(No Model.) 2 Sheets—Sheet 1.

J. KUHNMÜNCH.

CENTRIFUGAL FLOUR BOLT.

No. 308,844. Patented Dec. 2, 1884.

Fig. 1.

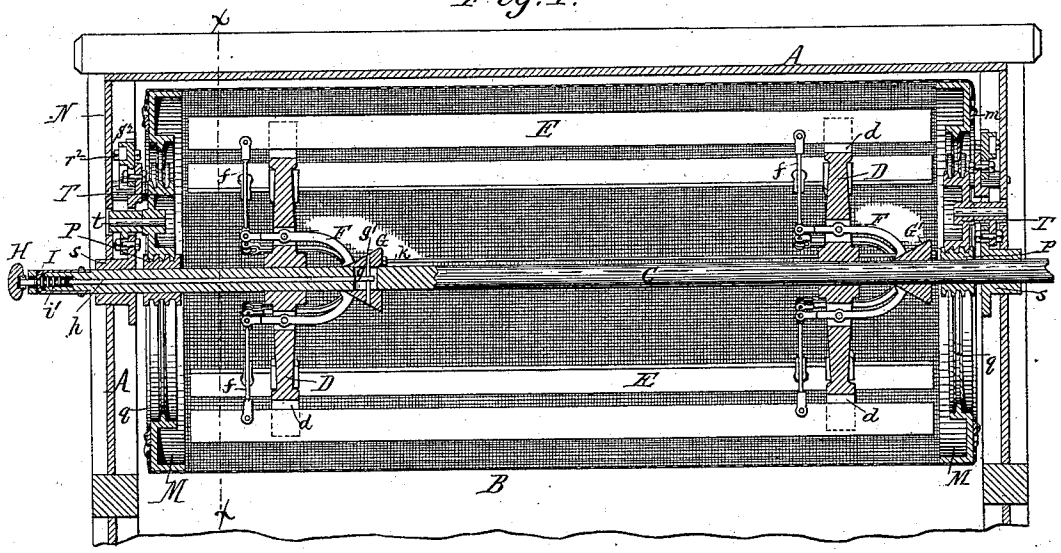


Fig. 2.

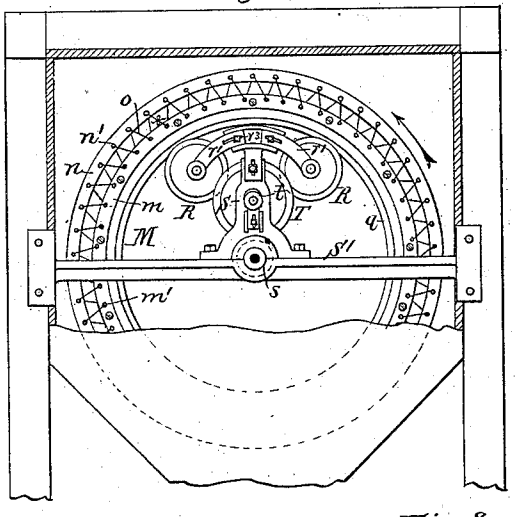


Fig. 3.

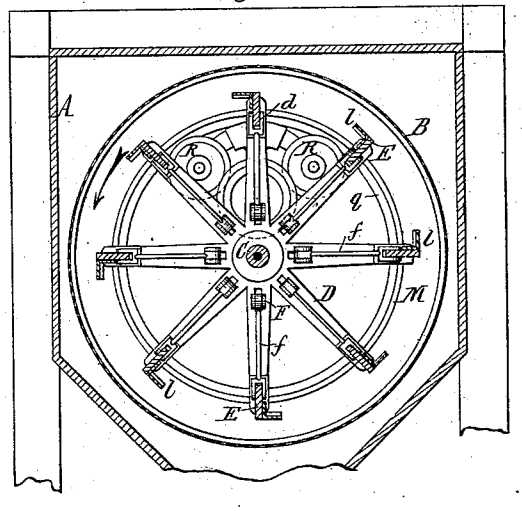
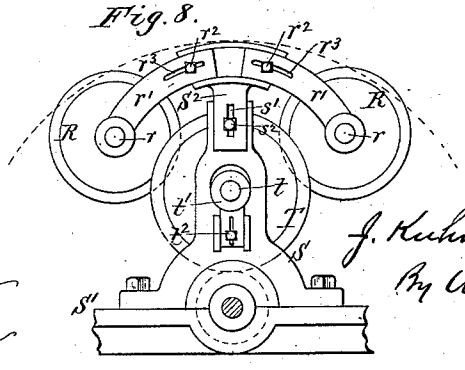


Fig. 8.



