

No. 698,441.

Patented Apr. 29, 1902.

J. BROWN.
GRINDING MILL.

(Application filed Feb. 5, 1901.)

(No Model.)

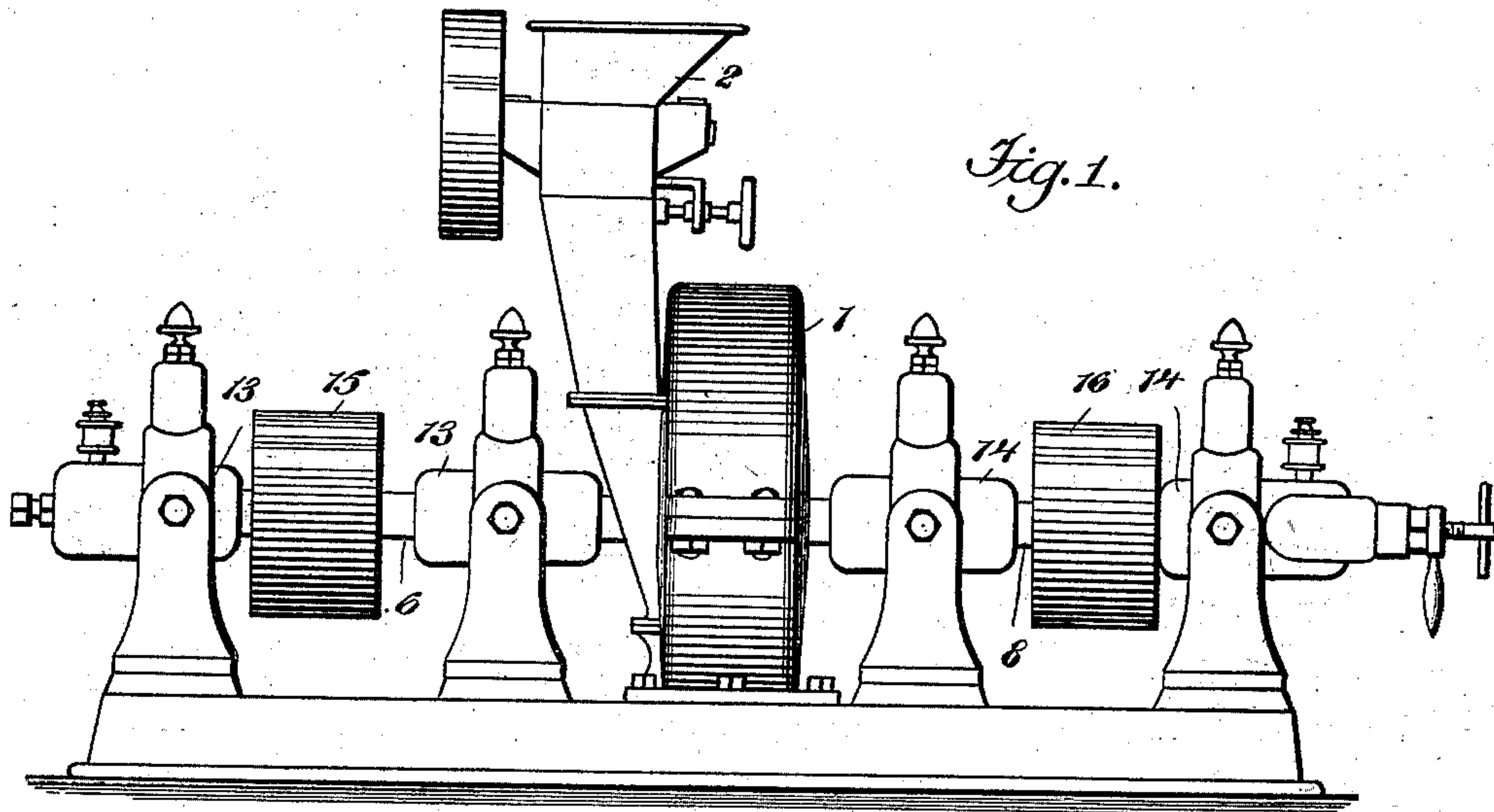


Fig. 1.

