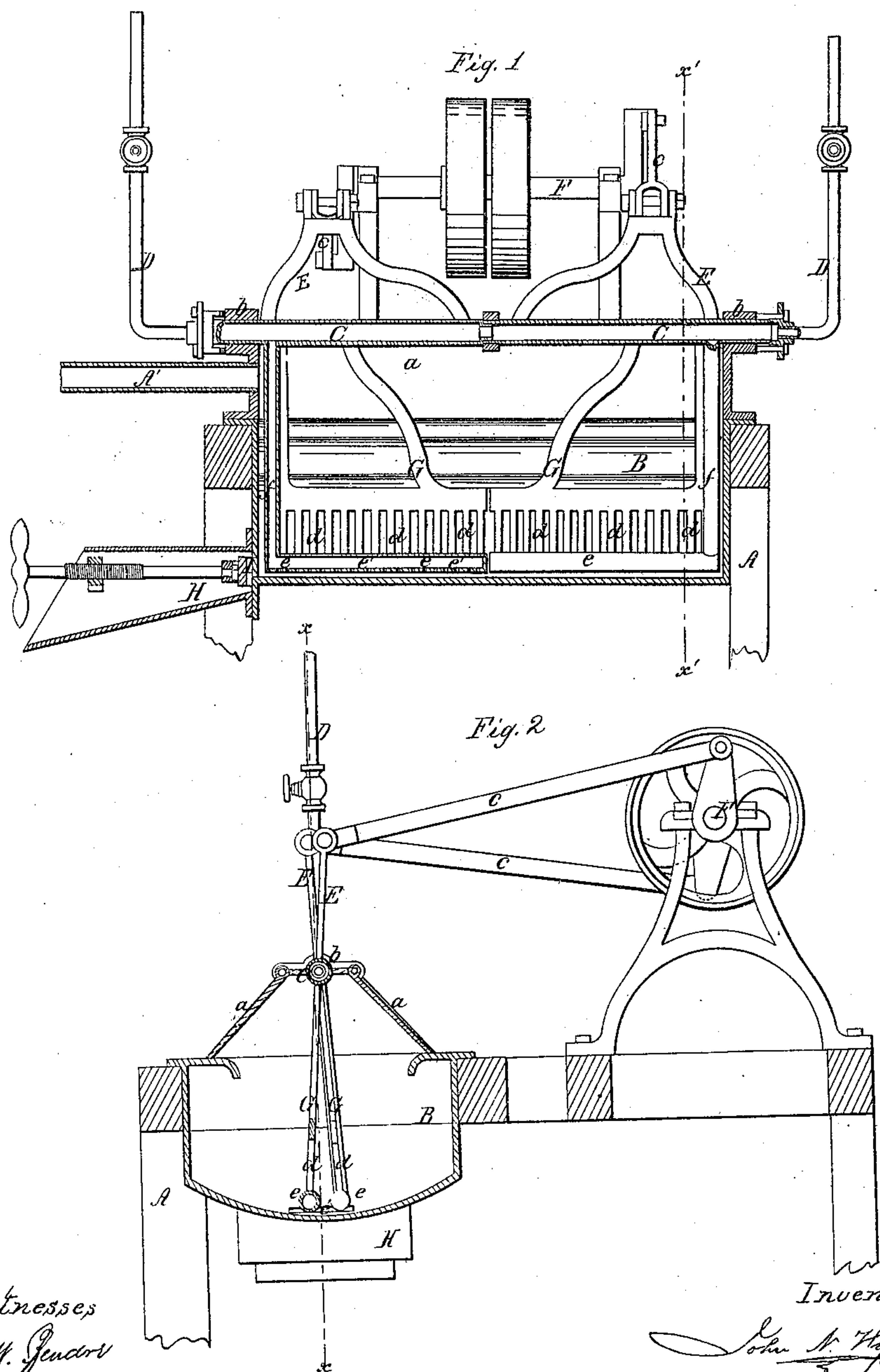


J. N. WYCKOFF & T. M. FELL.
AMALGAMATOR.

No. 30,783.

Patented Nov. 27, 1860.



