

(No Model.)

W. M. STRONG.
PLACER GOLD EXTRACTING MACHINE.

No. 594,041.

Patented Nov. 23, 1897.

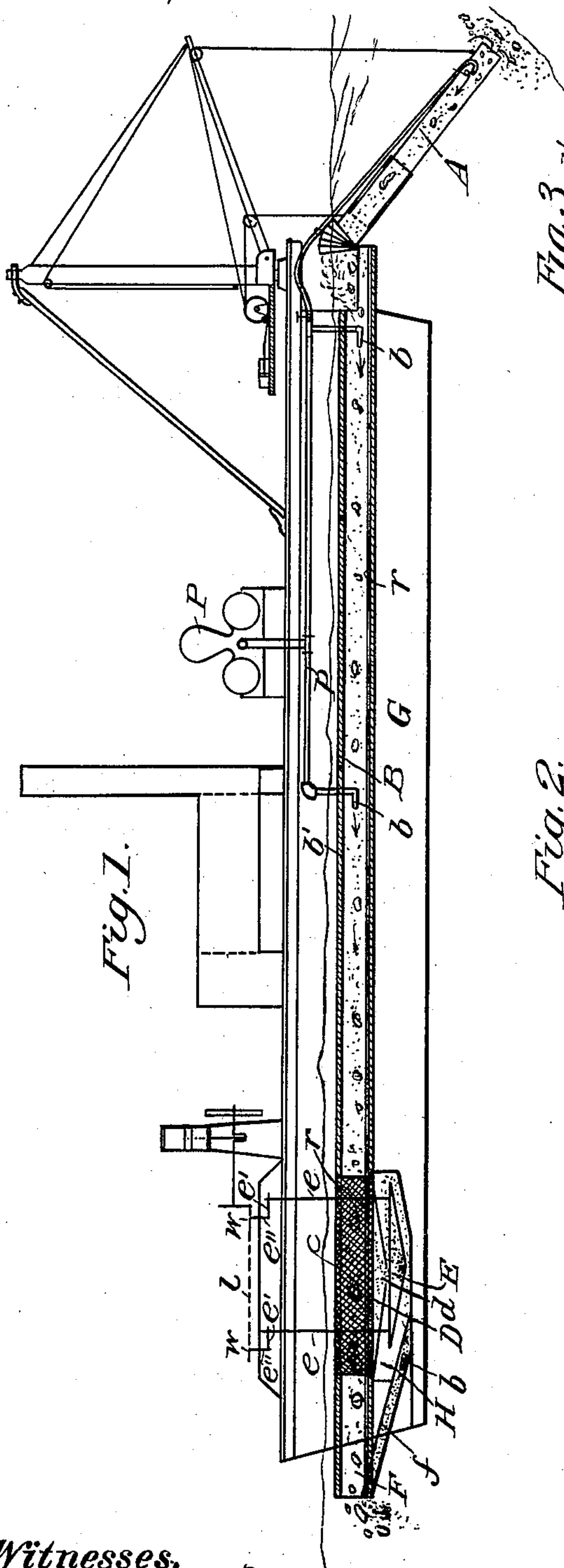


Fig. 1.

