

No. 643,637.

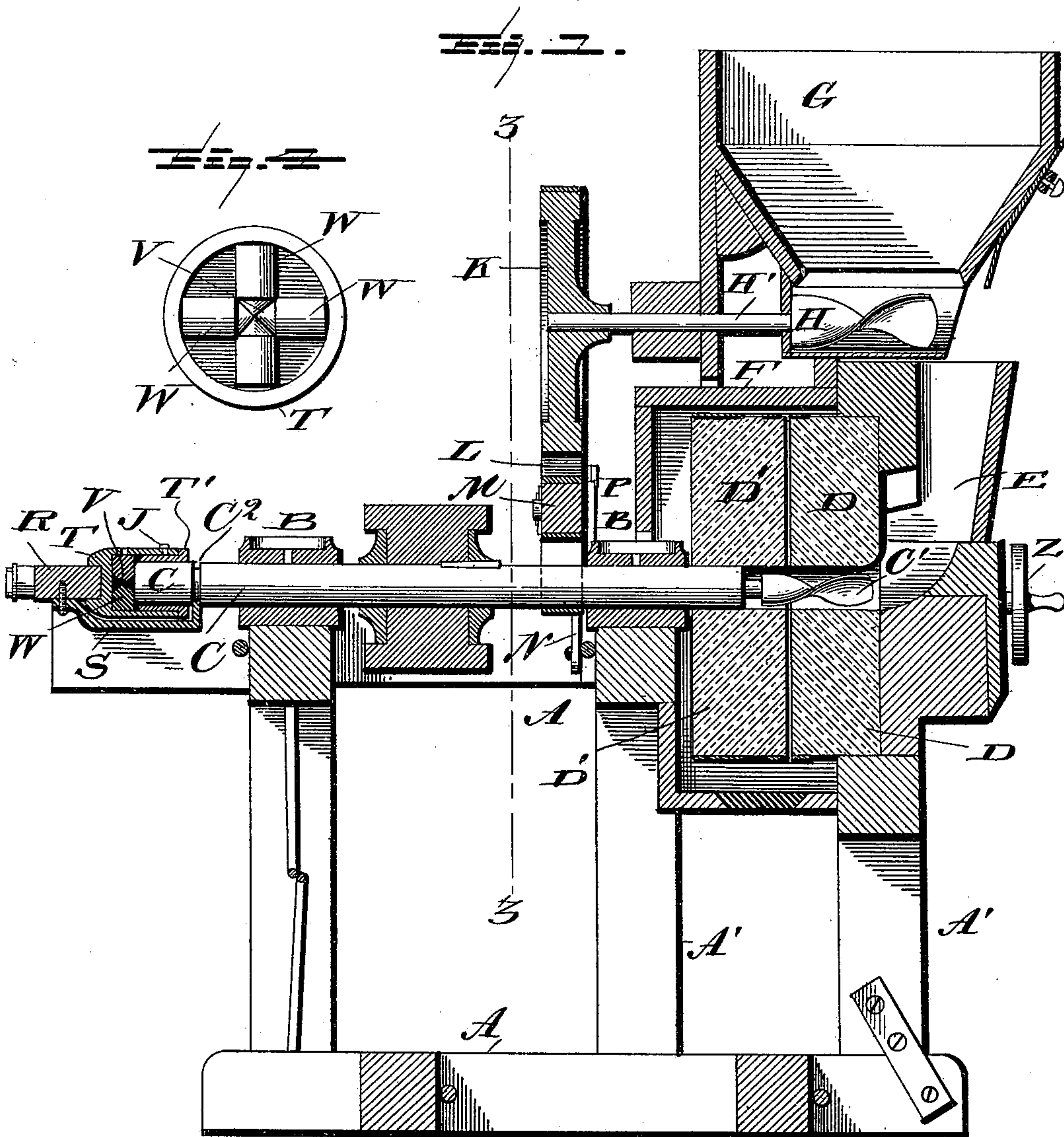
Patented Feb. 20, 1900.

