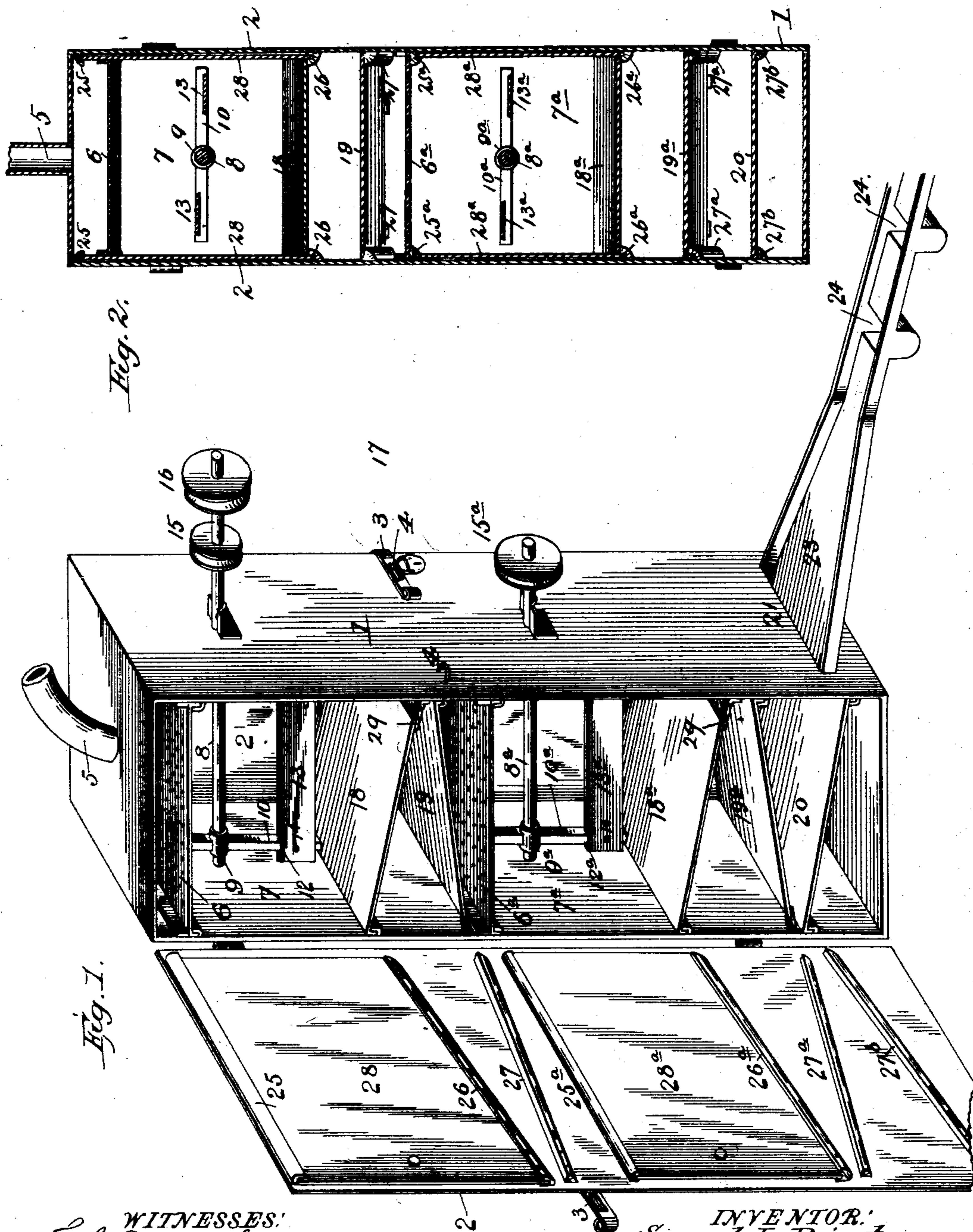


(No Model.)

S. L. PRIESTONE.  
AMALGAMATING APPARATUS.

No. 525,622.

Patented Sept. 4, 1894.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

SAMUEL LOUIS PRIESTONE, OF WARD, COLORADO, ASSIGNOR OF ONE-HALF  
TO THOMAS J. THOMPSON, OF SAME PLACE.

## AMALGAMATING APPARATUS.

**SPECIFICATION** forming part of Letters Patent No. 525,622, dated September 4, 1894.

Application filed April 19, 1894. Serial No. 508,120. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL LOUIS PRIESTONE, a citizen of the United States, and a resident of Ward, in the county of Boulder and State of Colorado, have invented certain new and useful Improvements in Amalgamating Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in amalgamating apparatus for separating precious metals from their ores and its object is to provide an improved construction of the same which shall possess superior advantages with respect to efficiency in operation.

The invention consists in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings: Figure 1 is a perspective view of an amalgamating apparatus constructed in accordance with my invention, one of the doors being open. Fig. 2 is a central longitudinal vertical section of the same.

In the said drawings the reference numeral 1 designates a rectangular casing provided with two doors 2, 2, opposite to each other and provided with hasps 3, which engage with staples 4 on one of the walls of the casing, and secured thereto by padlocks, by which the doors are locked.

