(No Model.) 3 Sheets—Sheet 1.

A. W. ROBINSON.

PLACER MINING DREDGE.

No. 589,858. Patented Sept. 14, 1897.

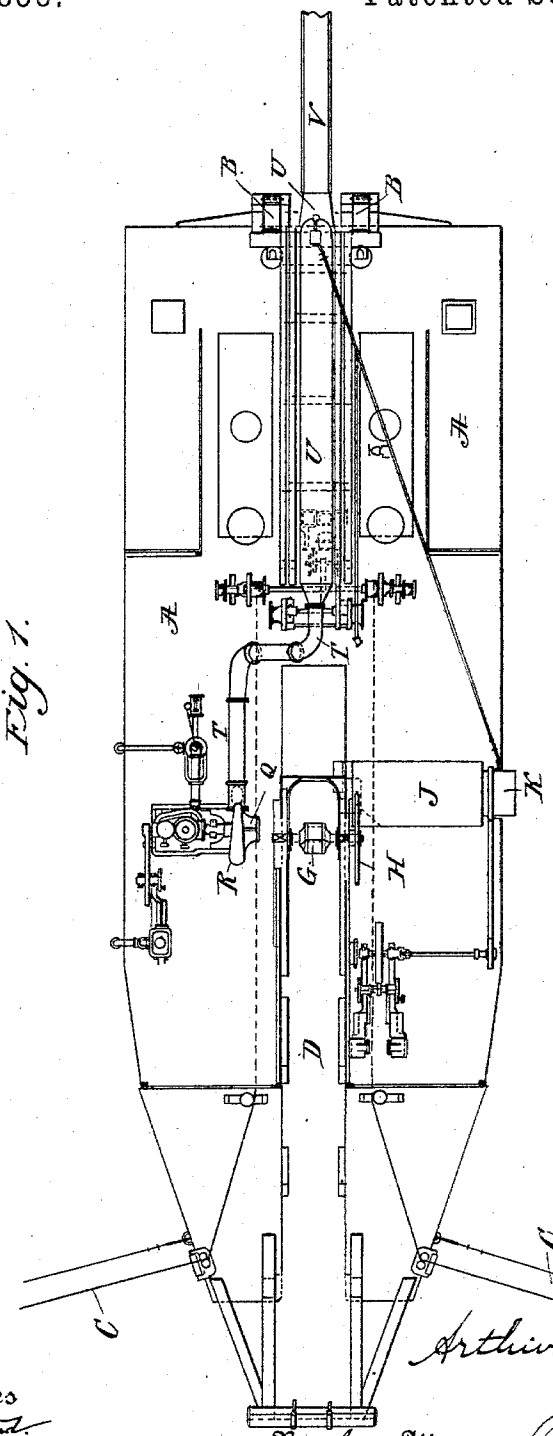


Fig. 1.

Witnesses
Edward C. Bridgland
H. B. Morrison

Arthur W. Robinson
Inventor
By his Attorney Phillips Abbott

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A. W. ROBINSON.

PLACER MINING DREDGE.

