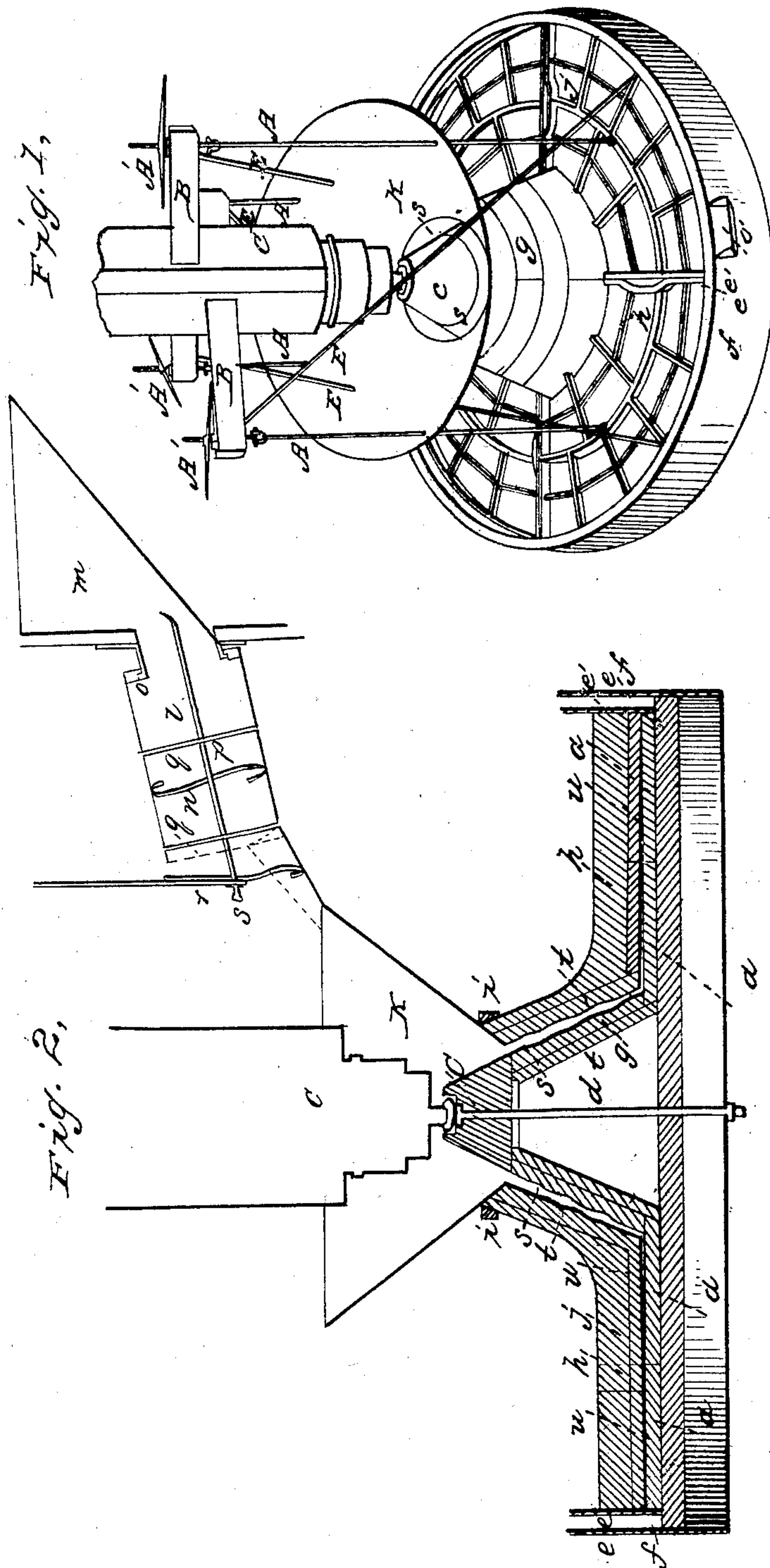


G. T. & W. F. KEARSING.

Quartz Mill.

No. 24,878.

Patented July 26, 1859.



UNITED STATES PATENT OFFICE.

