

P. A. BRANGIER & R. LUCKENBACH.
 TRAP FOR PRECIOUS METALS.
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959,300.

Patented May 24, 1910.

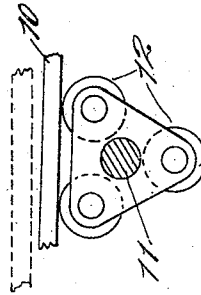
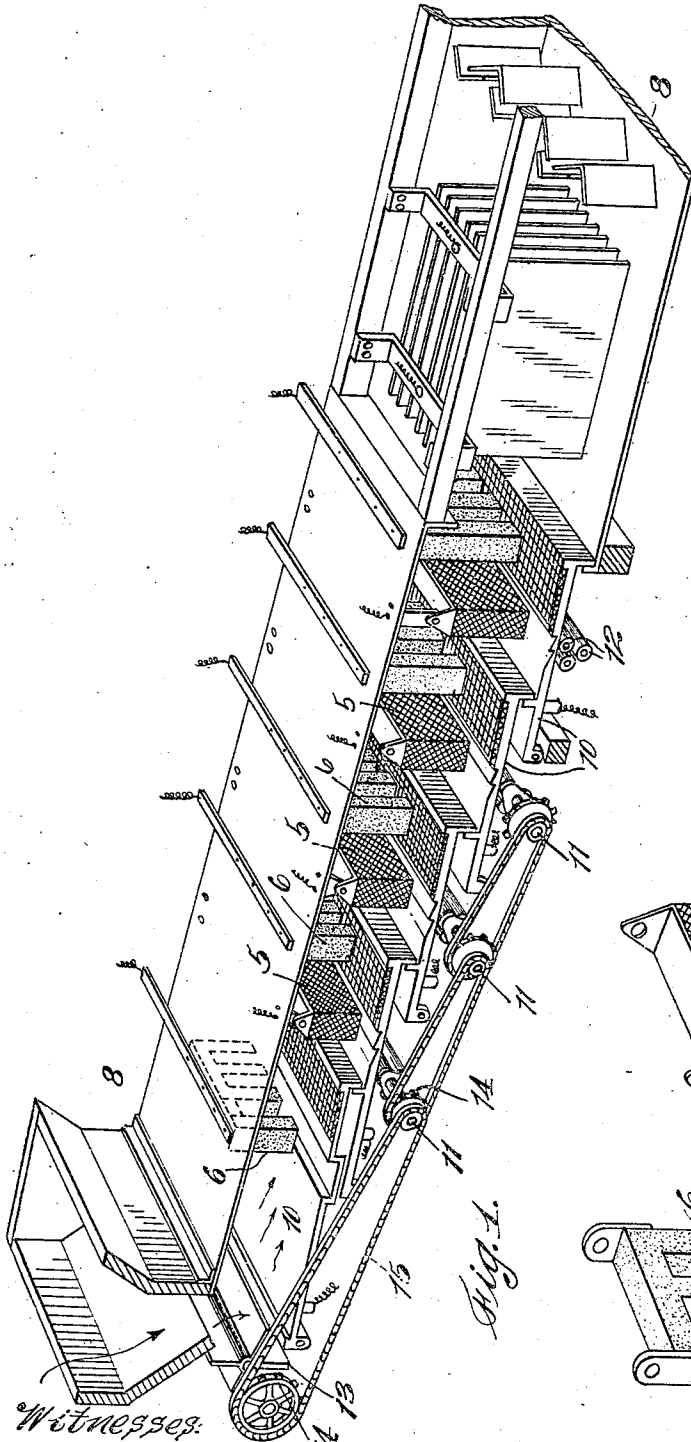


Fig. 2.

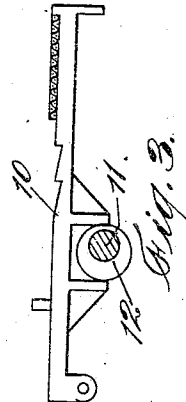


Fig. 3.

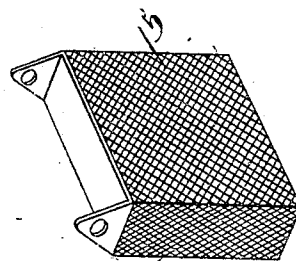


Fig. 4.

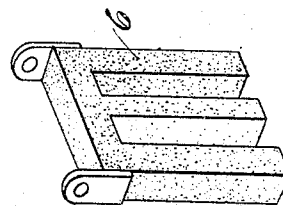


Fig. 5.

Witnesses:

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Inventors;
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 By Geo. H. Strong,
 their Attor.

UNITED STATES PATENT OFFICE.

PIERRE ARMAND BRANGIER, OF AGNEW, CALIFORNIA, AND ROYER LUCKENBACH, OF PHILADELPHIA, PENNSYLVANIA.

TRAP FOR PRECIOUS METALS.

959,300.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, PIERRE ARMAND BRANGIER, of Agnew, county of Santa Clara, State of California, a citizen of France, and ROYER LUCKENBACH, of the city and county of Philadelphia, Pennsylvania, a citizen of the United States, have invented new and useful Improvements in Traps for Precious Metals, of which the following is a specification.

