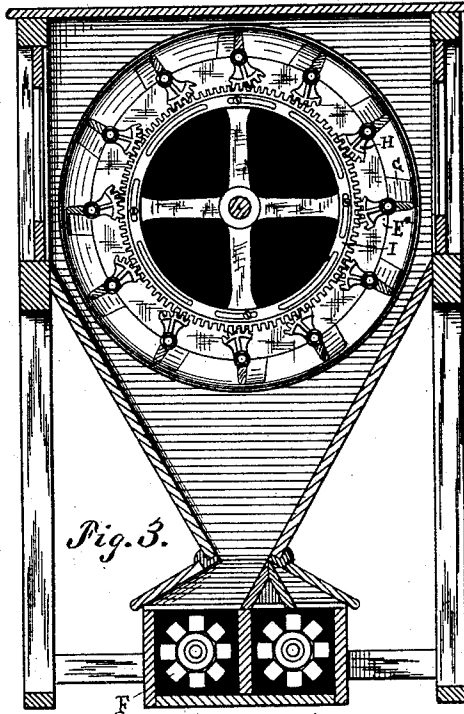
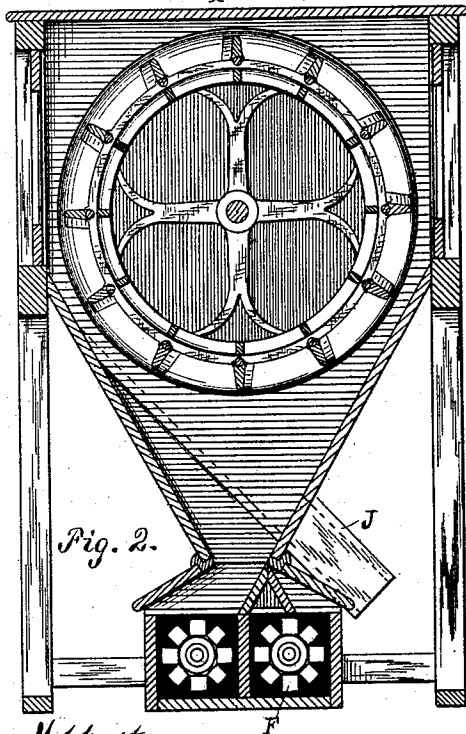
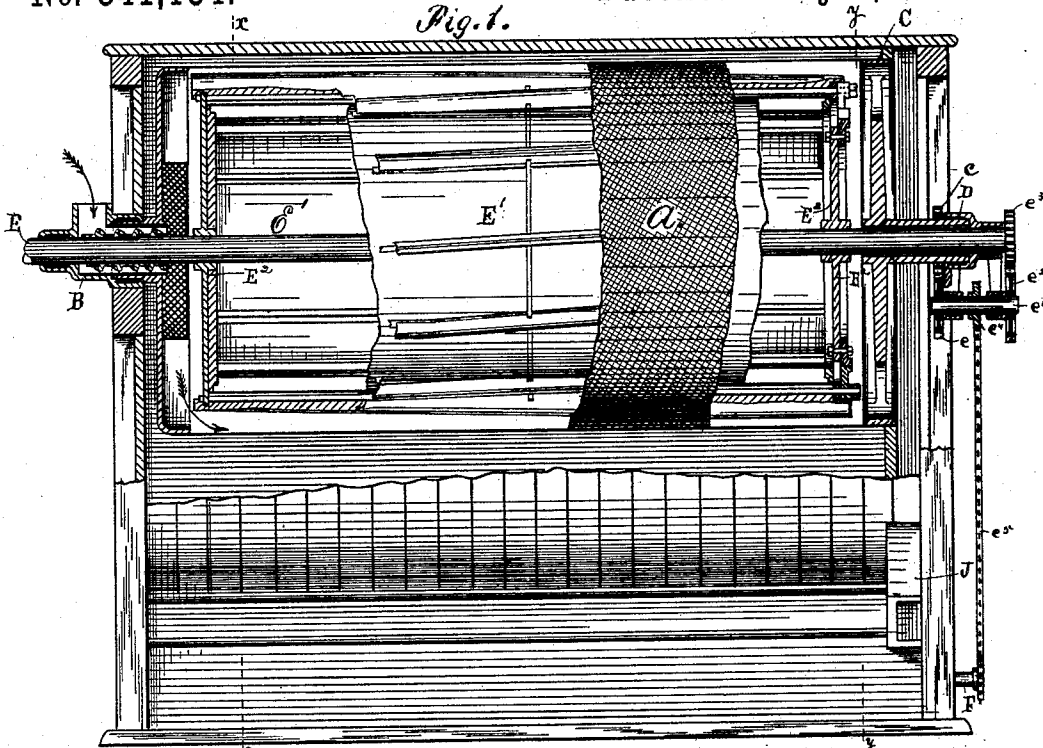


W. R. DUNLAP.
CENTRIFUGAL REEL.

No. 341,134.

