

J. O. STEWART.
Electric Amalgamator.

No. 218,918.

Patented Aug. 26, 1879.

Fig. 1.

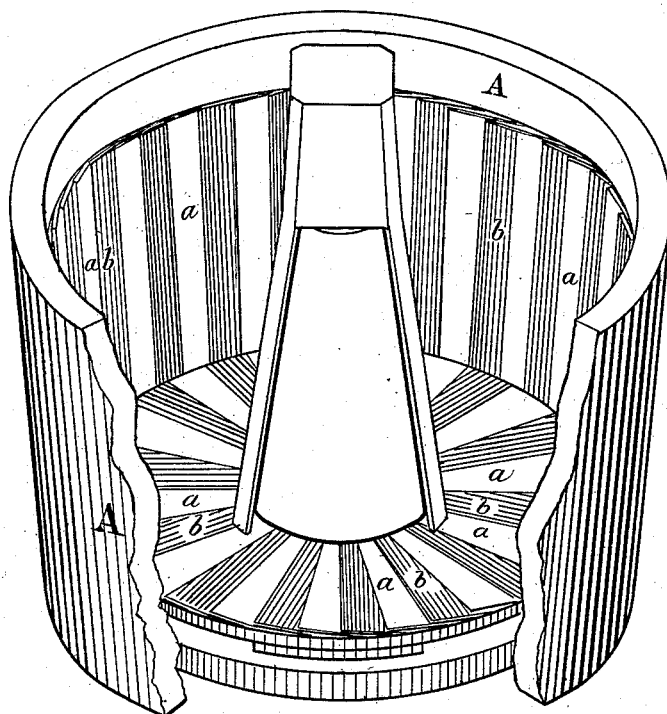


Fig. 2.

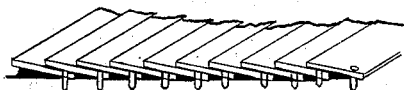
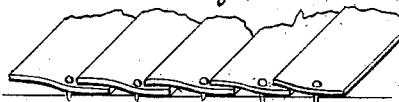


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES O. STEWART, OF ALAMEDA, CALIFORNIA.

IMPROVEMENT IN ELECTRIC AMALGAMATORS.

Specification forming part of Letters Patent No. **218,918**, dated August 26, 1879; application filed
February 3, 1879.

To all whom it may concern:

Be it known that I, JAMES O. STEWART, of the city and county of Alameda, and State of California, have invented an Improved Electric Amalgamator; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the drawings accompanying this specification, and forming a part of the same.

My improvement in amalgamators consists in the employment of a wooden or wooden-lined vessel, or of a vessel the inner surface of which is a non-conductor of electricity, and lining the same with overlapping sheets of dissimilar metals, such as used in constructing a voltaic pile or battery.

Referring to the accompanying drawings, Figure 1 is a perspective of the amalgamating-vessel with front portion cut away. Figs. 2 and 3 show different ways of arranging the overlapping metal plates.

Let A represent a tub or other vessel in which ore-pulp is to be amalgamated. This vessel I either make of wood or other substance that is a non-conductor of electricity, or I line it with a non-conducting substance, my sole object being to have a non-conducting surface in the tub or vessel, whether it is formed on the side of the vessel, on the surface of the muller, or on a specially-introduced surface independent of either the tub or muller. Upon this surface I secure overlapping plates *a b*, of dissimilar metals, such as are used in constructing a voltaic pile or battery. I prefer to use alternate plates of iron and copper, as the iron is comparatively inexpensive and wastes more slowly than zinc. These plates I place shingle fashion, so that the plate of one metal will overlap the plate of the other metal, and use a sufficient number of plates to extend entirely around the inside surface of the vessel or other surface. In arranging and securing these plates I take care not to bind them too closely together, so that the liquor of the pulp can enter between them, and thus form the exciting-fluid; or, if pre-

ferred, strips of some cheap absorbent material, such as burlaps or canvas, can be interposed between the plates. In either case this continuous surface of overlapping plates of dissimilar metals forms a voltaic pile or battery as soon as the pulp is introduced into the vessel, and a current of electricity is generated in the body of the pulp and water, which acts upon the particles that come in contact with the surface.

If desired, the circuit can be left open by not connecting the series of overlapping plates on one side, or several breaks can be made, as desired.

By choosing proper metals the strength of the current can be regulated as desired; but usually a current generated by copper and iron plates is sufficient.

By this means I provide an electric amalgamator in which the battery forms a part of the apparatus, and the liquor of the pulp itself serves as the exciting-fluid.

I am aware that the interior surfaces of amalgamators have been formed of dissimilar metals, whereby, upon the introduction of the pulp, an electric current is developed. This I do not claim, broadly; but,

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an amalgamator, the combination, with the pan or tub A, of the overlapping plates *a b*, of different metals, arranged as described about the interior thereof, and forming a voltaic pile, substantially as and for the purposes set forth.

2. In an amalgamator, the metallic overlapping plates *a b*, arranged around the interior, sides, and bottom of a tub or pan, substantially as and for the purposes set forth.

In witness whereof I hereunto set my hand and seal.

JAMES O. STEWART. [L. S.]

Witnesses:

D. B. LAWLER,

W. FLOYD DUCKETT.