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(No Model.) 2 Sheets—Sheet 2.

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CENTRIFUGAL FLOUR BOLT.

No. 308,844. Patented Dec. 2, 1884.

Fig. 4.

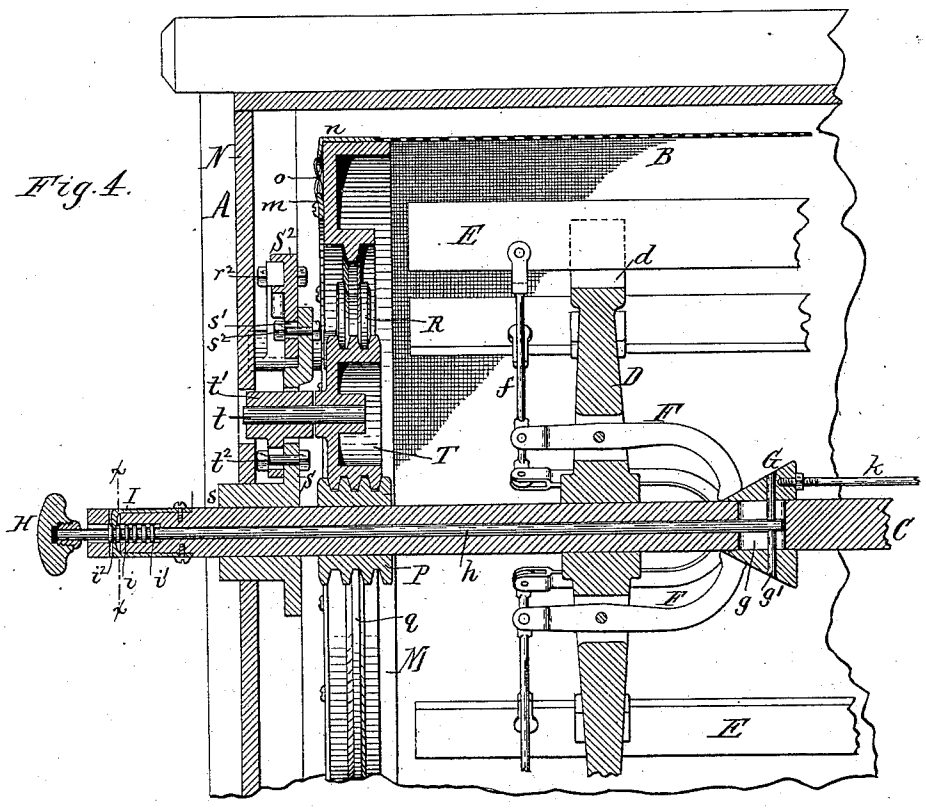


Fig. 5.

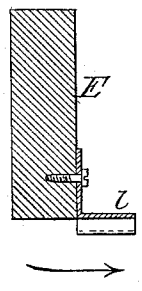


Fig. 6.

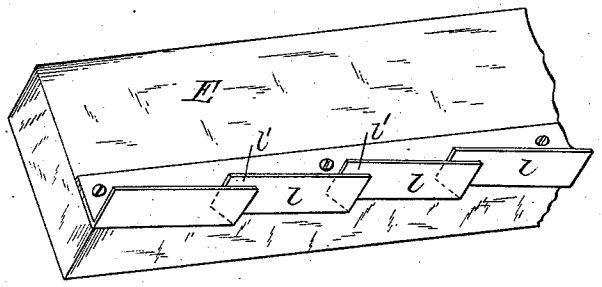
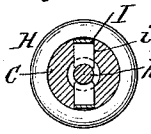


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOSEPH KUHNMÜNCH, OF BUFFALO, NEW YORK.

CENTRIFUGAL FLOUR-BOLT.

SPECIFICATION forming part of Letters Patent No. 308,844, dated December 2, 1884.

Application filed August 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH KUHNMÜNCH, of the city of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Centrifugal Flour-Bolts, of which the following is a specification.

This invention relates to an improvement in that class of flour-bolts which are provided with revolving beaters or spreaders arranged within the revolving reel; and it has for its object to provide a simple mechanism whereby the revolving beaters or spreaders can be adjusted toward or from the inner surface of the revolving reel, in order to regulate the intensity of the bolting action.

My invention has the further object to improve the action of the beaters or spreaders in distributing the material over the bolting-surface; and my invention has also the object to provide a simple mechanism whereby the revolving reel is rotated directly from the beater-shaft.