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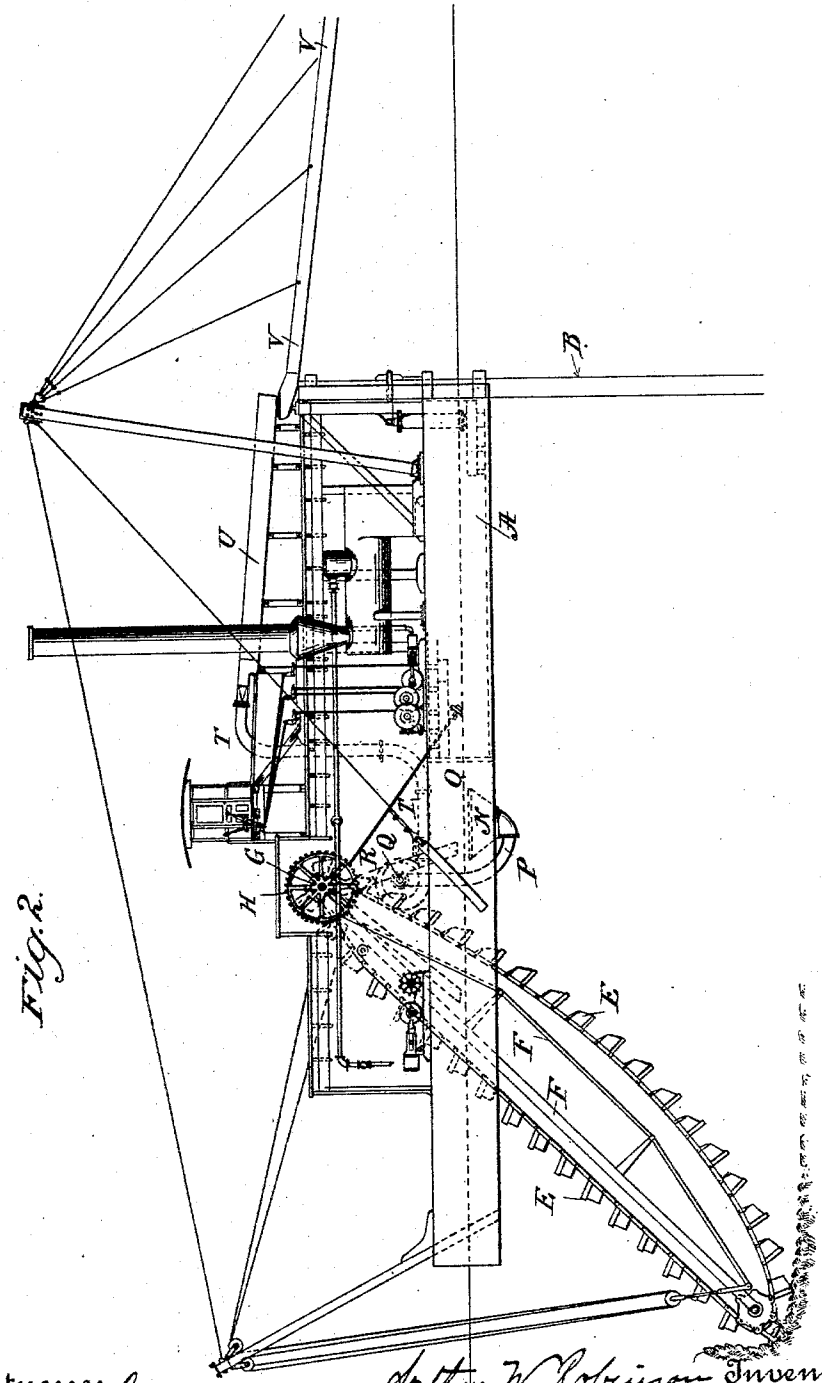


Fig. 2.

Witnesses
Edward Rowland.
A. B. Morrison.

Arthur W Robinson Inventor
By his Attorney Phillips Abbott

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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A. W. ROBINSON.

PLACER MINING DREDGE.

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Fig. 4.

