H. H. TAYLOR.

Ore-Stamp.

No. 223,823. Patented Jan. 27, 1880.

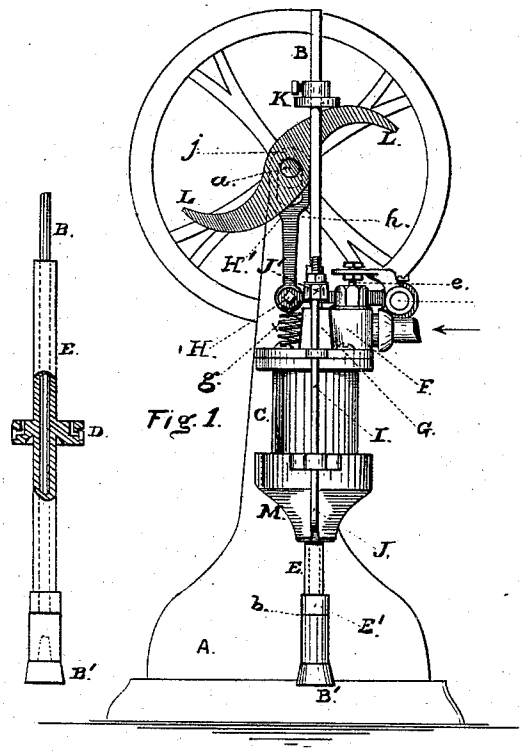


Fig. 1.

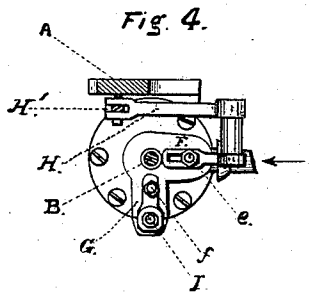


Fig. 4.

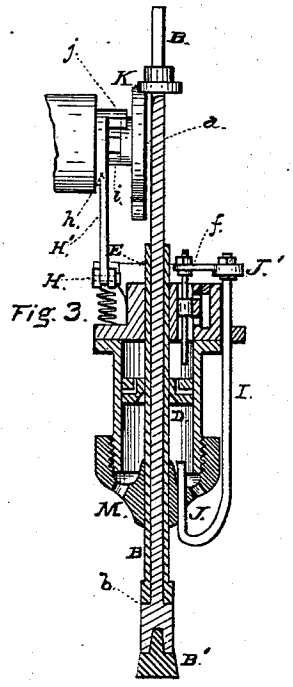
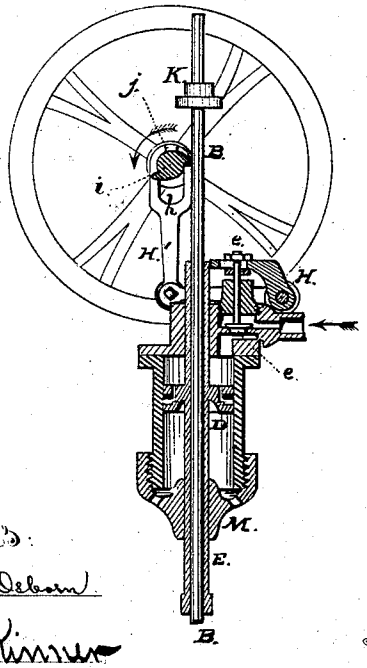


Fig. 3.

Fig. 2.



Witnesses:

Edward R. Osborn

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UNITED STATES PATENT OFFICE.

HORACE H. TAYLOR, OF OAKLAND, CALIFORNIA.

ORE-STAMP.

SPECIFICATION forming part of Letters Patent No. 223,823, dated January 27, 1880.

Application filed July 7, 1879.

To all whom it may concern:

Be it known that I, HORACE H. TAYLOR, of the city of Oakland, in the county of Alameda and State of California, have invented and produced a certain new and useful Means or Device for Operating Ore-Stamps; and I do hereby declare that my said invention is fully and clearly set forth and described in the following specification and the accompanying drawings therein referred to.