My invention consists of the improvements in the construction of the flour-bolt which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, consisting of two sheets, Figure 1 is a longitudinal section of a flour-bolt provided with my improvements. Fig. 2 is an end elevation of the bolting-cylinder, showing the driving mechanism. Fig. 3 is a cross-section in line *x x*, Fig. 1. Fig. 4 is a sectional elevation, on an enlarged scale, of one end of the machine. Fig. 5 is a cross-section of one of the beaters on an enlarged scale. Fig. 6 is a perspective view of a portion of one of the beaters. Fig. 7 is a cross-section in line *x x*, Fig. 4. Fig. 8 is an enlarged elevation of the mechanism whereby the bolting-cylinder is rotated from the beater-shaft.

Like letters of reference refer to like parts in the several figures.

A represents the inclosing-casing, B the revolving bolting-reel arranged within the same, and C the beater-shaft arranged axially in the bolting-reel and extending through the same.

D represents two or more systems of spiders or arms secured to the shaft C, and E the beaters or spreaders arranged in the bifurcated ends *d* of the arms D, so as to be capable of movement toward or from the inner surface of the bolting-reel B.

F are levers pivoted in the arms D near the shaft C, and *f* are rods which connect the front ends of the levers F with the beaters E. The rear portions of the levers F are bent or curved inwardly, so that their rear ends approach the beater-shaft C.

G G′ are conical or tapering collars which surround the shaft C and project with their small ends between the rear ends of the levers F. The latter are held against the cones by the centrifugal force, which tends to drive the beaters E outwardly between the bifurcated ends or jaws *d* of the arms F.

g is a longitudinal slot formed in the shaft C at the point where the cone G surrounds the same, and *g′* is a rod or pin which extends diametrically through the bore of the cone G and through the slot *g*.

h represents a longitudinal shifting-rod, which extends outwardly from the bolt *g′* through an axial bore formed in the shaft C, and which is provided at its outer end, which projects beyond the shaft, with a knob or button, H. The latter is free to turn on the rod *h*, and can be conveniently seized for pushing the rod *h* inwardly or drawing it outwardly for adjusting the beaters.

i represents an enlarged portion of the rod *h*, provided with circular collars or ring-shaped projections *i′*, and I represents one or more spring-catches, which are secured to the shaft C in recesses *i²*, formed in said shaft, and which engage with their tapering heads in the grooves between the rings or collars *i′*, so that they hold the rod *h* against longitudinal movement under the ordinary pressure which is applied to the rod by the centrifugal force acting on the beaters. Upon pulling or pushing the rod *h* in either direction the inclined heads of the catches I are forced out of the grooves and ride over the rings or collars of the portion *i* until the movement of the rod *h* ceases, when they engage in the grooves and hold the rod in this position. The collar G is connected with the collar G′ by a rod, K, so that both collars are moved simultaneously by adjusting the rod *h*. Upon drawing the rod *h* forwardly, so that it forces the collars G

G′ between the rear ends of the levers F, the latter are swung on their pivots, and this movement of the levers is transmitted to the beaters E by the rods *f* in such manner that the beaters are moved inwardly or away from the inner surface of the bolting-cylinder B. Upon pushing the rod *h* backwardly the collars G G′ are withdrawn from the inner ends of the levers F, and the beaters E permitted to move toward the inner surface of the bolting-cylinder under the outward pressure of the centrifugal force. In this manner both ends of all the beaters can be adjusted simultaneously toward and from the bolting-surface, thereby regulating the intensity of the bolting action. The inner faces of the rear portions of the levers F are curved or inclined to fit snugly against the tapering collars G G′. The beaters E are arranged parallel with the beater-shaft C, and provided along their edges with inclined scoops *l*, which project forwardly from the edges of the beaters in the direction in which the beaters revolve, and are inclined in such manner that they will propel the material toward the tail end of the machine. The scoops *l* are preferably made of tin bent to the proper inclination, as represented in Fig. 6, so as to leave an open space, *l′*, between the rear end of one scoop and the front end of the next adjacent scoop, through which the material is discharged against the bolting-surface. These scoops pick up the material which may accumulate on the lower portions of the bolting-surface, and distribute the same successively by centrifugal force over the entire circumference of the reel without forcing it instantaneously against the surface of the reel, like ordinary beaters, or like flights which project rearwardly from the beaters, thereby avoiding an excessive pressure of the material against the bolting-cloth, which tends to wear out and burst the bolting-silk.

M M represent the annular heads or rings, which are arranged at the ends of the bolting-cylinder, and to which the bolting-cloth is secured. These rings are provided on their outer sides with rings *m*, of leather or other suitable material, which are provided with eyelets or hooks *m′*. The strips of ticking, *n*, which are secured to the ends of the bolting-silk, are provided with similar eyelets or hooks, *n′*, which are connected with the hooks or eyelets *m′* by lacings or cords *o*, by which the cloth is secured to the heads M and properly stretched. The strips *n* of ticking are drawn over the outer edges of the rings M, so that the lacing is arranged on the outer side of each head M, where it can be easily reached when it is required to be adjusted. Each end of the casing A is provided with a removable end piece, N, by which access can be had to the lacing. The longitudinal edges of the cloth are also secured together by a similar lacing.