J. O. ENSBERG.
FEED MILL.

(Application filed Oct. 7, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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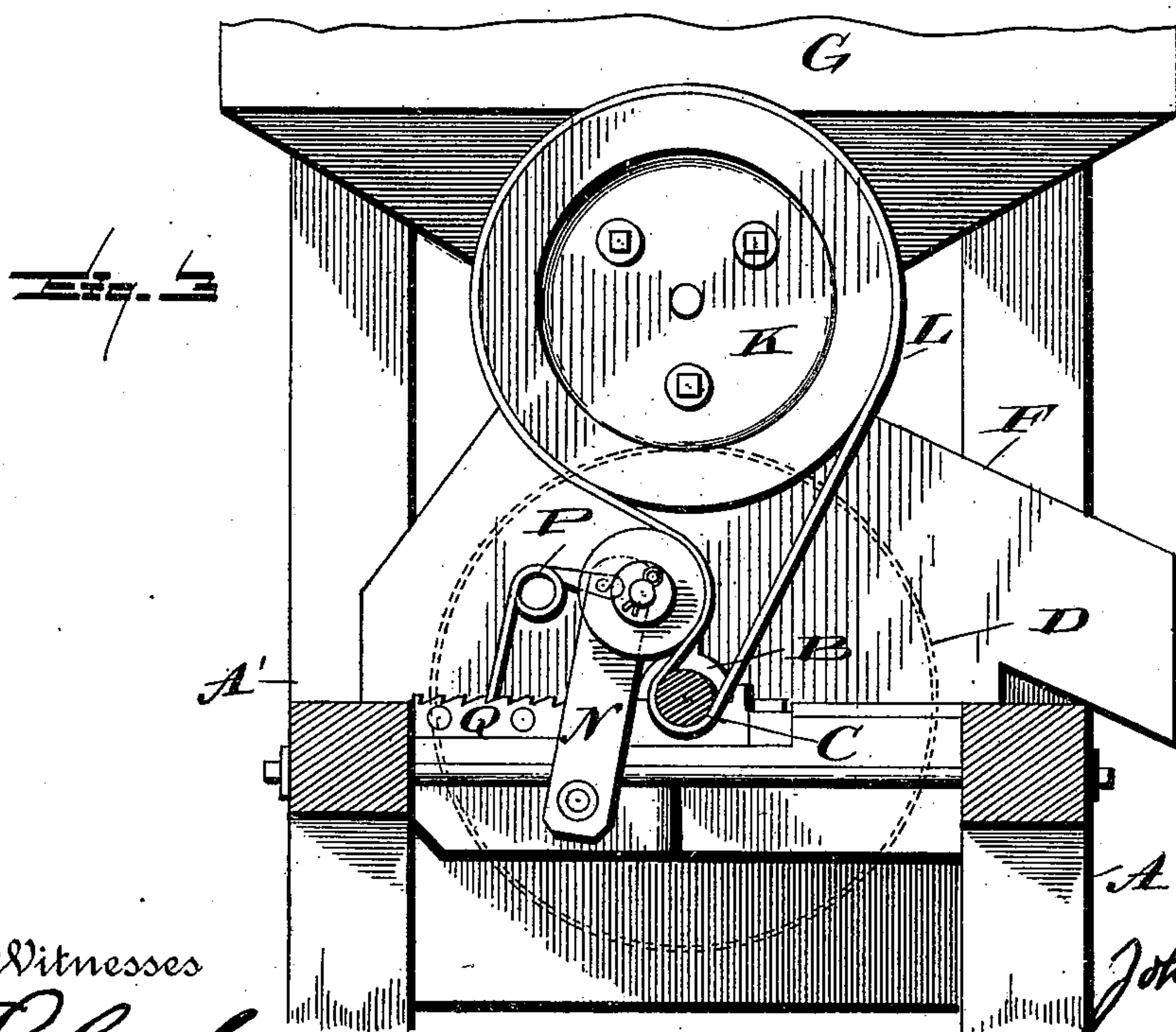
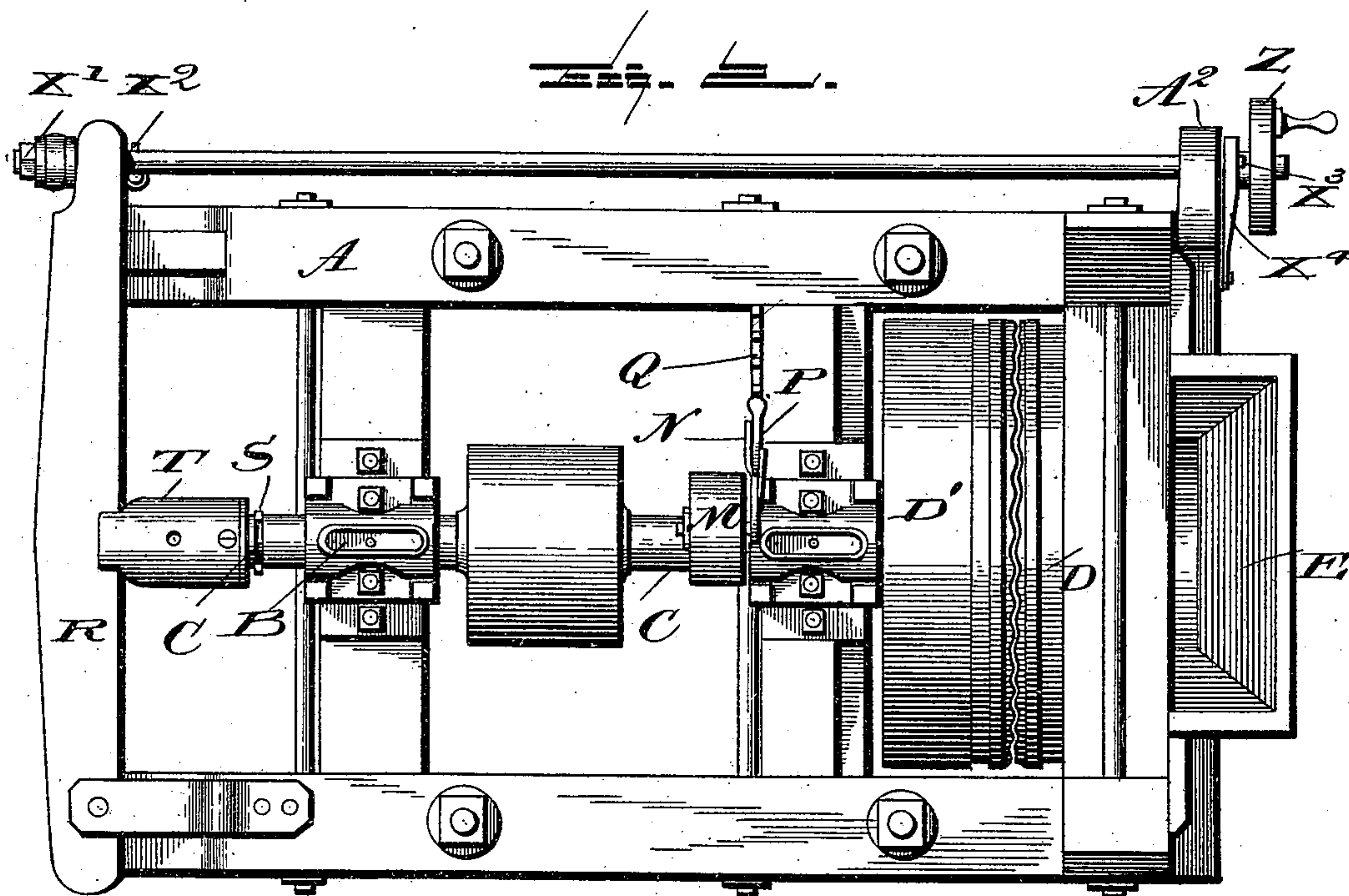
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(No Model.)

