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APPARATUS FOR MINING GOLD AT THE BOTTOMS OF FLOWING STREAMS.

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916,859. Patented Mar. 30, 1909.

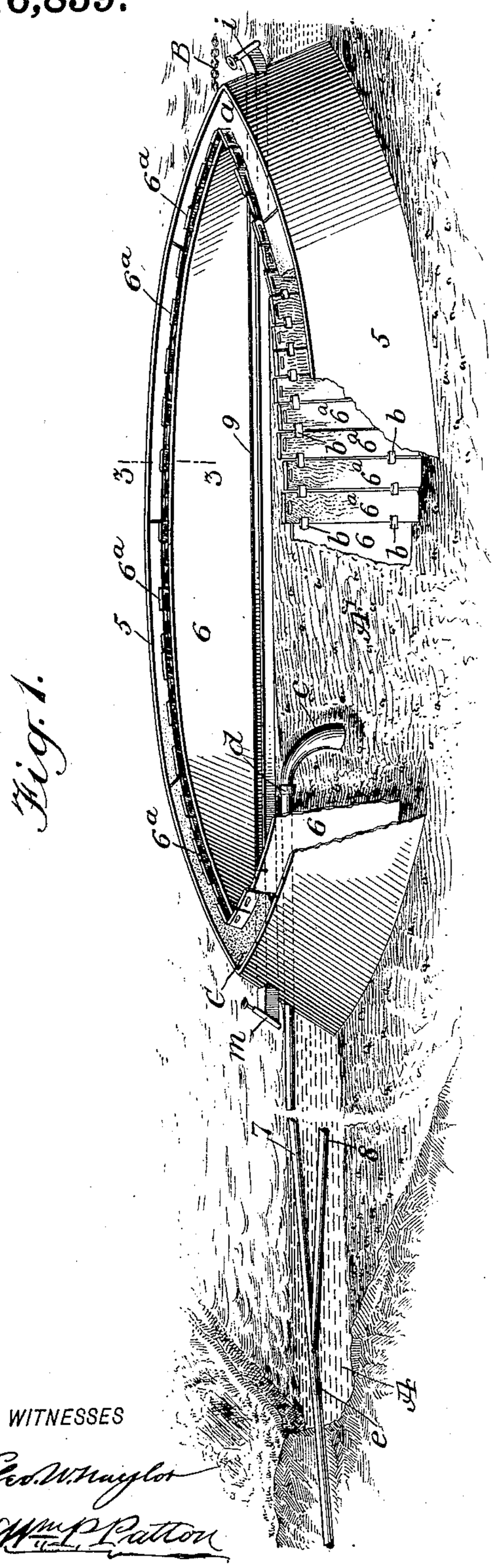

Fig. 1.

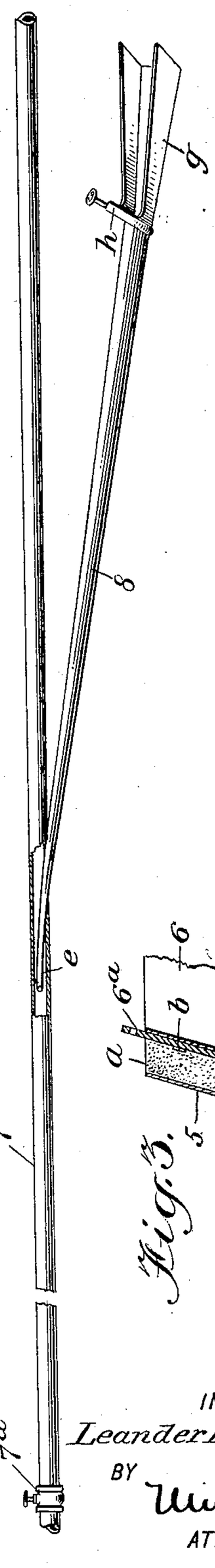

Fig. 2.