Witnesses
L. H. Gendron
C. M. Simpson.

Inventors
John N. Wyckoff
T. M. Fell & Co.

UNITED STATES PATENT OFFICE.

J. N. WYCKOFF, OF BROOKLYN, NEW YORK, AND T. M. FELL, OF MELVIN MINES, VIRGINIA.

AMALGAMATOR.

Specification of Letters Patent No. 30,783, dated November 27, 1860.

To all whom it may concern:

Be it known that we, JOHN N. WYCKOFF, of Brooklyn, in the county of Kings and State of New York, and THOMAS M. FELL, of Melvin Mines, in the county of Orange and State of Virginia, have invented a new and Improved Gold and Silver Amalgamator; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical section of our invention taken in the line *x, x*, Fig. 2. Fig. 2, a vertical section of the same taken in the line *x', x'*, Fig. 1.

Similar letters of reference indicate corresponding parts in the two figures.

This invention relates to certain novel mechanical means employed for effectually carrying out the process of reducing gold and silver ores for which process Letters Patent were granted to us bearing date July 26th 1859.

The within described invention consists in admitting steam within a close vessel and in jets through stirrers or agitators, the steam being admitted directly into the pulp and mercury and serving to aid amalgamation both by heat and a mechanical action, as hereinafter fully shown and described.

To enable those skilled in the art to fully understand and construct our invention we will proceed to describe it.

A, represents a framing which may be constructed in any proper manner to support the working parts of the machine.

B, is a vessel which is placed on the framing A, and provided with covers or lids *a*, and C, C, are tubes or hollow shafts which are placed longitudinally on the upper part of the vessel B, and project about half of their diameter through the top of the vessel as shown clearly in Fig. 2.

The shafts C, C, are fitted in proper bearings *b*, and into the outer ends of said shafts steam tubes D, pass said tubes communicating with any suitable boiler.

To the upper surfaces of the shaft C,

there are attached upright frames E, E, one to each, and the upper ends of these frames are connected by rods *c*, to a crank shaft F, the latter being driven by any convenient power. To the under sides or surfaces of the shafts C, C, there are attached frames G, G, the lower parts of which are perforated so as to form vertical slats *d*, as shown clearly in Fig. 1. The slats *d*, are connected at their lower ends to horizontal tubes *e, e*, a tube *e*, being to each frame G, and the outer ends of the tubes *e*, communicate with the lower ends of upright tubes *f, f*, which extend upward and communicate with the hollow shafts C, C, as shown clearly in Fig. 1. The tubes *e*, are perforated at their underside as shown at *e'*.

The bottom of the vessel B, is of curved form, being the segment of a cylinder of which the shafts C, C, are the center, and the tubes *e*, are quite close to the bottom of the vessel B. To one end of the vessel B, there is attached a trough H, which may communicate with the vessel B, when necessary by opening a screw valve I, seen in Fig. 1.

The operation of the machine is as follows: The vessel B, is supplied with a requisite quantity of mercury and the pulp or crushed ore is placed within the vessel B. The shaft F, is then rotated and the shafts C, C, rocked back and forth. The frames G, G, serve as stirrers or agitators, and steam which is admitted into the shafts C, C, through the tubes D, passes down the tubes *f, f*, into the tubes *e, e*, rushes through the perforations *e'*, into the pulp and mercury, heating the same to a proper temperature to favor amalgamation and by rushing into the mixture producing a mechanical action which aids that of the stirrers or frames G, in bringing the several particles of the pulp in contact with the mercury.

After the metal contained in the pulp has been amalgamated, the contents of the vessel B, are drawn off by opening valve I, and the contents passed over a shaking table as usual to separate any stray particles of amalgam. Waste steam may escape through

a pipe A', which communicates with the upper part of vessel B.

Having thus described our invention what we claim as new and desire to secure by
5 Letters Patent, is:

The application of steam internally in jets through stirrers or frames G, G, placed in a vessel B, containing the pulp and mer-

cury; substantially as and for the purpose set forth.

JOHN N. WYCKOFF.
THOS. M. FELL.

Witnesses:

L. W. ZENDRÉ,
M. M. LIVINGSTON.