

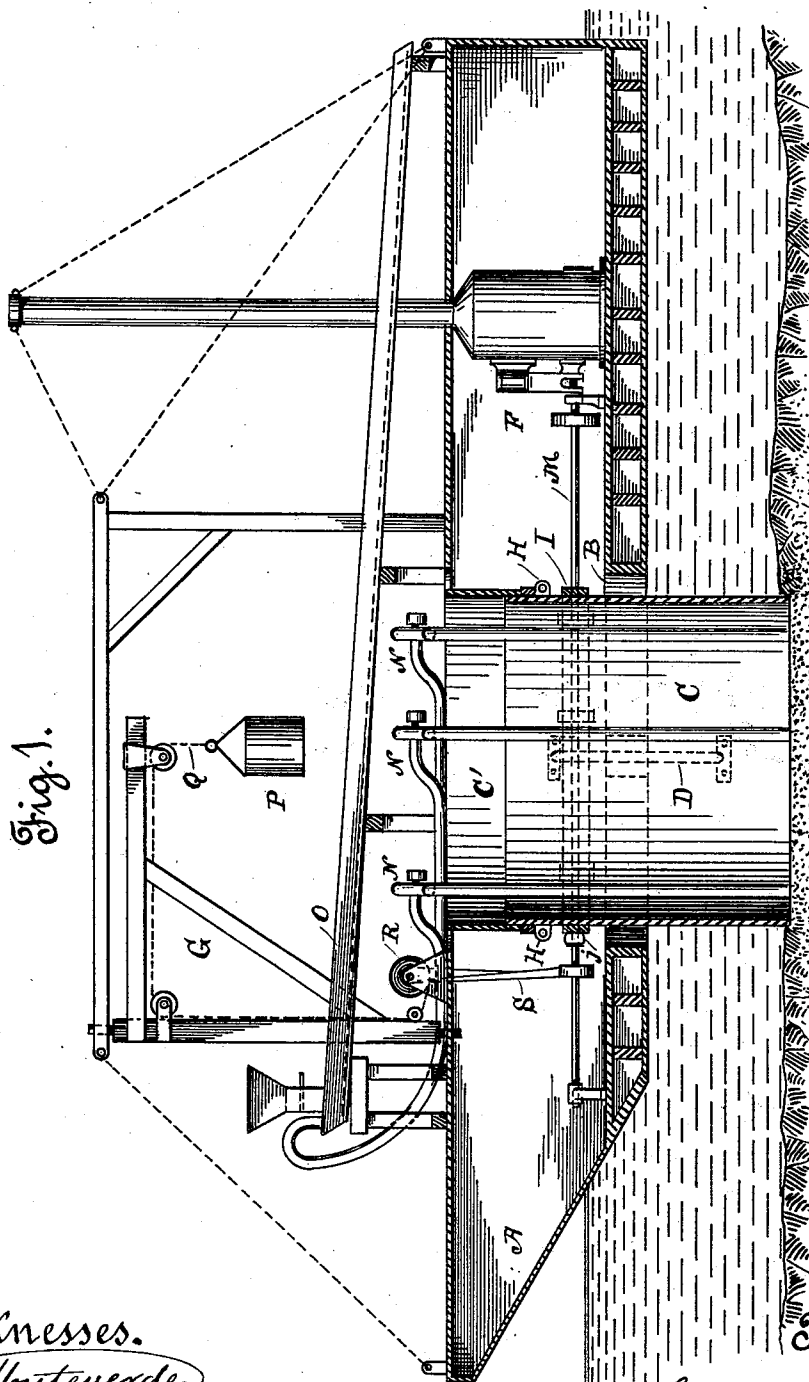
(No Model.)

2 Sheets—Sheet 1.

E. F. PECK.
MINING APPARATUS.

No. 507,926.

Patented Oct. 31, 1893.



