

(No Model.)

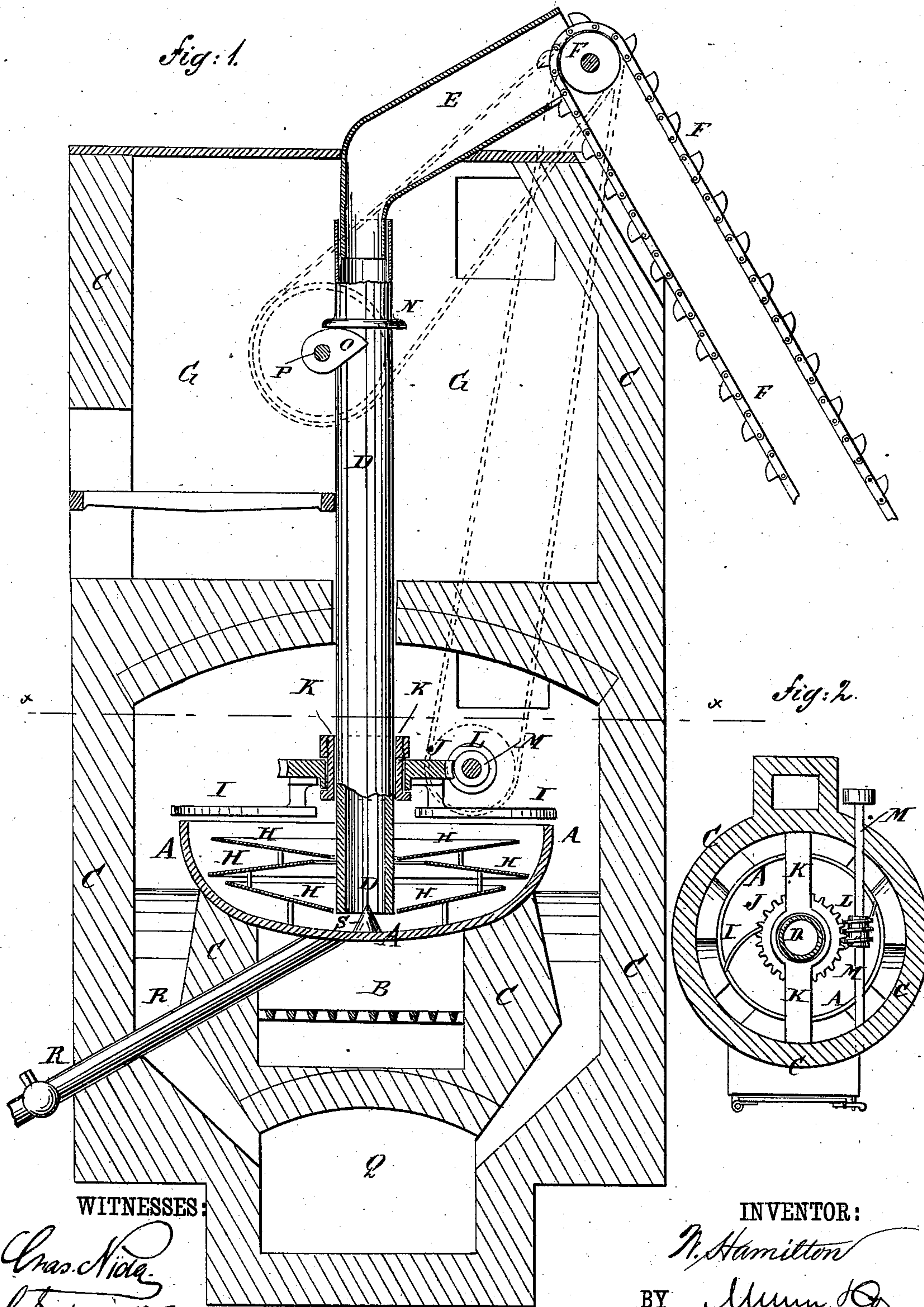
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APPARATUS FOR AMALGAMATING GOLD AND SILVER ORES.