2 Sheets—Sheet 2.



Witnesses

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FEED-MILL.

SPECIFICATION forming part of Letters Patent No. 643,637, dated February 20, 1900.

Application filed October 7, 1899. Serial No. 732,952. (No model.)

To all whom it may concern:

Be it known that I, JOHN O. ENSBERG, a citizen of the United States, residing at Peterson, in the county of Fillmore and State of Minnesota, have invented certain new and useful Improvements in Feed-Mills, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in feed-grinding mills; and the object of the invention is to generally improve upon and render more efficient this class of inventions, in which means is provided for regulating the machine to grind the grain coarse or fine and so constructed as to make it easy of access to the burs.

More specifically, the present invention resides in the provision of a grinding-mill in which a longitudinally-movable shaft carrying a grinding-wheel is provided, which shaft is actuated by means of lever-and-rod connections with a hand operating-wheel, whereby the two grinding-wheels may be held at different distances from each other, so as to grind the grain coarse or fine, as may be desired.

Another feature of the invention resides in the provision of antifriction-rollers, which are held in suitable boxing and adjacent to the end of the shaft carrying the grinding-wheel, whereby the friction between the rollers and the end of the shaft is reduced to a minimum.

To these ends and to such others as the invention may pertain the same consists, further, in the novel construction, combination, and adaptation of parts, as will be hereinafter more fully described and then specifically defined in the appended claim.

