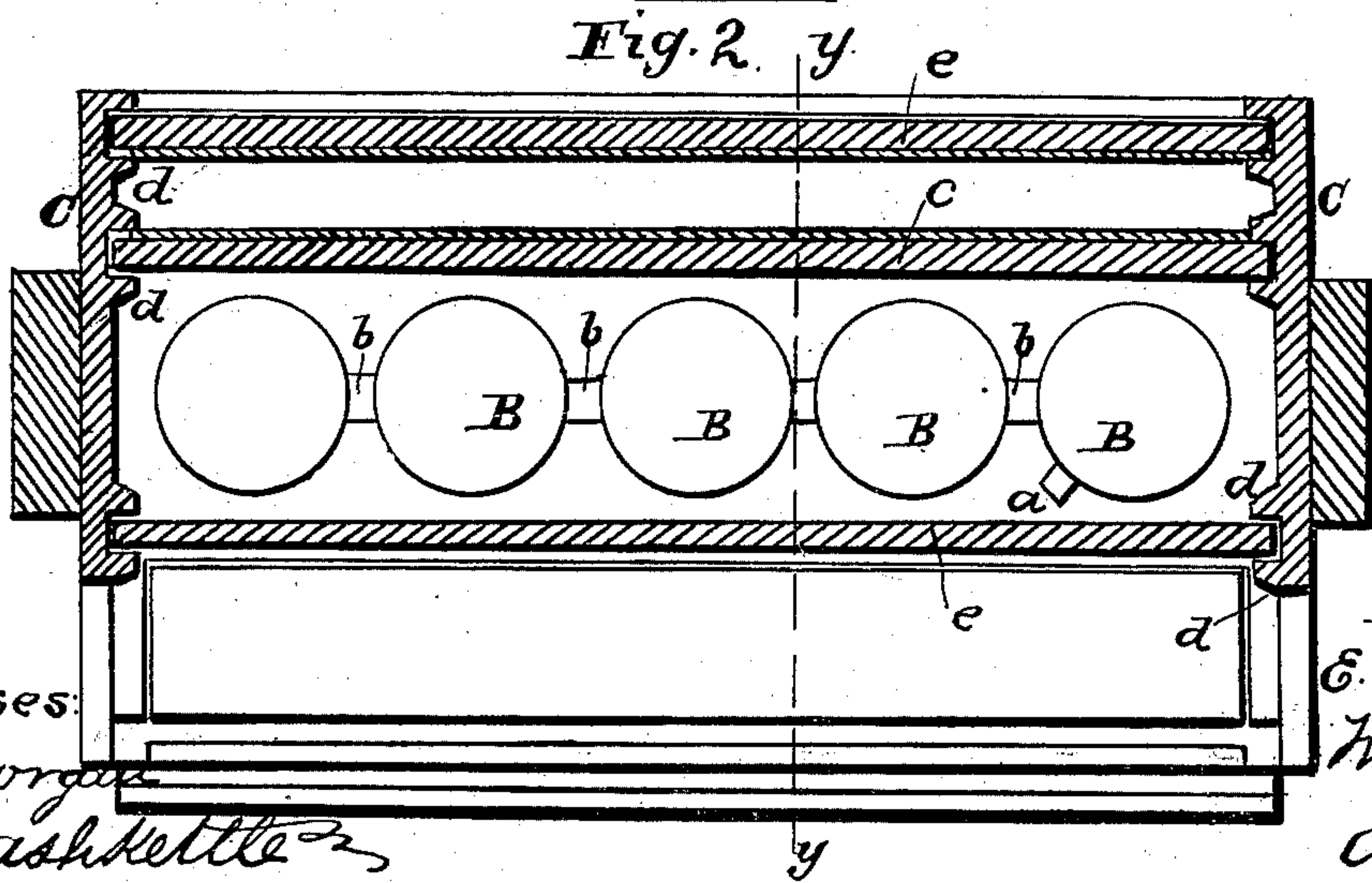
