R. F. BRIDEWELL.

Ore Stamp Mill.

No. 232,878. Patented Oct. 5, 1880.

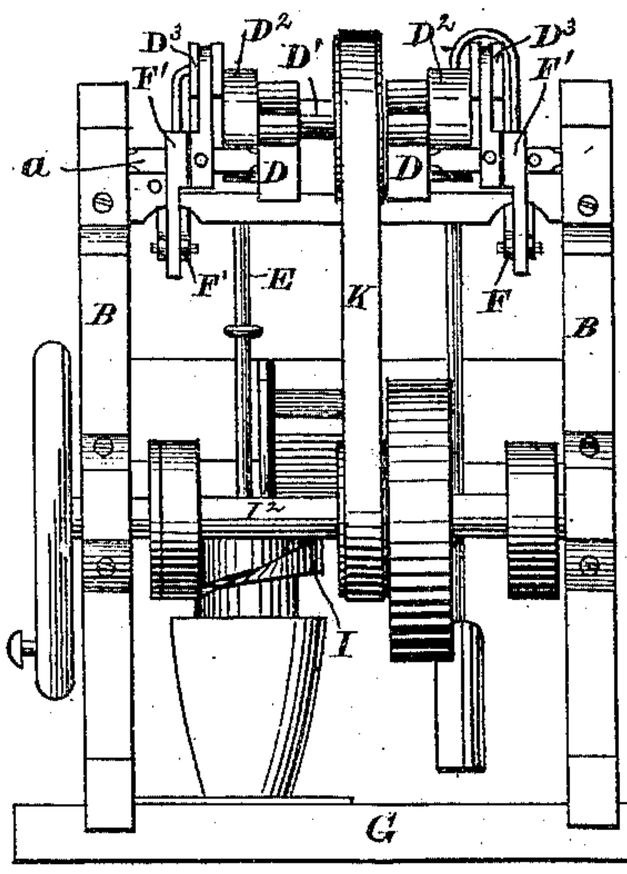

FIG 1

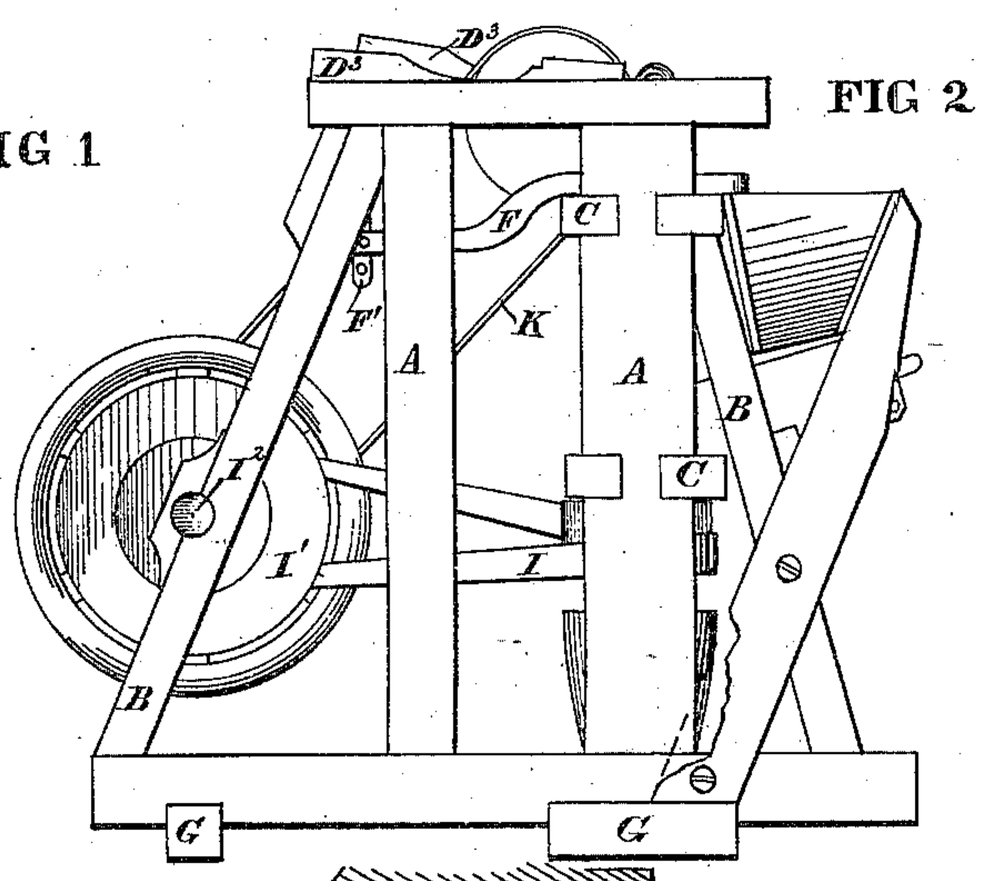

FIG 2

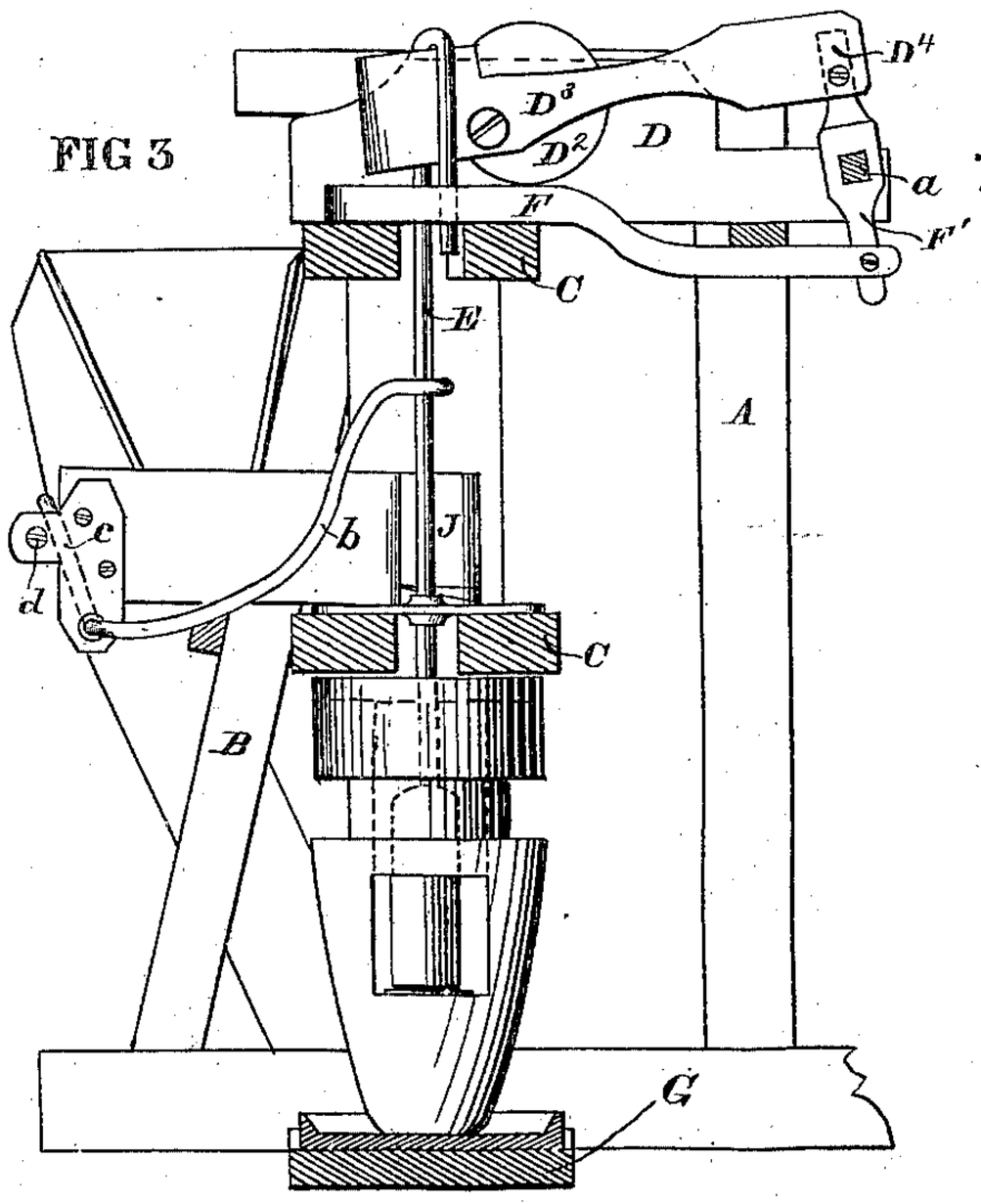

FIG 3

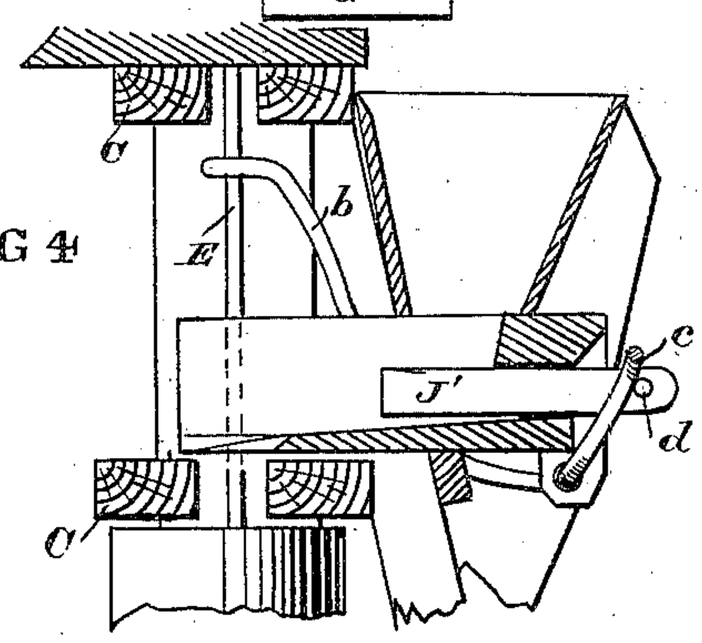

FIG 4

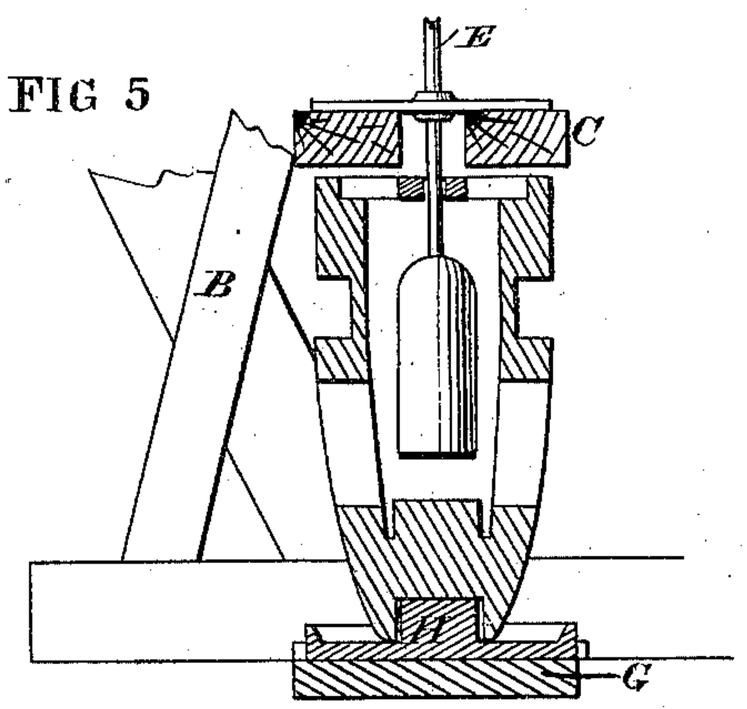

FIG 5

WITNESSES

Wilmer Bradford

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UNITED STATES PATENT OFFICE.

RICHARD F. BRIDEWELL, OF SAN FRANCISCO, CALIFORNIA.

ORE STAMP-MILL.

SPECIFICATION forming part of Letters Patent No. 232,878, dated October 5, 1880.

Application filed February 13, 1880.

To all whom it may concern:

Be it known that I, RICHARD F. BRIDEWELL, of San Francisco, in the county of San Francisco and State of California, have invented a new and useful Improvement in Ore Stamp-Mills, of which the following is a specification.

