(No Model.) 2 Sheets—Sheet 1.

C. BOSTEL.

FLOUR BOLTING MACHINE.

No. 386,959. Patented July 31, 1888.

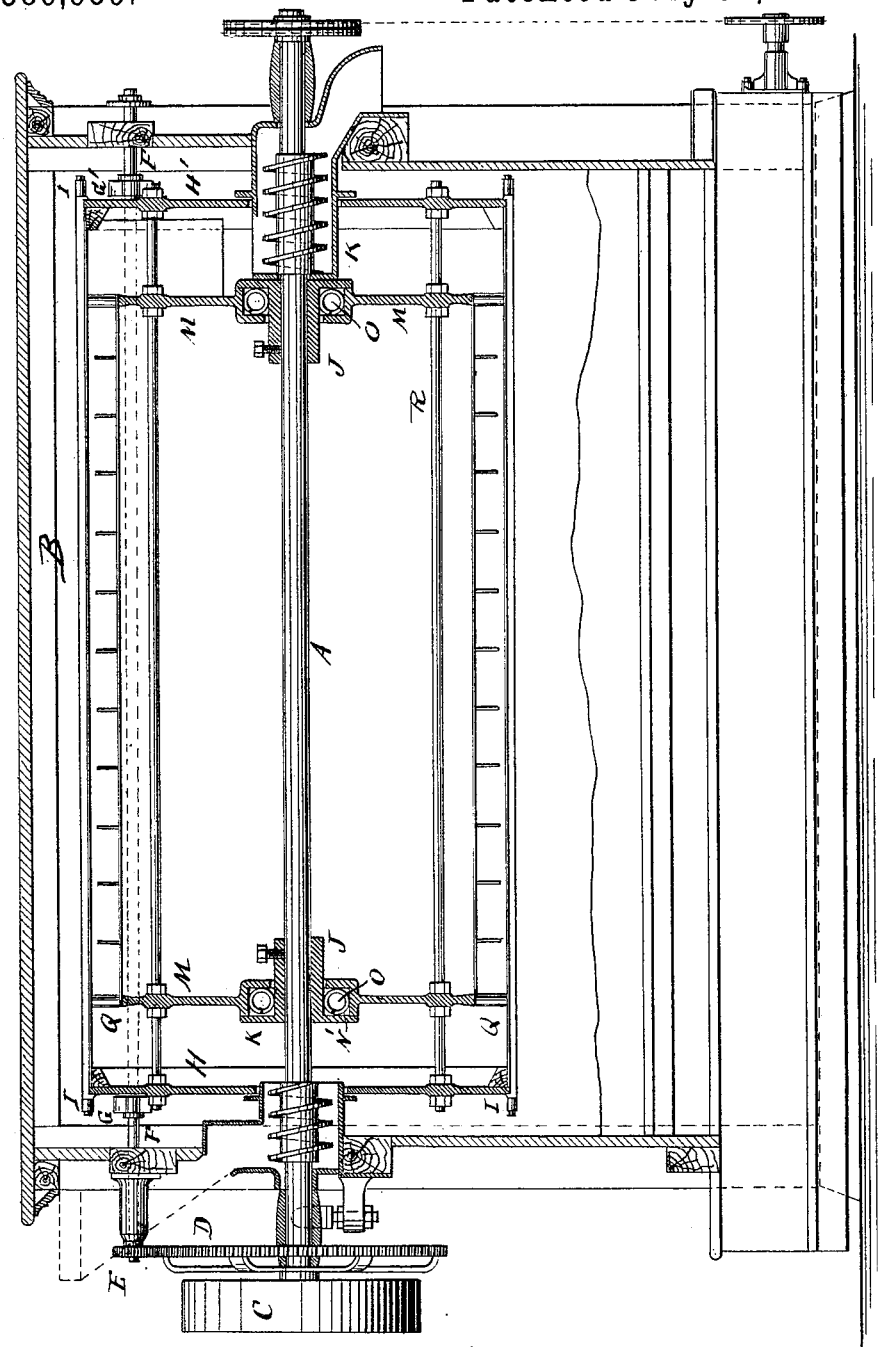

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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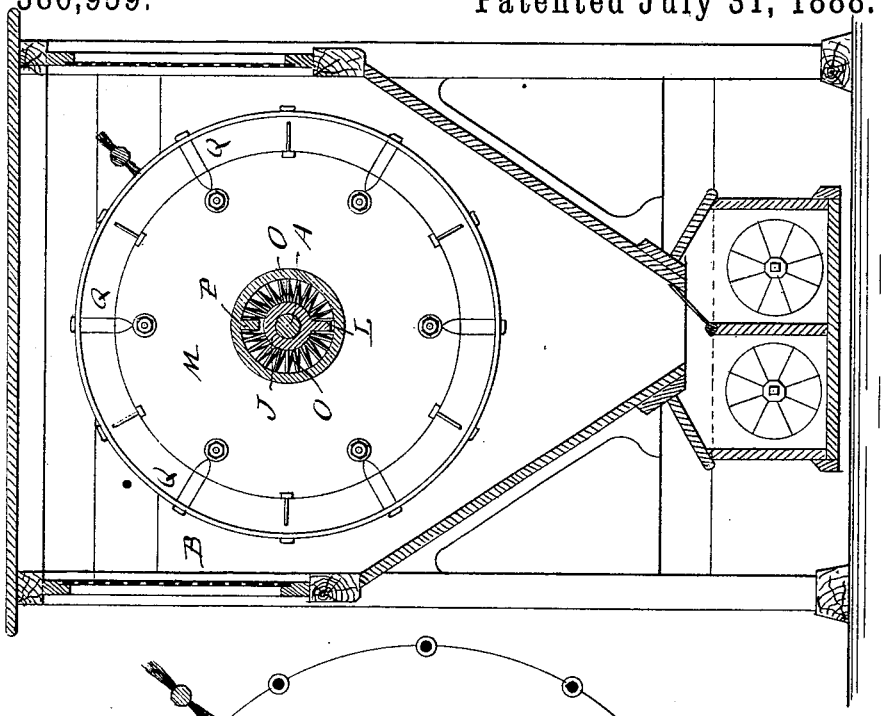
Fig. 2.



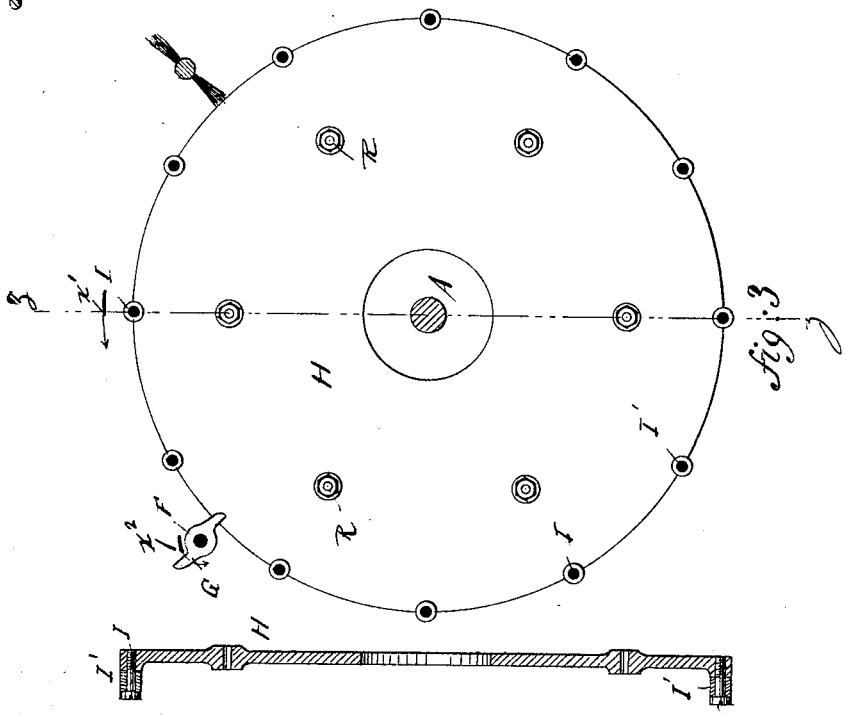


Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE.

CARL BOSTEL, OF CLEVELAND, OHIO.

FLOUR-BOLTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 386,959, dated July 31, 1888.

Application filed May 25, 1887. Serial No. 239,301. (No model.)

To all whom it may concern:

Be it known that I, CARL BOSTEL, of Cleveland, in the county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Flour-Bolting Machines, of which the following is a specification.

The object of my invention is to provide a new and improved flour-bolting machine, which is so constructed that at intervals the revolving bolt is thrown forward in the direction of its rotation and then suddenly thrown back a short distance, whereby the bolt is jolted and shaken, so as to cause thorough bolting of the flour.

The invention consists in the combination, with a shaft, of a flour-bolt mounted on the same, springs interposed between the frame of the bolt and the shaft, and of cams for throwing the bolt forward in the direction of its rotation at intervals, the bolt being thrown back by the springs, but continuing to rotate.

