H. CAMP.

Ore Mill.

No. 45,698. Patented Jan. 3, 1865.

Fig. 1.

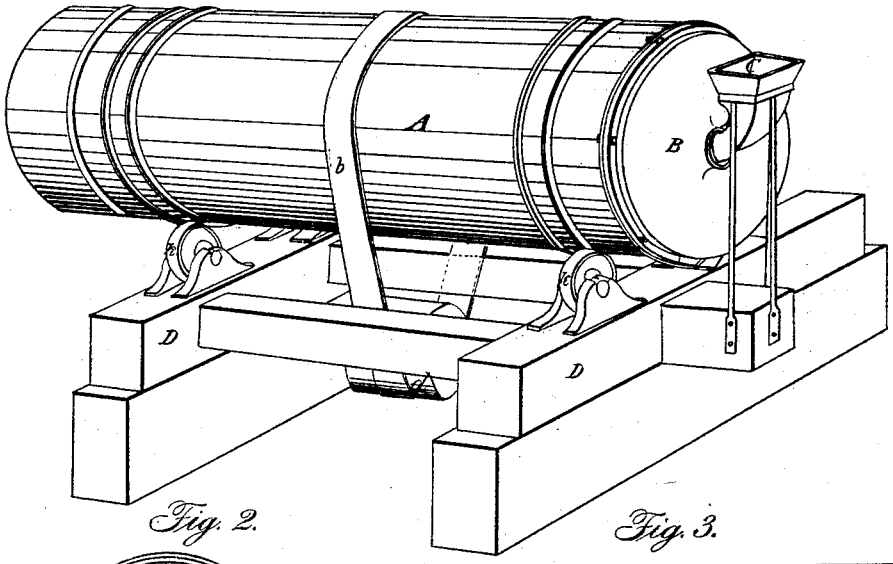


Fig. 2.

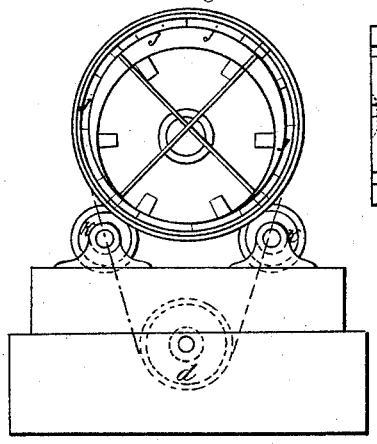


Fig. 3.

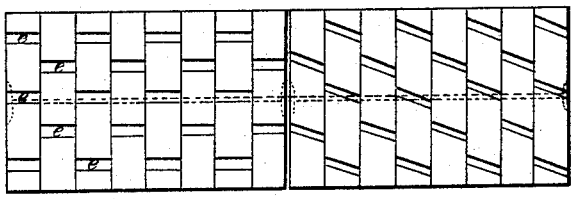


Fig. 4.

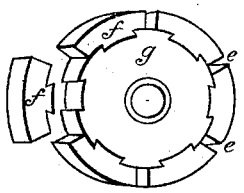


Fig. 5.

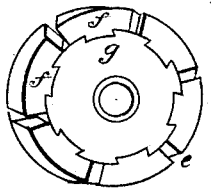
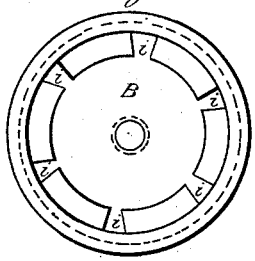


Fig. 6.



Witnesses:

J. Silversmith

Chas. C. Western

Inventor:

Herman Camp

UNITED STATES PATENT OFFICE.

HERMAN CAMP, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN QUARTZ-CRUSHERS.

Specification forming part of Letters Patent No. **45,698**, dated January 3, 1865; antedated September 17, 1863.

To all whom it may concern:

Be it known that I, HERMAN CAMP, of the city and county of San Francisco, in the State of California, have invented a new and useful machine for pulverizing and grinding minerals, ores, and other substances, entitled "Camp's Revolving Quartz-Crusher;" and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 represents a perspective view of the entire crusher. Fig. 2 shows an end or side view of the smaller cylinder, friction-rollers, frame-work, and pulley. Fig. 3 exhibits a series of dies, so that when the same are bolted or screwed together they will form the entire surface of one or more cylinders, with its interstices or indentations. Fig. 4 represents a perspective view of the dies and their interstices, and the manner of its construction. Fig. 5 shows a perspective view of similar dies, showing the the mode of construction with diagonal interstices. Fig. 6 illustrates the internal construction of the head-piece, and the buckets or cups for transmitting the ore or other substances while revolving before the inner or smaller cylinder, also an aperture for receiving a hopper.

The nature of my invention consists in providing a cylinder or cylinders of any desired length or dimension, and of such material as may be best suited, placing therein a roller or crusher, or a series of dies composing such roller when bolted together, provided with interstices or indentations, which will serve in transmitting the ore or other substances to be pulverized before the roller, while the same is in motion, and that the whole crushing apparatus may rest and revolve upon four or more friction-rollers.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents the cylinder, made of iron and of any desired length or dimension. To the inner surface thereof a series of chilled iron staves are screwed or bolted. Should the same become worn out, this surface may be replaced by a new set of such staves, *j*. On the outside of said cylinder I provide guides or flanges to keep the friction-rollers in their place. The yellow-colored end of said cylinder shows a bolt or sieve. As the crushed ore or substances escape from the cylinder it may be bolted and collected by any of the known means. The head-piece B is made of similar material, and is securely fastened by bolts and screws. The same is provided with an aperture or loose collar for the reception of the hopper C, by which latter said cylinder is fed.

k k k k represent four friction-wheels, upon which the cylinder revolves or rests. These are securely placed upon the frame D.

b is a belt encircling the cylinder and pulley *d*. I do not, however, confine myself to the manner of propelling the same.

c c represents cross-bars or bolts placed transversely for the purpose of preventing the rollers or crushers, Fig. 3, from slipping out of the cylinder.

In Fig. 2 I show sections *j*, representing the staves or grinding-surface of the cylinder A.

Fig. 3 illustrates the sections and dies of the rollers or crushers as placed inside of cylinder A, and are about one-fourth the size less than the diameter of said cylinder.

Fig. 4 represents the precise manner of the construction of said pieces—namely: *g* are a series of sections of cast-iron, provided with dovetail joints for the reception of the accompanying dies *f*, which are made of chilled iron. All of these sections are cast with holes in the center, so that they may be bolted or screwed together. The buckets or cups *e* are for conveying the partially crushed ore from the back of said crushers to the front thereof. Fig. 5 is in reality the same roller or crusher in point of construction or application, and the only difference is that the cups or buckets are placed diagonally to hasten the conveying process of the pulverized substances till it is discharged into the sieve or bolt. On the inside of the head piece B, Fig. 6, are shown a series of buckets, *i*, provided therein for the purpose of conveying the uncrushed substances on the crushing-surface and before the crushers or rollers.

I do not confine myself to the manner of propelling the crusher.

The grinding-surfaces *j* and *f*, when worn out, may be replaced by their corresponding pieces,

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the cylinder A and its peculiarly constructed head-piece B with the dies, constructed of a series of sections of cast-iron, as shown in Figs. 3, 4, and 5, supported and revolving upon friction wheels, the whole made, constructed, and operating in the manner and for the purpose herein described.

HERMAN CAMP.

Witnesses:
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CHAS. C. WESTERN.