(No Model.)

H. BERRENS.

APPARATUS FOR EXTRACTING MERCURY FROM ITS ORES.

No. 331,860. Patented Dec. 8, 1885.

Fig. 1.

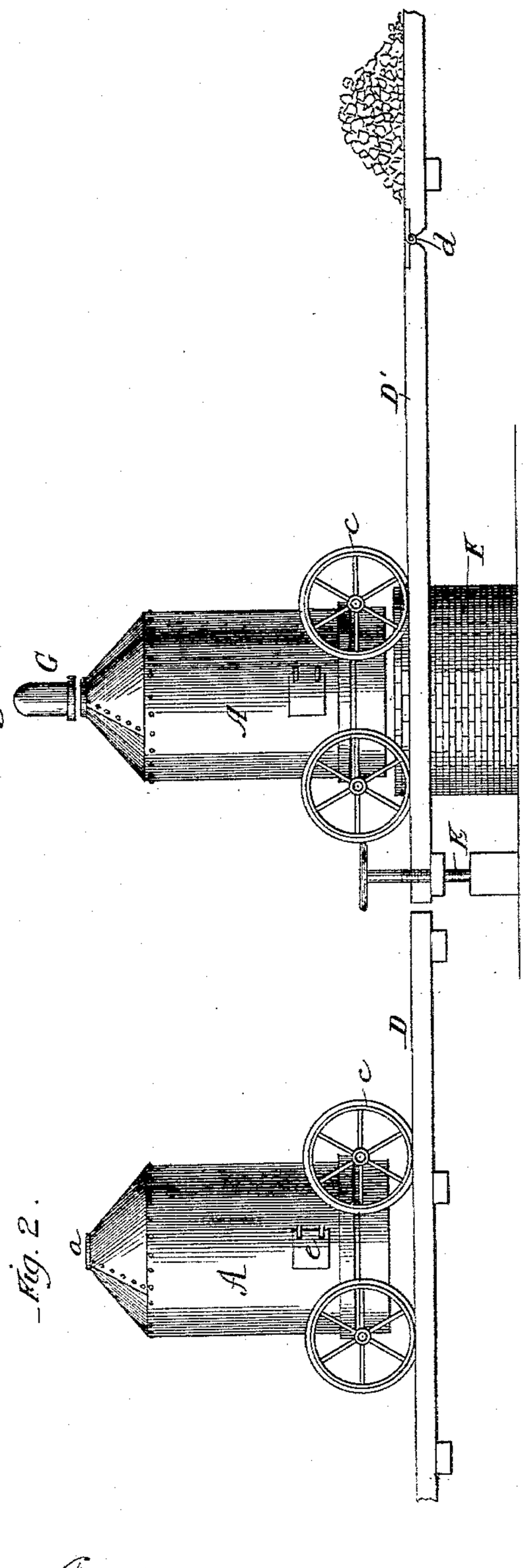


Fig. 2.

Fig. 3.