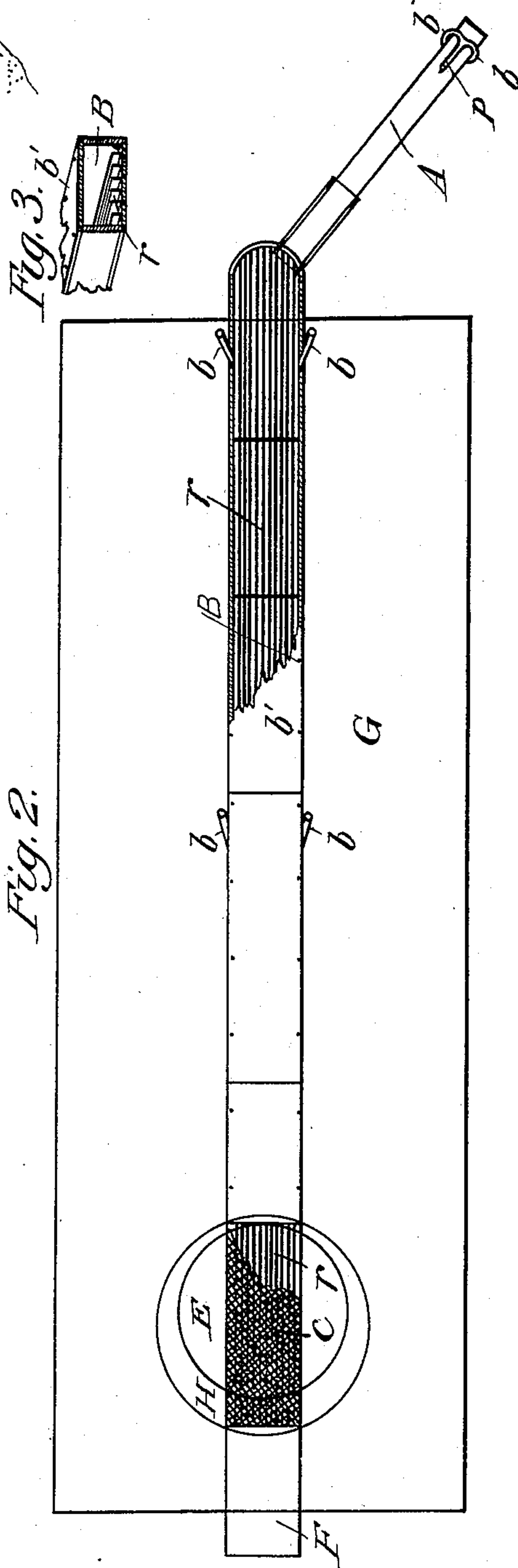


Fig. 2.

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PLACER-GOLD-EXTRACTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 594,041, dated November 23, 1897.

Application filed February 25, 1895. Serial No. 539,583. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. STRONG, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented a new and useful Placer-Gold-Extraction Machine or Dredge, of which the following is a specification.

My invention relates to a placer-gold-extraction machine or dredge in which a scow or float is fitted with a sand pump or elevator, a submerged gold-saving sluice-box, a screen being an extension of said sluiceway in which the sides and bottom are constructed of perforated sheet metal or wire meshes, a hopper around and below said screen, a batea or gold-pan in position below said hopper and having a horizontal eccentric motion, and a discharging-slucce for carrying away the screened and washed placer-dirt, gravel, or boulders; and the objects of my invention are, first, to provide a continuous supply of gold-bearing sand, gravel, or placer material, taking it from the bottom of a river or from the banks along the shores of same; second, to provide a sluiceway paved with suitable riffles for catching and retaining any metallic gold that may lodge between said riffles while the placer material carrying metallic gold is passing onto the screen; third, to cause a flow of water and movement of placer material through said sluiceway by means of water-jets entering obliquely the sides of said sluiceway; fourth, to provide a screen for separating the metallic gold, together with more or less sand, from the placer material which has passed the riffles in the sluiceway; fifth, to provide a hopper inclosing the sides and bottom of said screen, the hopper having a discharging-aperture at the bottom for delivering material carrying metallic gold to a batea or gold-pan; sixth, to provide a gold-saving device consisting of a batea or gold-pan having a horizontal eccentric motion by virtue of which the heavy metallic gold is settled to the bottom of said batea, while the lighter material is washed over the edges of the pan and carried away by means of a discharging-slucce; seventh, to provide a discharging-slucce for carrying away the washed or refuse placer material. I attain these ob-

jects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of the entire machine. Fig. 2 is a top view or deck plan of the scow or float. Fig. 3 is a vertical section in perspective of the sluice-box extending through the length of the hull of the float or scow.

Similar letters refer to similar parts throughout the several views.

In the drawings, A represents the sand pump or elevator, any type of which may be used, but I prefer to use a sand pump or elevator operated by means of obliquely-entering water-jets *b*. Compressed air or steam may be used instead of water discharging through the jet-nozzles *b*. The sand pump or elevator is controlled, as regards position, by means of a derrick and winding-engine mounted upon the deck of the scow or float, as shown in drawings.

B represents a gold-separating sluice-box set into or upon the hull of a scow or float. Into the intake end of said sluiceway the sand pump or elevator A discharges placer material. Entering the sides of the sluiceway at suitable points and obliquely to the long axis of the sluiceway are water-jet nozzles *b*, connected by means of a system of pipes *p* with the pump P. Steam or compressed air may be used through these nozzles instead of water. The jet-tubes *b* are set so as to cause a flow of water and movement of placer material from the discharge end of sand pump or elevator through the sluiceway and into the receiving end of the screen C.

The sluiceway B is submerged below the water-level in order to avoid lifting or handling material above water-level.

