(No Model.)

J. H. WALSH.

ROTARY BOLT.

No. 410,661. Patented Sept. 10, 1889.

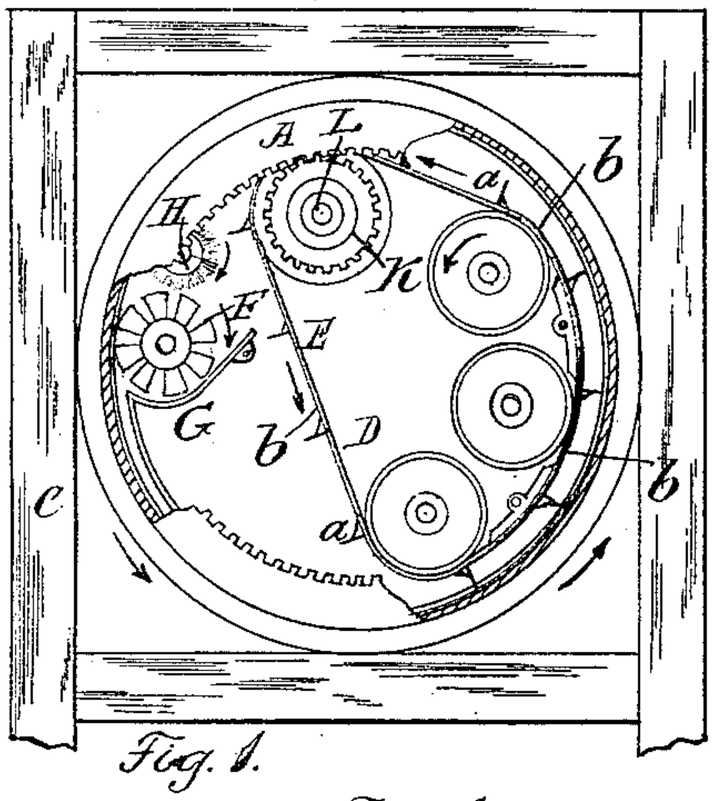


Fig. 1.

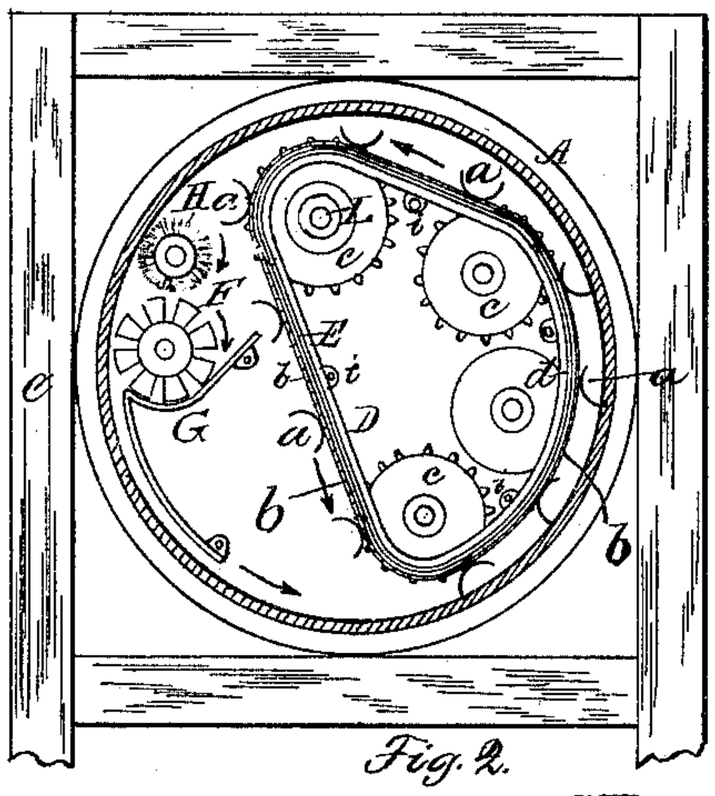


Fig. 2.

Fig. 3.