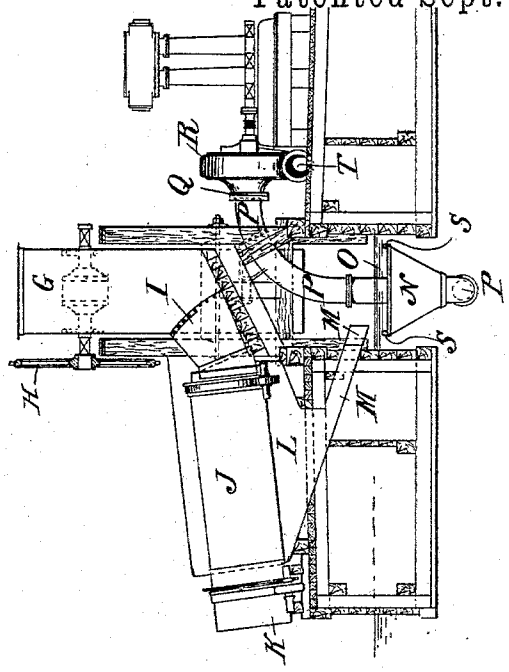
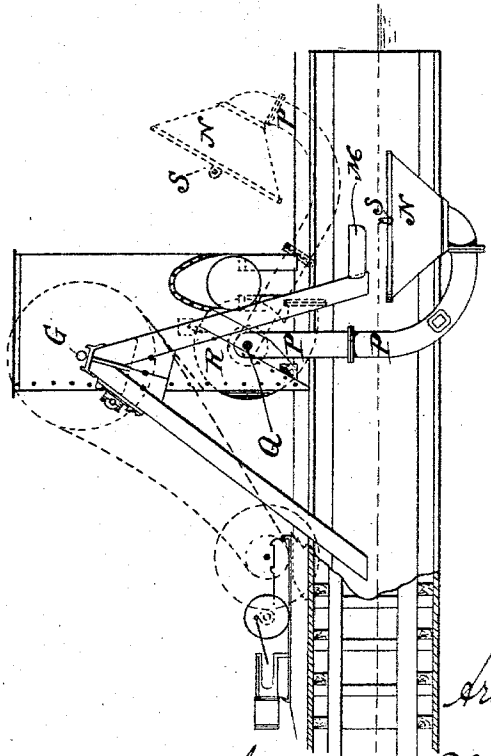


Fig. 5.



Witnesses
Edward L. Rowland.
A. B. Morrison

Arthur W. Robinson
Inventor
By his Attorney Phillips Abbott.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ARTHUR W. ROBINSON, OF MILWAUKEE, WISCONSIN.

PLACER-MINING DREDGE.

SPECIFICATION forming part of Letters Patent No. 589,858, dated September 14, 1897.

Application filed April 22, 1897. Serial No. 633,220. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR W. ROBINSON, a citizen of Canada, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Placer-Mining Dredges, of which the following is a specification.

My invention relates to improvements in placer-mining dredges; and it consists in the construction and arrangement of the parts as hereinafter set forth.

The essential characteristics or features of the invention are a scow or equivalent support upon which are erected excavating apparatus, preferably endless-chain buckets, which discharge into a grizzly or equivalent screen, in which the coarser material and other impurities are separated, being discharged overboard from the tail of the grizzly, and the finer material, carrying the gold or other valuable metal, passes through the grizzly and is received in a box or hopper having a chute which discharges into another hopper submerged below the surface of the water, and a suction-pipe connects with this last-named hopper with the eye of a centrifugal pump, so that the material received from the grizzly in conjunction with the water which flows in at the mouth of the hopper is sucked from the latter into the centrifugal pump and by it discharged into a sluice-box, which is likewise carried by the dredge or equivalent support, the interior of which is provided with the usual amalgam steps or equivalent devices for separating and retaining the metal, and from the tail of the sluice-box a conduit is provided whereby the waste or detritus is carried to a suitable dumping-place.

Referring to the drawings, Figure 1 illustrates a plan of a dredge embodying the invention, certain of the parts being omitted for the sake of clearness. Fig. 2 illustrates an elevation of that which is shown in Fig. 1, excepting that the grizzly and some of the other parts are omitted for the sake of clearness. Fig. 3 illustrates a side elevation of the submerged hopper, the body of the scow being sectioned at the left to show its construction. Fig. 4 illustrates a view, partly in section and partly in elevation, taken from the front of the scow.

