

(No Model.)

J. CREAGER.
CLAY PULVERIZER.

No. 361,000.

Patented Apr. 12, 1887.

FIG. 1.

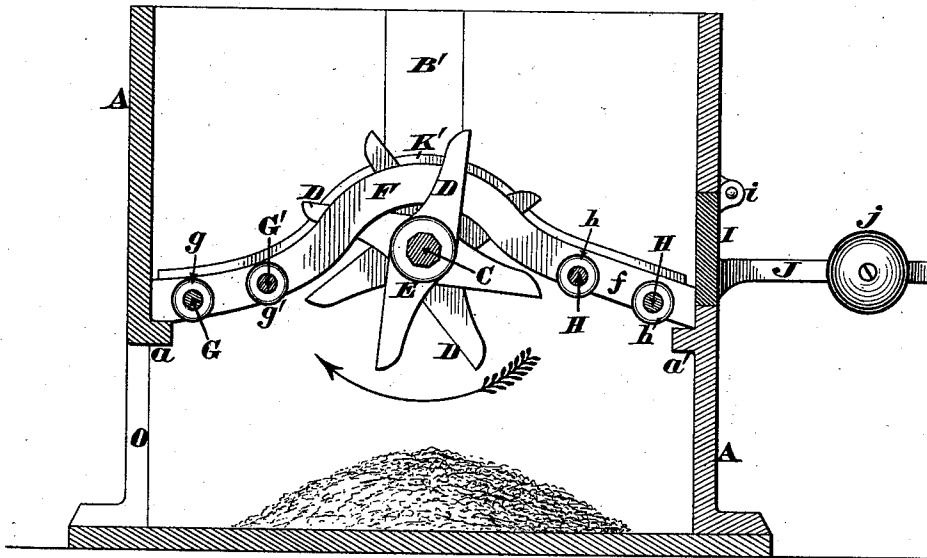


FIG. 2.

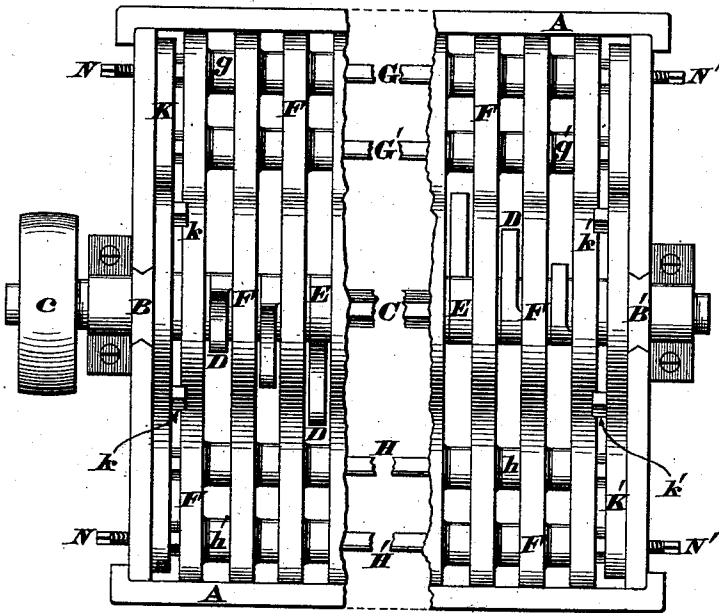


Fig. 3.

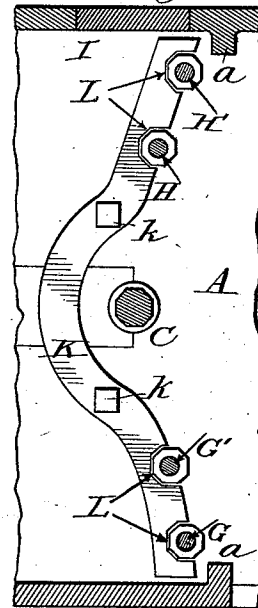
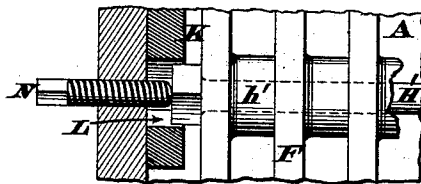


FIG. 4.



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UNITED STATES PATENT OFFICE.

JONATHAN CREAGER, OF CINCINNATI, OHIO.

CLAY-PULVERIZER.

SPECIFICATION forming part of Letters Patent No. 361,000, dated April 12, 1887.

Application filed December 14, 1885. Renewed December 10, 1886. Serial No. 221,185. (No model.)

To all whom it may concern:

Be it known that I, JONATHAN CREAGER, a citizen of the United States, residing at Cincinnati, in the county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Clay-Pulverizers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to those machines which are employed for pulverizing clay to be used in making bricks, tiles, pottery, &c.; and the first part of my improvements comprises a novel combination of hopper, grating, and blades. This grating is fitted within the housing, box, or hopper, and the blades, which are mounted on a common shaft, operate in the intervals of said grating, and cause the clay to be finely pulverized and deposited in the bottom of the box, the grating being made convex or arching at or near its center, and being provided with an inclined portion, down which stones and other obstructions slide, and thus prevent the machine being clogged up. Furthermore, the hopper has at its rear side a gate that automatically opens and prevents an undue accumulation of stones on the aforesaid inclined portion of the grating, as hereinafter more fully described.