P represents grooved friction-wheels secured to the beater-shaft C within the rings M, and *q* represents a friction-rim formed on the inner side of each ring M.

R R represent supporting friction-wheels arranged within each rim *q*, so as to run in contact with the friction-rims *q* and support the rings M above the beater-shaft. The friction-wheels R turn on studs *r*, which are attached to brackets *r′*. The two brackets *r′* of the pair of friction-wheels R at each end of the machine are adjustably secured to a standard, S, which is supported upon a bridge-tree, S′, in which is formed a bearing, *s*, in which the shaft C turns.

T represents a transmitting friction-wheel arranged above the friction-wheel P at each end of the machine, and running in contact with the friction-wheel P and with both supporting friction-wheels R R at the same end of the machine, so as to transmit the motion from the wheel P to the wheels R R. Each wheel T is provided with a stud or arbor, *t*, which turns in a bearing, *t′*. The latter is made vertically adjustable in the standard S by a screw-bolt, t^2, passing through an elongated opening in the standard, so that the position of the wheel T can be adjusted with reference to the wheel P to insure the necessary frictional contact. The upper portion, S^2, of the standard S is made vertically adjustable on the lower portion of the standard by a slot, *s′*, and bolt s^2, or otherwise, and the brackets *r′* are secured to the upper adjustable part, S^2 of the standard, so that the wheels R R can be adjusted vertically to conform to the adjustment of the intermediate wheel, T. The brackets *r′* are secured to the upper portion, S^2, of the standard by bolts r^2 and curved slots r^3, made concentric with the wheel T, so that each of the wheels R can be separately adjusted to regulate the position of the bolting-cylinder with reference to the beaters.

In some cases brushes may be substituted for the beaters; or brushes and beaters may be employed in the same machine, as the material or the nature of the work may require. These beaters or brushes are readily adjusted toward or from the bolting-surface while the machine is in motion, the knob at the end of the adjusting-rod being grasped by the operator for shifting the adjustable beater-supports while the adjusting-rod revolves freely.

I claim as my invention—

1. The combination, with a bolting-reel, of revolving beaters or spreaders arranged in said reel, a rotating shaft extending through the reel, adjustable supports whereby the beaters or spreaders are connected near both ends with said shaft, mechanism whereby both series of adjustable supports are moved simultaneously to adjust the beaters or spreaders toward or from the bolting-surface, and an adjusting-rod extending outwardly through an opening in said shaft, substantially as set forth.

2. The combination, with a reel, of a rotat-

ing shaft extending through the reel, arms secured to said shaft, beaters guided in said arms, adjustable levers attached to said arms, rods whereby the levers are connected with the beaters, and cones whereby the adjustable levers are moved simultaneously to adjust the beaters toward or from the bolting-surface, substantially as set forth.

3. The combination, with a reel, of beaters E, a shaft, C, arms D, levers F, connecting-rods *f*, cones G G′, and adjusting-rod *h*, substantially as set forth.

4. The combination, with a reel, of beaters E, a shaft, C, arms D, levers F, connecting-rods *f*, cones G G′, an adjusting-rod, *h*, and spring-catches I, substantially as set forth.

5. The combination, with a reel, of revolving beaters having scoops which project forwardly from the outer edges of the beaters in the direction in which the beaters move, and which are inclined to propel the material toward the tail end of the reel, substantially as set forth.

6. The combination, with a reel having its heads provided with internal friction-wheel tracks or rims, of a revolving beater-shaft, a friction-wheel mounted on said shaft, friction-wheels supporting the reel above said shaft, an intermediate friction-wheel whereby motion is transmitted from the driving to the supporting-wheels, and adjustable supports whereby the intermediate wheel can be adjusted toward and from the driving-wheel, and the supporting-wheels toward and from the intermediate wheel, substantially as set forth.

7. The combination, with a reel having its heads provided with internal friction-wheel tracks or rims, *q*, of a revolving beater-shaft, C, friction-wheels R R, supporting the reel and made laterally adjustable, friction-wheels P, secured to the shaft C, and intermediate friction-wheels, T, made vertically adjustable, substantially as set forth.

Witness my hand this 24th day of July, 1883.

JOS. KUHNMÜNCH.

Witnesses:

EDWARD WILHELM,

CHAS. F. GEYER.