushes and the eccentric spiral surfaces of the cylinder also serve to create a centrifugal air-blast, which aids in the bolting operation, as is well understood. The coarser product, too coarse to pass through the bolting-cloth, leaves the cylinder-chamber within the jacket through the outlet-spout N at the end wall of the cylinder-chamber. The interior surface of the jacket is in the form of a circle, adapted to be swept by the brushes of the cylinder; but the upper stave, H, expands into an enlargement of this circle, so that the brushes do not sweep its inner surface. The oblique vanes I project downward from the inner surface of this top stave, and their depth is such that their lower edges conform substantially to the circle swept by the brushes. The direction of the obliquity of the vanes is such that material passing across the top stave along the vanes will move forward, from one end of the machine toward the other, toward the outlet end of the jacket, whereby a feeding progress of the material through the bolt is secured. By adjusting the nut L the adjusting-rod K can be moved longitudinally, so as to alter the degree of obliquity of the vanes in an obvious manner, whereby the rate of feed due to the obliquity of the vanes may be adjusted at will and while the machine is in motion. The top stave I prefer in practice to make blank and solid; but it may be provided to some extent with bolting-cloth, if desired.

What I have termed the cylinder D is not a cylinder in fact, but it is generally understood by that name among makers and users of flour-mill machinery. The cylinder in the example shown in the drawings is conical, the large end being toward the receiving end of the machine, and the jacket is conical to conform with the conical arrangement of the cyl-

inder, the cylinder being fitted to adjust end-
 wise in the usual manner, so as to adjust the
 fit within the jacket, as is common. The tend-
 ency of the revolving cylinder is to produce a
 radial air-blast through the cloth, whereby
 the finer particles of matter are bolted through,
 the revolving brushes serving to sweep the
 surfaces of the cloth and keep it clean, and aid
 in the dressing and bolting operation, as is
 well understood. As the material in the jacket
 is projected tangentially across the top stave
 by the action of the cylinder, it tends to ad-
 vance according to the obliquity of the vanes.
 By this means is secured the progress of the
 coarser stuff from the inlet end of the machine
 toward the outlet end. This manner of pro-
 ducing the feed in machines of this general
 type is not broadly new.

It is essential in my machine that there
 should be within the jacket a longitudinal air-
 blast in a direction contrary to the onward
 flow of the coarser matter. The purpose of
 this longitudinal air-blast in this connection
 is that the finer matter may be held in sus-
 pension, so to speak, by two contending forces,
 one force tending to feed the material to the
 outlet of the machine, the other force—the air-
 blast—tending to force the finer and lighter
 matter in the other direction. The feeding
 action is caused to preponderate, and the rate
 of preponderance is adjusted by altering the
 obliquity of the vanes. By this means the
 matter within the jacket is caused to proceed
 endwise through the machine at any rate de-
 sired, and at the same time to be held in an
 open and fluffy condition, found in practice
 to be peculiarly suited to its proper treatment
 by the brushes.

I secure the longitudinal air-blast by means
 of the conical construction and arrangement
 of the jacket and cylinder, the centrifugal
 force of the latter serving to urge the air to
 the larger portion.

While the conical arrangement gives me at
 once the radial bolting-blast and the longitu-
 dinal suspension-blast, such a construction is not
 essential to the execution of my invention, as I
 may arrange the jacket and the cylinder as par-
 allel elements—that is, not conical—and cause
 the cylinder to produce simply the usual bolt-
 ing-blast, while the longitudinal suspension-
 blast may be produced by any blast-producing
 device arranged to produce within the jacket
 a longitudinal current of air in a direction
 contrary to the longitudinal flow of material
 through the machine. A simple fan-blower in-
 jecting air into the discharge end of the jacket
 will serve to illustrate such an arrangement.

I claim as my invention—

The combination of a fixed circular bolting-
 jacket having a stave presenting an enlarge-
 ment of the jacket circle, a longitudinal series
 of oblique vanes arranged upon the inner sur-
 face of said enlarged stave, means, substan-
 tially as set forth, for adjusting the obliquity
 of said vanes, and a brushing-cylinder within
 the jacket, said jacket and cylinder being con-
 structed and arranged to produce a longitu-
 dinal air-blast within the jacket in a direction
 opposed to the action of said vanes, substan-
 tially as and for the purpose set forth.

STEPHEN HUGHES.

Witnesses:

J. W. SEE,

W. A. SEWARD.