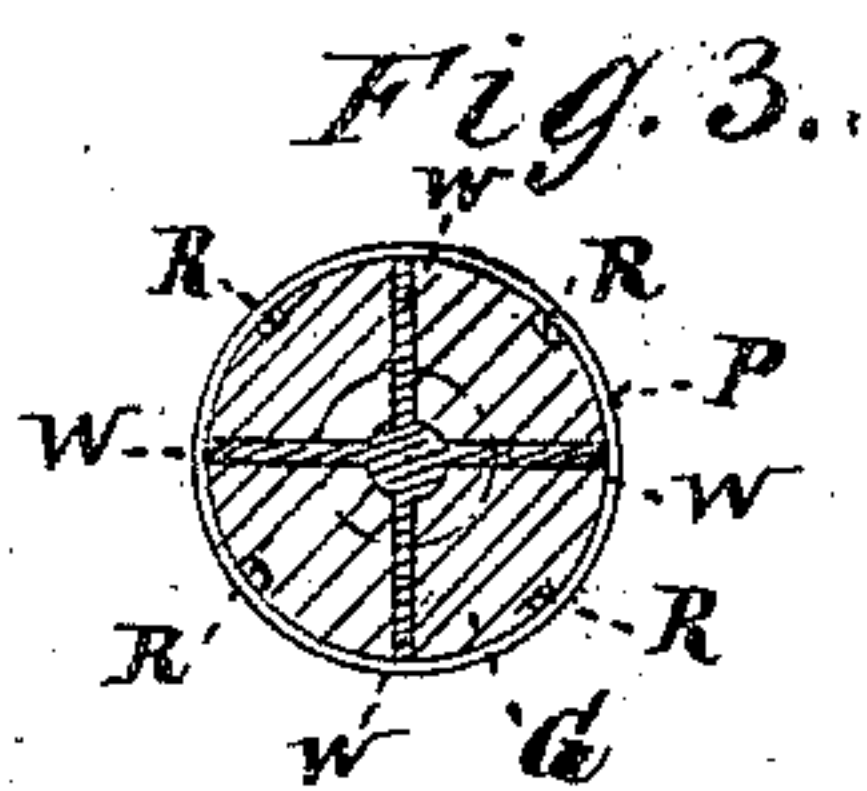
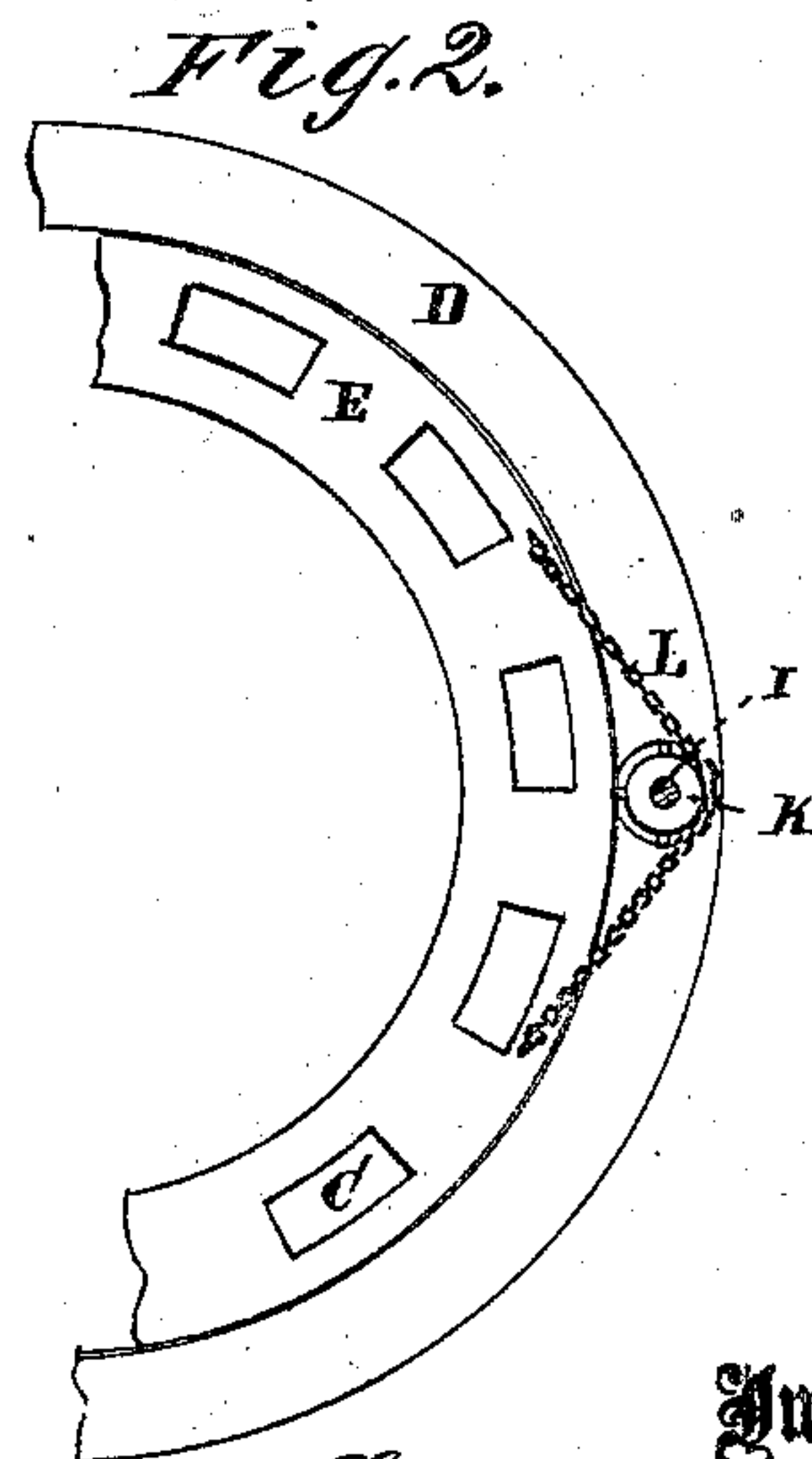
