

A. F. W. Partz
Amalgamator.

Patented Jul. 14, 1863.

Nº 39240

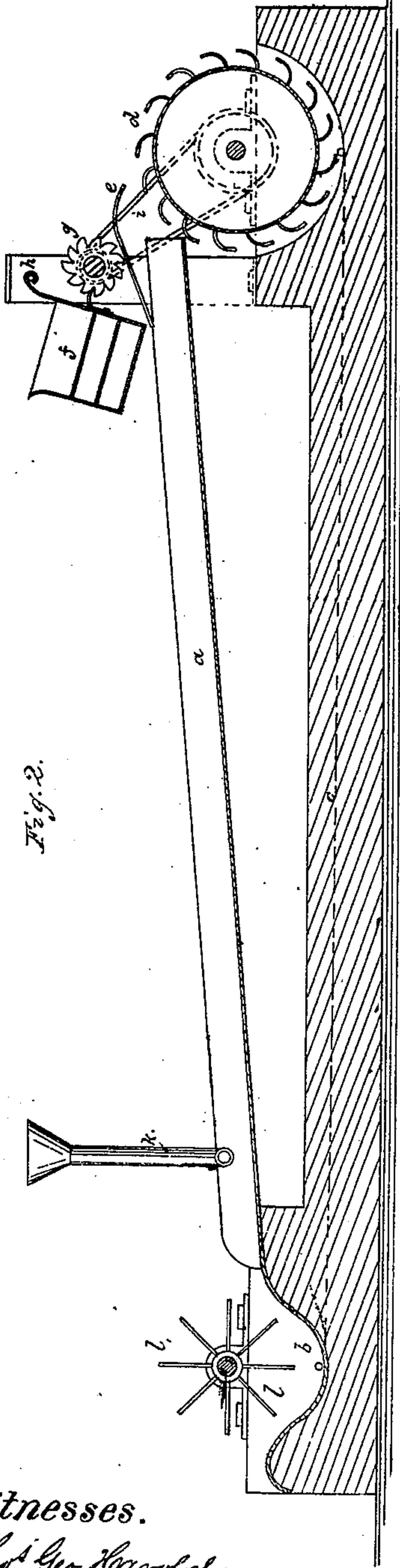
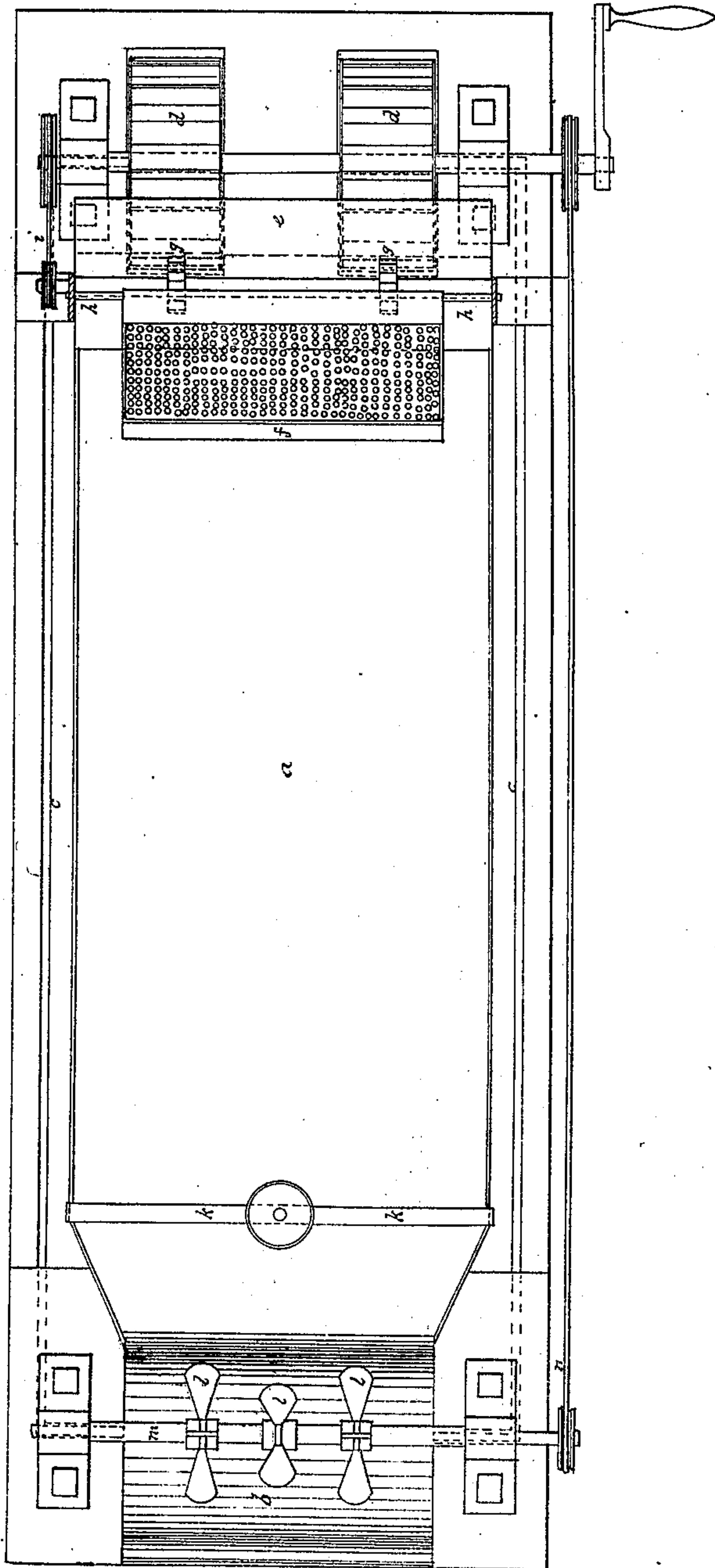


Fig. 2.