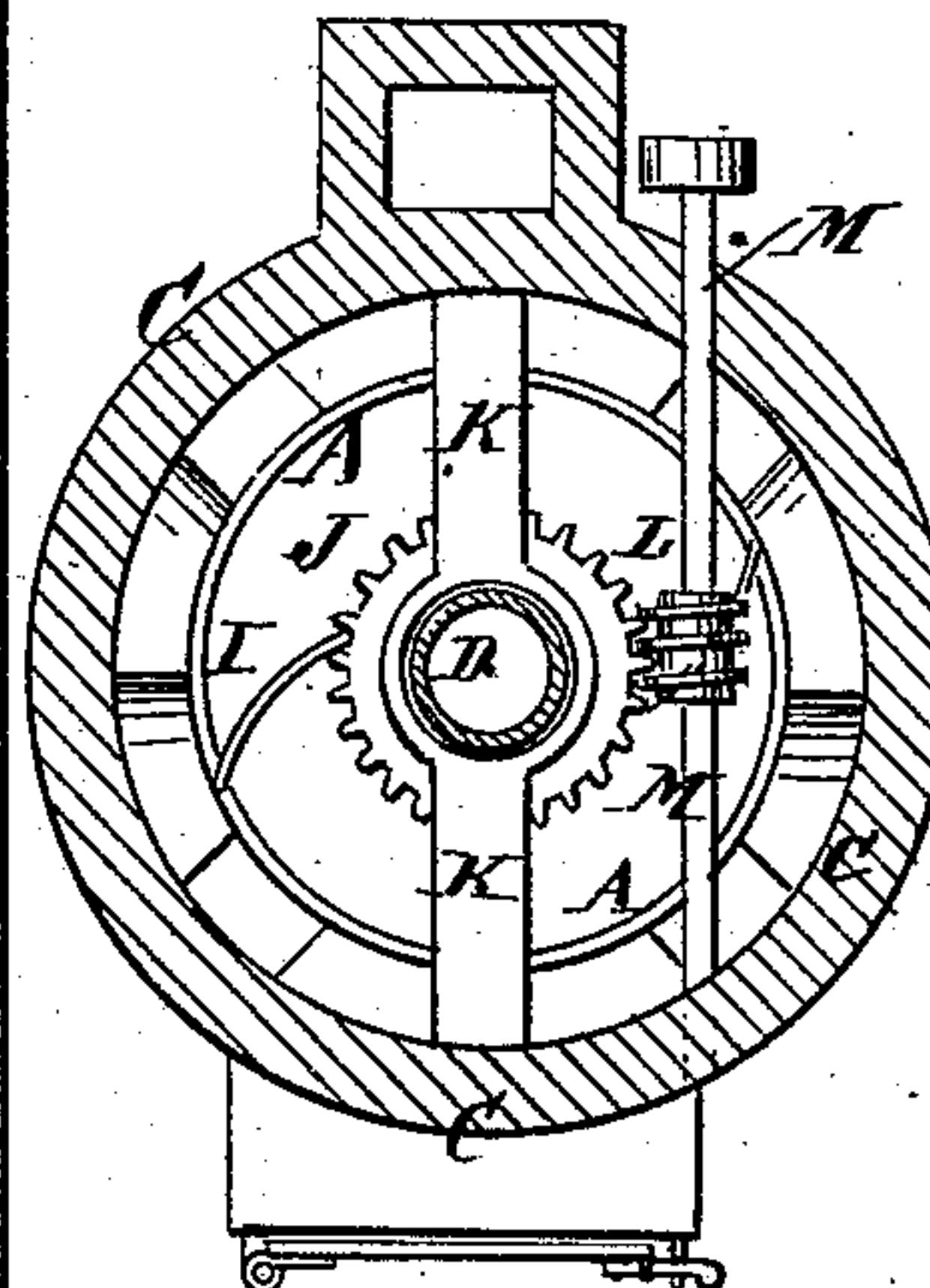
No. 260,390.

Patented July 4, 1882.

*Fig: 1.*



*Fig: 2.*



WITNESSES:

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# UNITED STATES PATENT OFFICE

WALTER HAMILTON, OF NEW YORK, N. Y.

## APPARATUS FOR AMALGAMATING GOLD AND SILVER ORES.

SPECIFICATION forming part of Letters Patent No. 260,390, dated July 4, 1882.