Witnesses.
H. J. Fonteverde.
A. A. Baxter

Inventor.
Eugene F. Peck.
by *A. H. Le Marie*
att'y

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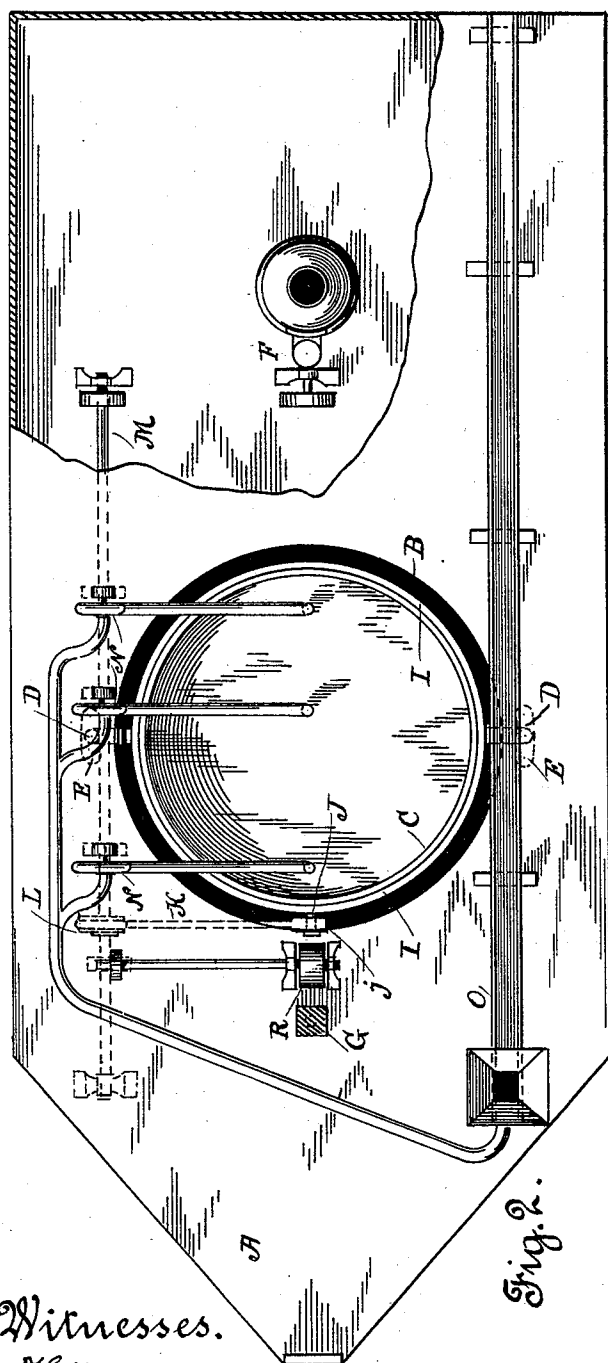


Fig. 2.

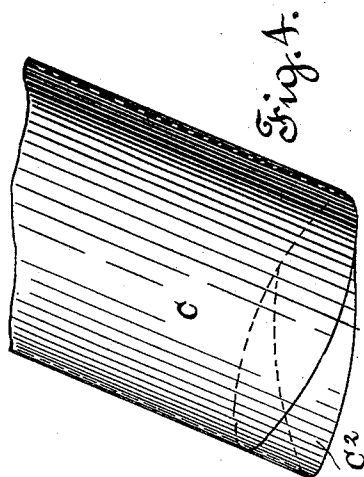


Fig. 4.

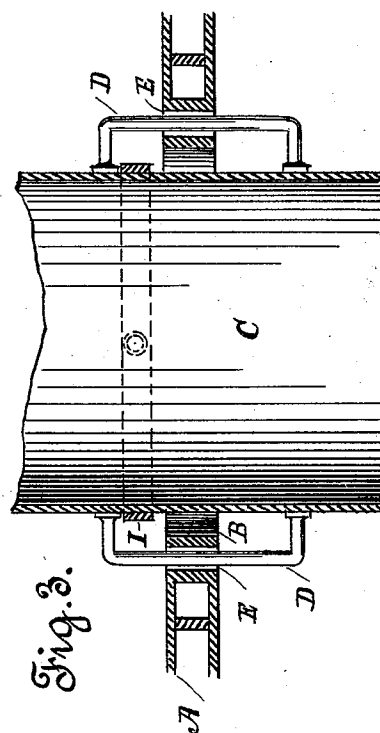


Fig. 3.

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UNITED STATES PATENT OFFICE.

EUGENE FESSENDEN PECK, OF NAPA, CALIFORNIA.

MINING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 507,926, dated October 31, 1893.

Application filed February 13, 1893. Serial No. 462,169. (No model.)

To all whom it may concern:

Be it known that I, EUGENE FESSENDEN PECK, a citizen of the United States, residing at Napa, in the county of Napa and State of California, have invented certain new and useful Improvements in Mining Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in the mining of precious metals to be found in submerged earth, or lying beneath water-bearing strata, and which are inaccessible by the ordinary modes of mining heretofore practiced.

The object of said invention is to provide means whereby a movable iron caisson may be readily sunk into the ground to be excavated, whether squarely or at an angle, and removed therefrom to be used again in other places.

Referring to the accompanying drawings for a detailed description of my invention,—Figure 1 is a sectional elevation of one form of apparatus adapted to carry out the said invention. Fig. 2 is a top view thereof. Fig. 3 is a broken section taken from a point near the center of Fig. 2, looking toward the left; and Fig. 4 is an elevation showing how an ordinary caisson may be fitted for work in an oblique direction or in unlevelled ground.

