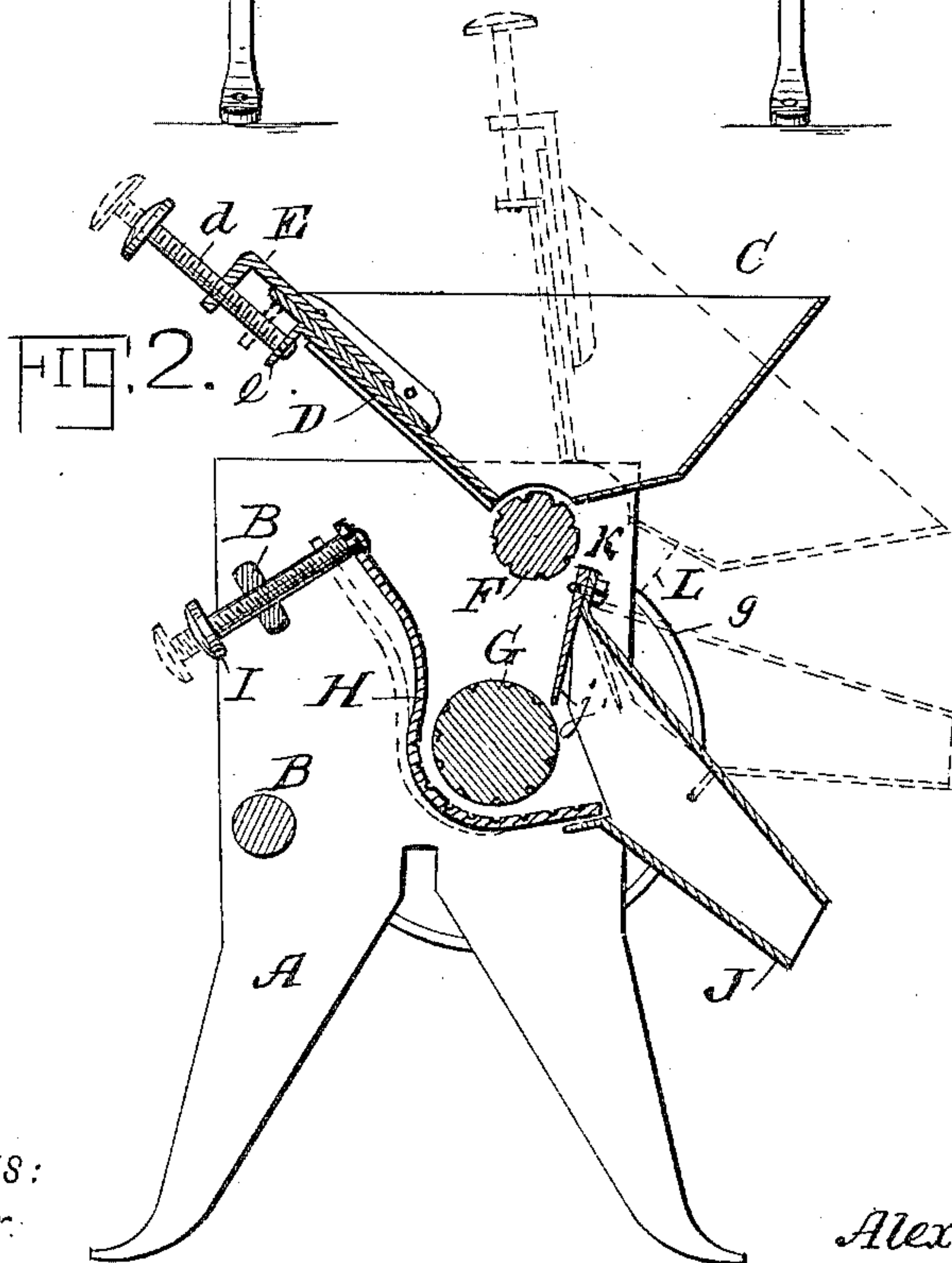