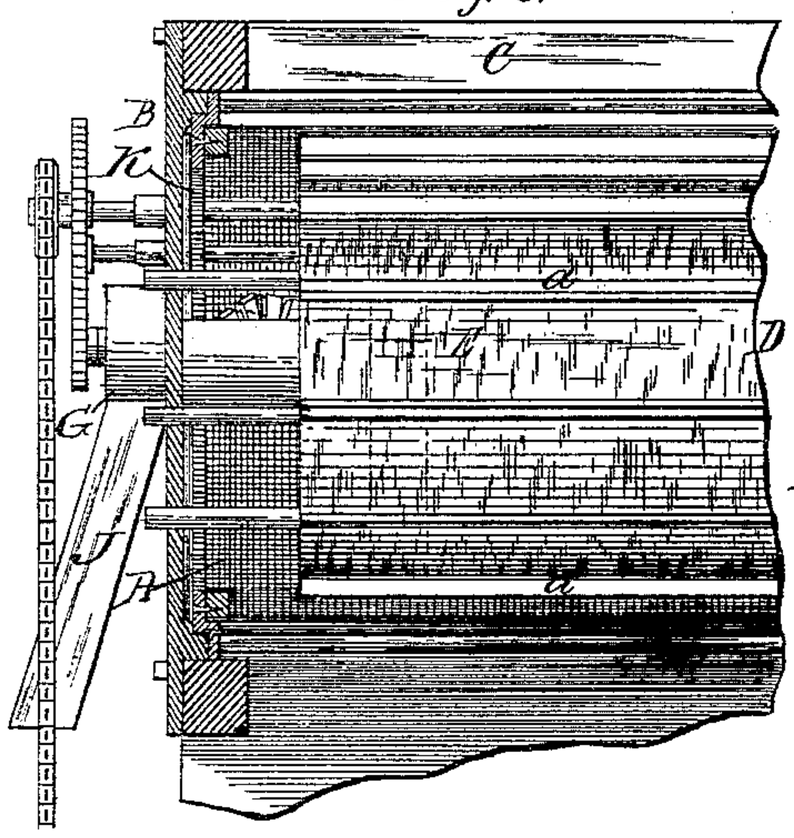


Fig. 4.

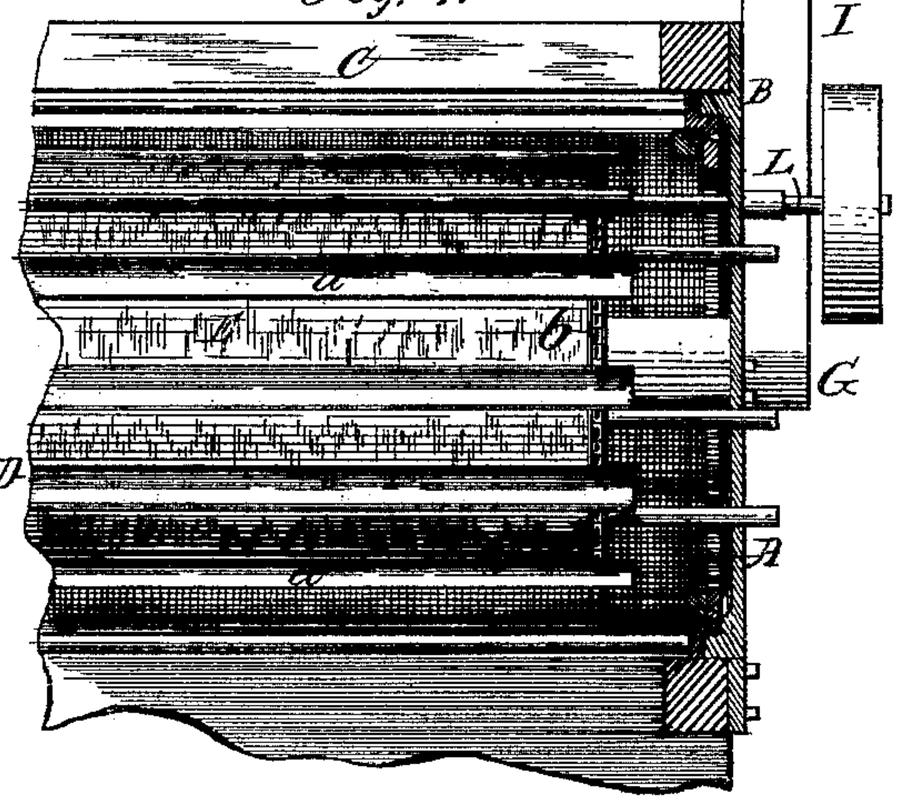


Fig. 5.