My invention relates to a novel means for operating the stamps of ore-stamp mills in their downward strokes; and it has for its object to produce the blow or impact of the stamp against the die by the expansive action of steam or of compressed air instead of by the weight of the stamp or stamp-stem or the recoil of a spring, whereby a quick live stroke is obtained with a stamp of light weight.

To such end and purpose my invention consists in the combination, with an ore-stamp, of a piston upon its rod or stem, and a means for automatically applying the expansive action of steam or compressed air against the top of said piston at the end of its upward movement and exhausting the same therefrom at the termination of its downward stroke, the upward or lifting movement of the stamp being effected in the well-known manner by a cam and tappet, all which will be more fully set forth hereinafter.

In the drawings, Figure 1 is an elevation of my improvement as applied to a stamp. Fig. 2 is a detail view in vertical section, showing the supply valve and chamber and the mechanism employed to operate the same. Fig. 3 is a similar section, but taken vertically through the axis of the cylinder at right angles to the section Fig. 2; and Fig. 4 is a top view of the cylinder and a section through *x y*, Fig. 1.

Upon the frame-work of a stamp-mill I place and firmly secure a cylinder having a piston and a hollow piston-rod. Suitable mechanism is combined therewith for automatically working supply and exhaust valves that govern inlet and exhaust ports. The stamp-stem is held within the hollow piston-rod and is free to rotate therein, but has no vertical motion independent of the hollow rod. The pressure of steam or compressed air upon the top of the piston produces the stroke of the stamp, and the upward movement or lifting of the stamp-stem and the piston at the end of each stroke is effected by a cam and tappet.

In the drawings, A represents the frame or support for the stamps. B is the stamp stem or rod, and B′ its shoe or stamp. C is the cylinder, firmly bolted or secured to the frame in an upright position. D is the piston, and E the hollow piston-rod. The steam or air space in the cylinder is above the piston, and the space below it communicates with the atmosphere.

F is the supply-valve chamber, and G the exhaust-chamber. H is the lever that operates the supply-valve *e*, and is itself actuated by the rod H′, having a yoke, *h*, on its upper end, which engages with and is lifted by the cam *i* on the rotating shaft *a* of the mill. This cam, as shown in the drawings, is formed on the inner face of the hub of the lifting-cam L.

The yoke has at its upper part an extending lip, *j*, that works against the face of the hub and is struck by the cam *i*, whereby the rod H′ is given a vertical movement and the lever H is oscillated. The downward movement of this rod and lever is produced by a spring, *g*.

I is the rod that moves the exhaust-valve *f*. It is held in guides at the side of the cylinder, and its lower end, J, is bent up so as to work in a hole or slot in the bottom of the cylinder, and is extended upward into the cylinder, so that it may be struck by the piston at each downward stroke. The ends or heads of the cylinder are increased in diameter at the points of bearing, so that the rod is prevented from springing and is kept always in true perpendicular line. The lower end or head of the cylinder is extended or lengthened, to give an additional bearing-surface, M, as a guide for the lower portion of the stamp-stem and piston-rod.

The increased diameter of the end of the stamp-stem to which the shoe is secured forms a shoulder, *b*, to receive the head of the hollow piston-rod, and against this part the force exerted by the steam or compressed air against the piston is thrown at every downward stroke.

As thus applied my invention operates to produce quick live blows of the stamp without the employment of heavy shoes and weighted stamp-stems to effect the impact against the

die, and by reducing the weight of the parts to be lifted after each blow the work to be performed by the lifting mechanism is greatly lightened. The stamps can thus be run more rapidly and effectively, and less extent of motion is required for the stamp-stems.

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

In an ore-stamping machine, as herein described, the combination of the cam *i* on driving-shaft *a*, lip *j* on yoke *h* of lever H′, levers H, supply-valve and rod *e*, and exhaust-valve *f*, operated by the rod I, which receives its motion from the piston D, all arranged and operating substantially as specified.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 13th day of June, 1879.

HORACE H. TAYLOR. [L. S.]

Witnesses:
EDWARD C. OSBORN,
J. ROBERT READ.