A is the scow or float. It may be made in any preferred form or manner and is provided at the stern with the usual spuds B B and with warping-chains C C at or near the bow. This particular dredge is bifurcated, as at D, so that an endless chain of excavating-buckets E, carried by a boom F, may be employed. These parts may be differently arranged and constructed, if desired. The upper axis of the chain of buckets is shown at G, it being driven by a suitable sprocket-wheel H in conjunction with proper driving mechanism. As the buckets E revolve they discharge into a hopper, the lower portion of which is shown at I in Fig. 4, which connects with an ordinary rotating grizzly J, the tail of which, K, discharges overboard. This grizzly is supported and actuated in any usual or preferred manner. On the under side of the grizzly (see Fig. 4) is a hopper or receptacle L, which catches the finer material and the gold or other precious metal which pass through the grizzly. From this receptacle L there is a chute M, which delivers it into a hopper N, which is submerged below the surface of the water O. This hopper N is supported upon a pipe P, which connects with the eye Q of a centrifugal pump R, and the connection at R is a pivotal one, so that if anything should clog the pipe P it and the hopper carried by it can be swung upwardly, as shown in dotted lines in Fig. 3, and the obstruction removed. There are ears or rings S attached at the sides of the hopper whereby a chain can be made fast to it for the purpose of lifting it. The centrifugal pump R discharges through a pipe T, which empties into the upper end of a sluice-box U, which is supported by the dredge in an inclined position, as shown, and within which are the usual amalgam steps or boxes or other equivalent mechanism for separating and retaining the precious metal in a manner now well understood, and from the tail of the sluice-box U the exhausted material or detritus passes into a conduit V, whereby it is conveyed to a suitable dump.

It will be understood that the several parts above referred to are provided with suitable coacting parts and with actuating or driving mechanism, some portions of which are illustrated upon the drawings; but relative to

those matters no description or explanation is necessary, since their construction and operation may be such as preferred, there being a large number of appliances suitable for the purpose now in common use and well known to those familiar with this art.

The operation is as follows: The excavating instrumentalities, whatever they may be, lift the submerged gold-bearing material from the bottom of the placer and deposit it in the hopper, from which it passes into the grizzly, by which the coarser material, such as rocks, lumps, &c., are separated from the finer gold-bearing material and discharged overboard from the tail of the grizzly. The finer gold-bearing material, however, passes through the grizzly and is received in the box or hopper L beneath it, from which it passes through the chute M into the submerged hopper N, within which there is a strong suction generated by the centrifugal pump, so that the finer material, together with the precious metal or metals, are drawn into the hopper and through the pipe P into the eye of the centrifugal pump R, from which they are in turn ejected through the pipe T and into the sluice-box U, in which the precious metal is separated by the well-known employment of quicksilver or "amalgam," so called, and is thus held within the sluice-box while the detritus passes off from the tail of the sluice-box through the discharge chute or conduit V.

It will be obvious to those who are familiar with this art that modifications may be made in the construction and arrangement of the parts without departing from the essentials of the invention. I therefore do not limit myself to the details described and shown.

I claim—

1. The combination with a scow or like support of excavating mechanism, a rotary and positively-driven screen, a submerged hopper, a centrifugal pump and means to feed the material from one to the other successively, for the purposes set forth.

2. The combination with a scow or like support of excavating mechanism, a rotary and positively-driven screen, a submerged hopper, a centrifugal pump, a sluice-box, and means to feed the material from one to the other successively, for the purposes set forth.

3. The combination with a scow or like support, of excavating mechanism, a screen, a submerged hopper, pivotally supported, so that it may be elevated above the water, a centrifugal pump, and means to feed the material from one to the other, for the purposes set forth.

4. The combination with a scow or like device, of excavating mechanism, a screen, a submerged hopper connected with a pipe pivotally connected to the eye of a centrifugal pump, said centrifugal pump itself and means to feed the material from one to the other of said instrumentalities, successively, for the purposes set forth.

5. The combination with a scow or like support of a submerged hopper supported upon a pipe which is pivotally connected to the eye of a centrifugal pump and an amalgam-tank or sluice-box into which said pump discharges, for the purposes set forth.

6. The combination of a scow upon which the following instrumentalities are supported, to wit, excavating apparatus which discharges into a grizzly or screen, a receptacle beneath the grizzly which catches the fine material, and which discharges into a submerged hopper, said submerged hopper itself, a pipe or conduit connecting it with a suction-pump, and a discharge conduit or pipe which connects the pump with an amalgam-tank or sluice-box, for the purposes set forth.

Signed at Milwaukee, in the county of Milwaukee and State of Wisconsin, this 16th day of April, A. D. 1897.

ARTHUR W. ROBINSON.

Witnesses:
J. M. MILLMAN,
J. G. DAVIES.