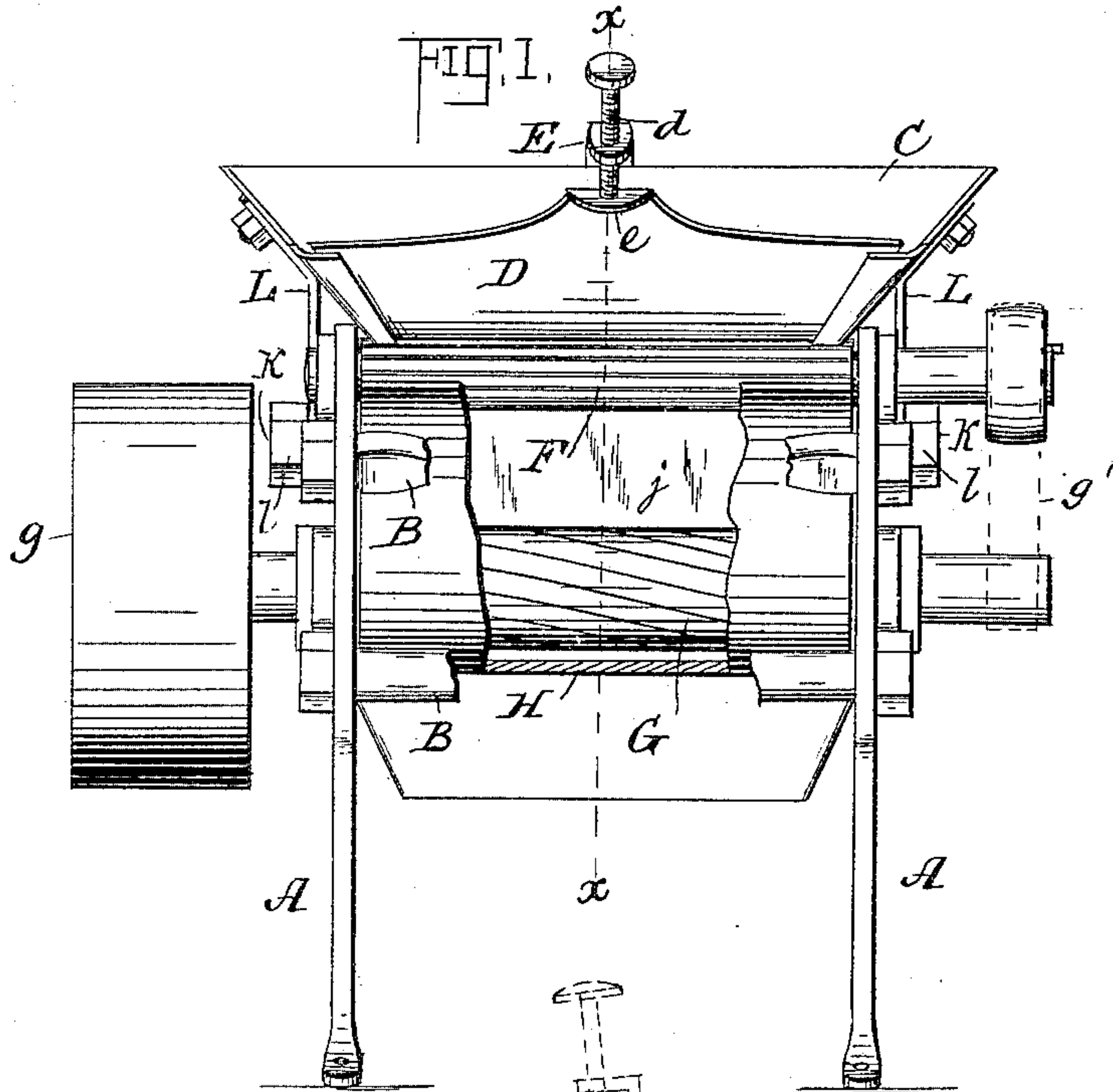