Patented May 4, 1886.



Attest
 C. H. Miles
 D. C. Oliver

Inventor
 William R. Dunlap
 By Geo. F. Murray
 his Atty.

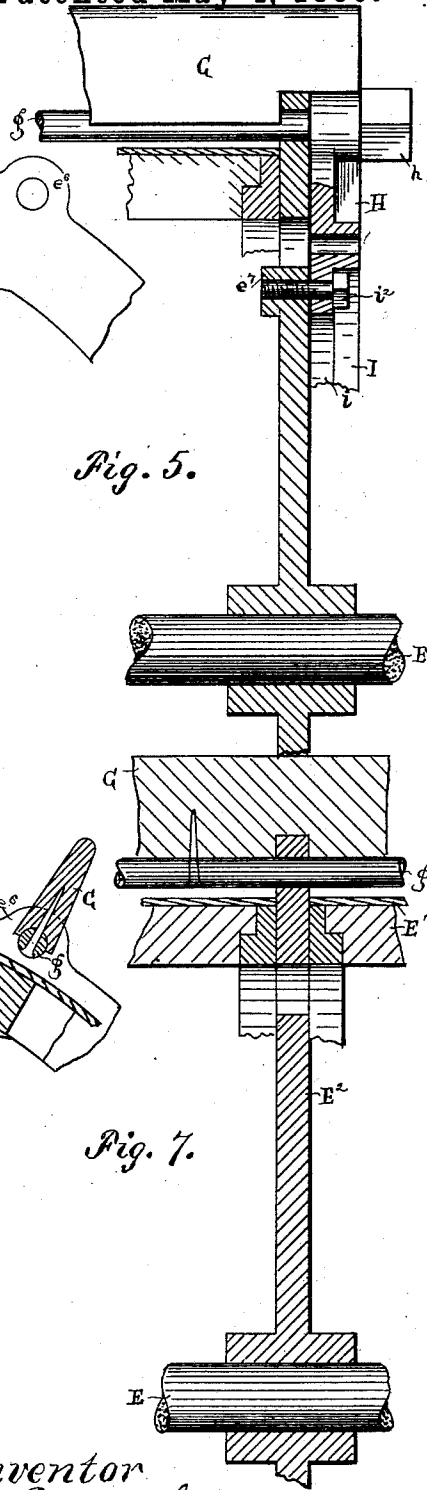
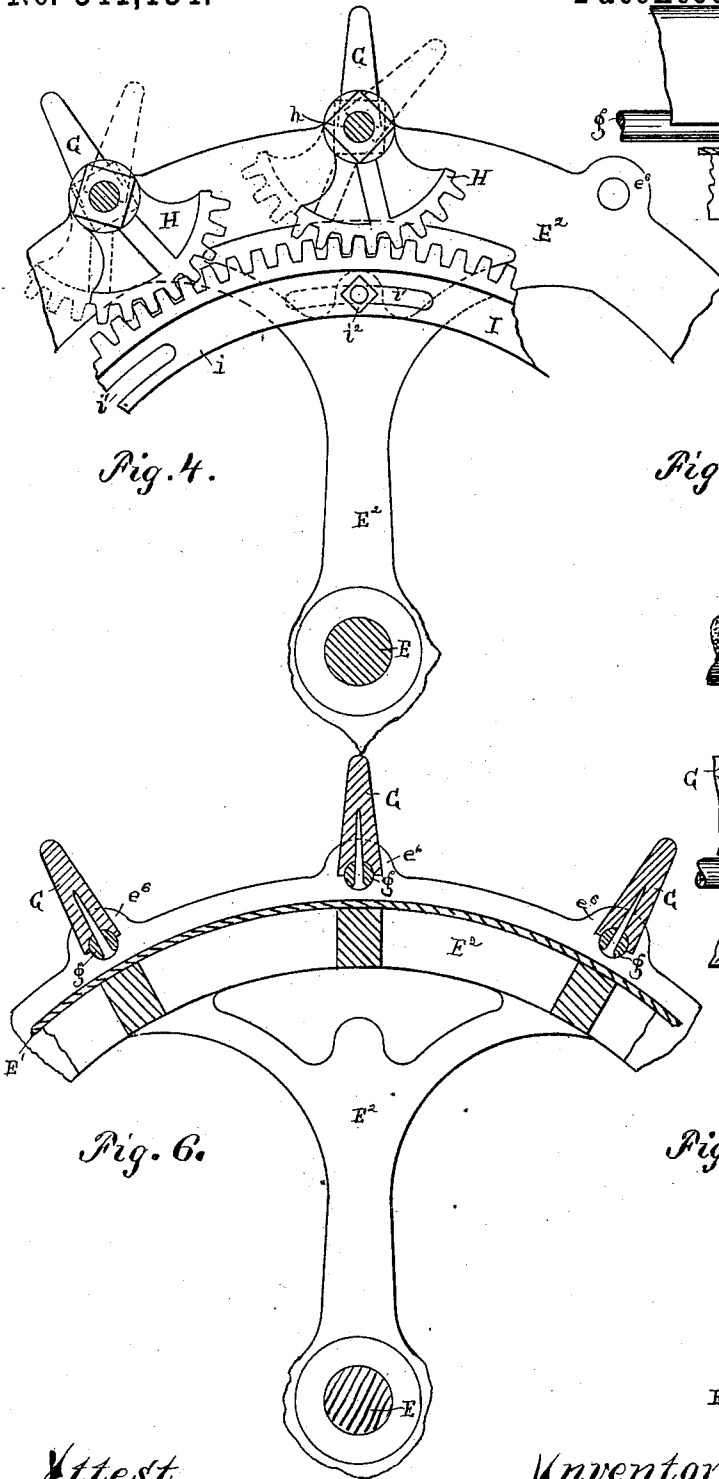
(No Model.)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

