

(No Model.)

2 Sheets—Sheet 1.

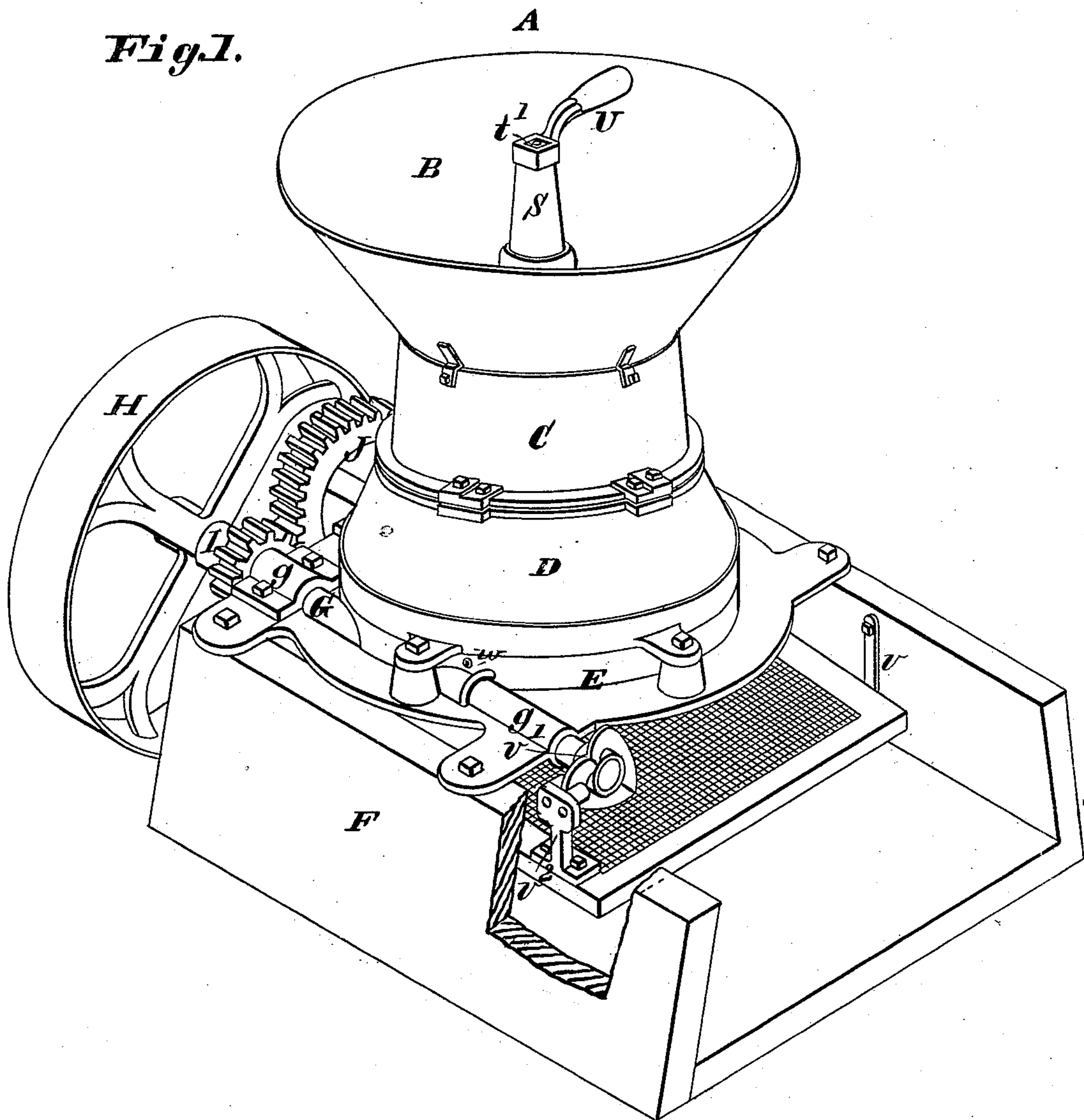
J. A. FIELD & A. MAGEE.

FEED MILL.

No. 246,877.

Patented Sept. 13, 1881.

Fig. 1.



