(No Model.)

R. S. WILLIAMS.

FLOUR BOLT.

No. 419,236. Patented Jan. 14, 1890.

Fig. 1.

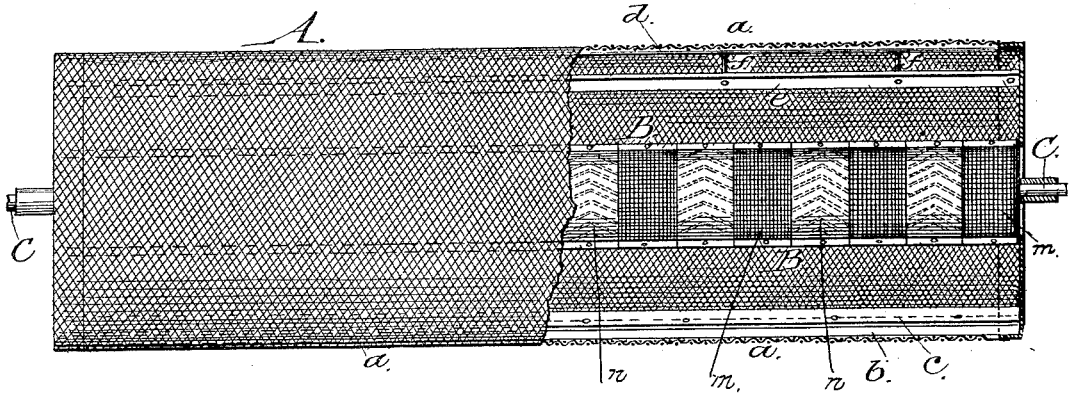


Fig. 2.

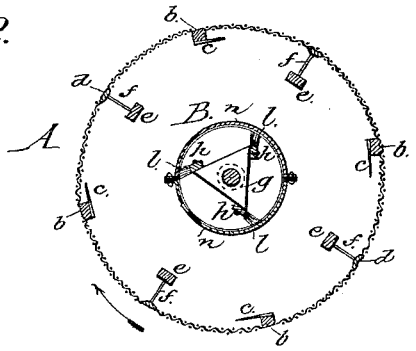
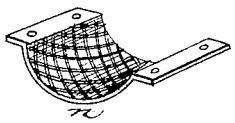


Fig. 3.



WITNESSES

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FLOUR-BOLT.

SPECIFICATION forming part of Letters Patent No. 419,236, dated January 14, 1890.

Application filed May 9, 1888. Serial No. 273,348. (No model.)

To all whom it may concern:

Be it known that I, ROBERT S. WILLIAMS, a citizen of the United States, residing at Red Wing, in the county of Goodhue and State of Minnesota, have invented certain Improvements in Flour-Bolts, of which the following is a full and clear description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents, partly in elevation and partly in section, a flour-bolt embodying my invention. Fig. 2 is a transverse sectional view of the bolt. Fig. 3 is a detail perspective view of one of the metal plates.

My invention relates to flour-bolts; and it consists in the peculiar constructions and combinations of elements, which I shall hereinafter fully describe and claim.

To enable others skilled in the art to make and use my invention, I will now describe the same and indicate the manner in which I carry the same out.

In the said drawings, A represents the outer cylinder of a flour-bolt, and consists of the usual heads or end pieces and the external covering *a*, of silk or wire-cloth.

Passing longitudinally through the cylinder A, and secured to the heads or end pieces and to the external covering *a*, if desired, are the fixed ribs *b*, to the inner sides of which are secured plates or carriers *c*, formed by suitable material and projecting to one side of the fixed ribs, thereby forming pockets, into which the material or stock falls during the rotary movement of the bolt, and by which means a portion of the material is elevated by said pockets during their upward movements, thereby increasing the capacity of the bolt.

In addition to the ribs *b*, other ribs *d*, known as "skeleton" ribs, are suitably secured inside of the cylinder at points between the fixed ribs *b*, and are connected with an inner series of ribs *e* by means of the bolts *f* or other suitable devices, and are separated from the skeleton ribs a sufficient distance to permit the material to pass between ribs *d* and *e* on the upward and downward movement of the carriers.

In addition to the outer cylinder, as previously described, the bolt is provided with an inner cylinder B, of suitable diameter, secured to the outer cylinder in any appropriate manner, whereby it rotates with said outer cylinder. This inner cylinder is divided transversely into zones comprising sections *m*, of silk or wire-cloth, and metal plates *n*, arranged longitudinally and alternately, as shown in Fig. 1, the plates having their inner surfaces roughened or corrugated, and inside of the inner cylinder is arranged the shaft C, which carries triangular or other shaped heads *g*, to which longitudinal bars *h* are bolted, as shown in Fig. 2, the said bars being provided with or having secured to them brushes *l*, which brush and beat the stock or material which is placed in the inner cylinder against the alternate wire and corrugated sections of the inner cylinder, whereby said material is agitated and separated by the brushes, the finer material passing through the inner sections to the outer cylinder, where it is finished and bolted, while the coarser material and impurities pass along the inner cylinder and are discharged at one end thereof in the usual manner.

Motion is imparted to the cylinders in any well-known and suitable manner, and also to the shaft, and said shaft may or may not revolve at a different rate of speed from that of the cylinders.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An improved flour-bolt comprising an outer cylinder, an inner cylinder divided transversely throughout its length into zones of alternate perforate and imperforate material, said imperforate material having its inner surface roughened, and a rotary brush within the inner cylinder, substantially as herein described.

2. An improved flour-bolt comprising an outer cylinder, an inner cylinder formed of zones and consisting of the wire-cloth sections *m*, and the imperforate metal plates *n*, having rough inner surfaces, the shaft C within the inner cylinder, and the brushes *l*, carried by said shaft and operating against the inner surfaces of the zones, substantially as herein described.

ROBERT S. WILLIAMS.

Witnesses:
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