(No Model.)

A. OLSEN.
CRUSHING MILL.

No. 445,071.

Patented Jan. 20, 1891.



WITNESSES:
Sam'l R. Turner.
Van Buren Hillyard.

INVENTOR
Alexander Olsen.
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his ATTORNEYS.

UNITED STATES PATENT OFFICE.

ALEXANDER OLSEN, OF HALLOCK, MINNESOTA.

CRUSHING-MILL.

SPECIFICATION forming part of Letters Patent No. 445,071, dated January 20, 1891.

Application filed July 21, 1890. Serial No. 359,416. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER OLSEN, a citizen of the United States, residing at Hallock, in the county of Kittson and State of Minnesota, have invented certain new and useful Improvements in Crushing-Mills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to crushing-mills, and aims to simplify the construction of this class of machines and increase their usefulness and efficiency.

The improvement consists of the novel features and the peculiar construction and combination of the parts, which will be hereinafter more fully described and claimed, and which are shown in the annexed drawings, in which—

Figure 1 is a rear view, parts being broken away, of a machine embodying my invention. Fig. 2 is a cross-section on the line X X of Fig. 1, showing the adjustment of the concave and the tilting of the discharge-spout and the hopper in dotted lines.

The machine comprises the standards A A, which are connected and braced by the transverse bars B, the hopper C, which is open at its bottom and is provided on one side with the slide D, which is adjusted by the set-screw *d*, which passes through brackets E and is engaged in a positive manner with the outwardly-bent end *e* of the slide D, the feed-roller F, which is journaled at its ends in the standards A, and is located at the opening in the bottom of the hopper C and is provided with longitudinal grooves in its periphery, which engage with and force the grain from the hopper through the space between it and the lower edge of the slide D, the cylinder G, concave H, and spout J. The cylinder G is journaled at its ends in the standards A and is provided at one end with the band-pulley *g*, the other end being geared with the journal of the feed-roller F in any suitable manner, preferably by the band *g'*, which passes around suitable pulleys on the journals of the roller F and the cylinder G, the latter being provided in its periphery with spiral grooves which facilitate the operation of the

machine. The concave H extends from one standard to the other and is pivoted at its lower front end to said standards, its upper end being free to move in or out to regulate the space between the opposing sides of the cylinder and the said concave, the latter being adjusted by the set-screw I, which passes through the upper transverse bar B, and is positively engaged at its inner end with the said concave. The lower end of the concave conforms to the cylinder and extends beneath the same and slightly upon the opposite side. The upper end of the concave curves outwardly and terminates about in the plane of the upper side of the feed-roller F and some distance from the lower edge of the hopper. That portion of the concave directly opposite the crushing-roller is roughened, preferably by providing it with oblique grooves, which grooves act in opposition to the grooves on the cylinder G and effect a grinding or crushing of the grain or other substance to be treated. The discharge-pipe J is secured at its upper end to the cross-bar K, and its lower side is adapted to overlap the lower edge of the concave H. The deflector or guard-plate *j'* forms a continuation of the cross-bar K and extends to within a short distance or nearly touches the periphery of the cylinder G, so as to prevent the escape of grain on the front side of the said cylinder. This cross-bar K is journaled at its ends to the standards A, whereby the discharge-spout may be tipped up, as shown in dotted lines in Fig. 2, to permit access to the interior of the machine for the purposes of cleaning or removing any obstruction. The hopper C is also adapted to be tilted, as shown in dotted lines in the said Fig. 2, whereby access can be had to the interior of the machine. For this purpose the hopper is provided at its ends with arms L, which are pivotally connected at their lower ends with the standards A, preferably by being slipped on the journals of the cross-bars K, which journals are threaded and provided with nuts *l*, which when turned up hold the cross-bar K and the hopper from any movement. The substance to be ground is placed in the hopper C, and its passage therefrom is regulated by adjusting the slide D to increase or decrease the egress-space between the feed-roller F and the lower edge of

the slide. The said substance coming between the cylinder and the concave is ground or crushed, as required, the degree of fineness being regulated by adjusting the concave a greater or less distance from the cylinder. 5 The substance after being ground escapes through the discharge-spout J into a suitable receptacle placed to receive the same.

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

1. In a crushing-mill, the combination of the cylinder, the concave, means for adjusting the concave to and from the cylinder, the cross-bar K, journaled at its ends and extended to form a deflector or guard-plate, and the discharge-spout secured to the said cross-bar and adapted to tilt therewith and having its lower side overlapping the lower edge of the 20 concave, substantially as set forth.

2. A crushing-mill comprising the standards A, cylinder G, concave H, means for adjusting the concave to and from the cylinder, the cross-bar K, journaled in the standards A and extended to form the deflector j' , the delivery-spout secured to and adapted to tilt with the said cross-bar and having its lower side overlapping the lower edge of the concave, the hopper having brackets which are journaled on the extended journals of the cross-bar K, the nuts l for fastening the hopper and the cross-bar rigidly to the said standards, and the feed-roller F, substantially as specified. 25 30

In testimony whereof I affix my signature in presence of two witnesses. 35

ALEXANDER OLSEN.

Witnesses:

P. H. KOWZEN,
W. H. ALLEY.