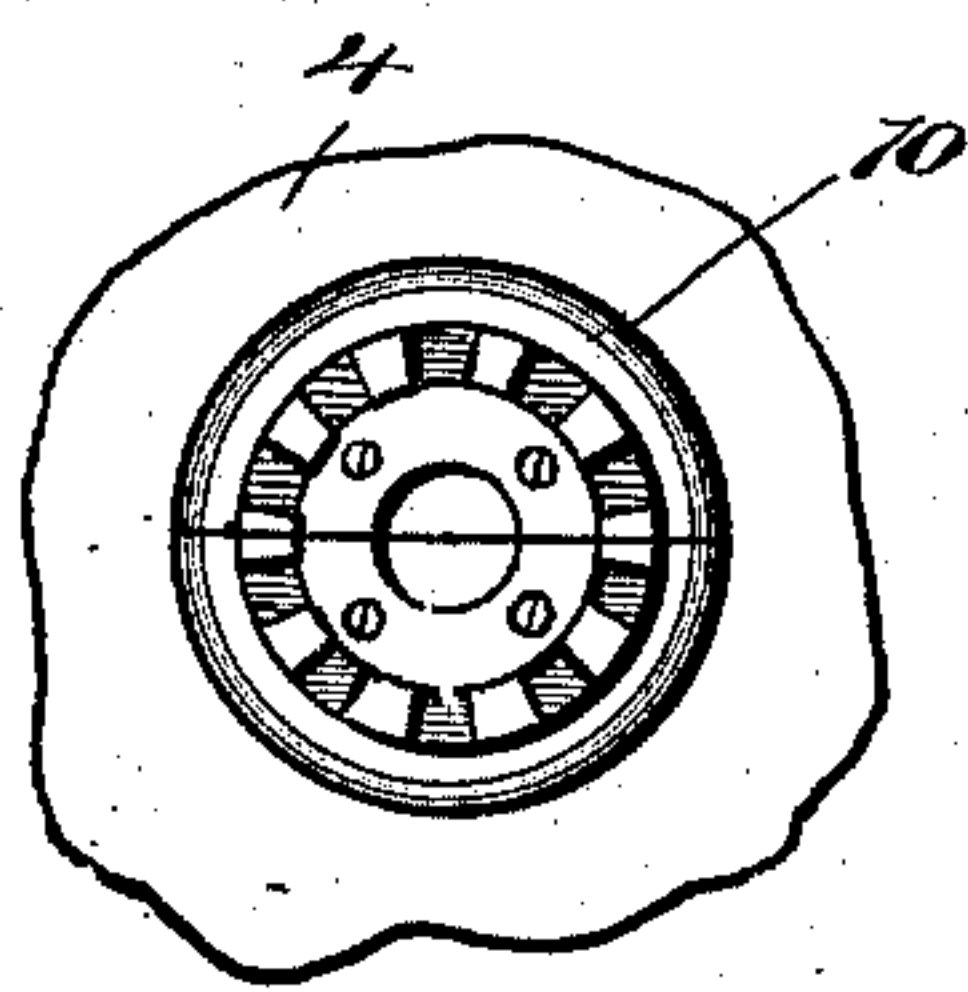


Fig. 3.