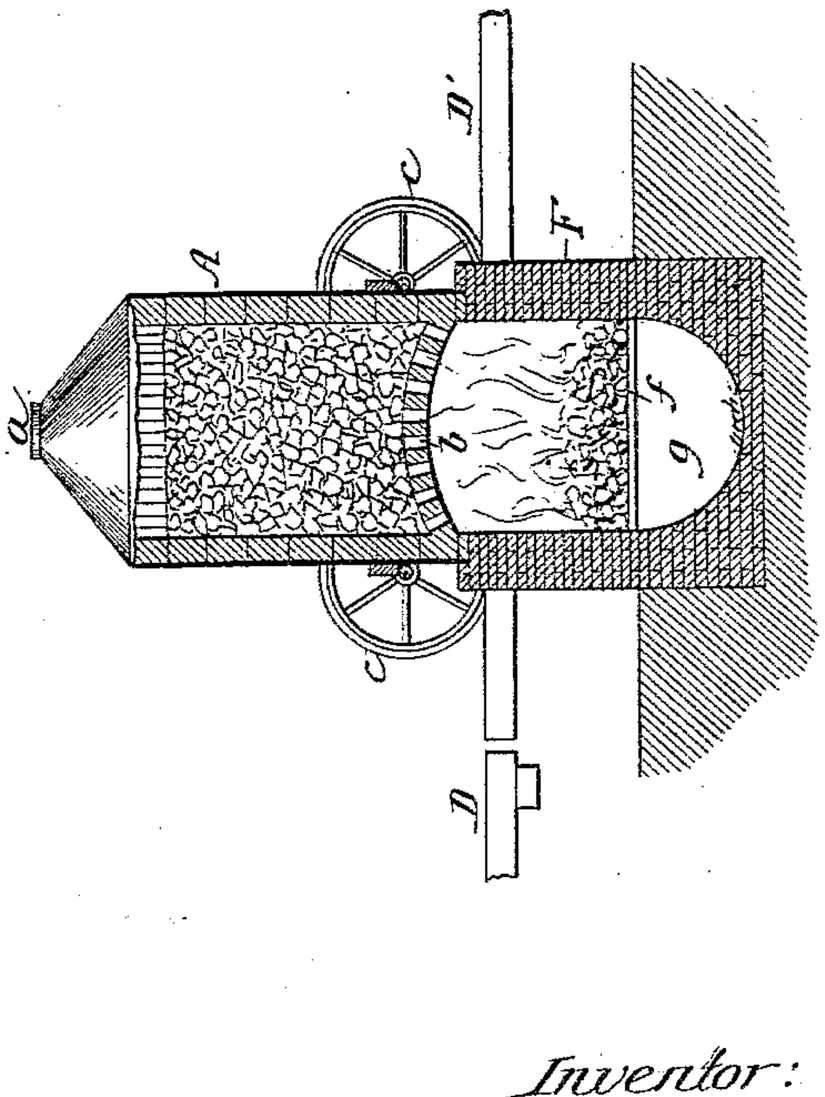
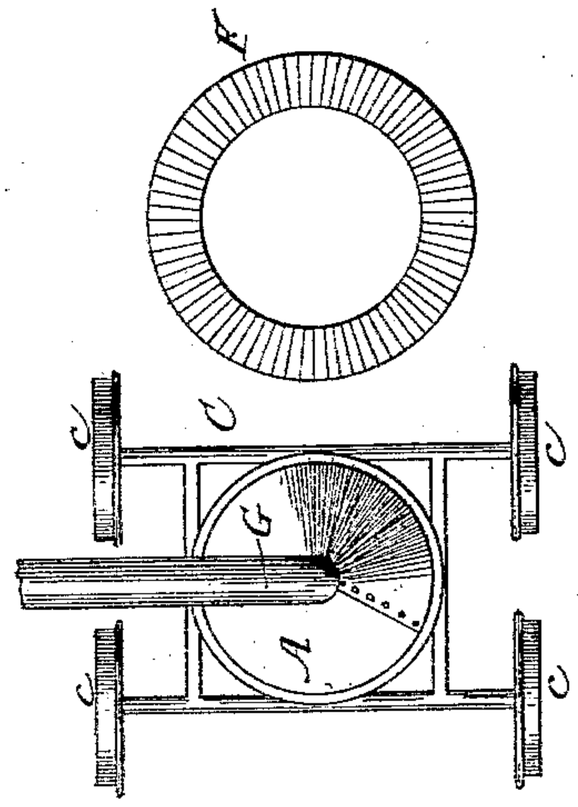


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

HIPPOLITE BERRENS, OF BARCELONA, SPAIN.

APPARATUS FOR EXTRACTING MERCURY FROM ITS ORES.

SPECIFICATION forming part of Letters Patent No. 331,860, dated December 8, 1885.

Application filed August 10, 1885. Serial No. 173,945. (No model.) Patented in Spain July 14, 1883, No. 4,136.

