

(No Model.)

C. H. BROWNE.

2 Sheets—Sheet 1.

FLOUR BOLT.

No. 382,135.

Patented May 1, 1888.

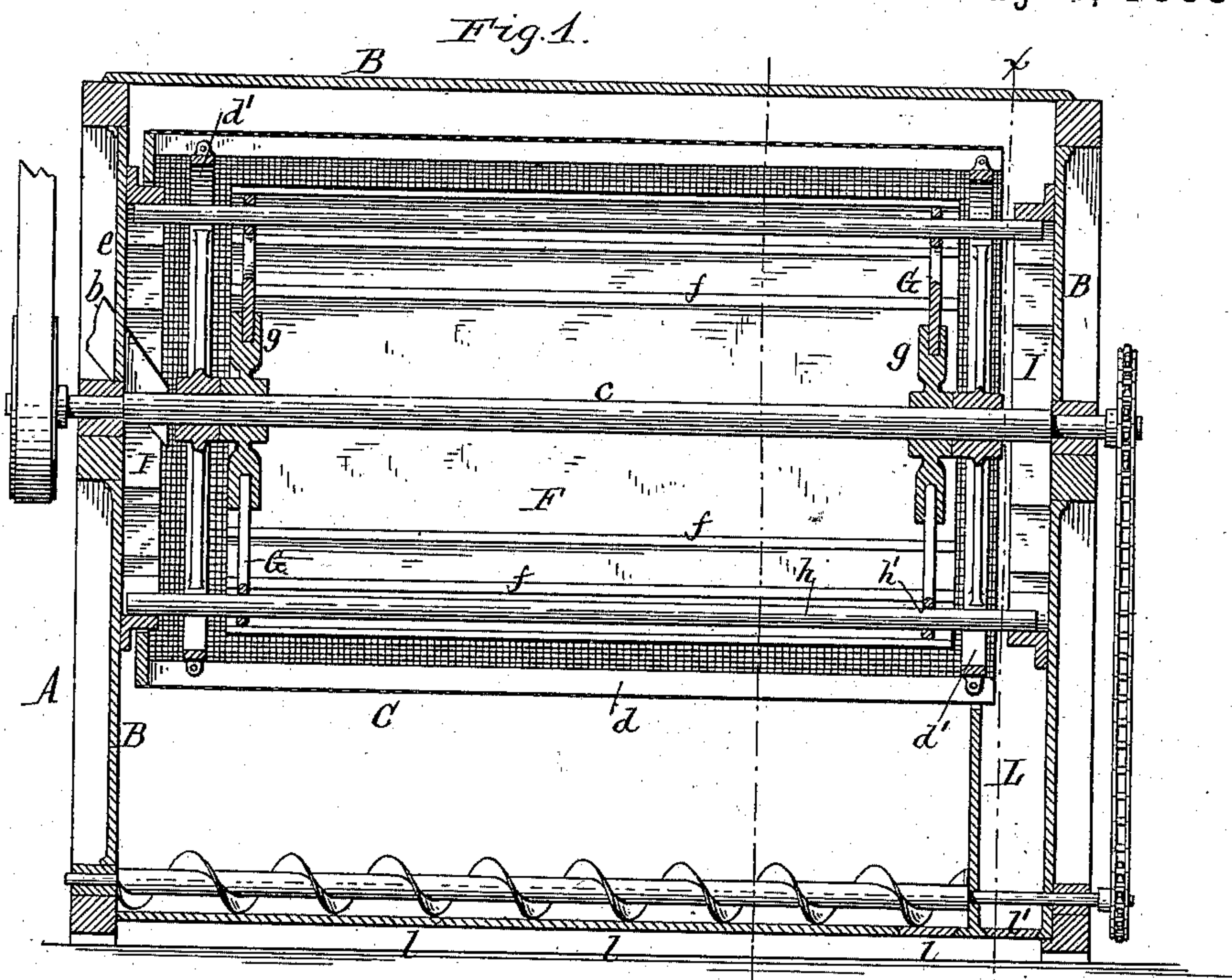
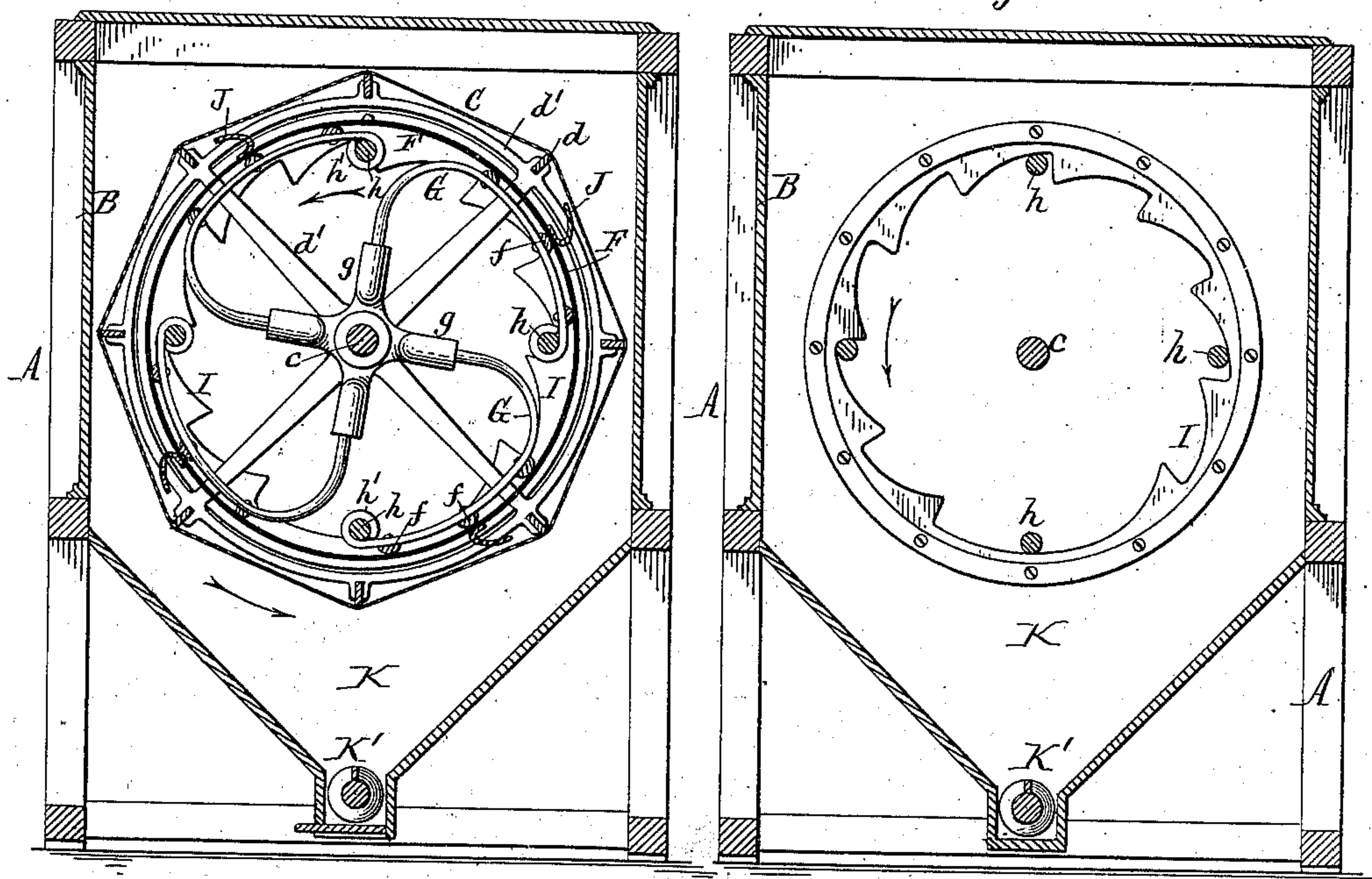