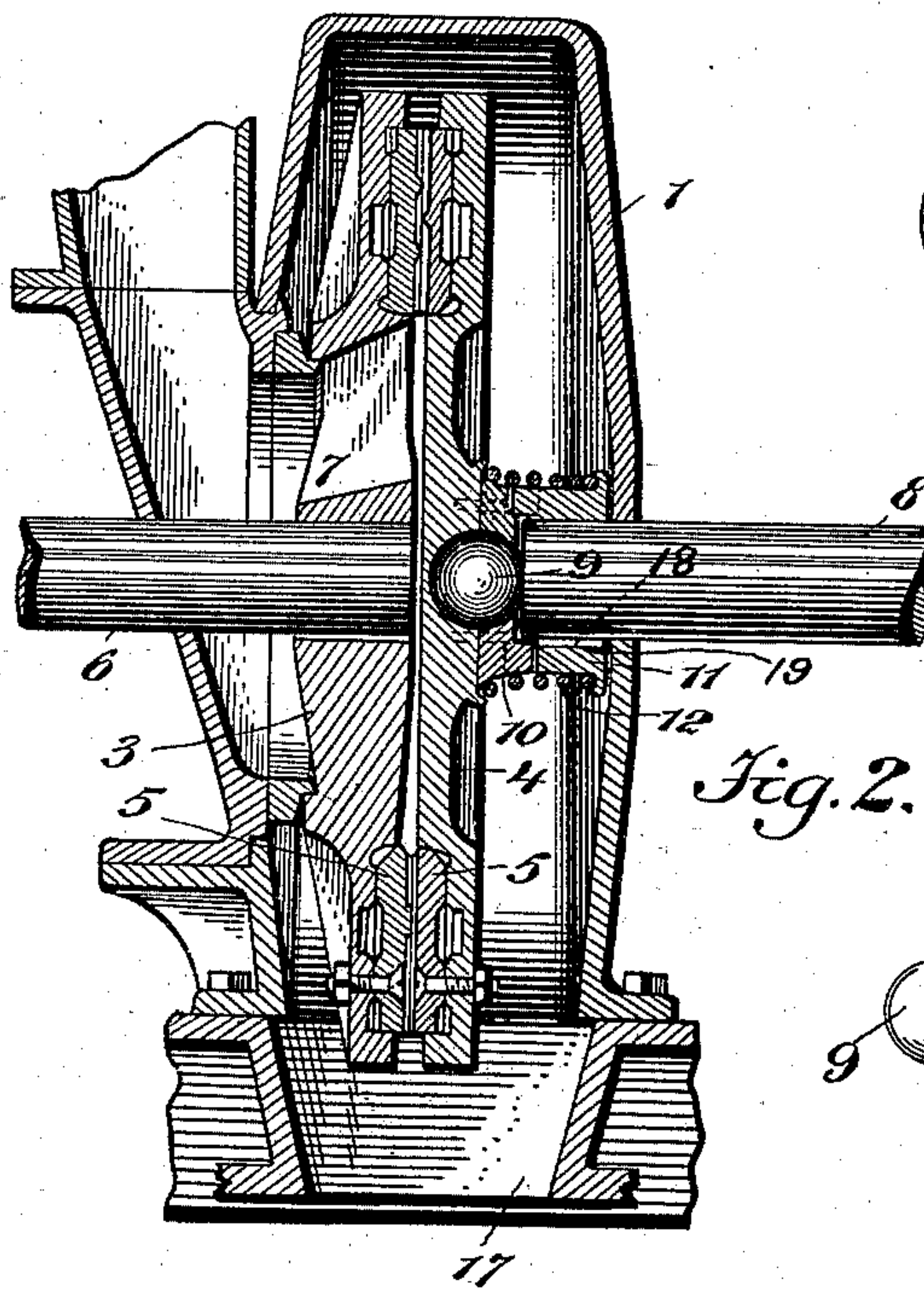


Fig. 2.

