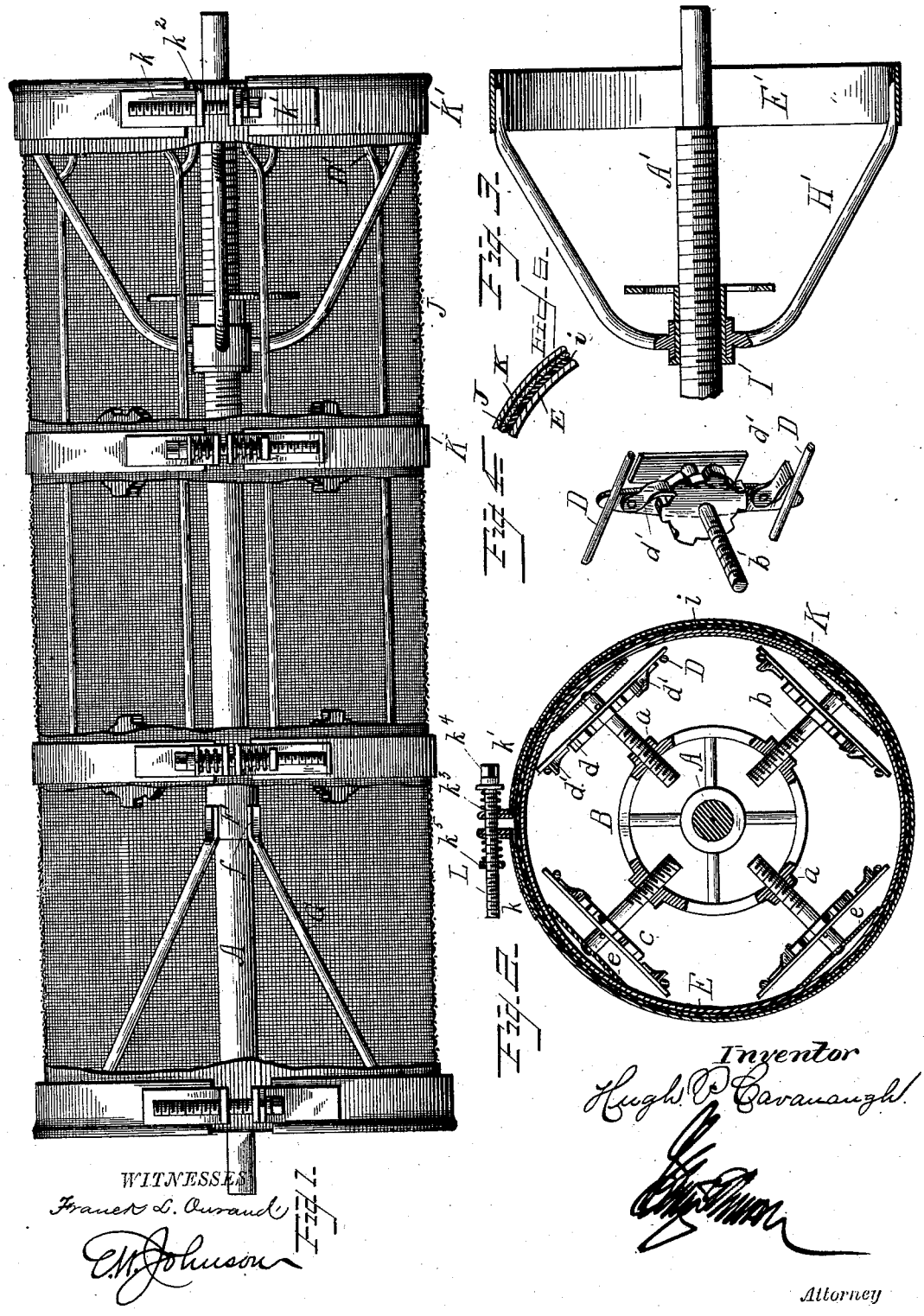
(No Model.)

H. P. CAVANAUGH.

BOLTING REEL FOR FLOUR MILLS.

No. 301,803. Patented July 8, 1884.



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HUGH PATRICK CAVANAUGH, OF ADRIAN, MISSOURI.

BOLTING-REEL FOR FLOUR-MILLS.

SPECIFICATION forming part of Letters Patent No. 301,803, dated July 8, 1884.

Application filed March 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, HUGH P. CAVANAUGH, a citizen of the United States of America, residing at Adrian, in the county of Bates and State of Missouri, have invented certain new and useful Improvements in Bolting-Reels for Flour-Mills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to reels for bolting flour and other ground grain; and it consists in the improvements hereinafter fully described and set forth, and then sought to be specifically defined and pointed out in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side view of a bolting-reel constructed in accordance with my invention, part of the sieve-cloth being removed. Fig. 2 is a transverse section on the dotted line, Fig. 1. Figs. 3 and 4 are detailed views; and Fig. 5 is a detail sectional view of a portion of the reel, illustrating the arrangement of gasket or packing therein.

