(No Model.)

2 Sheets—Sheet 1.

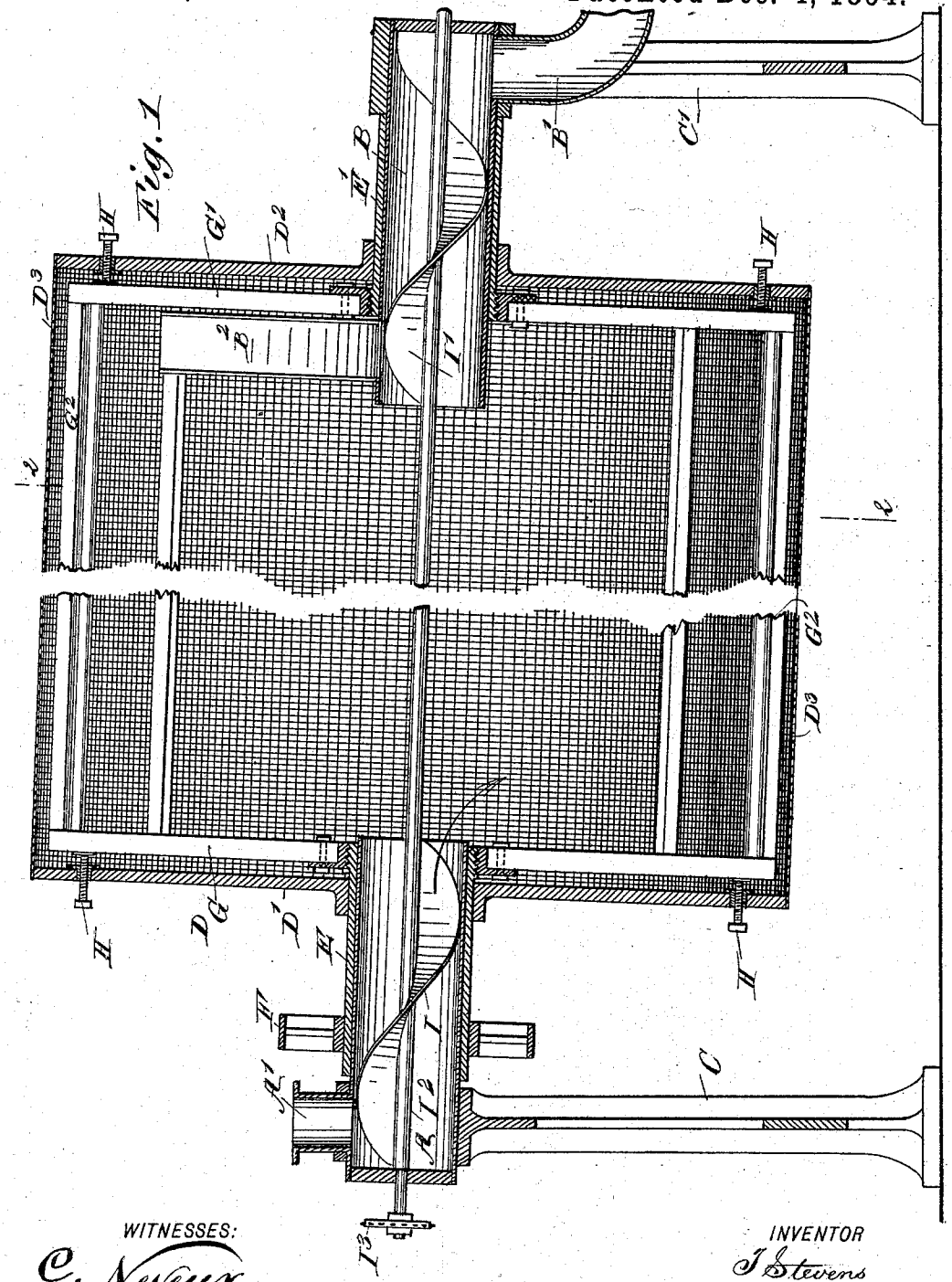
T. STEVENS.

ROTARY BOLT.

No. 530,364.

Patented Dec. 4, 1894.

Fig. 1.