GEO. T. KEARSING AND WM. F. KEARSING, OF BUTTE CITY, CALIFORNIA.

MILL FOR CRUSHING QUARTZ.

Specification of Letters Patent No. 24,878, dated July 26, 1859.

To all whom it may concern:

Be it known that we, GEORGE T. KEARSING and WILLIAM F. KEARSING, both of Butte City, in the county of Amador and State of California, have invented a new and Improved Quartz Mill; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a perspective view of our invention. Fig. 2 is a vertical central section of the same.

Similar letters of reference in both figures indicate corresponding parts.

To enable those skilled in the art to make and use our invention we will proceed to describe its construction and operation.

L represents a firm wooden bed, being perfectly level on its surface to which the bed plates, *a a a a*, are firmly bolted, one bolt for each plate being sufficient. Firmly secured to the bed, L, by means of a central bolt, *d*, is the cone, *b*, and cap, *c*, which latter forms the step for the vertical driving shaft, C. The sides, *g*, of the cone, *b*, are corrugated, and the surfaces of the bed-plates, *a*, are furnished with spiral grooves for the purpose of facilitating the grinding operation.

The runner, *h*, is constructed of four sectional cast iron frames bolted together and secured at the top by wrought iron bands, *i i*. The inner or grinding surface of the runner corresponds in its shape to the surface of the cone, *b*, and of the bed plates, *a*, leaving a space, *s*, between the cone and the runner, which is gradually diminishing to the outer edge. The grinding surface of the runner is formed by plates, *t* and *u*, the surfaces of which are similar to the surfaces of the cone, *b*, and of the bed-plates, *a*, those of the plates, *t*, being corrugated and those of the plates, *u*, being furnished with spiral grooves.

The runner is suspended from arms, B, which extend in a horizontal direction from the driving shaft, C, by means of rods, A, as clearly represented in Fig. 1, and additional rods, E, serve to impart motion to the runner. The upper ends of the rods, A, are furnished with screws and nuts, which latter are turned by means of arms, A', so that the runner can be raised and lowered without much labor. This arrangement is of particular convenience with full sized machines where the weight of the runner amounts to two tons, one man being able to

raise the runner, with our arrangement, in a few minutes, so that access can be had to the grinding surfaces both of the runner, and of the bed-plates, *a*.

Attached to the upper edge of the runner and revolving with the same is the hopper, *k*, and it will be noticed, by referring to the drawings, that the cap, *c*, of the cone, *b*, extends beyond the edge of the runner up into the hopper, so that the step of the driving shaft, C, is elevated above the grinding surface and out of the way of sand, and the step can always be reached and kept well lubricated. It is not necessary to point out the particular advantages derived from this arrangement as every person acquainted with quartz mills knows from experience the continuous source of trouble caused by the injurious influence of the sand on the step, or journals and boxes of the driving shaft, said step or one of the journals being with all other mills below the grinding surfaces and in such a position that it is not only not sufficiently protected against the sand, but it is also very difficult to reach it with the lubricating substance.

The bed, L, is surrounded by a rim, *e*, and a similar rim, *e'*, is secured to the outer edge of the bed-plates, *a*, which rims form a channel, *f*, for the reception of the pulp, which escapes through an opening, *o'*, in the outer rim, *e*.

Ore is fed to the hopper, *k*, from a bin, *m*, through a cylinder, *l*, which rotates on a rod, *p*, and which is furnished on its inner surface with a spiral leaf, *n*, to regulate the feed. The rod, *p*, is secured in a stationary bracket, *r*, and a screw, *s*, on its end serves to tighten the revolving joint, *o*. The pulp is carried off by a stream of water introduced, together with the ore, and the amalgamation is effected by introducing quicksilver from time to time in the hopper in proportion to the quality and quantity of the ore crushed.

Having thus fully described our invention what we claim as new, and desire to secure by Letters Patent, is:—

The arrangement and combination of the driving shaft, C, arms, B, rods, A, and runner, *h*, substantially as and for the purpose described.

GEORGE T. KEARSING.
WILLIAM F. KEARSING.

Witnesses:

H. W. SQUIRES,
H. F. AMES.