

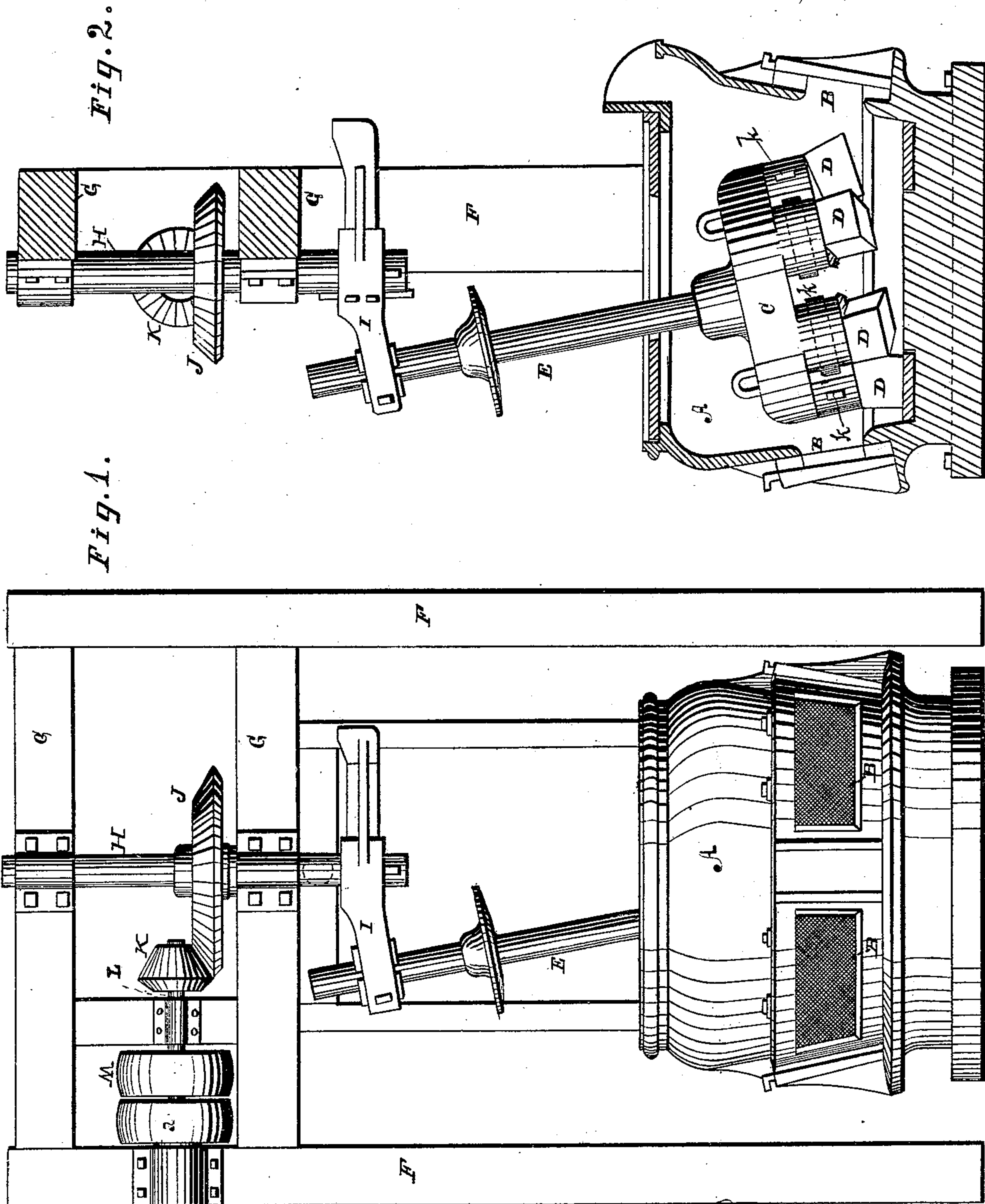
(No Model.)

C. P. STANFORD.

QUARTZ CRUSHER.

No. 253,121

Patented Jan. 31, 1882.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES P. STANFORD, OF SAN FRANCISCO, CALIFORNIA.

QUARTZ-CRUSHER.

SPECIFICATION forming part of Letters Patent No. 253,121, dated January 31, 1882.

Application filed July 27, 1881. (No model.)

To all whom it may concern:

Be it known that I, CHARLES P. STANFORD, of the city and county of San Francisco, State of California, have invented an Improved Quartz-Crusher; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to that class of mining machinery known as "quartz crushers or mills;" and it consists in certain details of construction, as will be hereinafter described and specifically claimed.

Figure 1 shows a front elevation of my device. Fig. 2 shows a vertical section of the same.

A represents a flat-bottomed mortar secured appropriately to a foundation or mortar-block and provided with screens B. The ore is fed to the mortar in any suitable manner. Within this mortar is the crusher or pestle C. This consists of a heavy metal block having peripheral dies D upon its undersurface, bolted, keyed, or otherwise firmly secured to said pestle, shown here as being keyed through projecting bosses by keys *k*. The mortar A is large enough to easily contain the pestle and allow it considerable side-play.

E represents the stem or handle of the pestle extending upward from the mortar.

F represents the frame of the device, having cross-guides G, in which a vertical shaft, H, is journaled and properly supported. This shaft has secured to it a crank-arm, I, through the outer end of which the stem or handle E loosely passes. The shaft H, being about over the center of the mortar, the crank I causes the stem, in order to pass through it, to incline somewhat, and so tilt the pestle to one side, as shown in

Fig. 2. The shaft H carries a bevel-gear, J, with which a pinion, K, upon the end of a shaft, L, engages. The shaft L is journaled in the frame, as shown, and carries a driving-pulley, M. Now when power is applied to the pulley M the crank I is revolved, and carries with it the stem E. By holding this stem out at a certain distance and making it describe a circle outside of the vertical central line of the mortar it causes the pestle to tilt upon each of its dies successively, thus producing a crushing and grinding force, the whole weight of the pestle being thrown upon each die as it is tilted by the revolution of the crank, and as the faces of the dies D are made, as shown, in a plane tangential to the radial line of the movement of the pestle, a series of flat surfaces of the dies, parallel to the flat bottom of the mortar, intermittently strike the ore percussively. The stem, by passing loosely through the crank, is not revolved upon its own axis, and consequently the pestle does not turn in the mortar.

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

An ore-crusher consisting of the mortar A, pestle C, with its separated peripheral dies D, keyed to the bosses, as shown, and stem E, and the crank I, revolving shaft H, gears J and K, shaft L, and driving-pulley M, substantially as herein described.

In witness whereof I have hereunto set my hand.

CHARLES P. STANFORD.

Witnesses:

S. H. NOURSE,
FRANK A. BROOKS.