Application filed April 8, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER HAMILTON, of the city, county, and State of New York, have invented a new and Improved Apparatus for Amalgamating Gold, Silver, or other Substances, of which the following is a full, clear, and exact description.

Figure 1 is a sectional side elevation of my improvement. Fig. 2 is a sectional plan view of the same, taken through the line *xx*, Fig. 1.

The object of this invention is to facilitate the amalgamating of gold, silver, antimony, and other substances.

The invention consists in combining an ore-supply chute, a perpendicular rising and falling pipe, and an amalgamating-basin, as hereinafter described and claimed.

A represents a basin of such a capacity as to contain ten tons, more or less, of lead, mercury, or other amalgamating metal, composition of metals, or substance. The basin A is placed over the fire-chamber B of a furnace, C.

D is a vertical pipe of suitable length; the lower end of which extends down into the basin A, nearly to its bottom. The ore or other material from which gold, silver, antimony, or other substance is to be amalgamated is introduced into the pipe D through a chute, E. The ore is discharged into the chute E from an elevator, F, or by other suitable means. The upper part of the pipe D passes through a fire-chamber, G, so that the ore will be properly heated as it passes down through the said pipe D. The ore is forced down through the pipe D by its own weight, and is forced out of the lower end of the pipe D into the lower part of the basin A, so that it will rise through the amalgamating substance in the said basin.

Upon the bottom of the basin A is formed, or to it is attached, a cone, S, with its apex in the axis of the pipe D to receive the ore as it escapes from the said pipe D, and separate or spread the said ore and cause it to enter and rise through the amalgamating substance in equal quantities upon the different sides of the said pipe D. The ore is distributed as it rises by a series of zigzag ring-plates, H, secured in the basin A, so that all parts of the

ore will be brought into contact with the amalgamating substance. The refuse ore is removed from the top of the basin A by radial arms I, attached at their inner ends to a worm-wheel, J, through the hub of which the pipe D passes, and which is swiveled to a guide-bar, K, attached to the furnace C, to serve as a guide to the said pipe D. The worm-wheel J is driven by a worm, L, the shaft M of which passes out through the wall of the furnace C, and is rotated from the power that drives the elevator F.

To the pipe D is attached a collar, N, which rests upon a cam, O, attached to the shaft P. The shaft P passes out through the walls of the furnace C, and is rotated from the power that drives the elevator F. With this construction, when the shaft P is rotated the cam O will raise the pipe D and allow it to drop, giving to the said pipe a jar to prevent the ore passing through the said pipe from sticking, and thus clogging the pipe. The refuse ore, as it is swept from the top of the basin A, falls into a receiving-chamber, Q, beneath the fire-chamber B, whence it can be raked out or otherwise removed when desired. When the amalgamating substance in the basin A becomes saturated, or nearly so, it is drawn off through a discharge-pipe, R. With this construction, as soon as a sufficient quantity of the material to be treated is introduced into the pipe D, the said material will be forced out of the lower end of the said pipe into the lower part of the mass of the amalgamating substance by the weight of the material in the upper part of the said pipe.

By this method of amalgamating the wedging and sticking of the material in the pipe D is avoided, as the material is forced out steadily and gradually by the weight of the superincumbent material.

The combination, with the basin, of a receptacle under the fire-chamber, and connected with the top of basin by a passage around the fire-chamber, forms the subject-matter of a claim in my application No. 29,105, and is shown in this application to exhibit its connection with the present invention.

I am aware that ore-stamps having a hollow shaft through which the ore is fed, and com-

bined with mechanism for lifting and allowing them to fall, for the purpose of breaking and comminuting the ore, are old; also, that in dry amalgamators a hollow feed-shaft has been jarred by a lateral blow dealt by a hammer at certain intervals of time to facilitate the passage of the quartz; but

What I claim as new and of my invention is—

10 In an amalgamator for gold and silver ores, the combination, with the ore-supply chute E

and the amalgamating-basin A, of an intermediate perpendicular pipe, D, fitting over a downwardly-projecting portion of said chute, extending through guides toward the bottom 15 of the basin, and means for raising and letting it drop, as described.

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