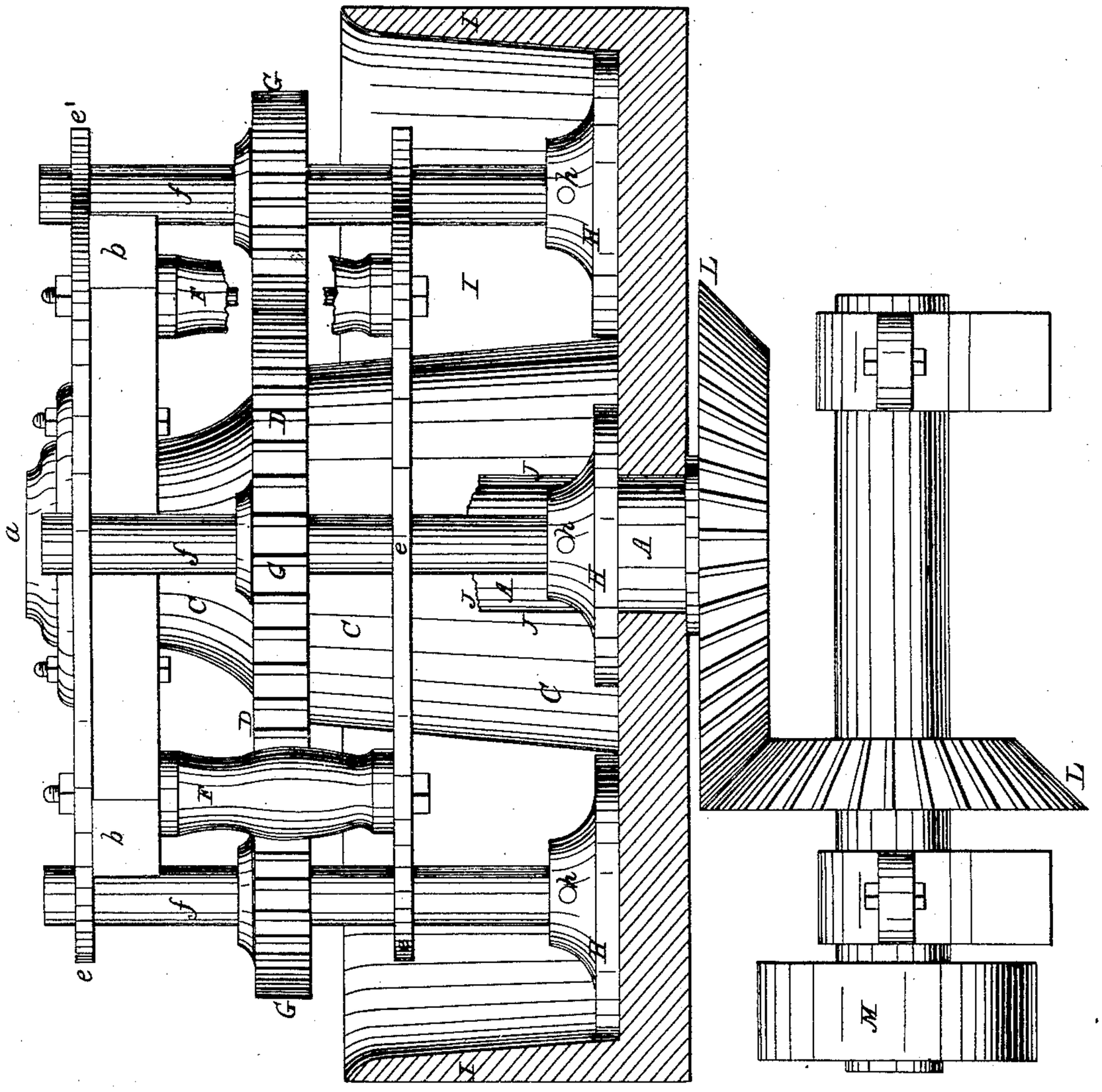
I. S. Croll.

Ore Mill.

No. 58,539. Patented Oct. 2, 1866.



Witnesses:
Chas M Smith
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Inventor:
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UNITED STATES PATENT OFFICE.

I. S. CROLL, OF NORTH SAN JUAN, ASSIGNOR TO HIMSELF AND QUARTUS RICE, OF NEVADA, CALIFORNIA.

IMPROVEMENT IN QUARTZ-CRUSHERS.

Specification forming part of Letters Patent No. **58,539**, dated October 2, 1866.

To all whom it may concern:

Be it known that I, ISAAC SHELBY CROLL, of North San Juan, county of Nevada, State of California, have invented certain new and useful Improvements in Grinders and Amalgamators for reducing ores containing the precious metals; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

The nature of my invention consists in a series of rotating mullers for reducing ores, revolving around a common axis upon a flat surface, each muller revolving on its own axis.

Referring to the drawings, which represent a sectional elevation cut through the center of the pan, A A is an upright shaft, with part removed at J J, passing up through the center of a cone, C, in the center of the pan *i*. The pan *i* is constructed of iron or other material, of suitable size, with a hollow cone, C, extending up from its center. A horizontal stationary wheel, D, with teeth, is fixed rigidly to this cone about midway above the bottom of the pan, resting in a sleeve. Upon the top of the cone I place a plate, *a*, confined to the timbers of a frame, *b b*, revolving with it, by bolts passing through it and the circular ring or plate *e'* and the timbers. Below this circular ring is another ring, *e*, of the same dimensions as *e'*, both resting against shoulders on the muller spindles or shafts *f f f*, and are held firmly together by bolts and nuts, said bolts passing through them and standards *f' f'*, the whole forming a stout circular frame.

The circular mullers or shoes H H H are four in number, more or less, or such a number as the size of the pan will admit of, of smooth or corrugated surface, and are attached to the base of the spindles *f f* by pins *h h*. About midway upon these spindles I place spur-wheels G G G, which gear into the wheel D.

Motion is imparted by the pulley M, communicating with the beveled gears L L, which carries the frame around, causing the mullers to rotate around the cone or common center of the pan and on their own axes by the spurs G G and stationary gear-wheel D in the valley or roadway on the bottom of said pan, imparting to them a compound or double motion, thereby performing a much greater percentage of grinding and amalgamating with much less power than other machines now in use for the same purpose as where the mullers are connected directly to a common rotating central axis. Also, in operating my machine the pulp is thrown to the center around the cone instead of being carried by force or power in a current around the whole interior of the pan, as in other machines, which must necessarily require more or less power to accomplish.

I claim—

Giving the mullers a positive motion on their own axes by means of the gears D and G G, or their equivalents, while said mullers are driven around in the pan by the rotation of the frame which carries the shafts of the mullers.

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Witnesses:

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