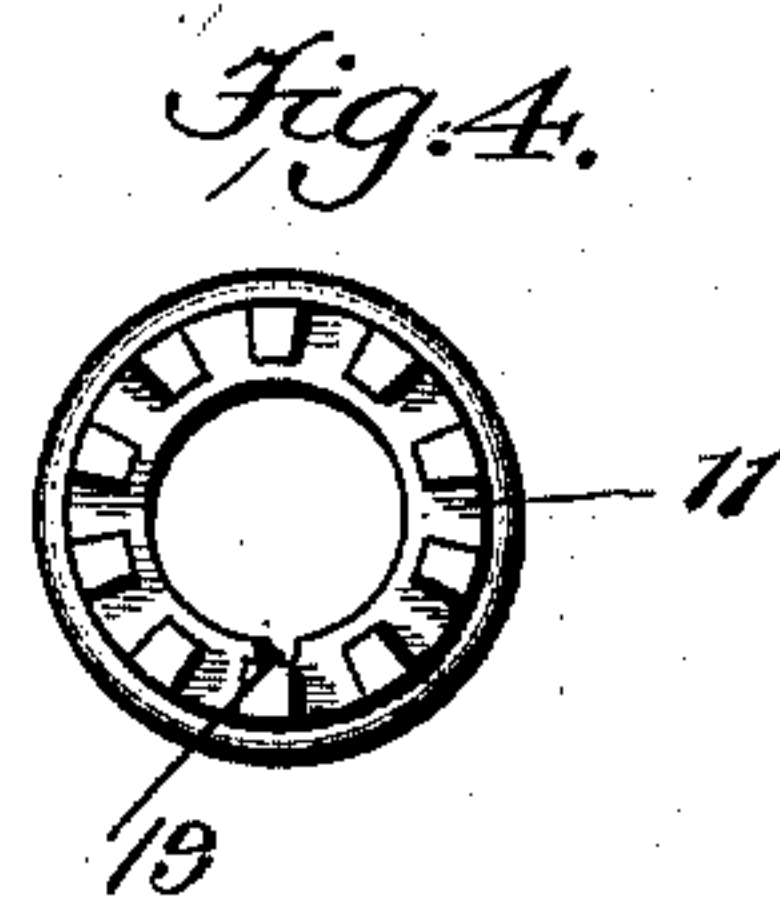


Fig. 4.

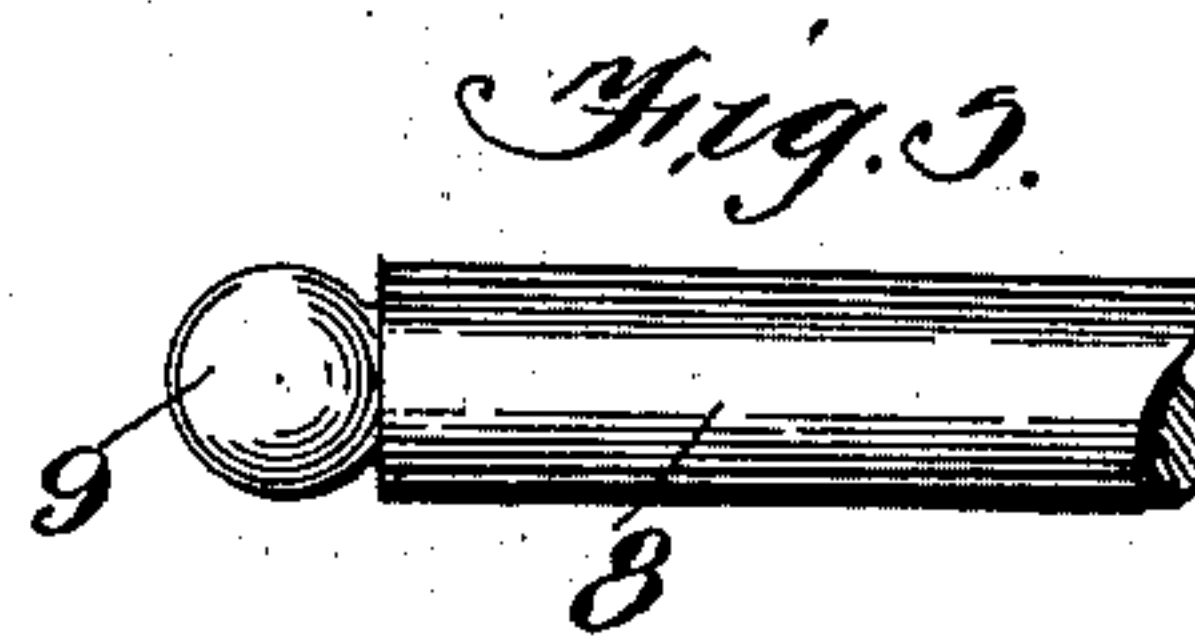


Fig. 5.

WITNESSES:

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JOSEPH BROWN, OF LORAIN, OHIO.

GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 698,441, dated April 29, 1902.

Application filed February 5, 1901. Serial No. 46,047. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH BROWN, a citizen of the United States, and a resident of Lorain, in the county of Lorain and State of Ohio, have invented a new and Improved Grinding-Mill, of which the following is a full, clear, and exact description.