WITNESSES:

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C. Sedgwick

INVENTOR

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

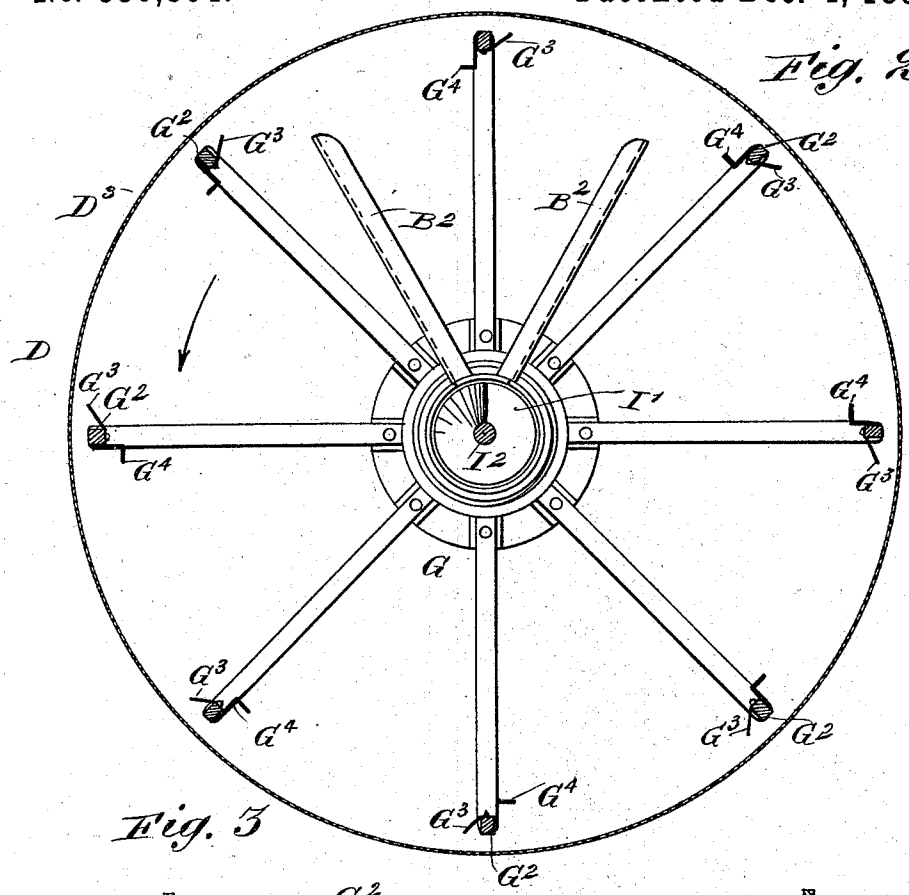
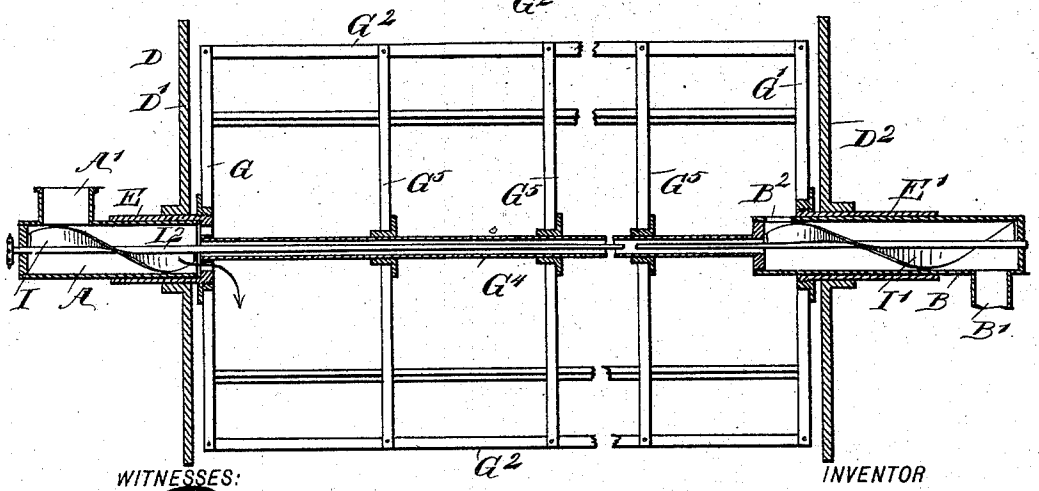


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

THOMAS STEVENS, OF VIGO, OHIO.

ROTARY BOLT.

SPECIFICATION forming part of Letters Patent No. 530,364, dated December 4, 1894.

Application filed February 3, 1894. Serial No. 499,003. (No model.)

To all whom it may concern:

Be it known that I, THOMAS STEVENS, of Vigo, in the county of Ross and State of Ohio, have invented a new and Improved Rotary Bolt, of which the following is a full, clear, and exact description.

The invention relates to mills, and its object is to provide a new and improved rotary bolt, which is simple and durable in construction, very effective in operation and arranged to produce flour of a very high grade.

The invention consists principally of a reel having solid heads, and a central feed and discharge arranged in the said heads.

The invention also consists of certain parts and details, and combinations of the same, as will be hereinafter described and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement. Fig. 2 is a transverse section of the same on the line 2—2 of Fig. 1, and Fig. 3 is a reduced sectional side elevation of the improvement as arranged for very long reels.

