

(No Model.)

L. B. FIECHTER.
FLOUR BOLT OR DRESSER.

No. 264,680.

Patented Sept. 19, 1882.

Fig. 1.

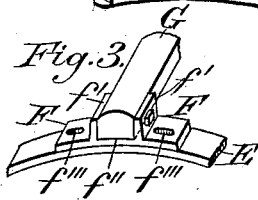
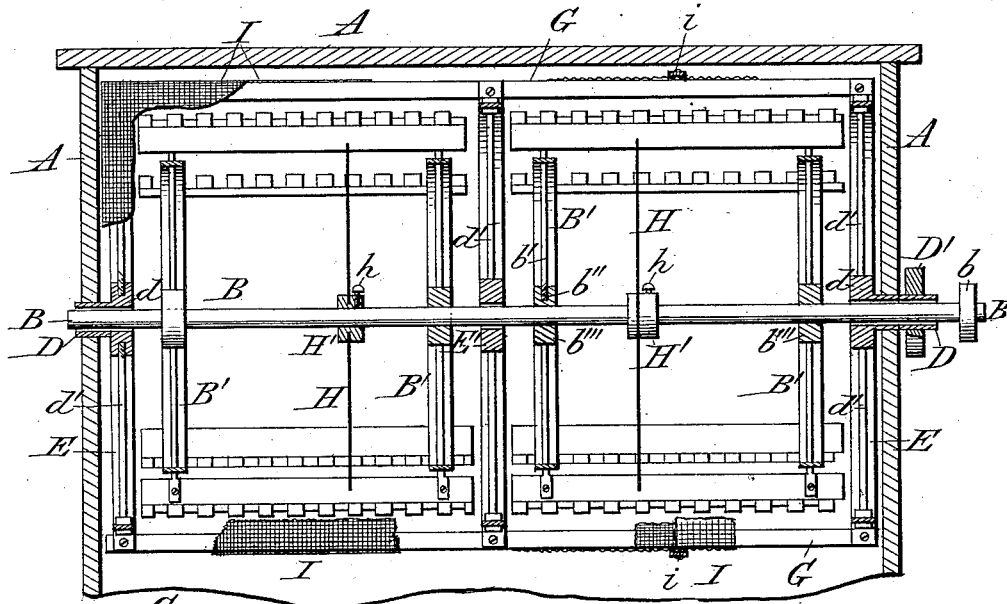
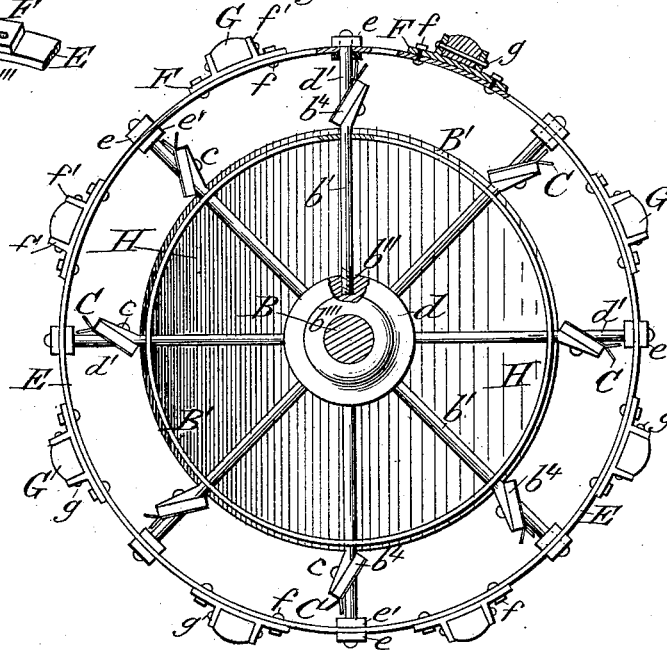


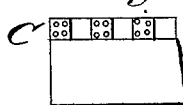
Fig. 2.



Attest:

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Fig. 4.



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att'y.

UNITED STATES PATENT OFFICE.

LOUIS B. FIECHTER, OF MINNEAPOLIS, MINNESOTA.

FLOUR BOLT OR DRESSER.

SPECIFICATION forming part of Letters Patent No. 264,680, dated September 19, 1882.

Application filed April 11, 1882. (No model.)