WILLIAM R. DUNLAP, OF CINCINNATI, OHIO.

CENTRIFUGAL REEL.

SPECIFICATION forming part of Letters Patent No. 341,134, dated May 4, 1886.

Application filed December 9, 1885. Serial No. 185,121. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. DUNLAP, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Centrifugal Reels, of which the following is a specification.

My invention relates to bolters and dressers for flour and other products of grinding, stamping, and chasing mills. Its object is to provide means whereby the same bolter and dresser may be employed for the various kinds of material for which such devices are used.

The invention consists in certain details of construction and combination of parts, all of which will be first fully described in connection with the accompanying drawings, and then particularly referred to, and pointed out in the claims.

In the drawings forming part of this specification, in which like parts are represented by similar reference-letters wherever they occur throughout the various views—

Figure 1 is a view, partly in vertical longitudinal section and partly in elevation, of a bolting-chest provided with my improvements. Fig. 2 is a transverse vertical section taken through line *x x* of Fig. 1, near the head of the machine. Fig. 3 is a transverse vertical section taken through line *y y* of Fig. 1, near the tail end of the machine. Fig. 4 is an enlarged detail view in end elevation of the tail end of the inner cylinder, showing the beaters attached and the means for simultaneously adjusting them at the angle desired. Fig. 5 is a similar view taken at right angles to the view shown at Fig. 4. Fig. 6 is an enlarged detail view in transverse section of a portion of the inner cylinder to which the beaters are attached. Fig. 7 is a detail view in longitudinal section taken at right angles to the view shown in Fig. 6.

The case of the machine and the double cylinder bolt, the means for driving the same, the two worm-conveyers arranged in suitable boxes for collecting and distributing the different kinds of material as it is bolted through the cloth or wire covering on the outer cylinder, A, are of the usual construction, and need not be particularly described here. It will be

sufficient to state that the head of the outer cylinder, A, is an iron disk with a hollow hub, which revolves in the hollow extension of the feed-box B, which forms a bearing in the head of the outer reel, A. The opposite end of the cylindrical reel has an open armed wheel, C, which has a hollow hub extending from it to the bearing D, secured in the frame of the machine. This hub has a gear-wheel, *c*, secured upon it, which meshes with another gear-wheel, *e*, which is secured upon a shaft, *e'*, which revolves in bearings outside of the frame of the machine. This shaft has secured upon it also another gear-wheel, *e''*, which meshes into a gear-wheel, *e'''*, which is secured upon the driving-shaft E, upon which shaft the imperforate inner cylinder, E', is secured to revolve within the outer cylinder. The shaft *e'* has also secured upon it a sprocket-wheel, *e'''*, to receive a sprocket-chain, *e''''*, which drives the conveyers F in the usual manner.

The frame-work for supporting the cloth or wire covering is constructed in the usual manner, and a specific description of it is therefore not necessary.

The inner cylinder, E', is secured upon the shaft E. This shaft extends outside of the cylinder to receive the driving-pulley, (not shown,) which may be secured upon either end of the shaft.