My invention has for its object to provide an improved stamp-battery for the reduction of ores containing the precious metals, whereby the power required for operation and the cost of construction are reduced to a minimum.

It consists of a rectangular frame suitably braced, on which the working parts are caused to operate by means of cams, wheels, traveling arms and levers, pulleys, and belts.

The upper ends of the stamp-stems are curved, and are lifted and partially rotated by horizontal arms, and at the same time the mortars are caused to be rotated, whereby a combined grinding as well as a stamping or vertical action of the stampers is had in the reduction of the ore to a suitable fineness for amalgamating with the quicksilver.

It also consists of an ore-feeding device, whereby the ore is fed to the stampers in an automatic manner, all of which, together with other details of construction, will hereinafter more fully appear.

I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation. Fig. 2 is a side elevation. Fig. 3 is a vertical sectional elevation; Fig. 4, a cross-section through hopper and feeding-chute; Fig. 5, a vertical section through mortar and mortar-bed.

Similar letters refer to similar parts throughout the several views.

The rectangular frame A is suitably braced at B B and by cross-beams C C, upon which the head-blocks D D, which provide bearings for the driving-shaft D′, by which the stamps are operated, are placed. The stamp-stems E extend up between the cross-beams C C to near the top of the frame, passing through guide-plates fixed to the beams. The ends of these stems or spindles are bent over and enter draw-bars F. The front portions of these draw-bars rest upon the top of the cross-beams, and the rear portions pass under the rear beam and are connected to bell-crank levers or arms F′, having their bearings on a shaft, *a*, at the rear end of the head-blocks D D.

To the shafting D′ are connected cam-wheels D^2, to which is attached a cam lever or arm, D^3, which lifts the stampers by a rectilinear reciprocating movement at each revolution of the cam-wheels. This cam-lever is moved by a bell-crank lever, D^4, similar to that which moves the draw-bar F, and this arm or lever is operated by the same rock-shaft.

The frame-work rests upon a suitable bed-plate, G, and upon this foundation the mortars are caused to rotate by a belt-connection with the driving-shaft at the rear side of the frame. The upper face of the bed-plate is provided with steps or projections H, on which the bases of the mortars turn, an offset being made therein to receive the step. This step or projection may be rounding in form, and the opening in the base of the mortars be made to correspond. Power is communicated to the mortars by a belt, I, which connects with a pulley, I′, on the driving-shaft I^2.

The ore is fed to the hopper in front of the stampers in the usual way, and the bottom of the hopper is divided by a vertical partition, J. Each of these spaces is provided with a movable bottom or drawer, J′, which moves outward, or back and forward, by means of a rod, *b*, having a bent arm, *c*, connected to the front of the hopper and extending around the stamp stem or spindle, so that when the stamp-stem is raised it will carry the rod *b* with it and throw out the arm *c* against a cross-rod, *d*, in front of the sliding apron and draw it backward, which causes the ore-bodies on the apron to be carried forward and fall by their specific gravity into the mortars and under the stampers.

In operating with my ore stamp-mill, after the ore has been fed into the hopper, power is applied to the driving-shaft I^2, which communicates by a belt, K, with the driving-shaft at the top of the frame carrying the cam-wheels, to which the traveling cam-lever is attached, and causes the cam-shaft to move up and forward and back and lift the stampers, and simultaneously the traveling arms are moved forward and back by the bell-crank lever, which imparts a half-rotary movement to the stampers, while the belt connecting the driv-

ing-shaft with the mortars imparts to these a continuous rotary motion upon their pedestals, so that the stampers at each stroke will give a blow at different points on the bottom of the mortar.

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

1. The combination, in an ore stamp-mill, of the rectilinear reciprocating cam arm or lever D^3, cam-wheel D^2, and bell-crank D^4, all arranged to operate substantially as and for the purpose specified.

2. In combination with an ore stamp-battery, the cam-wheel D^2, rectilinear reciprocating cam arm or lever D^3, and traveling arm or draw-bar F, whereby the stampers are raised and a half-rotary motion imparted to them at each revolution of the driving-shaft D', substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 26th day of September, 1879.

RICH. F. BRIDEWELL. [L. S.]

Witnesses:
C. W. M. SMITH,
JAMES WARD.