Witnesses.
Thos Geo Harold
Chas. H. Smith



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Inventor.

A. W. Partz

UNITED STATES PATENT OFFICE.

AUGUST F. W. PARTZ, OF WURTSBOROUGH, NEW YORK.

IMPROVEMENT IN AMALGAMATORS.

Specification forming part of Letters Patent No. 39,240, dated July 14, 1863.

To all whom it may concern:

Be it known that I, AUGUST F. W. PARTZ, of Wurtsborough, in the county of Sullivan and State of New York, have invented, made, and applied to use a certain Improvement in Amalgamating Gold and Silver; and I do hereby declare the following to be a full, clear, and exact description of my said invention, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is a plan, and Fig. 2 a longitudinal section, of the apparatus I employ for amalgamating gold and silver.

Similar letters denote the same parts.

In amalgamating gold and silver for its extraction from the ore both wet and dry methods have been employed. In the wet process the ore and particles of metal being enveloped in water are thereby kept from that intimate contact with the mercury so necessary for amalgamation, and hence a large amount of waste ensues; and in the dry amalgamation that has heretofore been attempted, the particles of ore are not brought into sufficient intimate contact to insure a complete amalgamation of the metallic particles.

The nature of my said invention consists in a flowing mercurial surface, upon which the metallic ores are spread in a finely-pulverized and dry or nearly dry state, and the flowing of said mercury conveys such metallic ores along and abstracts the metal, and then the earthy matters are washed away by a stream of water applied near the end of the mercurial surface, and the mercury returned to the place of beginning to again be caused to flow beneath the thin strata of metallic ore.

In the drawings, I have represented an apparatus by which I am able to apply said method of amalgamation with the use of a comparatively small quantity of mercury, and effect the amalgamation rapidly. It will, however, be apparent that the said method may be applied in differently-constructed apparatus.

a is a metallic surface or trough, set at a slight inclination, and coated with mercury on the clean metal, so that the mercury, as supplied at the higher end, will flow over the entire surface in a thin sheet and pass away at the lower end, at which point a trough, *b*, receives said mercury, when it is returned by conduits *c c* to the boxes of the elevating-wheels *d d*, that are rotated by competent

power, and the buckets of said wheels raise the mercury and deliver it on the surface of the trough *a*, over which it flows as aforesaid. A guard, *e*, over the wheels *d d*, prevents any scattering of the mercury as delivered to the trough *a*.

f is a vibrating sieve, in which are two or more screens to insure the complete distribution of the finely-crushed ore as it is placed in said sieve, and by the same distributed evenly and in a dry or nearly dry state upon the surface of the mercury as it flows along the trough *a*.

I have shown the shaking cam-wheel *g* to vibrate the sieve, as the same is hung by the hinges *h*, said wheel *g* being driven by the belt *i*, or otherwise. The mercury in its thin sheet absorbs and amalgamates with the gold or silver, because each particle of ore is brought into contact in a dry state with such mercury, and in order to carry away the earthy tailings, I apply a stream of water through the distributor *k* that washes off said tailings; and in order to prevent any sediment of the earthy matter in the trough *b* which would obstruct the free circulation of the mercury, I apply the rotary stirrers or agitators *l* on the shaft *m*, rotated by the belt *n*, or otherwise. It will be apparent that the trough *a*, on which the mercury flows as aforesaid, might be corrugated crosswise in order to detain the mercury and cause a more even flow of the same, and also that the trough might be vibrated, if desired.

I have represented a device for washing away the tailings, but where more convenient the same may be blown or brushed off the stationary or flowing mercurial surface.

My process of amalgamating by the direct contact of the metallic ore with the mercurial surface may be used in any apparatus where it can be applied.

The stirrers *l* may be made to oscillate instead of revolving, if desired.

What I claim, and desire to secure by Letters Patent, is—

1. A current of mercury moving over a horizontal or inclined surface, upon which auriferous or argentiferous ores or substances in a dry pulverulent state are distributed to effect their amalgamation, as specified.

2. Amalgamating gold and silver with mercury, by causing the former to come in contact

with the latter while passing in a thin strata over an inclined metallic plate or trough, the surface of which is amalgamated with mercury, the down-flowing mercury being drawn away from below the surface at the delivery end of the said plate or trough, and re-elevated to the higher end thereof, substantially as set forth.

3. A current of water or air, in combination with a flowing sheet of mercury, for removing the tailings, the pulverized ore being distributed on such sheet in a dry state, substantially as specified.

4. Agitating the tailings by means of rotating or oscillating stirrers or brushes, in combination with amalgamating machines in

which the mercury flows in a thin strata over an inclined plate, in order that the said tailings may be easily removed and the mercury be allowed to freely return to the point of beginning, substantially as set forth.

5. Distributing auriferous or argentiferous ores or substances in a dry state upon a moving sheet of mercury, for the purpose of effecting their amalgamation, by means of vibrating sieves or screens, substantially as specified.

In witness whereof I have hereunto set my signature this 8th day of June, 1863.

A. F. W. PARTZ.

Witnesses:

LEMUEL W. SERRELL,
CHAS. H. SMITH.