The invention also consists in the construction and combination of parts and details, as will be fully described and set forth hereinafter, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of my improved flour-bolting machine. Fig. 2 is a cross-sectional view of the same. Fig. 3 is a face view of one of the end plates of the bolt, showing the cam and brush. Fig. 4 is a cross-sectional view of the same on the line *z z*, Fig. 3.

Similar letters of reference indicate corresponding parts.

The horizontal shaft A is journaled with a slight inclination in the frame or casing B, and on one end of said shaft are mounted the belt-pulley C and the cog-wheel D, the latter engaging a pinion, E, on one end of a shaft, F, journaled parallel with the shaft A in the casing B, said shaft F carrying the two cams G G′ at opposite ends of a bolt on the shaft A and within the casing A′. The end pieces H H′ of the bolt have central apertures, through which the feed and outlet necks pass, and from the outer surfaces of said end pieces a series of pins, I, project at regular intervals along the rims of said end pieces, on which pins the cams G G′ can act. Said pins carry rollers or sleeves I′, of hard rubber or other suitable material.

On the shaft A two hubs, J, are held, each provided at one end with an annular flange, K, from which a lug or rib, L, projects over part of the hub. Each hub is surrounded by a circular frame or plate, M, provided at its central opening with an annular offset, N, which, when placed upon the hub, forms a circular chamber, N′, in which I place two spiral springs, O, which are located between the lug L on the hub and a corresponding lug, P, on the shoulder of the plate or frame M. The plates or frames M can turn on the hubs, and in so doing compress the springs O more or less.

The plates or frames M are provided on their rims with radial projections Q, upon which the slats or rails of the bolt are placed and held by screws screwed into said projections Q. Binding-rods R pass longitudinally through the bolt and end pieces H H′ and plates or frames M, and thus strengthen and stiffen the frame of the bolt, which is covered with gauze in the usual manner.

The operation is as follows: The shaft A is rotated by means of a belt passed over the pulley in the direction of the arrow *x′*, Fig. 3, and the cams G G′ are rotated in the direction of the arrow *x²*. The cams have greater speed of rotation than the bolt, and thus, whenever the cams strike the pins I, the bolt is thrown forward in the direction of the arrow *x′* with a speed greater than the rotative speed of the bolt—that is to say, when the cams act on the pins I the bolt is rotated for a very brief time in the direction of the arrow *x′* with increased speed. Whenever the bolt is thrown forward in the manner described, it is evident that the plates or frames M must turn slightly on the hubs J, and thus the springs O are compressed, and every time the cams slip off the pins I, said compressed springs expand suddenly and throw the bolts in the inverse direction of the arrow *x′* at the ordinary rate of speed until the cams again act on the pins I, when the bolt is again thrown forward suddenly, and is then suddenly thrown back by the springs O, and so on. The bolt is thus shaken or vibrated at short intervals of time, and thereby a

thorough separation of the flour from the bran obtained.

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

1. In a flour-bolting machine, the combination, with a revolving flour-bolt, of cams for throwing the bolt forward suddenly in the direction of its rotation and springs for throwing the bolt in the direction opposite to that of its rotation, substantially as herein shown and described.

2. The combination, with a revolving bolt, of end frames mounted loosely upon hubs on a shaft, springs contained in the center parts of said end frames, which springs rest against the hubs and parts of the end frames, pins on the ends of the bolt, and rotating cams acting on said pins, substantially as herein shown and described.

3. In a flour-bolting machine, the combination, with a shaft, of hubs on the same, end frames mounted loosely on the hubs and having enlargements, springs in said enlargements, which springs surround the hubs, said springs resting against projecting parts of the hubs and end frames, a bolt-frame formed on said end frames, and cams for throwing the bolt forward, substantially as herein shown and described.

4. In a flour-bolting machine, the combination, with a shaft, of hubs on the same, lugs on the hubs, frames or plates mounted loosely on the hubs and provided at their openings with offsets, springs surrounding the hubs and resting against the lugs on the hubs and against the lugs in the offsets, a bolt-frame on said end frames, and cams for throwing the bolt forward, said bolt being mounted to rotate with the shaft carrying the hubs, substantially as herein shown and described.

5. In a flour-bolting machine, the combination, with a shaft, of hubs mounted on the shaft and provided with offsets, end frames mounted loosely on the hubs and provided with offsets having lugs, springs surrounding the hubs within said offsets the ends of the springs resting against the lugs of the offsets and the lugs of the hubs, pins on the end of the bolt, a cog-wheel on the above-mentioned shaft, a pinion engaging with said cog-wheel, a shaft on which the pinion is mounted, and cams on said shaft, which cams can act on the end pins of the bolt, substantially as herein shown and described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

CARL BOSTEL.

Witnesses:

M. SCHAFFER,

LEON T. SAUERHOLZ.