Fig. 2.

Fig. 3.



Witnesses.
Chas. Buchheit.
Theo. L. Popp.

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Fig. 4.

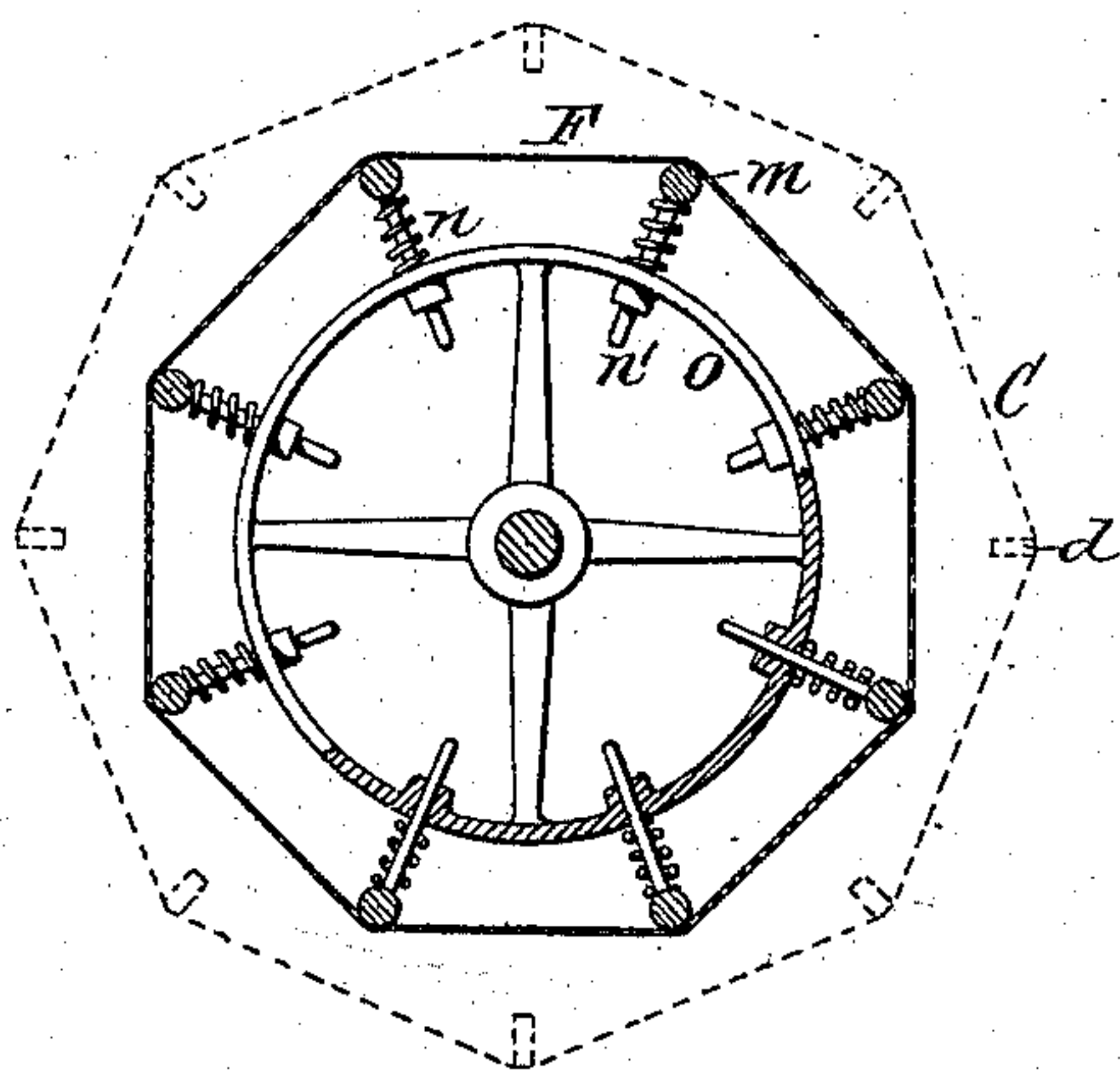
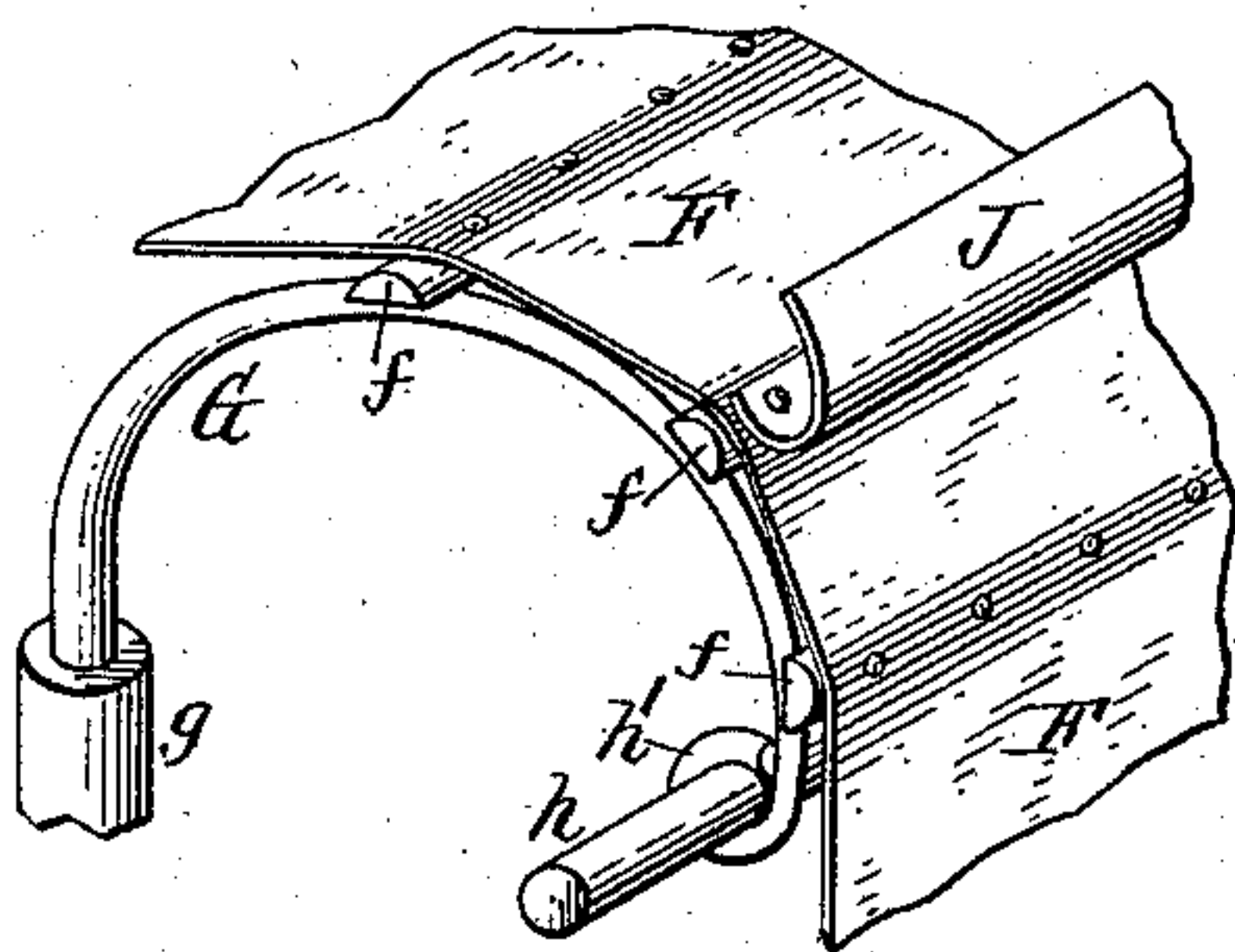