This arrangement with a spiral worm-feed secured upon the shaft E, within the box B, and the gearing for driving the outer and inner cylinder at varying speeds, as well as the sprocket-chain for driving the conveyers, are in common use, and form no part of my invention.

Each of the ends E² of the inner cylinder, E', has around its periphery outwardly-projecting lugs *e²*, which are perforated to furnish bearings for the rods or shafts *g*, upon which the wooden beaters G are secured. These shafts *g* have upon their ends outside of the ends E² of the cylinder segmental gears H, which engage a cogged ring, I. This ring I has a flat web or flange, *i*, which is provided with slots *i'*, through which screw-bolts *i''* are passed into bosses *e¹*, projecting inward from the ends E². By this means the annular cogged ring I *i* is coupled to the tail

end of the inner cylinder, E'. Now it will be seen that if any one of these cogged segments H is rotated in either direction to set the beater, which is secured upon its shaft at any angle, the annular cogged ring I will be also moved, and that all of the beaters G will be simultaneously set at the same angle. The hubs of the cogged segments H have angular wrench-seats *h* upon them, so that by applying a wrench to one of these seats and turning one of the shafts and its beater all of the beaters will be turned to the same angle at the same time. The screw-bolts *i*, which couple the cogged ring I to the end of the cylinder, are screwed in far enough to permit the ring to be moved in either direction, and only one of them need be tightened to securely hold the ring to the cylinder and insure the retention of the beaters in the position in which they are set. These beaters G, which are light wooden blades, may be secured upon the shafts *g* in any suitable manner—such as by passing screws or nails through the shafts into the beaters—as is clearly shown in Fig. 6 of the drawings. These wings or beaters extend out from two to three inches from the rod or shaft upon which they are secured, and they should be arranged with a slight spiral twist upon the cylinder—say at an angle to the axis of rotation of from one-fourth to one-half inch to the foot—for the purpose of conveying the material from the head of the bolt toward the tail.

The frame of the inner cylinder may be constructed in any approved manner. I prefer to use a dust-proof covering, preferably tin or light sheet-iron. The rods *g*, which carry the wings or beaters, are placed close to the covering of the cylinder, and when set at a suitable angle form buckets for distributing the material to be bolted to the inside of the bolting-cloth or wire covering on the outer cylinder. When the material to be bolted is soft or very light, the wings are placed back from the radial line and opposite to the direction in which the cylinder revolves, and in this position they form beaters and throw the material against the outer cylinder with considerable force. In use the material is all forced by the beaters against the bolting-cloth. Such portions of it as are fit for use pass through the cloth and are carried down to the conveyers F, and the coarser material or tailings will be carried along through the open tail end of the outer cylinder and discharged through the tailings-spout J. It is obvious, of course, that the cogged ring I and segmental arms H may be omitted and a plain ring substituted in place

of the cogs, and slotted link-arms secured upon the beater-shafts *g* and coupled to the smooth ring; but this would be but an inferior modification of my invention, and less reliable than the cog-wheel and segments shown and described, and the same result could of course be accomplished by either a plain wheel or an armed wheel journaled upon the shaft E, so as to be adjustable in either direction with relation to the cylinder ends E', for the purpose of engaging an inwardly-projecting member secured upon the beater-shafts for the purpose of rotating the same and setting the beaters either radial or at any angle to the radii of the inner cylinder.

In use I find it best for general purposes to arrange the gearing so that the inner cylinder revolves at about double the speed of the outer cylinder; but the relation between the speed of the two cylinders may be changed to suit the material under treatment by changing the cog-gearing at the tail end of the machine.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, substantially as hereinbefore described, in a flour-bolt, of an outer and inner cylinder geared to revolve together, the adjustable wings or beaters mounted upon and around the inner cylinder, and means, such as shown, to simultaneously adjust all the beaters around their axes for the purpose of throwing the material under treatment against the bolting-cloth upon the outer cylinder with greater or less force, as desired.

2. In a flour-bolting machine such as described, the combination of the outer cylinder, A, the inner cylinder, E', the beaters G, mounted on shafts *g*, which have their bearings upon the inner cylinder, and arms secured upon the beater-shafts, with a ring coupled to one end of the inner cylinder and to all the arms of the beater-shafts, for the purpose specified.

3. The combination, in a flour-bolt, of the bolting-cylinder, a covered cylinder revolving within the same, a series of beaters arranged around the inner cylinder at an angle to the axis of rotation, the arms H, secured upon the beater-shafts, and the cogged ring I *i*, gearing with said arms and arranged to be moved around the axis of the cylinder and locked in any position, so that the beaters may be set and retained at any angle desired.

WILLIAM R. DUNLAP.

Witnesses:

GEO. J. MURRAY,
C. W. MILES.