The numeral 5 designates a feed pipe which conducts the pulverized ore and water to the casing, communicating therewith at the top. In the interior of the casing a short distance below the top thereof is located a perforated metal plate 6, for spreading the ore and water and delivering it to a chamber 7 below. In this chamber is a rotating paddle wheel consisting of a shaft 8, journaled in the sides of the casing, provided with hubs 9, to each of which are secured two radial arms 10. Near their outer ends these arms are formed with dovetailed grooves 12, to receive the correspondingly shaped slightly inclined paddles 13, which are secured in place by set screws

14. One end of shaft 8 is provided with two pulleys 15 and 16, one of which, 15, is the driving pulley while the other is connected by a belt 17 with a similar pulley 15<sup>a</sup> on a shaft 8<sup>a</sup> below.

Located in said casing below the shaft 8, is an inclined amalgamated plate 18, the lower end of which does not extend quite to the side of the casing, leaving a space for tailings to pass off by a similar inclined amalgamated plate 19 below. Below this plate 19 is a horizontal plate of perforated metal 6<sup>a</sup>, similar to plate 6, which forms the top of a chamber 7<sup>a</sup> in which is located a paddle wheel comprising a shaft 8<sup>a</sup>, hubs 9<sup>a</sup>, radial arms 10<sup>a</sup>, having grooves 12<sup>a</sup> to receive the amalgamated paddles 13<sup>a</sup>. These parts are similar in construction to those above referred to, and an inclined metal plate 18<sup>a</sup> forms the bottom of the chamber, below which is another oppositely inclined plate 19<sup>a</sup>.

The tailings escape at the lower ends of the plates 18<sup>a</sup> and 19<sup>a</sup> to an amalgamated inclined plate 20, and from thence pass through a slot 21 in the side of a casing to a sluice 23 provided with quicksilver traps 24, from whence they are conducted to any point desired.

The doors 2, 2, are identical in construction so that a description of one will suffice for both. At the top edge and also about midway of its height the door is provided with a horizontal support or molding 25 and 25<sup>a</sup>, consisting of a metal plate, one edge of which is secured to the inner side of the door while the other edge is curved or bent downwardly forming a groove or way 26. Below each of these plates 25, 25<sup>a</sup>, is a similar support 26 and 26<sup>a</sup>, but inclined so as to fit under the edges of the inclined plates 18 and 18<sup>a</sup> when the door is closed, the plate 25<sup>a</sup>, fitting under the perforated plate 6<sup>a</sup> and thus serving as a support for said plate. Inclined grooved plates 27, 27<sup>a</sup> and 27<sup>b</sup>, are also secured to the doors which engage under the edges of the inclined plates 19, 19<sup>a</sup> and 20 and support the same.

Seated in the grooves in plates 25, 25<sup>a</sup> and 26, 26<sup>a</sup> are two amalgamated metal plates 28 and 28<sup>a</sup>, which, as well as the inclined plates in the casing are removable so that when



charged with the precious metal they can be readily removed and new ones substituted therefor.

The inclined plates 18, 18<sup>a</sup>, 19, 19<sup>a</sup>, are supported at their upper ends in grooved plates secured to the inner sides of the casing, while the lower ends of said plates are supported by lugs 29, also secured to the casing. The ends of plate 20 are supported by grooved plates 30. The ends of all said inclined plates which engage with the grooved supports are bent downward at right angles so as to engage with the grooves therein.

The plates 28, 28<sup>a</sup> connected with the doors, the blades of the paddle wheels and the inclined plates 18, 19, and 18<sup>a</sup>, which are made of copper or other metal are coated with a mercury amalgam, while the plates 19 and 20, are strongly coated with a sodium amalgam. The object of these soda amalgamated plates is to catch and hold the gold which is not clean, and consequently the amalgam gathered off of them is of a lower grade, and should therefore be kept separated from the amalgam gathered from the other plates.

In operation the plates amalgamated as above set forth are placed in their proper positions and the door shut and locked. The pulverized ore mixed with water is fed to the perforated plate 6 from the stamp mill through feed pipe 5, from whence it is distributed to the upper chamber of the casing and subjected to the action of the rapidly revolving paddles which will force it against the amalgamated plates 28 and 28<sup>a</sup>, the impact of which will insure a more perfect amalgamation. The ore and water will thus be conducted by the inclined plates 18 and 19, to perforated plate 6<sup>a</sup> and from thence to the lower chamber where it will be subjected to another beating action by the paddle wheel therein, from this chamber the tailings will be conducted by the sodium-amalgamated in-

clined plates to the slot in the casing from whence they escape to the sluice.

From the above it will be seen that in addition to the action of the paddles in throwing the ore and water against the amalgamated plates of the doors, the same is also caused to take a tortuous route over the inclined plates, thus insuring thorough extraction of the precious metals.

Having thus described my invention, what I claim is—

1. In an amalgamating apparatus, the combination with the casing, the horizontal plates secured therein, the inclined amalgamated plates removably located in said casing, and the revolving paddle wheels having removable amalgamated blades, of the hinged doors, provided with removable amalgamated plates; substantially as and for the purpose specified.

2. In an amalgamating apparatus, the combination with the casing, the perforated distributing plates secured thereto, inclined amalgamated plates having bent ends, the grooved supports secured to the said casing and the lugs for supporting said plates, and the revolving paddle wheels having removable amalgamated blades, of the hinged doors and means for locking the same, the horizontal and inclined supports secured to said doors, and adapted to engage with and support the sides of said inclined plates, and the removable amalgamated plates engaging with the grooves in said supports; substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

SAMUEL LOUIS PRIESTONE.

Witnesses:

THOMAS JEFFERSON THOMPSON,  
HARRY MARTIN PRATT.