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES H. BROWNE, OF MILWAUKEE, WISCONSIN.

FLOUR-BOLT.

SPECIFICATION forming part of Letters Patent No. 382,135, dated May 1, 1888.

Application filed October 10, 1887. Serial No. 251,875. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. BROWNE, of the city of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Flour-Bolts, of which the following is a specification.

This invention relates to that class of flour-bolts in which a rotating bolting-surface is employed, and has the object to provide the bolt with means whereby the material is thrown against the inner surface of the bolt from time to time, whereby a more perfect separation of the material is obtained and the separating capacity of the bolt is increased.

My invention consists of the improvements which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, consisting of two sheets, Figure 1 represents a longitudinal sectional elevation of my improved flour-bolt. Fig. 2 is a vertical cross-section of the same. Fig. 3 is a cross-section in line *xx*, Fig. 1. Fig. 4 is a cross-section of a modified construction of the bolt. Fig. 5 is a fragmentary perspective view of one end of the flexible cylinder on an enlarged scale.

Like letters of reference refer to like parts in the several figures.

A represents the stationary supporting-frame of the machine, and B the inclosing-casing, which is provided at one end with a feed-spout, *b*.

C represents the bolting-reel, which is covered with bolting-cloth in the usual manner and mounted upon a horizontal shaft, *c*, which is supported in suitable bearings secured to the supporting-frame A.

d represents the longitudinal ribs which support the bolting-cloth of the reel C, and which are secured to spiders *d'*, mounted upon the shaft *c* at opposite ends of the reel. The latter is partly closed at its feed end by a head, *e*, and is open at its tail end.