The present invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form part of this application, and in which drawings similar letters of reference indicate like parts throughout the several views, in which—

Figure 1 is a central vertical section through my improved grinding-mill and longitudinally-movable shaft. Fig. 2 is a top plan view. Fig. 3 is an enlarged detail, in side elevation, of the belt-tightener; and Fig. 4 is an end view of the antifriction-rollers which bear against the end of the main operating-shaft.

Reference now being had to the details of the drawings by letter, A designates the frame of the machine, which supports in suitable boxings B the longitudinally-movable shaft C. Securely held to the upright portion A' of the frame is the stationary grinding-wheel D, which is centrally apertured to allow the grain to pass through said wheel from the hopper E. Mounted on one end of said longitudinally-movable shaft, adjacent to the stationary wheel D, is the grinding-wheel D', which is also centrally apertured and has secured in said aperture one end of the shaft, said end of the shaft having a feeding-screw C', which extends through the aperture in the wheel D and provided for the purpose of drawing the grain from the hopper E through the aperture in the wheel D and between the grinding-faces of the two wheels. Mounted over said wheels and resting on the frame of the machine is a removable box F, which may be easily removed when it is desired to have access to the grinding-wheels, and mounted directly above the hopper E is a second hopper G, through the lower tapering end of which passes a feeding-screw H, which is carried by the counter-shaft H', mounted in suitable bearings on the frame of the machine, this feeding-screw being provided to advance the feed forward, so that it will drop by gravity into the hopper E beneath. Keyed to the counter-shaft H' is a pulley K, about which a belt L passes, which belt also passes around the shaft C. Pivoted to a portion of the framework is an arm N, carrying an idler M, and pivoted to said arm is a spring-pawl P, made of a piece of wire coiled at its longitudinal center, its free end disposed in the path of the teeth on the ratchet-bar Q. This idler M is designed to be held yieldingly against the belt and held in place by means of said spring-actuated pawl, as clearly illustrated in Fig. 3 of the drawings, the tension on the belt being easily regulated by the hand of an operator, as readily understood.

Pivotally secured to one end of the frame of the machine is a lever R, and secured to the under surface of said lever R is a yoke S, with its forward end bent at a right angle and bifurcated, the bifurcated ends engaging normally in the annular recess C² in the shaft C,

whereby as the said lever is actuated on its pivotal point R' the shaft is given a longitudinal movement, and with it the wheel D'. Mounted on the inner edge of said lever R
 5 is a box T, extending over the outer end of the shaft C, and T' is a bushing which telescopes within said boxing and is held in place by means of a screw J. Interposed between
 10 of the boxing is a series of antifriction-rollers W, the inner conical-shaped points of which, V, are arranged as shown in Fig. 4 of the drawings. Against these antifriction-rollers the end of the shaft is adapted to bear,
 15 so as to reduce the friction between the parts to a minimum.

Passing through the end of the lever R is a rod X, which is held in place by means of the nuts X' on one side and on the other side
 20 by means of a removable pin X². This rod X is supported at its other end in an arm A² of the frame, through which it passes, and is screw-threaded and carries a hand operating-wheel Z, which has a hub integral therewith
 25 provided with a series of recesses X³, in which the free end of the pawl X⁴ is designed to engage to hold said hand-wheel in a fixed position on the rod X. As this hand-wheel Z is rotated in one direction or the other the rod
 30 X is moved longitudinally by means of the threaded hand-wheel and hub working on

the threaded portion of said rod. As the rod X is moved longitudinally the lever R is actuated and the operating-shaft, with the grinding-wheel D' is moved toward or away from
 35 the wheel D, a slight distance sufficient to regulate the grinding of the grain.

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

In a feed-grinding mill, the combination with the shaft suitably mounted and carrying the grinding-wheel, the lever R pivoted at one end to the frame of the mill, an adjustable hand-operated shaft secured to its
 45 opposite end, the cup T recessed in its outer end and fitted over said lever R, the antifriction-rollers seated in said cup and arranged at right angles to each other, their inner ends tapering and held in contact with one another,
 50 the flanged thimble T' held within said box and having a bearing on the shaft, the forked yoke S secured to lever R and having arms engaging in an annular recess C² in the shaft, all substantially as shown and described and
 55 for the purpose set forth.

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

JOHN O. ENSBERG.

Witnesses:

PETER LEITHE,
 N. L. LODAHL.