This invention relates to improvements in mills for grinding grain and other materials; and the object is to provide a mill of this character with a simple means whereby the two grinding-surfaces shall be self-tramming or automatically maintained in their proper relation to each other, depending upon the material running through the mill.

I will describe a grinding-mill embodying my invention and then point out the novel features in the appended claims.

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

Figure 1 is a front elevation of a grinding-mill embodying my invention. Fig. 2 is a vertical section through the mill. Figs. 3 and 4 are face views of clutch mechanism employed, and Fig. 5 is a detail view of the inner end of the shaft and the ball thereon.

Referring to the drawings, 1 designates the mill-casing, which is supplied with material through one wall from a hopper 2, in which the usual feeding devices may be placed and has also a slide or cut-off valve. Arranged to rotate in the casing are the grinding-heads 3 and 4, and each head carries a grinding-ring or abrading-surface 5. The head 3 is rigidly attached to its shaft 6, and this head is provided with an opening 7, through which the material from the hopper may pass between the heads. The head 4 has a universal or ball-and-socket connection with its shaft 8. As here shown, the shaft 8 is provided at its inner end with a ball 9, which is seated in a socket formed in the head 4, a portion of this socket being formed by the base of the clutch-section 10, which consists of two parts bolted or otherwise secured to the head.

Keyed or otherwise connected to the shaft 8, so as to rotate therewith, is a clutch-section 11. Preferably, as shown in the drawings, the shaft 8 is provided with a key or spline 18, which engages a groove 19 in the

clutch-section 11. These clutch-sections have intermeshing teeth. They are sufficiently short, however, to permit of one clutch-section having a slight rocking motion with relation to the other clutch-section. A coiled spring 12 engages at one end against the base-flange of the clutch-section 11 and at the other end against the clutch-section 10. This spring is designed to prevent the head 4 from wobbling when rotating with no material to be ground between the heads.

It will be noticed that the clutch-section secured to the head and by means of which the head is rotated also forms a portion of the socket for the ball at the end of the shaft and holds said ball in position in the socket of the head. The construction also permits of the movement of the clutch-section secured to the head on the other clutch-section, so that the head can readily adjust itself.

The shaft 6 has bearings in suitable boxes 13, and the shaft 8 has bearings in boxes 14, and these shafts are respectively provided with band wheels or pulleys 15 16, to which power may be applied from any suitable source to rotate the shafts in opposite directions, and consequently rotate the grinding-heads in opposite directions.

In operation the material to be ground will be discharged from the hopper 2 and find its way through the opening 7 between the grinding-heads. The grinding-head 3 being fixed with relation to its shaft and the head 4 being arranged to yield or swing relatively to its shaft, the said swinging head will adjust itself to the material passing between the grinders. The ground material will pass out through an opening 17 in the base of the machine. By reason of this simple arrangement of self-adjustment the machine may be operated or run to insure even grinding and with comparatively little power.

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

1. A grinding-mill, comprising a casing, grinding-heads arranged in said casing, a shaft on which one of the grinding-heads is rigidly mounted, a shaft having a ball at one end engaging a socket in the other head, a clutch-section secured to the said head and having a portion of the socket for the ball formed

therein, a clutch-section secured to the shaft, the said clutch-sections having short intermeshing teeth arranged to permit of one section having a slight rocking motion with reference to the other clutch-section, and a coiled spring surrounding the clutch-sections and bearing at its ends upon said clutch-sections, substantially as specified.

2. A grinding-mill comprising a casing, two grinding-heads arranged in said casing, a shaft with which one of said heads has a universal connection so that it may swing relatively to its shaft, a clutch member attached to the swinging head, a clutch member attached to the shaft and provided with a flange, the said clutch members having intermeshing teeth arranged to permit of one clutch member swinging on the other, and a spring encircling the clutch members and bearing at one end against the clutch member attached

to the head and at the other end against the flange of the other clutch member, substantially as specified.

3. In a grinding-mill, a grinding-head, a clutch member secured to the head, a shaft having a ball at one end engaging a socket in the head and in the said clutch member, a clutch member secured to the shaft and meshing with the clutch member on the head, and a spring encircling the clutch members and bearing at its ends thereon, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH BROWN.

Witnesses:

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H. J. BARROWS.