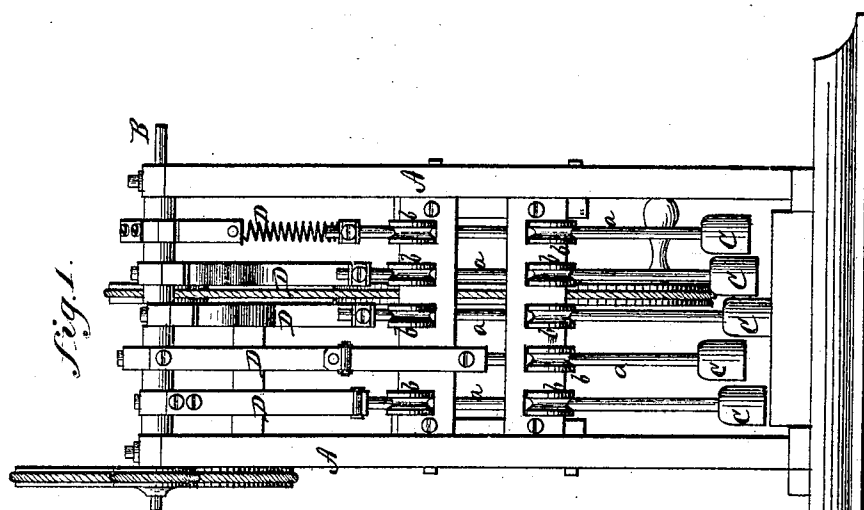
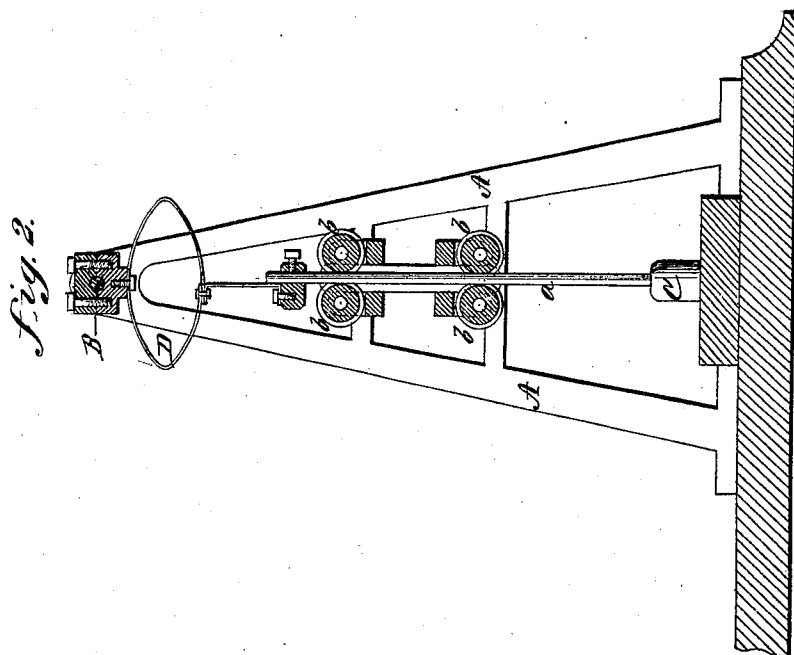


G. D. CROCKER.
Stamps for Crushing Ores.

No. 141,493.

Patented August 5, 1873.



Witnesses
John A. Ellis,
Edward C. Ellis

Inventor
George D. Crocker
Per.
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Attys

UNITED STATES PATENT OFFICE.

GEORGE D. CROCKER, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN STAMPS FOR CRUSHING ORES.

Specification forming part of Letters Patent No. **141,493**, dated August 5, 1873; application filed April 14, 1873.

To all whom it may concern:

Be it known that I, GEORGE D. CROCKER, of San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Quartz-Mill; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon which form a part of this specification.

My invention is intended as an improvement upon the quartz-mill for which Letters Patent were granted to me October 25, 1870; and it consists in the combination and arrangement of the several parts of the mill, by which it is rendered efficient and successful—that is to say, in combining in the machinery the elasticity of flexible connections between the shaft and the stamps, and delicately-acting guides, formed of friction-wheels, as herein-after set forth, so as to allow the free rebound of the stamps after striking the ore.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a front view, and Fig. 2 a transverse section, of a quartz-mill embodying my invention.

A represents the frame of my mill, constructed in any suitable manner to receive the various parts of the same, and of sufficient strength to withstand the shocks and vibrations of the working-parts. In this frame is placed a shaft, B, with a series of cranks at varying angles, and which is revolved by any suitable or convenient power. C C represent a series of stamps, each provided with a stem, *a*, which passes up between friction-rollers *b b*.

These rollers are grooved circumferentially, so as to fit around the stem and form guides for the same, preventing heating and a great amount of friction. Each stamp-stem *a* is connected with a crank of the shaft B by means of a flexible or yielding connection, D. These connections may be constructed in various ways, all answering the same purpose; and hence I do not confine myself to any particular construction of the same, the only requisite being that said connection should yield when the rock is first thrown in the mortar, so as not to break the machinery.

I have found, by experiments, that the successful use of the flexible or yielding connections between the shaft and the stamps is dependent on their combination with guides formed by the use of friction-wheels, as above set forth.

A stamp of twenty-five pounds will do the same work as a stamp of six hundred and fifty pounds in the old way, simply by the rapidity of the blows, as with my improvement the machine may be run many times faster than with the other.

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

The combination of the flexible spring connections D with the friction-wheel guides *b b*, in a quartz-mill, when the several parts are constructed and arranged substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

GEORGE D. CROCKER. [L. s.]

Witnesses:

J. M. KNIGHT,
M. W. WESTON.