On the shaft A, at suitable distances apart, are rigidly mounted a series of spider-wheels, B, provided peripherally with several lugs, *a*, perforated and threaded for the passage of exteriorly-threaded spindles *b*. Each spindle *b* has rigidly keyed thereon a ratchet-wheel, *c*. A leaf-plate, *d*, is also mounted on each of said spindles *b*, adjacent to the ratchet-wheel *c* thereof, and carries near each extremity a gravity-pawl, *d'*, designed to engage the teeth of the ratchet. A rod, D, extends longitudinally through the screen, and is secured to the corresponding end of each series of leaf-plates *d*, two rods being provided for the respective ends of each series of leaf-plates. One end of the rod is looped to form a handle, D', designed to facilitate the manipulation of said rods. The outer extremity of each spindle *b* is reduced to form a tenon suitable for entering an opening therefor formed in a bearing-plate, *e*, which rests against the inner face of a ring or annular bar, E, designed to form the outer skeleton portion of the reel.

The foregoing description applies more particularly to those parts which are located intermediately in the reel structure.

To provide for the extremities or end portions of the reel, I extend the central portion of one of the spider-wheels, so as to present a hub, F, secured to which are the inner ends, *f*, of a series of inclined rods, G, the outer ends of said rods being connected to the skeleton ring of the screen end adjacent thereto. The ring E', forming a skeleton support for the other end of the reel, is connected by a series of inclined and partially-curved braces or rods, H', to an independent spider-wheel or nut, I, interiorly threaded to engage the exteriorly-threaded portion A' of the shaft A. The sieve-cloth J is placed around the frame, as partially shown in Fig. 1, and is tightly secured in position by means of a series of ring sections or bands, K K', the ends of each section K K' being provided with supplemental plates *k k'*, having an ear, k^2, perforated for the passage of a threaded bolt, L, which connects each adjacent pair of supplemental plates *k k'*. Springs k^3, embracing the respective bolts, are interposed between the ears k^2 and the bolt-head k^4 of the said bolt, and between the said ears and the nuts k^5 on said bolts.

To secure the desired adjustment the nut I is rotated on the threaded portion A' of the shaft A, so that said nut would be caused to travel in either direction, thereby moving the ring E' near to or from the adjacent ring E, and thereby lengthening or decreasing the longitudinal dimensions of the structure. The sieve-cloth J is now placed exteriorly upon the various rings E E', so as to encompass the same and be held in position by means of the clamping-rings K K', the bolts *k'* being rotated so as to cause the ears k^2, adjacent of the supplemental sections, to approach each other, thereby contracting the said ring-sections K K', and thus securely retaining the sieve-cloth in position. The springs k^3 exert a pressure upon the bolt-heads k^4 and nuts k^5, to prevent the accidental rotation of the bolts *k'* and the inadvertent loosening of the various parts. The outer parts are rigidly braced with respect to the shaft A in the following manner:

One series of pawls, *d'*, of each pair of rods D are thrown out of engagement with the ratchet-wheels *c*, while the other series of pawls are moved into engagement with said ratchet-wheels. The detailed view, Fig. 4, shows the relative position of one pair of pawls with regard to a single ratchet-wheel. Either of each pair of rods D may be moved longitudinally, which movement causes the pawls engaging with the ratchet to intermittently engage the successive teeth of the said ratchet-wheels and rotate the same, thereby causing the spindles *b* to travel radially in an outward direction in the threaded lugs *a*, and ultimately resulting in the said spindles rigidly forcing the plates *e* against the inner side of the rings E E', and thereby bracing said rings with regard to the spider-wheels B and shaft A. By reversing the positions of the various series of pawls the spindles can be retracted to their first position. In most instances it is desirable to interpose a flexible or elastic gasket or packing, *i*, between the rings E E' and the several clamp-sections K K'.

From the foregoing it will be apparent that a bolting-reel embodying my improvements may be readily adjusted to secure any desired length of reel, and that by employing skeleton rings E E' of various diameters the transverse dimensions can be increased or decreased at will, the various devices and improvements coacting and contributing to secure such adjustments.

I claim—

1. The combination, in a bolting-reel, of a supporting-frame comprising a series of rings, a sieve-cloth encompassing said supporting-frame, a series of ring-sections adapted to hold the said cloth on the rings of the supporting-frame, devices for contracting and expanding said ring-sections, and means for locking said devices, as described, substantially as and for the purpose set forth.

2. The combination, in a bolting-reel, of a central shaft, one or more spider-wheels mounted thereon, and provided with a series of threaded lugs, a series of threaded spindles located in said nuts, devices for effecting the rotation of said spindles to secure their radial movement, and a series of sieve-supporting rings expanded and braced by said spindles, substantially as set forth.

3. The combination, in a bolting-reel constructed and operating as herein described, of a series of rings, a sieve-cloth encompassing the same, a series of adjustable spindles for bracing said rings, and devices for effecting the rotation of said spindles in series, substantially in the manner set forth, and for the purpose specified.

4. The combination, in a bolting-reel constructed and operating as herein described, of a series of rings, a sieve-cloth encompassing the same, a series of adjustable spindles for bracing said rings, a gear-wheel mounted on each of said spindles, and a series of rods provided with pawls for effecting the rotation of said gear-wheels in either direction, substantially as set forth.

5. The combination, in a bolting-reel, of a central shaft, one or more rings supported thereon, a sieve-cloth encompassing the same, a series of ring-sections adapted to hold said sieve-cloth on the rings of the supporting-frame, and a gasket or packing interposed between the rings and the ring-sections, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HUGH PATRICK CAVANAUGH.

Witnesses:
T. W. ADAIR,
L. WILLIAMS.