The second part of my improvements comprises a novel construction of the grating proper, as hereinafter more fully described.

The third part of my improvements consists in providing the hopper of the machine with notched keepers that engage with tie-bolts of the grating, and thereby retain the latter in its proper place within the box, as hereinafter more fully described.

The fourth part of my improvements comprises a novel combination of devices for adjusting the grating longitudinally of or parallel with the shaft of the machine, as hereinafter more fully described.

In the annexed drawings, Figure 1 is a vertical section of my pulverizer, taken in the plane of one of its blades. Fig. 2 is a plan of the machine, the central portion thereof being broken away. Fig. 3 is a vertical section of the hopper, taken in the plane of one of the notched keepers. Fig. 4 is an enlarged sectional view of one of the adjusting devices of the grating.

A represents a suitable housing, box, or

hopper, whose opposite ends are provided with slides B B', the removal of which permits the application of a longitudinal shaft, C, having at either or both ends a driving wheel or pulley, *c*. The principal portion of this shaft is polygonal in transverse section, being preferably hexagonal or octagonal, and is armed with a series of double-ended blades, D, arranged spirally around said shaft. Furthermore, each blade is provided either with a boss or washer, E, which washers separate said blades a sufficient distance to cause them to occupy the spaces or intervals between the bars F of the grating, previously alluded to. The front portions of these bars are pierced to receive tie-bolts G G', which bolts pass also through washers or bosses *g g'* of said bars. H H' are tie-bolts for the rear portions of said bars, which bolts traverse similar washers or bosses, *h h'*, the aforesaid bosses *g g'* and *h h'* serving to keep the bars a certain distance apart and parallel with each other. The opposite ends of the grating rest on bearers or flanges *a a'* of the box or housing. It is preferred to arch the grating in the center, as more clearly seen in Fig. 1, and to give the rear portion of the same a considerable pitch or inclination, as at *f*, for the purpose of shedding stones and other obstructions toward the gate I, the latter being hinged to the hopper at *i* and provided with a rigid arm, J, that carries a shiftable weight, *j*.

Secured within the opposite ends of the machine by bolts *k k'* are keepers K K', of practically the same shape as the bars of the grating, said keepers being notched on their under edges, as at L, which notches are adapted to receive the nuts or heads of the tie-bolts G G' and H H', as seen in Fig. 3. By this arrangement the grating is held firmly upon the bearers *a a'*, and said nuts are locked, so as to prevent accidental turning of the same. Tapped in the opposite ends of the housing are set-screws N N', whose points bear against the ends or heads of some of the tie-rods of the grating, but preferably against the outer rods, G and H', in order that said grating may be shifted longitudinally by the proper turning of said screws.

O is an opening in the front of the box, to permit the pulverized clay being taken out of the machine.

The operation of my machine is as follows: The shaft C is set in motion in the direction indicated by the arrow in Fig. 1, and the clay is thrown into the open upper end of the hopper A, and, falling onto the grating F, is thus brought in contact with the blades D. These blades accordingly cut or pulverize the clay and cause it to sift down through the interstices between said blades and the various bars F, which bars act as fenders or guards that prevent the passage of stones and similar obstructions. Consequently such obstructions descend the rearwardly-sloping portion *f* of the grating and lodge against the hinged gate I, where they gradually accumulate, being forced in this direction by the rapidly-revolving blades D, and as soon as the pressure against the inner side of said gate is sufficient to overcome the weight *j* the former automatically opens and allows the stones to fall out of the machine. If any of the bars F should break, the keepers K K' can be unbolted from the ends of the machine and the grating lifted out of the latter. The nuts can then be unscrewed from the tie-bolts, the broken bar be removed, and a new one inserted in its place in a comparatively short time. Finally, it is preferred to make the bars F thinner at bottom than at top, in order to prevent the grating becoming clogged up with clay.

I claim as my invention—

1. The combination, in a pulverizer, of a hopper provided with a grating composed of a series of convex bars, F, that slope rearwardly at *f*, and a series of blades, D, that operate within the intervals of said grating, said hopper being furnished with an automatically-opening gate, I, through which stones and

other obstructions are discharged after being forced down the inclined portion *f* of the grating, as herein described.

2. The combination, in a pulverizer, of a hopper provided with a grating composed of a series of convex bars, F, that slope rearwardly at *f*, and a series of blades, D, that operate within the intervals of said grating, said hopper being furnished with an automatically-opening gate, I, having a rigid arm, J, and an adjustable weight, *j*, through which gate stones and other obstructions are discharged after being forced down the inclined portions *f* of the grating, as herein described.

3. The combination, in a pulverizer, of a grating composed of a series of arched bars, F *f*, having washers *g g' h h'* interposed between them, said bars and washers being bound together by the tie-bolts G G' H H', in the manner herein described.

4. In combination with a pulverizer having the grating F *f* G G' *g g' H H' h h'*, arranged as herein described, the notched keepers K *k* K' *k'* L, attached to the opposite ends of the box or hopper, for the purpose stated.

5. In combination with a pulverizer having the grating F *f* G G' *g g' H H' h h'*, arranged as herein described, the set-screws N N', tapped in the opposite ends of the box or hopper and bearing against the tie-bolts that unite said grating, for the purpose specified.

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

JONATHAN CREAGER.

Witnesses:

JAMES H. LAYMAN,
S. S. CARPENTER.