To all whom it may concern:

Be it known that I, LOUIS B. FIECHTER, a citizen of Switzerland, residing at the city of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Flour-Bolts or Flour-Dressers; 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 the letters or figures of reference marked thereon, which form a part of this specification.

The object of this invention is to improve the invention in Patent No. 253,452, or that kind of flour-bolt known as "centrifugal bolt" or flour-dresser; and it consists in the construction of the bolt, as will be fully hereinafter described.

In the drawings, Figure 1 represents a sectional side view of the bolt. Fig. 2 represents a transverse or end view of the bolt-reel and beater or scutcher-reel. Fig. 3 represents an enlarged and perspective view of the adjustable sockets for the reception of ribs of the reel, and Fig. 4 represents a side and transverse view of the metal beaters or scutchers attached to the beater-reel.

A represents the casing that incloses the reels, which may be of any ordinary construction to receive the reels inside thereof and be operated therein.

B is a longitudinal shaft, that gives motion to the beater-reel, and is revolved at a speed of two hundred and fifty revolutions, more or less, as desired, per minute by a belt (from any convenient power) that goes over pulley *b*, that is secured to said shaft B.

B' represents metal rings or circles, that are concentric with shaft B, through which, at equal distances apart, are radial reversible arms *b'*, which have screw-threads *b''* upon their inner ends, that screw into hubs *b'''*, that are secured to and revolve with shaft B. The upper or outer ends of arms *b'* are bent to an angle, as seen in Fig. 2, to receive the beater-ribs *b⁴*, and to which the metal beaters C are secured by the bolts *c*, or by any other sufficient and secure device. The radial arms *b'* are bent to an angle at their outer ends for the purpose of presenting the face of the beaters

to the crushed meal, so that the blow that the beaters give the meal will be more direct, and will have the effect to force the meal and fine flour against the surrounding bolt-cloth with better results than when the ribs that the beaters are secured to are upon radial lines. The screw-threads on the inner ends of the radial arms secure the arms to the hubs *b'''*, and at the same time allow of a nice adjustment of the peripheries of the beaters, as the arms go through holes *b⁵* in the rings B', and it may sometimes be necessary to change the direction at which the beater-reel will revolve to accommodate the revolution of the driving-power. When this is the case the arms *b'* are turned a half-revolution, and the ribs and beaters are secured to the angular part, and the reel with the beaters will then revolve in the opposite direction, which many times is a great convenience.

The beaters or scutchers C are of sheet metal, and are slit at regular distances as far as they project outward from the ribs *b⁴*, and each alternate section of the slitted metal plate is perforated and bent forward, while the other sections are bent backward, and are not perforated.

D D are cylindrical sleeves, constructed to freely revolve around shaft B, and so placed that their outer ends will project outside of the bolt-chest A to receive a driving pulley or pulleys, D', while the inner ends project within the casing of the bolt-chest, and terminate in hubs *d*, that receive the radial arms *d'*, which support the bolt-reel. The radial arms *d'* are screwed into the hubs *d* at equal distances apart, the same as the arms *b'* into hubs *b⁴*, or by any other secure means. In the drawings but one driving-pulley D' is shown attached to the sleeves D; but it is evident that where the driving-power is so arranged a pulley D' can be attached to the sleeve at the opposite end of shaft B, and thereby aid in revolving the bolt-reel.

E E are metal rings, supported by the radial arms *d'* from hubs *d* on the sleeves D, and form the support to the ribs to which the bolt-cloth is attached. These rings are secured to the outer ends of the arms *d'* by screw-nuts *e*, and against jam-nuts *e'*, or by other mechanical means. There are two of these supporting-rings, one at each end of the bolt-reel, and

another in the center of the length of the bolt-reel. The center ring is supported by radial arms from a hub, E', that revolves around shaft B the same as sleeves D, is of the same diameter, and revolves with the end rings by means of the ribs upon which the bolt-cloth is secured.

F F are metal brackets, placed at or nearly at equal distances apart upon the periphery of the rings E, and are secured to the rings by the screw-bolts *f*, that go through the bracket and the ring. These brackets are curved on their seats to fit the convex surface of the ring, and have flanges *f'* *f'*, that rise at right angles from the base, with a space between them to form a socket, *f''*, to receive the bolt-cloth rib G, as seen in Figs. 2 and 3. The brackets on the middle ring have the bolt-holes for bolts *f* elongated to form slots, so that the brackets may be adjusted upon the ring and bring the ribs into line with the sockets on the outer or end rings, as seen in Fig. 3 at *f'''*, and if the ribs G happen to be bent they can be forced into line by adjusting the brackets upon the ring.