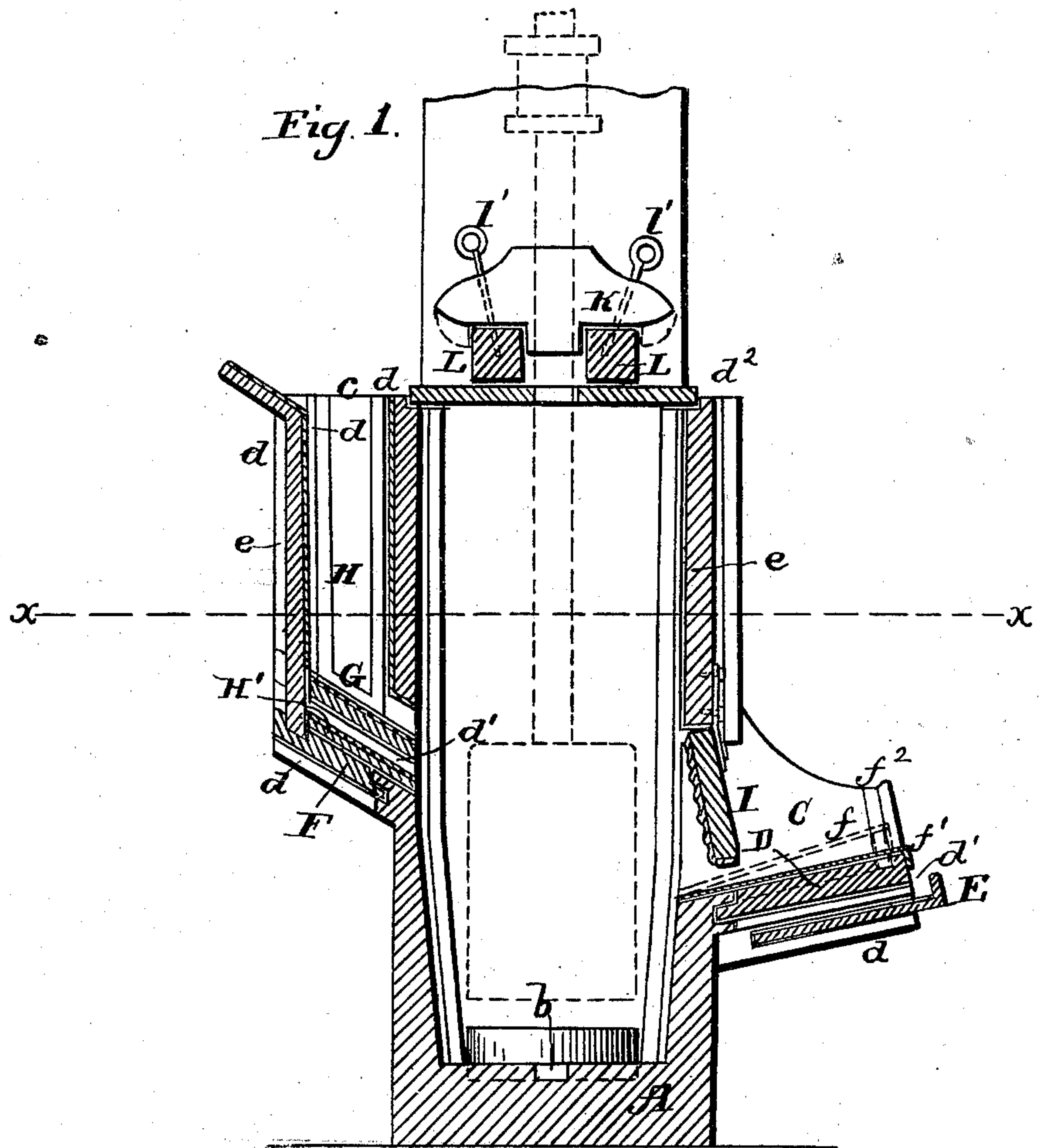