To all whom it may concern:

Be it known that I, HIPPOLITE BERRENS, of Barcelona, in the Kingdom of Spain, have invented an Improvement in Apparatus for Extracting Mercury from its Ores, which is fully set forth and described in the following specification.

This invention relates to certain improvements in the apparatus for extracting mercury from its ores for which Letters Patent of the United States No. 172,691 were granted to me on January 25, 1876; and it consists in the use of two or more furnaces made portable by placing them on wheels moving upon a track, one of which furnaces is placed over a stationary fire-pot built between the rails of a vertically-swinging track-section, while the other one is emptied of the refuse and is refilled with fresh ore; also, in providing such reverberatory furnaces with a perforated arched bottom, and with a conical top having an opening for connecting the pipe that leads to the transmission-chamber, and thence to the condensers, the balance of the plant being the same as described in my former patent above referred to.

In the accompanying drawings, Figure 1 represents an elevation of one of the furnaces as placed over the fire-pot, and Fig. 2 an elevation of another furnace in position for recharging. Fig. 3 is a longitudinal vertical section of the reverberatory furnace and fire-pot, and Fig. 4 plan views of the same.

Corresponding letters in the several figures of the drawings designate like parts.

A denotes the furnace, consisting of a cylindrical iron shell, which has a conical top with an opening, *a*. This cylinder is lined with fire-brick, and in its bottom it has formed a perforated arch, *b*, also of fire-brick. This furnace is supported in a rectangular frame, C, constructed of iron bars, two of which form the axles for flanged iron wheels *c*, that run upon a track, D. The section D′ of this track is hinged at *d*, and its opposite end is supported on screw-jacks E or some other lifting device, and within this track is built the fire-pot F, having grate *f* and ash-pit *g*. The furnace A is charged with ore through opening *a*, and is emptied of the refuse through a door, *e*. The pipe G is arranged to fit upon the opening *a*, and to be readily coupled or uncoupled therewith.

A furnace being charged with ore and being moved over the fire-pot F, the track-section D′ is lowered by means of the jack-screws E until the furnace rests upon the fire-pot, when its joints therewith are luted with fire-clay. The pipe G is now secured upon the opening *a*, and the air-suction pump or exhaust-fan is set in motion. At the end of about two hours the ore has been thoroughly roasted, and all the mercury contained therein has been evaporated, when the pipe G is uncoupled, the track-section D′ is lifted again to its level, and the furnace is moved in one direction to cool off, be emptied, and recharged with ore, while the furnace from the opposite end of the track, that has been recharged, is moved upon the track-section D′, and is lowered upon the fire-pot F. In this manner a continuous operation is obtained, and the process is considerably accelerated, so much so that the same amount of ore, formerly requiring three days' time, can be treated with this improvement in one day.

By the use of the air-pump and the condensers in connection with these portable furnaces great advantages are obtained, especially when dealing with rich minerals, because a strong draft of the fire is reached at once that is independent of the temperature of the outside atmosphere, and thereby the minerals are heated with great rapidity, thus favoring the combustion of the sulphur, while with inferior minerals the economy of time and fuel resulting therefrom makes the system preferable to any other.

The automatic action of the plant, not allowing the least amount of mercury to escape into the air, is highly appreciated by the workmen, they being in this manner protected from the deleterious vapors and the mercurial intoxication.

What I claim is—

1. An apparatus for extracting mercury from its ores, consisting of two or more furnaces supported on wheels and each provided with a perforated arch-shaped bottom, in combination with a stationary fire-pot, as set forth.

2. Furnace A, having perforated arched bottom *b* and conical top with opening *a*, and being supported on wheels *c*, in combination with the stationary fire-pot F, all substantially as and for the purpose set forth.

3. Furnace A, having perforated arched bottom *b* and conical top with opening *a*, and being supported on wheels *c*, in combination with stationary fire-pot F, built within a vertically-movable track-section, D', all substantially as and for the purpose set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

H. BERRENS.

Witnesses:
GEO. SUTHERLAND,
HENRY MINER.