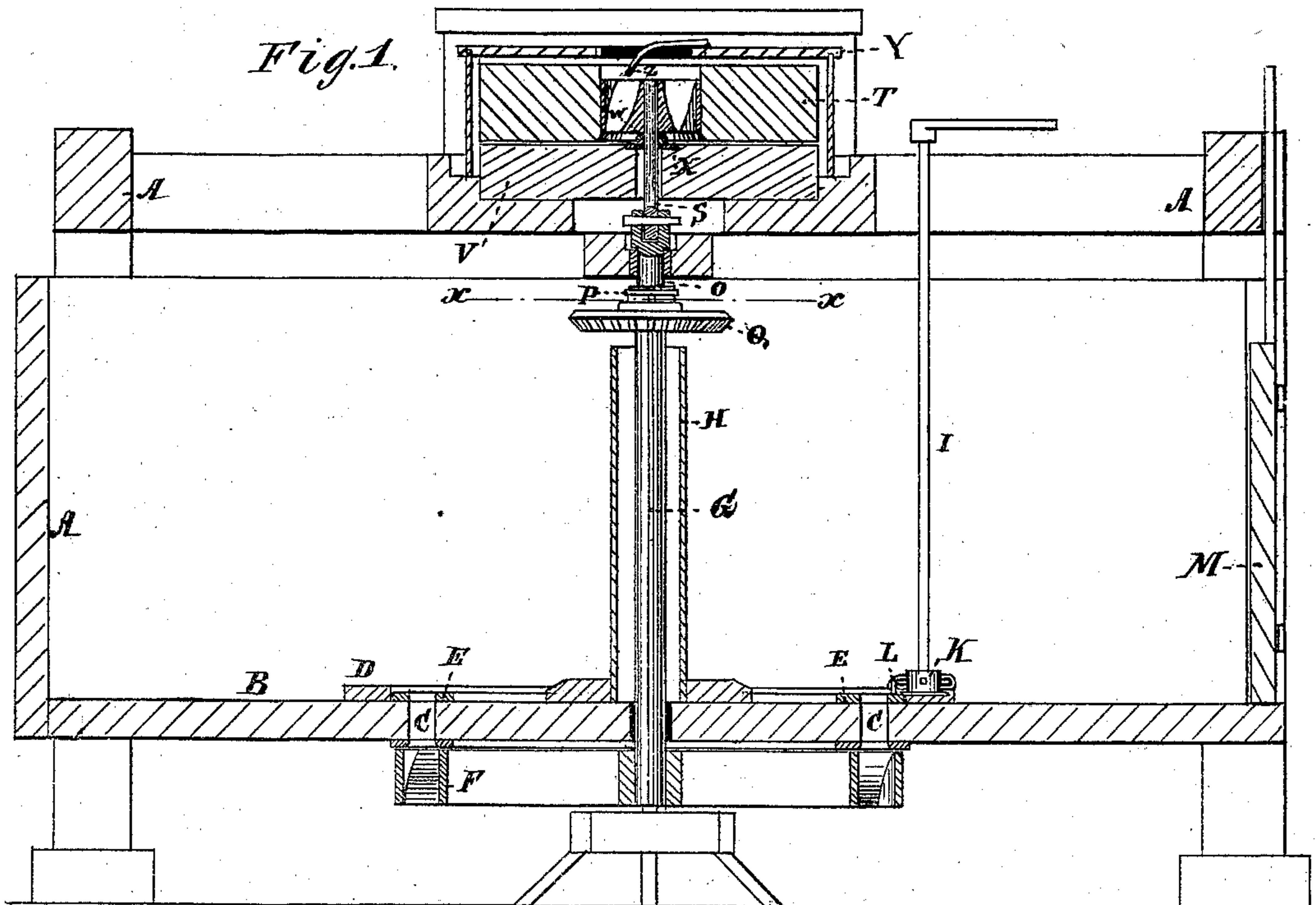