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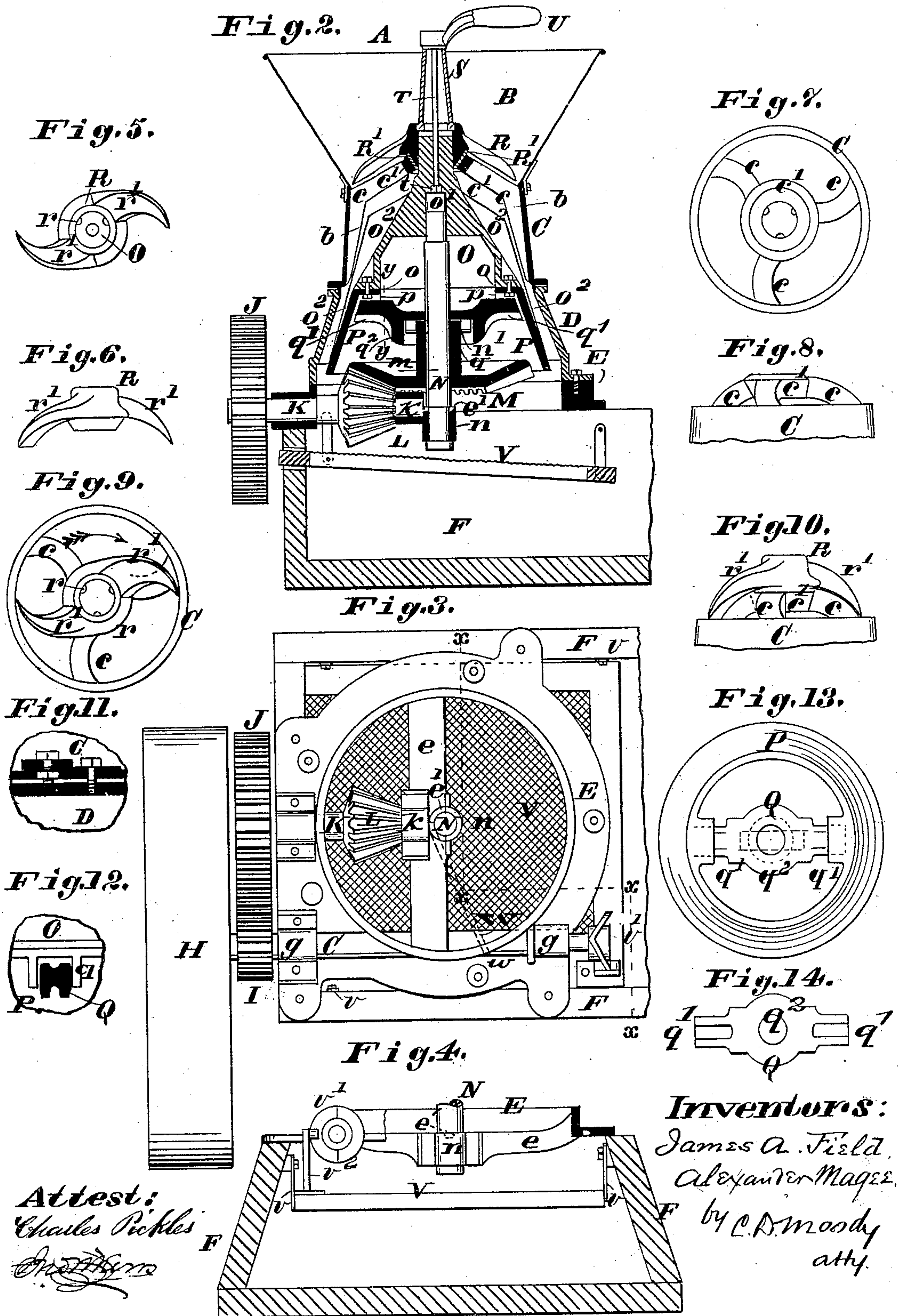
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UNITED STATES PATENT OFFICE.

JAMES A. FIELD AND ALEXANDER MAGEE, OF ST. LOUIS, MISSOURI.

FEED-MILL.

SPECIFICATION forming part of Letters Patent No. 246,877, dated September 13, 1881.

Application filed April 11, 1881. (No model.)

To all whom it may concern:

Be it known that we, JAMES A. FIELD and ALEXANDER MAGEE, residents of St. Louis, Missouri, have jointly made a new and useful
5 Improvement in Feed-Mills, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a view, in perspective, of a feed-
10 mill having the improvement in question, a portion of the box being broken away to exhibit the mechanism for operating the sieve; Fig. 2, a vertical section taken centrally through the mill; Fig. 3, a horizontal section taken just
15 above the base-ring upon the box; Fig. 4, a vertical section taken on the line *xx* of Fig. 3; Fig. 5, a plan of the breaker upon the cone-
20 stem; Fig. 6, a side elevation of the breaker; Fig. 7, a plan of the shell surrounding the cone; Fig. 8, a side view of the upper end of the shell;
25 Fig. 9, a plan showing the breaker upon its bearing and the parts immediately beneath the breaker; Fig. 10, a side elevation of the parts shown in Fig. 9; Fig. 11, a detail show-
30 ing the means used in vertically adjusting the shell; Fig. 12, a detail showing a sectional elevation taken on the line *yy* of Fig. 2; Fig. 13, a plan of what is termed the "inside grinder," and showing the part that connects the grinder
35 with the main shaft; and Fig. 14, a plan of the part that connects the grinder and main shaft.

The same letters denote the same parts.

