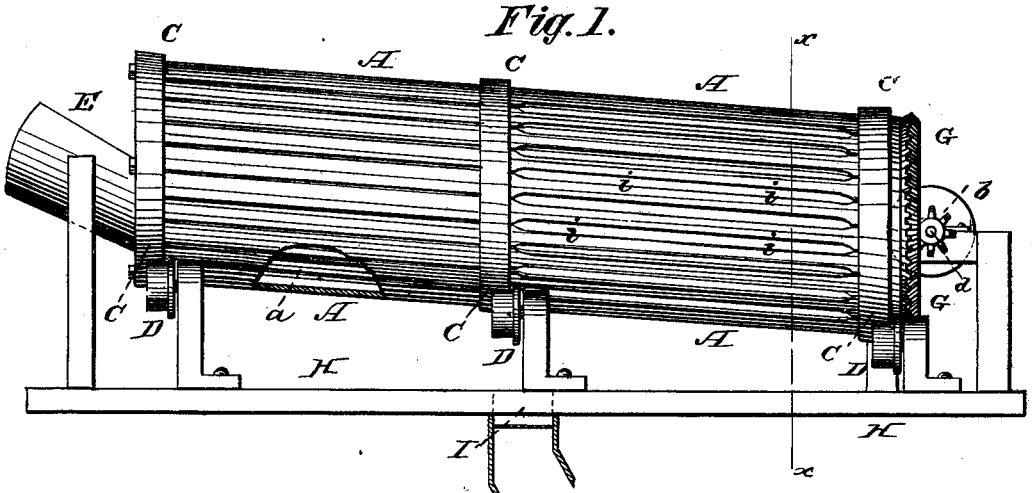
H. K. DRAKE.
Ore-Mill.

No. 197,349. Patented Nov. 20, 1877.

Fig. 1.



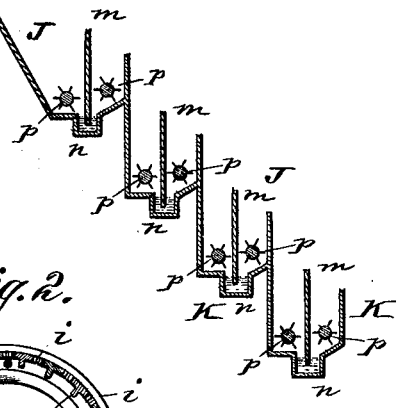
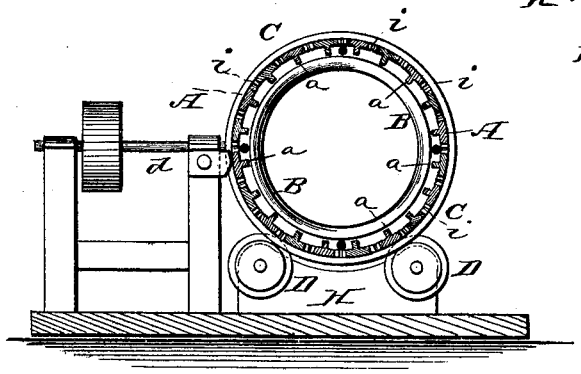


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

HORACE K. DRAKE, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN ORE-MILLS.

Specification forming part of Letters Patent No. **197,349**, dated November 20, 1877; application filed November 3, 1877.

To all whom it may concern:

Be it known that I, HORACE K. DRAKE, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Ore-Mills; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention has for its object to remove the rust from the gold contained in a mass of stones, gravel, and sand by disintegrating such mass, by causing a mutual attrition of the particles against themselves by revolving the mass, and thereby rendering the gold mingled therewith capable of amalgamating with mercury.

In order to carry out my invention, I use a cylinder of peculiar construction, as will be hereinafter more fully set forth.

In the annexed drawings, which fully illustrate my invention, and to which reference is made, Figure 1 is a side elevation of my improved cylinder; and Fig. 2 is a transverse vertical section of the same through the line *x x*, Fig. 1.

The cylinder is composed of a series of parallel bars, A A, arranged in cylindrical form, and held together by means of interior rings B and exterior bands C. The bars A are made in T shape—that is to say, each bar has a longitudinal rib or flange, *a*, in the center, on its inner side, and extending the entire length of the bar.

The cylinder thus formed is supported in a slightly-inclined position upon flanged rollers D D, the exterior bands C resting upon said rollers, and forming tracks for the cylinder, and the flanges on the rollers preventing any endwise motion of the cylinder in the direction of the incline.

The cylinder is inclined from the end where the material is fed through the hopper or feed-spout E to the opposite end, where the stones, after being subjected to the process, are delivered.

At the lower or delivery end of the cylinder is secured a bevel-cogged rim, G, which meshes with a bevel-pinion, *b*, upon the end of the driving-shaft *d*, said shaft being driven by a belt or any other suitable means, so as to rotate the cylinder.

The bars A A, forming the periphery of the cylinder, are placed close together, so as to form a closed cylinder from the elevated or feed end downward for about one-half the length of the cylinder, more or less. For the remaining portion of the cylinder the bars are slightly reduced in width, so as to form longitudinal slots, as shown at *i i*.

Below the cylinder is the usual inclined bottom H, with a lower central discharge-opening, I, and below said opening is an inclined conveyer, J, terminating in a gold-saver, K. Within the conveyer is a series of upright partitions, *m*, and on the inside of the lower portion of the cross-partitions *n* is placed a bed of quicksilver, *x*, while above the same is arranged a series of agitators, *p*.

The stone, gravel, and sand are fed into the upper end of the cylinder in large quantities, and, the cylinder being rotated, such material is carried up by the interior ribs or flanges *a*, and is ground, by attrition of the particles, in such a manner as to cause an entire separation of the stones from the sand, and scouring or cleaning the rust or sulphur from the gold. The upper end of the cylinder being closed, this scouring or cleaning is complete before any of the material can escape from the cylinder; but if not fully completed while in the closed portion of the cylinder, it is done while passing through the lower slotted portion of the cylinder, from whence the gold, sand, and fine gravel pass through the slots *i*, while the stones are discharged over the end of the cylinder.

The sand, gravel, and gold pass over the inclined bottom down into the gold-saver, where they go through the usual process for collecting the gold and discharging the other matter.

By this means it will be observed that a large quantity of material which has heretofore been almost entirely worthless can be worked up and used at a great profit, and saving a vast amount of valuable metal.

It must, of course, be understood that the device will be made unusually strong, and it will have to support tons upon tons of the ma-

terial all the time, because, to make the operation successful, there must be continual feed and discharge.

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

1. An inclined revolving cylinder inclosed at its upper part for a suitable distance, and the remaining portion provided with longitudinal slots, substantially for the purposes herein set forth.

2. An inclined revolving cylinder constructed of a series of bars T-shaped in cross-section, connected together and arranged to form a portion of the cylinder closed, the remaining portion slotted, and a series of longitudinal ribs or flanges on the inside, all substantially as and for the purposes herein set forth.

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

HORACE K. DRAKE.

Witnesses:
C. H. WATSON,
FRANK GALT.