The sluiceway B is provided with a cover *b'*, which may be removed for the purpose of entering said sluiceway. The sluice-box B is paved through its entire length with the riffles *r*.

The screen C is an extension of the sluiceway B and may be considered as a section of the sluiceway, having the sides and bottom constructed of perforated sheet metal or of wire meshes, and the riffle paving may extend on from the sluiceway through the screen,

and the screen C may extend as far forward as may be deemed advisable. The screen is provided with a top or cover constructed of suitable material, and may be perforated or not.

The hopper D incloses the sides and bottom of the screen C and is so constructed as to receive material passing through the perforations or meshes of the screen C. At a suitable place in the bottom of the hopper D is a discharging-aperture *d* for delivering the screened material into the batea or gold-pan E.

The batea or gold-pan E may be constructed of sheet metal or other suitable material and consists of a shallow vessel the sides of which have an acute horizontal angle, as shown in the drawings. The batea or gold-pan is supported by the rods *e*, attached to the arms *e'*, which revolve horizontally about the shafts *e''*. The shafts *e''* are driven by means of the sprocket-wheels *w* and link belt *l* or may be driven by a suitable system of gearing in either case by the application of power from an engine or motor. The batea or gold-pan E is thereby given a horizontal eccentric motion for the purpose of settling the metallic gold to the bottom of the batea or gold-pan, where it remains, while the lighter sand and material is washed over the edges of the batea and by means of the pipes *f* discharged into the discharging-slucice F. The batea or gold-pan E in position is below the hopper D and operates in the well H.

The discharge-slucice F is an extension of the screen C and the sluiceway B and like the sluiceway has in the sides obliquely-entering water-jets *b* for causing a flow of water and movement of the washed and refuse placer material out of the discharge end of sluiceway. The discharge-pipes *f* draw the material from the bottom of the well H, discharging the same into the discharge-slucice F. The pipes *f* also cause a downward flow of water through the screen C, the hopper D, and over the batea or gold-pan E.

The hull of the scow or float G may be fitted with water-tight compartments for elevating or lowering the level of the sluiceway by allowing the said water-tight compartments to fill with water for lowering or by pumping water out for elevating.

The hull of the scow or float G may be fitted with paddle-wheels or screws for propulsion, also with "spuds" or corner-posts for the purpose of giving the scow or dredge rigidity when in operation, the lower ends of spuds or posts resting upon the river-bottom and said spuds or posts locked to the hull of scow by means of any suitable fastening.

Upon the deck of the scow or float G are mounted the necessary boilers, engines, pumps, and apparatus for operating the dif-

ferent parts of the placer-gold-extraction machine or dredge.

The operation of the machine will be as follows: The machine or dredge is placed in position to take placer material from the bottom of a river or other body of water or from the bank alongside of the dredge. The pumps are operated under proper pressure to supply the water-jets *b* and cause an upward flow of water and placer material through the casing of the sand pump or elevator A. At the discharge end of the elevator A the placer material meets an inflow of water through the sluiceway B, caused by the water-jets *b*. The metallic gold carried into the sluiceway B, owing to its great specific gravity, will tend to reach the bottom of the sluiceway and lodge between the riffles, but may be carried onto the screen C. By the time the metallic gold has reached the screen C it should be dragging well toward the bottom of the sluiceway, and meeting a downward as well as a forward flow of water through the screen the gold should be carried through the perforations or meshes in the sides or bottom of the screen and by means of the hopper D delivered to the batea or gold-pan E. The gold-pan E, by virtue of its horizontal eccentric motion, will cause the metallic gold to settle to the bottom and there remain, while the lighter material passes over and is discharged into the discharging-slucice through the pipes *f*.

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

1. The combination with a dredging apparatus embracing, first, an excavating and elevating mechanism and, second, a gold-separating sluice-box set below the water-line in the hull of a scow or float, of a removable top or sluice-box cover *b'*, the diagonally-entering jet-tubes *b*, the riffle paving *r*, the screen C, the hopper D, the gold-pan E, the well H, and the discharging-slucices *f* and F, substantially as described.

2. The combination with a dredging apparatus embracing an excavating and elevating mechanism of a floating covered gold-separating sluice-box, the obliquely-entering water-jet tubes *b* and the removable cover *b'* substantially as described.

3. The combination with a dredging apparatus and floating gold-separating sluice-box of a screen and concentrating mechanism consisting of a horizontally-rotating gold-pan or shaking table set below said screen, near and at the discharging end of said sluice-box substantially as described.

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Witnesses:

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