The present improvement relates partly to
35 the means used in operating the grinding mechanism and partly to the adjustment of the breaker.

A represents the improved mill, having the hopper B, the upper shell, C, the lower shell, D, the base-ring E, and the box F, in which
40 the product of the mill is received. The main shaft G turns in the bearings *g g*, and is provided with the pulley H and pinion I. The latter engages with the gear J upon the counter-shaft K. A bevel-pinion, L, upon the shaft
45 K, engages with the bevel-gear M, which is fastened to the grinder-shaft N. This last-named shaft is stepped in a bearing, *n*, and at its upper end is connected with what is termed the "cone," O. The cone O and what is styled
50 the "inside grinder," P, are connected, as at *o o*,

and rotate together, the motion being imparted to them as follows: An arm, Q, perforated to admit the shaft N, and recessed at *q* to receive the projection *n'*, (which may be upon the hub *m* of the gear M, or upon the shaft N,) is arranged
55 on the shaft N, and so as to engage with the projection *n'*. The shaft and arm being thus interlocked rotate together. The ends of the arm Q project and engage in recesses *p p* in the grinder P, Figs. 2 and 13. This connects
60 the shaft N, grinder P, and cone O, and these parts then turn as one piece.

R represents the breaker. It is mounted upon the upper end of the cone O, and by means of the projections *r r*, engaging in cor-
65 responding recesses in the cone, is locked to the latter and made to rotate with it. S represents a tube or sleeve resting endwise upon the breaker, its lower end being supported in
70 or upon the breaker a short distance above the upper end of the cone O. A bolt, T, engaging at its lower end with the cone, (the head *t* of the bolt being held, say, in the upper end of the recess *o'*,) passes upward through the
75 tube S, and at its upper end is furnished with a nut, *t'*. U represents a wrench fitted to the nut *t'* and resting upon the upper end of the tube S. By turning the nut *t'* upon the bolt T the cone
80 O is raised or lowered, as the case may be, upon the shaft N, and in that way the cone O and grinder P can be set closer to or farther
85 from the shells D C.

The shell D, as well as the shell C, is, upon the inner side, furnished with ribs, such as at *b*, which coact in the usual way with the ribs *o'*
85 upon the cone O and grinder P in effecting the grinding. The shell C, also, at its upper end, is furnished with arms *c c*, projecting inwardly, and at their inner ends united to a ring, *c'*, which encircles the upper end of the cone O,
90 but shaped to receive and support the breaker R. When the latter rests directly upon the ring the arms *r' r'* of the breaker are brought closely against the arms *c c* of the shell C. This is desirable when it is intended to effect a shear-
95 ing cut; but when it is desired to employ the part R as a breaker simply, a washer, R', is interposed between the ring *c'* and the breaker, as seen in Fig. 2. This lifts the arms *r' r'* of the breaker away from the arms *c c* sufficiently
100

to prevent shearing, but leaving the parts in position to break up the corn-cobs—that is, the mill can be set to grind the corn and cob with the husk on or with it off, as desired.

5 By gearing and transmitting the power to the shaft N, as shown, the feed, as it is ground and as it falls into the sieve or box beneath, does not come in contact with any part of the gearing, so as to clog its action, and all the
10 various parts of the mill can be readily made, readily put together, and readily operated and adjusted, and a very efficient and durable mill is obtained.

15 Beneath the grinder P a sieve, V, may be arranged to sift the meal as it comes from the mill. The sieve is suspended by means of the hangers *v v*, and it is operated by means of the cam *v'* on the shaft G working in the slotted arm *v²* of the sieve.

20 To enable the inner end of the shaft K and the lower end of the shaft N, in their respective bearings, to be readily oiled, an oil-tube, W, Fig. 3, extends from the shell D inwardly, communicating with a depression, *e'*, in the arm *e*,
25 which in turn connects with the bearings *n* and *k* in question, and thus by introducing the oil into the outer end, *w*, of the tube W, the bearings *n k* can be oiled.

We claim—

1. The combination, in the mill A, of the 30 washer R', the breaker R, the shell C, having the arms *c c*, and the cone O, said breaker in its vertical adjustment being independent of said shell, substantially as described.

2. The combination, in the mill A, of the shaft 35 G, pinion I, gear J, shaft K, gears L M, shaft N, pin *n'*, arm Q, grinder P, and cone O, substantially as described.

3. The combination of the shaft N, pin *n'*, arm Q, having the arms *q' q'* above the level of 40 the hub *q²*, and being loosely attached to the shaft N, and grinder P, substantially as described.

4. The combination of the shaft K, gears L M, shaft N, pin *n'*, arm Q, and grinder P, and cone 45 O, substantially as described.

5. The combination of the oil-tube W, the arm *e*, having the depression *e'*, and the shafts K N, said shafts being arranged at right angles to each other, substantially as described.

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Witnesses:

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