F represents a tube or cylinder, of canvas or other similar material having a rough or coarse surface, which will prevent the material from slipping easily upon the same during the rotation of the bolt. The cloth of the cylinder F is loosely supported upon longitudinal bars or ribs *f*, arranged within the reel C and secured to the outer portions of curved spring

arms or bars G. The latter are secured with their inner ends in radial sockets *g*, which are formed on hubs *g'*, mounted upon the reel-shaft *c*. The spring-arms G extend outwardly from the sockets *g*, and their outer portions lie concentric with the cylinder F when the latter is stretched. These outer portions of the spring-arms G are made of sufficient length to support a number of the ribs *f*, three of these ribs being secured to each spring-arm in the construction shown in Fig. 2 of the drawings.

h represents longitudinal rods or bars extending through the cylinder F and secured near both ends in eyes *h'*, formed at the outer ends of the curved spring-arms G. The rods *h* project beyond the ends of the cylinder F and rest with their ends against the inner side of two toothed or notched rings, I, which are rigidly secured to the ends of the casing B. The spring-arms G tend to move the longitudinal rods *h* outwardly against the notched rings I, and as the cylinder F rotates with the reel the bars *h* ride over the inclined portions of the teeth of the rings I and force the spring-arms inwardly, whereby the loose cloth of the cylinder F is permitted to move inwardly or collapse. When the bars *h* pass beyond the edges or abrupt radial faces of the teeth of the notched rings, the spring-arms G force the bars *h* outwardly until they strike the bottom of the next succeeding tooth. This outward movement of the spring-arms causes the longitudinal ribs *f* to rapidly force the loose cloth of the cylinder F outwardly, whereby the material adhering to the cloth is thrown against the inner surface of the bolting-reel C. The cloth cylinder F is stretched lengthwise of the reel by being secured to the ribs *f*.

J represents curved buckets secured to the outer surface of the cloth cylinder F and extending from end to end thereof. These buckets project outwardly to within a short distance from the bolting-reel C and elevate the material falling upon the bottom of the bolting-reel, and also prevent the material resting upon the upper portion of the cloth cylinder F from descending to the bottom of the bolting-reel.

The buckets J may be secured to the longitudinal ribs *f*, as shown in Fig. 5, or to the outer portions of the spring-arms G.

K represents a longitudinal conveyer-trough arranged in the bottom of the casing B, and K' its conveyer.

L represents a chamber or compartment arranged at the tail end of the casing B and receiving the tailings of the reel C. The conveyer-trough K and compartment L are provided with a suitable number of slides, *l l'*, whereby the material is removed therefrom.

The material to be bolted passes from the spout *b* between the reel C and the cloth cylinder F. A portion of the material is bolted by the outer reel in the ordinary manner, while another portion of the material is elevated between the reel and the cloth cylinder by the ribs *d* of the reel and the buckets J of the cloth cylinder. As the latter revolves it is alternately collapsed and expanded during the rotary motion of the reel, whereby the material is repeatedly and forcibly thrown outwardly against the inner surface of the bolting reel, causing the fine particles to be forced through the bolting-cloth. In this manner the entire surface of the bolting reel is utilized all around the cloth cylinder in the operation of bolting, and this operation is effected very energetically, thereby increasing the bolting capacity of the reel materially.

In the modified construction shown in Fig. 4 the longitudinal bars *m*, which engage with the notched rings I, support the cloth cylinder F, and these bars are supported in turn by spiral springs *n*. The longitudinal bars *m* are provided with radial rods *n'*, which slide in openings formed in rings O, and the springs *n* are interposed between the rings O and the bars *m*. The rings O are secured to the reel-shaft by suitable arms.

I claim as my invention—

1. The combination, with the bolting-reel, of a flexible cylinder arranged within said reel,

and means whereby said cylinder is alternately collapsed and expanded, thereby throwing the material intermittently from the flexible cylinder against the surrounding bolting-reel, substantially as set forth.

2. The combination, with a bolting-reel, of a flexible cylinder arranged within the bolting-reel, fixed inclines whereby the flexible cylinder is moved inwardly and collapsed, and springs whereby the flexible cylinder is moved outwardly and expanded, substantially as set forth.

3. The combination, with a bolting-reel, of a flexible cylinder arranged within said reel, longitudinal bars supporting said flexible cylinder, stationary notched rings with which said longitudinal bars engage, and springs whereby said longitudinal bars are moved outwardly, substantially as set forth.

4. The combination, with the bolting-reel and the flexible cylinder F, arranged within the same, of notched rings I, secured to the stationary frame of the machine, longitudinal ribs *f*, supporting the flexible cylinder, curved spring-arms G, to which said ribs are attached, and longitudinal bars *h*, secured to the outer ends of said spring-arms and engaging with the notched rings I, substantially as set forth.

5. The combination, with the bolting-reel and the flexible cylinder arranged within the same, of elevating-buckets secured to the outer surface of the flexible cylinder, and means whereby the flexible cylinder is alternately collapsed and expanded, substantially as set forth.

Witness my hand this 27th day of September, 1887.

CHARLES H. BROWNE.

Witnesses:

WM. J. PRETTYMAN,
CHAS. E. LAWRENCE.