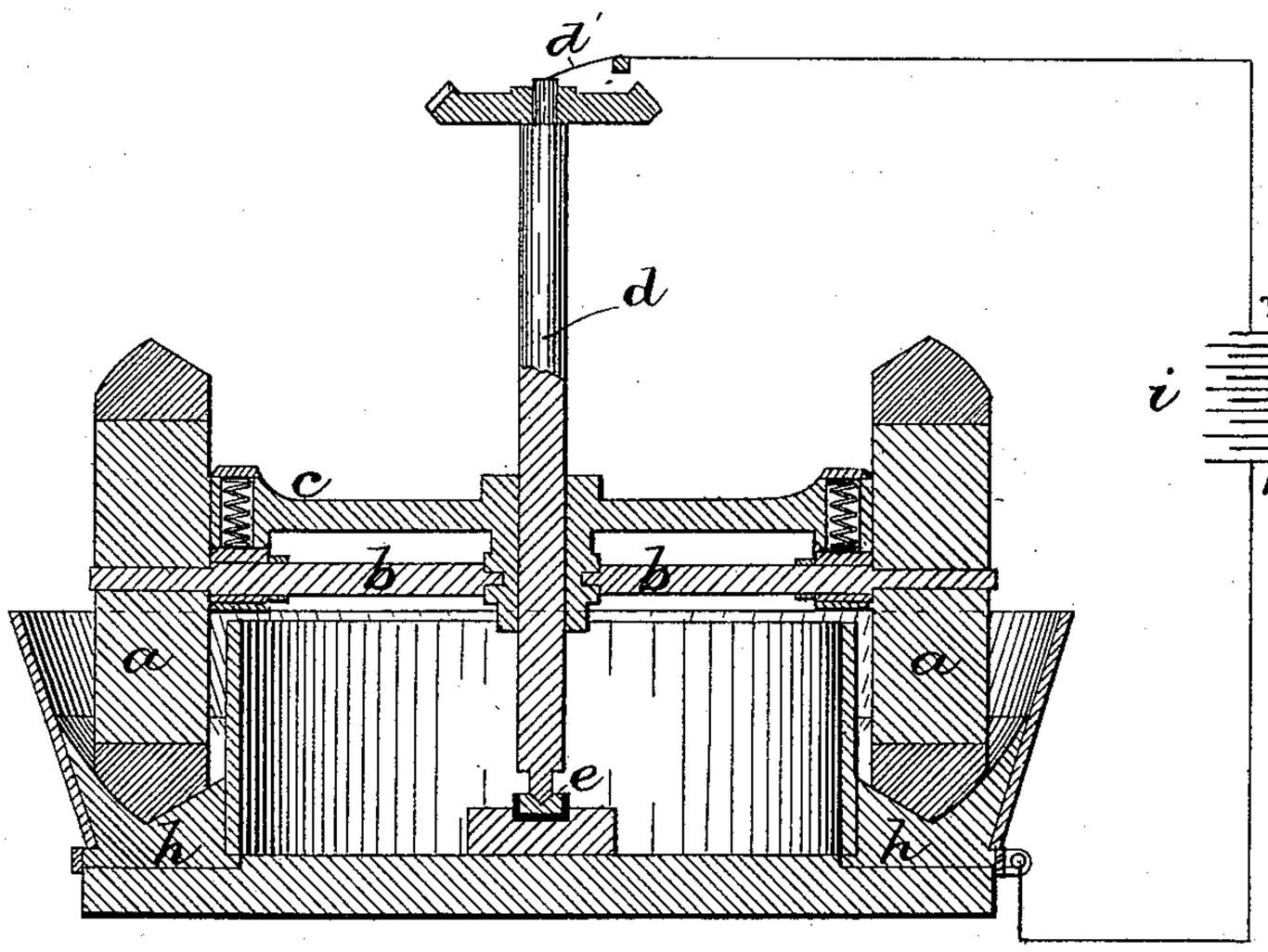
(No Model.)

J. C. WISWELL.

APPARATUS FOR TREATING ORES.

No. 336,030. Patented Feb. 9, 1886.



Witnesses.
H. Brown.
R. J. Powers

Inventor
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UNITED STATES PATENT OFFICE.

JACOB C. WISWELL, OF MEDFORD, MASSACHUSETTS, ASSIGNOR TO THE WISWELL ELECTRIC MINING MACHINERY COMPANY, OF PORTLAND, ME.

APPARATUS FOR TREATING ORES.

SPECIFICATION forming part of Letters Patent No. 336,030, dated February 9, 1886.

Application filed October 23, 1884. Renewed August 29, 1885. Serial No. 175,653. (No model.)

To all whom it may concern:

Be it known that I, JACOB C. WISWELL, of Medford, in the county of Middlesex and State of Massachusetts, have invented an Improved Apparatus for Treating Ores, of which the following is a specification.

Heretofore ores have been ground or crushed in connection with mercury, and at the same time the ores have been subjected to the action of the electric current in various ways.

My invention consists in a machine for grinding and crushing ores, having a bed or surface for holding the ores and mercury, and crushing-rolls operating thereon, having suitable electrical connections, so that the electric current is continuous between the rolls and bed and through the ore and mercury, whereby the effect of the mercury is intensified, and the disintegration of the ore is facilitated.

The accompanying drawing, forming a part of this specification, shows a sectional view of an ore-crushing apparatus having electrical connections, according to my invention, the crushing apparatus being similar to that described in my application for Letters Patent filed May 28, 1884, Serial No. 133,060.

Said apparatus is composed of a series of crushing-rollers, *a*, mounted on radial axles *b*, which are journaled in a frame, *c*, said frame being fixed horizontally to a vertical shaft, *d*, which is supported at its lower end by a step, *e*, and is rotated by power suitably applied to its upper end, and a circular supporting bed or trough, *h*, formed to fit the crushing-surfaces of the rollers *a*.

Several parts above described are made of iron or other metal capable of conducting electricity.

In carrying out my invention I provide a battery, *i*, or other source of electricity—as, for example, a dynamo-machine—and connect one pole thereof to the shaft *d* and the other pole to the bed *h*, the connection with the shaft *d* being effected by means of a metallic spring, *d'*, bearing on the end of said shaft and connected with the source of electricity. The step *e* is preferably insulated.

It will be seen that the course of the electric current will be from the battery through the shaft *d*, axles *b*, rollers *a*, the ore lying under the rolls, the bed *h* and back to the battery. The rollers *a*, therefore become anodes and the bed *h* a cathode, the current passing between them through the interposed ore.

In the operation of the apparatus the ore is first placed on the bed *h* and pulverized by the action of the rolls. A suitable quantity of mercury is then added and the electric current is then applied. The current passing from the rolls to the bed through the interposed ore and mercury has the effect to energize the mercury and greatly assist the disintegration of the particles of ore. A much larger saving of the precious metal is thus effected than could be effected without the aid of the electric current.

The mingled ore and mercury may be placed in a receptacle after the ore has been suitably pulverized and may then be treated by inserting an anode and a cathode into the mass and passing a current of electricity through it, the anode and cathode being independent of the means by which the ore is crushed.

I claim—

The combination, in an amalgamating and ore-crushing machine, of a bed for holding the ore and mercury, a shaft having arms, crushing-rolls upon said arms working directly upon the ore and mercury in said bed, and electrical connections through said bed and rollers, whereby the former becomes a cathode and the latter anodes, and the electric circuit is continuous through the ore and mercury between the anodes and cathode.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 18th day of October, 1884.

JACOB C. WISWELL.

Witnesses:
C. F. BROWN,
R. J. POWERS.