The letter A represents one form of suitable structure upon which my improved apparatus may be moved over bodies of water, as in river channels, or supported above submerged ground. Such a structure may take the shape of a boat, barge, raft, or any convenient form of float. Other supports or foundations may be used when the mining is carried on in dry river beds or other places where the ground surface is not covered by water.

B is an opening which runs vertically through the vessel or structure A and may be made at any suitable place therein.

C is a water-tight box, casing, or tank having an open bottom and forming a caisson that may be used to sink a shaft through sub-

merged earth or water-bearing ground. This tank is made preferably of boiler-plate and cylindrical in section. It is extensible in that it is fitted to receive extension-pieces both at the top and bottom, which may be of same shape as the body of the tank, as shown at C', Fig. 1, or take the form of segments as at C², Fig. 4. The tank C is placed into the opening B, and being of smaller diameter it is readily movable and adjustable therein, sidewise as well as lengthwise. Thus it may be raised, lowered, pushed to one side, turned, or tilted to suit different circumstances. Guide-rods D passing through small openings E in the sides of the boat or structure A may be used to maintain the tank in any given position once the line of work has been determined upon. The tank may be kept suspended or raised and lowered within the opening B by means of an engine F, a derrick or crane G, and chains or ropes (not shown) fastened to lugs H on the sides of said tank.

I designates a ring or annular band of metal rigidly secured to the outer surface of the tank C and provided with an outwardly-projecting pin J. To this pin is connected by a ball-joint, a reciprocating arm K, which is moved by an eccentric L from a shaft M driven by the engine F. In moving back and forth the arm K imparts a similar movement to the pin J and ring I and therefore to the tank C, which being rocked in this manner or turned one way and then the other sooner settles down into the soft mud, quicksand, gravel, or water-soaked soil containing or hiding the coveted ores or minerals. By the same means the tank may also be withdrawn quicker from a river bed or shaft when the work has been completed.

N indicates pumps, preferably of the rotary type, that may be used to empty the tank after it has been sunk into a body of water or to eject water that may be flowing from the ground as the excavations are being made. The water raised by the pumps may be profitably utilized in several ways, for instance in washing gold-bearing dirt in a sluice-box O, in accordance with the process familiar to every mining man.

The minerals taken from a river bed or

elsewhere in the earth may be raised by any suitable means, such as a bucket P suspended from the end of a rope Q connected with the derrick G and wound around a drum R.
 5 A belt S connecting suitable pulleys will rotate the drum from the shaft M.

The operation of my improved apparatus, when used for mining in rivers having their course through gold-bearing districts such as
 10 are found in California, is as follows: The boat, barge, or other supporting vessel or structure is brought to the place where it is thought rich deposits of gold exist, and there anchored. Soundings are made, and the tank
 15 or caisson is lowered in the direction best calculated to favor the progress of the diggings. If let down at an angle or upon uneven ground, thesegmental extension pieces C² are attached, so the tank will bear all around upon the
 20 surface of the ground to be excavated. This being done, the arm K is brought into play and the tank reciprocated right and left to facilitate its entry into the ground, until it has firmly settled into the sand, mud, sediment,
 25 or gravel usually found in river beds. If, on account of the depth of the river, the tank be found too short, extension pieces C' are added in order that the upper part of the tank may be kept above the level of the water. The
 30 pumps are next called into action and the contents of the tank drawn off, which should leave the ground bare or sufficiently uncovered to proceed with the work of mining. The matter afterward removed from the river bed
 35 or excavated is brought up by the buckets and turned into the sluice-boxes, where the gold is collected. When the work is no longer found profitable, the tank or caisson is again reciprocated so as to loosen its hold upon
 40 the surrounding earth and it is raised aboard

the vessel. The apparatus is then removed to where a similar operation may be repeated. Mining in water-bearing but uncovered ground may be carried on substantially in the same way, although the boat is dispensed
 45 with and only such structure as the proper working of the caisson calls for takes its place. But the construction and working of the tank and the other appliances need be altered only
 50 in such a manner as surroundings will naturally suggest to men skilled in the art to which my invention appertains.

Having described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is— 55

1. The combination of a tank or caisson, and a reciprocating device whereby the said tank or caisson may be moved first one way and then the other, substantially as set forth.

2. The combination of a tank or caisson, a
 60 pin connected therewith, and a reciprocating arm connected with said pin, substantially as set forth.

3. The combination of a tank or caisson, a ring thereon, a pin projecting from said ring,
 65 and a reciprocating arm connected to said pin, substantially as set forth.

4. The combination of a suitable structure, such as a vessel or float, having an opening, a tank or caisson of smaller diameter than the
 70 opening, and guide-rods whereby said tank or caisson may be maintained in any desired position therein, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EUGENE FESSENDEN PECK. [L. s.]

Witnesses:

W. E. DEWEES,
 HENRY BROWN.