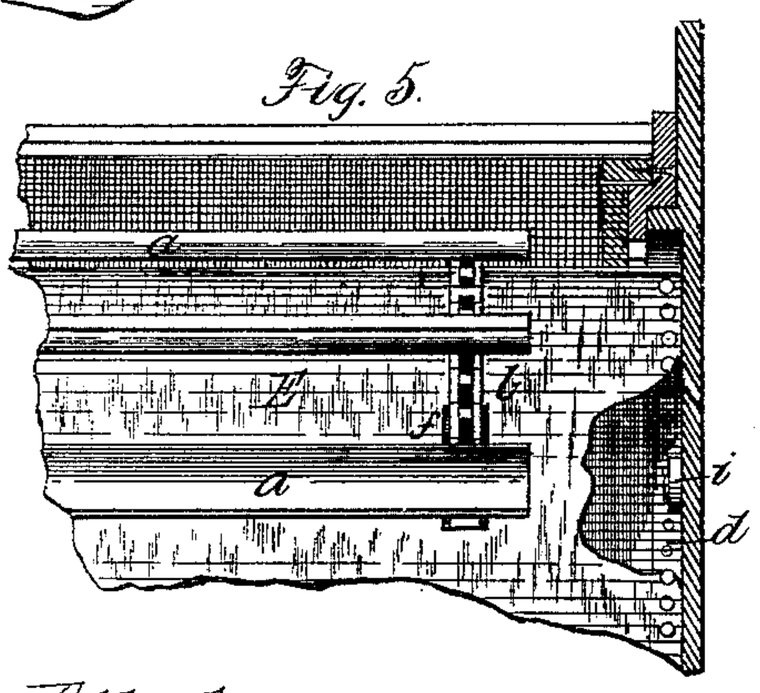
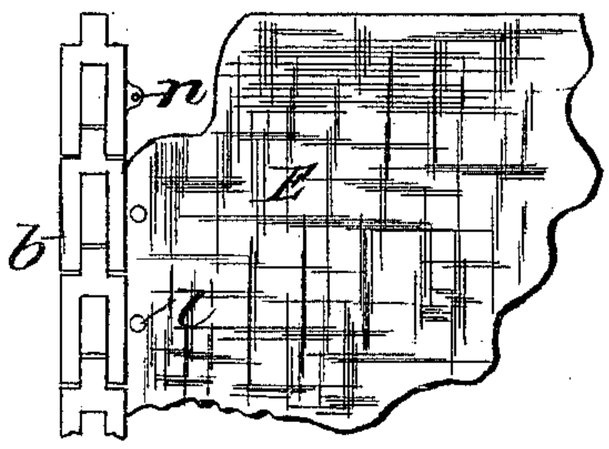


Fig. 6



Attest.
C. A. Brainerd.
S. W. Brainerd

Inventor:
John H. Walsh.
By J. McSt. John,
Atty.

UNITED STATES PATENT OFFICE.

JOHN H. WALSH, OF MASON CITY, IOWA.

ROTARY BOLT.

SPECIFICATION forming part of Letters Patent No. 410,661, dated September 10, 1889.

Application filed August 29, 1887. Serial No. 248,103. (No model.)

To all whom it may concern:

Be it known, that I, JOHN H. WALSH, a citizen of the United States, residing at Mason City, in the county of Cerro Gordo and State of Iowa, have invented certain new and useful Improvements in Flour-Dressers, of which the following is a specification.

This invention relates to flour-dressing machinery, particularly that class commonly known as "flour-bolts," and is specially applicable to bolts in which the stock is carried around inside the reel by an elevator traveling in the same direction and at about the same speed as the reel.

The object of this invention is to prevent the dropping of the stock from the elevator troughs or buckets as they approach the upper part of the reel to the lower part of the reel, which spilling of the stock has a tendency to render the bolting of the flour uneven and imperfect. This I accomplish by the novel arrangement of an apron adapted to hold or catch the spilled flour, as hereinafter fully set forth.

In the accompanying drawings, forming a part of this specification, Figure 1 represents an end view of the invention in its simplest form; Fig. 2, a similar view of a modified form thereof; Fig. 3, a side elevation of one end of the form shown in Fig. 1, with a longitudinal section of a corresponding portion of the reel and its connections; Fig. 4, a similar view of the form shown in Fig. 2; Fig. 5, a fragmentary side elevation of still another modification; and Fig. 6, a fragmentary view of the apron and chain belt, showing a simple manner of connecting them in their application to the form shown in Figs. 2 and 4.

Similar letters of reference indicate corresponding parts.

The invention is represented as attached to a novel form of bolt, which is particularly described in my former application for Letters Patent filed April 25, 1887.

In general terms, the bolt consists of a reel A, having end rings adapted to revolve on the inwardly-projecting flanges of stationary heads B B, secured to a suitable frame C. Within this reel, the ends of which are open, is mounted on suitable wheels an elevator D. In its simplest form this elevator consists of long troughs *a a*, attached to chain belts *b b*, engaging with the sprocket-wheels *c c*, whose shafts are actuated by mechanism forming a part of that which revolves the reel and is designed to impel the reel and the elevator in the same direction and at about the same rate of speed.