The improved rotary bolt is provided with a feed cylinder A, having an inlet spout A′, for the material to be treated, and in alignment with the said cylinder is arranged a tailings discharge cylinder B, formed at its under side with an outlet spout B′, to carry off the tailings from the bolt, as hereinafter more fully described. The said cylinders A and B are supported in suitable bearings arranged on standards C and C′, respectively, forming part of the main frame for supporting the bolt. The inner ends of the said cylinders A and B extend into a reel D, provided with the solid heads D′ and D^2, on the peripheral surface of which is secured and stretched the cloth D^3. The heads D′ and D^2 are fitted loosely at their center on sleeves E and E′, mounted to rotate on the cylinders A and B respectively, the sleeve E being provided with a pulley F connected by belt with other machinery, so as to impart a rotary motion to the sleeve E and consequently to the reel.

On the inner ends of the sleeves E and E′ are fastened the spiders G and G′, respectively, having the outer ends of their spokes connected with each other by longitudinal bars G^2, each carrying an elevator bucket G^3 and a pitch board G^4 standing at right angles to the bar G^2, and designed for throwing the stock back as the reel revolves. It will also be seen that by this pitch board the up side of the reel bolt is brought higher up on the cloth and it will keep throwing stock back from a much higher point than when the bucket catches stock on making its first descent. The spiders G and G′ are connected by adjusting bolts H with the heads D′ and D^2, so that the rotary motion of the sleeve E is transmitted by the spider G and bolts H to the reel D, so that the said spider and reel rotate in unison.

It is understood that as the spiders G and G′ are connected with each other by the bars G^2 and the spider G′ in turn is connected with the head D^2, a uniform motion is given to each end of the reel. The bolts H further serve to stretch the cloth D^3 tight, as by adjusting the said bolts H, the heads D′ and D^2 can be drawn outward along their sleeves E and E′ respectively, so as to firmly stretch the cloth D^3.

In the cylinders A and B are arranged the conveyer screws I and I′, respectively, both secured preferably on the same shaft I^2 mounted to rotate loosely in suitable bearings in the outer heads or closed ends of the said cylinders A and B. On the outer end of the shaft I^2 is fastened a sprocket wheel I^3, connected by a sprocket chain with other machinery for imparting a rotary motion to the said shaft I^2 and consequently to the two conveyer screws I and I′, so that the material passing into the cylinder A is conveyed forward into the reel D, while the tailings are delivered into the cylinder B by means of the upwardly projecting spouts B^2 secured to the inner end of the said cylinder, and are carried outward by the conveyer screw I′ so that the material is finally discharged into the spout B′ to pass to the outside.

It will be seen that the material passing into the reel D is agitated by the buckets G^3 and bars G^2, so that only flour passes through the cloth D^3, while the tailings pass into the cylinder B to be conveyed to the outside by the screw I′ and outlet spout B′. In case the reel D is of considerable length, then I prefer the

construction shown in Fig. 3, in which I employ a central pipe G^4, surrounding the shaft I^2, inside of the reel, the said pipe forming a bearing for a series of intermediate spiders G^5, connected with the longitudinal bars G^2.

It is understood that by the construction described the stock is fed into the reel through the cylinder A, and the tailings are carried from the reel through the cylinder B, thus permitting of forming both heads D′ and D^2 solid and absolutely tight, to prevent specks in flour, and thus do away with "speck boxes" and secure the entire use of the cloth in bolting.

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

1. In a rotary bolt, the combination with a feed cylinder, and a tailings discharge cylinder, of a bolt mounted to revolve on the said cylinders, and an elevating device comprising spiders revolving with the bolt and having their spokes connected by longitudinal bars, and an elevator bucket and pitch board secured to each bar, substantially as described.

2. In a rotary bolt, the combination with a feed cylinder, and a tailings discharge cylinder provided with an inlet spout, of a bolt mounted to revolve on the said cylinders, conveyer screws in the said cylinders, and an elevating device comprising spiders revolving with the bolt, and having their spokes connected by longitudinal bars and an elevator bucket and pitch board secured to each bar, substantially as described.

3. In a rotary bolt, the combination with a feed cylinder, and a tailings discharge cylinder, of sleeves mounted loosely on the said cylinders, a bolt mounted loosely on the sleeves, an elevator secured to the inner ends of the said sleeves, and means for connecting the bolt to the elevator, substantially as described.

4. In a rotary bolt, the combination with a feed cylinder, and a tailings discharge cylinder, of sleeves mounted loosely on the said cylinders, a bolt mounted loosely on the sleeves, an elevator having its supporting spokes secured to the inner ends of said sleeves, and bolts connecting the heads of the reel adjustably with the spokes of the elevator, substantially as described.

THOMAS STEVENS.

Witnesses:
DAVID CLIMER,
EDMUND BURKE.