E. H. AUSTIN.

Feed-Regulators for Grinding-Mills.

No. 143,315.

Patented September 30, 1873.



Witnesses:
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UNITED STATES PATENT OFFICE.

EPHRAIM H. AUSTIN, OF SCOTT'S HILL, TENNESSEE.

IMPROVEMENT IN FEED-REGULATORS FOR GRINDING-MILLS.

Specification forming part of Letters Patent No. **143,315**, dated September 30, 1873; application filed March 17, 1873.

To all whom it may concern:

Be it known that I, EPHRAIM H. AUSTIN, of Scott's Hill, in the county of Henderson and State of Tennessee, have invented a new and useful Improvement in Grinding-Mills; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification.

My invention pertains to improvements in grist-mills of the ordinary kind, having special reference to the means of feeding the grain to the spiral passages in the eye of the runner, as hereinafter described.

In the drawing, Figure 1 represents a longitudinal central section of my invention. Fig. 2 is a top view of a portion of the sliding gate; and Fig. 3 is a horizontal section of the shaft through line *x x* of Fig. 1.

The frame-work A, constituting the pen-stock of the water-wheel, and the frame or platform for the reception of the mill, is of any suitable construction. The bed, floor, or platform B of the frame is provided with a series of inclined chutes, C, around which is formed a circular rim, D, forming guideways for securing, and permitting the movement of, a circular gate, E. Said gate is provided with a number of openings corresponding in number with the chutes C. The water-wheel F, which is of the form denominated a turbine or reaction wheel, is located beneath the floor of the flume, and is provided with narrow buckets near the outer edge, and is mounted on a vertical spindle, G, which extends through a tubular pillar or post, H, secured at its base to the floor B.

By partially rotating the gate E to cause the openings in the same to register with the chutes C and pieces in them, in a greater or less degree the passage of the water to the wheel may be regulated; and by causing the solid parts of the gate to be in line with the chutes the flow of water is arrested. The movement of the gate in opposite directions for accomplishing the above results is effected through the medium of a vertical shaft, I, which carries a spur-disk, K, at its lower end, which, when the shaft is revolved, engages with the links of a chain, L, attached to the gate.

The entrance of the water to the pen-stock or flume can be regulated, or completely arrested, by means of a sliding gate, M, located and moving in suitable guides.

The upper end of the water-wheel spindle, which is preferably of wood, is made with incisions for the reception of three or more radial wings, N, which are formed on the lower end or arbor of a socket or bearing, O, employed for connecting the runner-spindle to the water-wheel shaft. The socket is journaled in a suitable transverse beam of the frame-work; and is secured to the wooden spindle of the water-wheel through the medium of the radial wings N, over which, and the split portion of the spindle, are passed sleeves and collars P and the hub of a bevel-gear wheel, Q, which is employed for transmitting power to the other mill machinery. Wedges R are also driven into the spindle for expanding the fibers of the same, to serve as additional means for forming a stiff joint between the spindle and runner. The spindle S, carrying the upper stone or runner T, is inserted into the socket O, and is secured to the same by a transverse key or other suitable means. The eye of said runner is provided with spiral passages for conveying the grain between the runner and bed-stone V; and, in order to produce a tight joint at the point where the runner-spindle passes through the bed-stone, for preventing the escape of grain at that junction, I employ two overlapping disks or washers, W X, applied to the runner-spindle and bed-stone. To the usual curb Y surrounding the grind-stone is attached a plate provided with one or more inwardly-projecting arms, Z, which, during the operation of the runner, project into the eye of the same for stopping the grain to prevent the clogging of the same, and for causing an uninterrupted or regular feed.

By the use of my invention a simple and effective motive power for the stones of grist-mills is produced, as by the direct application of the water-wheel to the spindle of the stone the friction and power lost by the transmission of the latter by means of intermediate gearing is entirely obviated. The detachable connection of the water-wheel and runner-

spindles will form means for readily applying the same.

Having thus described the feature of my invention, in connection with other parts necessary to form a complete or operative mill, what I claim is—

The bent arm Z, attached to the top of the stationary curb Y, and projecting downward,

as shown, in combination with the spiral passages in the eye of the runner to press the grain into and through the same, as specified.

EPHRAIM H. AUSTIN.

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