Stock is introduced through a suitable spout I to a conveyer-trough G, mounted inside and extending the full length of the reel, with an outlet spout J at the tail end. In this trough is mounted a conveyer F, of the usual style, actuated by gearing at the tail of the reel. Above the conveyer is a revolving brush H, in contact with the inside of the reel and adapted to brush off any stock that may be attached thereto and deposit the same in the conveyer-trough. The direction of the revolution of the brush and conveyer is indicated by arrows. In its revolution the conveyer moves the stock over the edge of the trough nearer the reel, the coarse residue passing out finally at the tail of the same. Motion is imparted to the reel in the direction indicated by the arrows by a pinion K, meshing with the internal gear of the end ring of the reel and mounted on the main driving-shaft L.

The object of this construction, as stated in my said former application, is, by carrying the stock along the ascending side of the reel, to increase the bolting capacity thereof, and by simply holding the stock in contact with the reel, the motion of the reel and elevator corresponding, to make the bolting as gentle and natural as possible; but where the elevator consists simply of these troughs mounted on chain belt, and the whole space between the upper and lower part of the elevator is open, there is some tendency on the part of the elevator to spill a part of the stock out of the back sides of the troughs as they are reversing at the top, and this, falling to the bottom of the reel, disturbs the otherwise even and gentle action of the bolt. To remove this difficulty I have devised the apparatus shown in the accompanying drawings, and which I will now describe.

The device is very simple, consisting, essentially, of an apron E, arranged within or forming a part of the elevator. This apron

is made of close canvas or other suitable material adapted to prevent the passage through it of flour. In Figs. 1 and 3 the apron forms a part of the elevator, the troughs or buckets of which are attached directly to it. As chain belt would not be suitable in such a case, the elevator is actuated by broad-faced pulleys, upon which the elevator-apron is mounted the same as an ordinary leather belt. In this case the troughs may be simply strips of angle-iron attached to the apron, as indicated in Figs. 1 and 3.

In the form shown in Fig. 4 the apron also forms a part of the elevator, but in this case is attached to the chain belt. A simple manner of attaching is shown in Fig. 6. The link *b* has a lateral lug *n*, with a hole therein, and to this lug the apron is secured by a rivet *l*, as shown.

Instead of making the apron a part of the elevator, however, it may be arranged inside the elevator, as represented in Figs. 2 and 5. In this case it is permanently attached to the heads or to some other convenient part of the bolt. In Fig. 5 is shown more clearly than in Fig. 2 a means for fastening the apron in place. This is an internal hoop *d*, to which the apron is secured by rivets or the like. By means of lugs at intervals on this hoop it is fastened to the head B. A flange would of course answer the same purpose as the lugs *i i*. In Fig. 2 this apron is represented as forming a complete circuit inside the elevator. It is not, however, absolutely necessary that it should go entirely around, but should go far enough to prevent the flour spilled from the elevator-buckets from falling to the bottom of the reel. Being inside the elevator and extending the whole length of the bolt, it is necessary that provision should be made for the operation of the sprocket-wheels upon which the elevator revolves. This is done by cutting holes in the apron, as shown at *f* in Fig. 5, through which the arc of the wheel projects.

In the operation of the reel the stock enters the conveyer-trough through the inlet-spout, as already described, and is carried by said conveyer over the edge of the trough next the reel, falling thence to the lowest part of the reel. Here it is caught by the buckets of the elevator moving in the same direction as the reel and carried up on the ascending side of the same to about the horizontal center, whence any unbolted residue is carried forward to the opposite side of the reel and delivered again to the conveyer.

I am aware that it is not broadly new to combine in a reel an elevator adapted to carry the stock up the side of the reel and an apron adapted to prevent the stock discharged by the elevator from falling to the bottom of the reel, and I do not wish to be understood as claiming such a combination in general; but I am not aware that an apron adapted to catch spilled stock has hitherto been used in connection with an elevator operating inside and independent of the reel at about, though not necessarily, the same rate of speed and having buckets adapted to carry the stock from the ascending to the descending side of the same.

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

1. In a flour-bolt, the combination, with a round reel having an unobstructed bolting-surface on the inside adapted to allow for the movement in close proximity thereto, of an independent elevator mounted and operating inside said reel, an elevator with buckets thereon adapted to carry up the stock on the ascending side of the reel in close proximity thereto and carry the unbolted residue of stock across from the ascending to the descending side, and an apron interposed between said elevator and the lower part of the reel to prevent any stock spilled from the buckets falling to the bottom of said reel, substantially as set forth.

2. The combination, with a substantially cylindrical flour-bolt having an unobstructed internal bolting-surface, of an elevator, substantially as described, mounted and revolving inside of and independently of said reel, but at about the same rate of speed, and adapted to carry up the stock on the ascending side of the reel in close proximity thereto and the unbolted residue across the reel to the descending side, and a fixed apron mounted inside the path of said elevator and adapted to catch any stock spilled from the buckets of the elevator, substantially as described.

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

JOHN H. WALSH.

Witnesses:
ARTHUR H. CHETLUM,
F. H. CULVER.