E. CASTLE.
Quartz Crusher.

No. 80,912.

Patented Aug. 11, 1868.



Witnesses:

Wm. A. Morgan
H. C. Ashkettle

Inventor:
E. Castle
per.
Murray & Co.
Attorneys

United States Patent Office.

EDMUND CASTLE, OF LINCOLNTON, NORTH CAROLINA.

Letters Patent No. 80,912, dated August 11, 1868.

IMPROVEMENT IN QUARTZ-CRUSHERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, EDMUND CASTLE, of Lincolnton, in the county of Lincoln, and State of North Carolina, have invented a new and useful Improvement in Stamp-Mills; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The nature of my invention relates to improvements in quartz-crushing mills, whereby it is designed to improve the same in construction and cheapen the expense; and it consists—

First, in providing recesses in the lower edges of the dies, and corresponding grooves in the bed-plate opening into the recesses in the same, in which the dies set, whereby a bent bar may be readily inserted to remove the dies from their beds.

Second, in the manner of joining together the different parts of the housing-frame, and in the arrangement of a swinging gate and adjustable table, to govern the delivery of the pulverized ore from the mill, as will be more fully described on reference to the accompanying drawings, wherein—

Figure 1 represents a vertical cross-section of my improved mill, and

Figure 2 a horizontal section, on the line *x x* of fig. 1.

A represents a heavy cast-iron mortar, as usually arranged in its general features, in which are arranged, in recesses in the bed of the same, the dies B.

a represents a groove or recess in the bed of the mortars, commencing a short distance from one of the dies, B, sloping downward, and opening into the recess provided for the die, at the bottom of the same.

A corresponding inclined groove is also provided in the lower edge of the die, whereby the bent end of a bar may be entered in such a manner as to raise the die out of its bed, which it is frequently necessary to do, for various reasons.

b represents a groove, communicating with each of the recesses for the dies, which are all provided with a corresponding tapered recess, whereby, after the first die B has been raised out of its bed, the others may also be raised in like manner, or each one may be raised without disturbing the others, if necessary.

C C represent the cast-iron ends of the housing-frame, and are cast with lugs *d d* on their inner faces, whereby the vertical grooves are formed, to hold the side planking *e* of the said housing.

The said cast-iron ends C of the housing-frame are extended on each side of the mortar-bed, to provide on the one side the hopper H, for feeding the ore into the mill, and on the other the inclined tables D and E, for regulating the discharge of the same in a pulverized state.

H' represents a false bottom to the hopper H, covered with copper plate, for amalgamating purposes, and which may be taken out of its place while the mill is in operation, to clean off the particles of gold accumulated upon it, by raising slightly the outer housing-plank *e*.

The said extended ends C C of the housing-frame are cast with inclined lugs or projecting ribs, *d' d'*, forming the inclined grooves for the tables or slides D, E, F, and G, and the lower edges of the slides D and F project into longitudinal grooves in the outer faces of the mortar-bed.

I represents a swinging gate, provided on its inner side with a corrugated copper-amalgamating plate, against which the ore is splashed by the action of the stamps in the crushing operation, and whereon particles of ore accumulate, which may be readily removed by swinging the gate outward.

The slide D, over which the pulverized ore passes away with the water, is also provided with an amalgamating-plate, *f*, which may be elevated at its outer edge, above the slide D, by means of strips of wood inserted in the groove *f'*, in the upper face of the table or slide D, and the grooves *f''*, in the housing-plates C, whereby the height of water in the mortar may be regulated, by which the degree of fineness of the pulverized ore may be governed, as the higher the water is raised, the finer the ore will be crushed before it is carried off by the water.

When the ore and water pass over the table D, they fall on to the inclined table E, from which they may be discharged into any suitable receptacle or trough, to be conveyed away, as may be desired.

K represents lugs, secured to the posts of the framing, under which the cross-pieces L L are adjusted, to hold the covering-plates of the housing tightly down in the rebates *l l*, in the upper edges of the vertical housing-planks.

l' l' represent pins to hold the pieces L L in place.

By this arrangement of the grooves formed in the said housing-plates, I am enabled to join the sides of the housing-frame, the inclined tables, and also the top covering in a very secure manner, by water-tight joints, without bolts or other fastenings, all the parts being so arranged that any one or more of them may readily be taken out without disturbing the others.

I am also enabled to provide a very large amount of amalgamating-surface, and to entirely dispense with the use of screens for regulating the fineness of the ore, by reason of the adjustable arrangement of the plate *f*, to govern the height of the water.

I am also enabled to remove the amalgamating-plates, to remove the accumulation thereon, while the machine is in operation, without difficulty.

I claim as new, and desire to secure by Letters Patent—

1. The end housing-plates C C of a quartz-crushing mill, provided with the grooves for holding the side portions and the inclined tables D E, and the bottom of the hopper, substantially as and for the purpose described.

2. The combination, with a quartz-mill, of the swinging gate I, provided with a metal plate, the inclined table D, and the adjustable plate *f*, substantially as and for the purpose described.

EDMUND CASTLE.

Witnesses:

IRVING J. POLLOK,
J. STEVENS.