The ribs G of the bolt-reel are secured in the sockets *f''* of the brackets by the screw-bolts *g*, which pass through the upright flanges *f'* and the rib, thus securing the ribs firmly to the bracket and ring E.

H H are annular partitions, secured to hubs H', and the hubs are made adjustable upon and revolve with shaft B by means of the holding-screw *h* or other secure device, and are of such diameter as to be within the inner diameter of the ribs upon which the beaters are secured. These annular partitions are principally used upon bolts where the bolt-reel is clothed with cloth of different degrees of fineness of mesh, and should be placed upon the shaft to be coincident with the seam between the two numbers of cloth, to assist in keeping the two grades of flour separate, but can be used with advantage in bolts clothed with cloth of the same number its entire length, as they interrupt the flow of air that always travels in the bolt from the head toward the tail, and by so doing the beaters act more thoroughly upon the meal inside the bolt, and less of the particles of meal will pass out of the bolt without being acted upon by the beaters; hence is a great improvement in bolts of this kind. If desired, the bolt-reel may be revolved in the opposite direction from the beaters by simply using a cross-belt upon pulley D', instead of an open belt.

I is the bolt-cloth, made fast upon the ribs of the bolt in any secure manner, and by placing it circumferentially around the ribs of the bolt-reel and having the selvage *i* meet at the center of the length of the bolt, as seen in Fig. 1.

The crushed particles of grain are fed into the inside of the bolt-reel, in the usual way, through the casing of the bolt-chest, when they come in contact with the beaters, that revolve at a high rate of revolution, striking the crushed particles and forcing them violently

against the bolt-cloth on ribs G, which revolves slowly, or about twenty-five revolutions a minute, which action will force the fine particles of flour through the meshes of the bolt-cloth and outside thereof, to be kept separate from the coarser particles that may be forced through cloth of a coarser mesh; and such particles as cannot be forced through the bolt-cloth are still further to be acted upon and broken into smaller particles until the bran is completely beaten off and the particles so reduced in size by the successive blows of the beaters that they will pass through the meshes of the coarser cloths as the best of middlings, while the bran and all coarser particles will pass out of the bolt at the tail as tailings.

The beaters are shown as in two sections, for the reason that the center support in large bolts does not permit the use of full-length beaters; but in short bolts they can be used the full length between the ends of the bolt-reel.

Having thus described my invention, what I claim is—

1. In a flour-bolt or flour-dresser, the combination of sleeves D, shaft B, arms *d'*, rings E, brackets F, and bolt-cloth ribs G, constructed and operating substantially as described.

2. In a flour-bolt or flour-dresser, the combination of the shaft B, hubs *b'''*, radial arms *b'*, rings B', beater-ribs *b''*, and beaters C, constructed and operating substantially as and for the purposes described.

3. The combination of the shaft B, beaters C, supporting rings B', and the radial arms *b'*, secured to said shaft and passing through the rings, substantially as and for the purposes described.

4. The shaft B and annular and adjustable partitions H, in combination with the arms *b'*, carrying beaters C, substantially as and for the purposes described.

5. The combination, with shaft and beaters, of radial arms *b'* of a beater-reel, in a flour-dresser, having the top ends angular or bent, and are reversible, so as to present the angular face to which the beater-ribs are secured to work in either direction of revolution, as set forth.

6. The adjustable sockets F, having the flanges *f'* and slots *f''*, and the ribs G, in combination with the rings E of a flour-bolt, substantially as described.

7. In a flour-bolt or flour-dresser such as above described, the combination of the shaft B, the hubs *b'''*, secured thereto, the radial and reversible arms *b'*, bent at their top ends to receive ribs *b''*, and the beaters C, with the outer bolt-cloth reel, composed of the sleeves D, arms *d'*, rings E, ribs G, and bolt-cloth I, substantially as and for the purposes described.

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

LOUIS B. FIECHTER.

Witnesses:

FRANK M. GREEN,
NEWTON CRAWFORD.