Our invention relates to means for trapping and saving precious metals.

The nature of our invention is to provide an improved process and apparatus for saving the precious metals, more especially gold of that quality known as float or flour gold, which, on account of its minute fineness, is held in suspension by the water and is carried away and lost.

It consists in a combination of parts, and in details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of the trap partly broken away. Fig. 2 is a detail section of the agitator. Fig. 3 is a detail of a plate. Fig. 4 is a perspective of a trap; and Fig. 5 is a detail of a carbon.

It is the object of our invention to provide an apparatus which is especially designed to cause gold and precious metals which are in an exceedingly fine or floury condition, and which are usually held in suspension in water, to be attracted and adhere to mercury-coated plates or traps, so that this fine gold will be arrested and saved.

As shown in the drawings, 8 is a trough-like sluice which has upon the bottom, copper or other suitably amalgamated plates, or amalgamated riffles 10. These plates are continuously moved by any suitable or desired mechanism for the concentration of metals as done in the regular concentrating tables or riffles. The movement may be horizontal or vertical, or a combination of the same, and said plates may be agitated by means of cam or eccentric shafts 11 which may extend beneath the plates, and attachments are provided, as rollers 12, which may produce a vertical or a horizontal agitation.

It will be understood that various movements may be thus produced, and various mechanisms for producing movements which will be sufficiently effective for the purpose described, may be employed.

We have here shown the paddle-wheel 13 so disposed with relation to the inflowing pulp and liquid that the latter acts upon the wheel and rotates it. By means of a sprocket wheel or wheels 14, and connecting chains or belts 15, a series of agitators are actuated from the wheel.

In conjunction with the bottom plate or riffles, which are connected as cathodes with an electric generator, we employ a series of perforated amalgamated plates or traps 5 which are also connected as cathodes with the same electric generator, so disposed as to have all the water carried by the sluice passing through them, and so located as to offer the largest surface possible to the water in such a way that practically every particle of the water will come in contact with some part of these last plates, or of the bottom plate. Between these said plates and placed in suitable position to have an electric current pass through, are disposed carbon plates 6 which serve as anodes. The precious metal passing through a sluice of this character will come successively and certainly in contact with some part of the electrically actuated plate, and will be caused to be caught by the mercury on the plates and tenaciously held. These metals thus gathered are subsequently separated from the mercury by well known methods.

An approved way of constructing these traps is shown in Fig. 1, in which the traps may consist of rectangular wire screen or basket-like receptacles made to fit the width and depth of the sluice, and having a thickness of from three to six inches. These receptacles may contain zinc shavings, asbestos wool, mineral wool, copper shavings, oakum, or other suitable materials which are coated or impregnated with mercury; the said trap being used in connection with, or without an electric generator, the trap with its mercury coated material being very effective by itself. By this or equivalent construction or arrangements, we provide the best possible surface of contact for the liquid passing through the sluice, and a means for rapid recovery of the contained values.

As previously described these traps and riffles may be connected with a source of electrical current, and constitute as cathodes one pole of an electric current, while the suspended carbon or equivalent plates located between the cathodes form anodes

through which the electric current passes, thus keeping the mercury on the cathodes in a very active and electro-magnetic condition.

Various forms of disposing amalgamating surfaces are shown, the object being in any case to cause a minute subdivision of all the liquid passing through the sluice, and to provide numerous interstices in which the precious metals are caught and retained by the mercury, and a filter-like action takes place.

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

1. A trap for precious metals, said trap having in combination a trough-like sluice, riffle plates located in the bottom of the sluice, means for agitating said riffle plates, and traps alternating with the riffle plates and suspended from points above the plates, said traps adapted to have the water carried by the sluice pass through them.

2. An improved trap for precious metals, said trap having in combination a trough-like sluice, amalgamated metal plates forming riffles in the bottom of the sluice, means for agitating said plates, traps interposed between adjacent plates and suspended from points above the plates and adapted to have the water carried by the sluice pass through them, said traps and plates forming cathodes, and anodes alternating with the traps.

3. An improved trap for precious metals,

said trap having in combination a trough-like sluice, a series of overlapping plates forming the bottom of the sluice and serving as riffles for the flowing liquid, means for agitating each of the plates from a common source of power, filtering traps interposed between adjacent plates and suspended from points above the plates and disposed to have the liquid carried by the sluice passing through them, said traps containing subdivided mercury coated material forming interstices and surfaces over and through which the liquid is caused to pass, and anodes alternating with the traps and arranged in the path of the flowing liquid.

4. In an apparatus for the recovery of precious metals, gravity operated agitating riffle plates, electrically energized traps extending above the riffle plates, said traps forming cathodes, and anodes suspended from above the riffles and between the traps whereby an electric current is passed through the apparatus.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

PIERRE ARMAND BRANGIER.
ROYER LUCKENBACH.

Witnesses:

GEO. H. STRONG,
CHARLES EDELMAN.