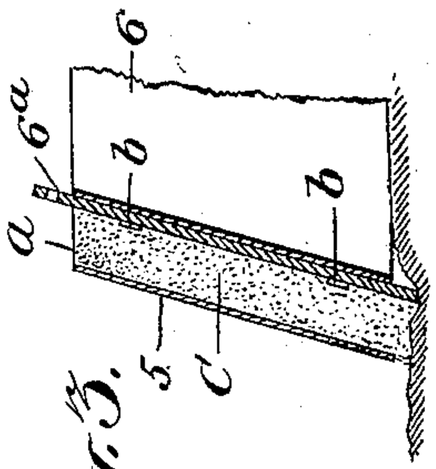

Fig. 3.

WITNESSES

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APPARATUS FOR MINING GOLD AT THE BOTTOMS OF FLOWING STREAMS.

No. 916,859. Specification of Letters Patent. Patented March 30, 1909.

Application filed October 31, 1907, Serial No. 400,030. Renewed December 14, 1908. Serial No. 467,537.

To all whom it may concern:

Be it known that I, LEANDER F. GILMAN, a citizen of the United States, and a resident of Sacramento, in the county of Sacramento and State of California, have invented a new and Improved Apparatus for Mining Gold at the Bottoms of Flowing Streams, of which the following is a full, clear, and exact description.

This invention relates to placer mining for gold, and has for its object to provide a novel method and means for automatically removing water from within the dam, for exposure of the inclosed bottom soil and thus enable the excavation of gold bearing sand and gravel.

Furthermore, the invention includes the provision of means for the separation of gold from debris, by washing in a flume, and to be conducted within the coffer dam continuously while the gold bearing material is being excavated.

The invention consists in the novel means for mining gold at the bottom of a flowing stream, as is hereinafter described and defined in the appended claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a broken perspective view of the improved apparatus located in a water course; Fig. 2 is an enlarged detached perspective view of a detail, broken away to expose interior parts, and having portions removed at each end, and Fig. 3 is an enlarged fragmentary transverse sectional view of the coffer dam, showing the construction of its side wall.

In the drawings, A represents a water-course, from the bed of which gold is to be taken; and as is generally the case in streams bearing gold mixed with earthy material at their bottoms, the latter is sand and gravel and frequently nearly level, and it is in such a conformation of the bed of a water-course that the invention is adapted for successful operation.

The coffer dam is preferably oval in contour, and comprises two walls 5, 6, formed of any suitable material. The wall 6, having smaller diameter, is held concentric within the wall 5, thus producing an annular channel *a* between said walls. The walls 5, 6, have such height as will dispose them above the surface of water they may be sunken in, and to afford stability and adapt the structure for resisting pressure of water current, said walls are inclined inward and upward.

Upon the outer surface of the inner wall 6, a supplementary wall is located, said wall consisting of a suitable number of planks of wood, or plates 6^a, of metal, all jointed together edgewise and held slidably upon the inner wall 6 by clip plates *b*, that permit a longitudinal enforced depression to be given to any of the wall plates 6^a, and thus fill up a gap between the lower edge of the inner wall 6 and any portion of the surface of the river bottom that may be depressed below the main surface thereof.

The supplementary wall members 6^a project a distance above the upper edge of the inner wall 6, and are thus adapted for an enforced downward sliding movement a proper degree, for rendering the inner wall 6 water tight where it rests upon the surface of the bed of the stream A, as is shown in Fig. 3.

Having selected a point for operation, the coffer dam is moored with its converged ends in line with the water current, by means of chain or rope cables, one being indicated at B in Fig. 1, these cables extending to some stationary object, such as one or more barges, not shown, that are anchored in the stream. The coffer dam is further rendered stationary and water tight where it is engaged with the bottom of the water course A, by filling in the space between the walls 5, 6, of the dam with clay, cement, or other available material that will resist the passage of water into the dam, as indicated at C.

In order to remove the water contained in the dam, I have provided a water discharging system of pipes, that operate automatically as a siphon, consisting of the following details. A conduit pipe 7 passes water tight through the walls 5, 6, and at the inner end is furnished with an enlarged intake nozzle *c*, that is flexibly connected with the end of said pipe by any suitable means, such as a short section of rubber hose, indicated at *d* in Fig. 1. The conduit pipe 7 is extended from the coffer dam, down stream to a point of discharge, which must be somewhat lower than the bottom of the water course that is inclosed in the coffer dam, and in said pipe a valve 7^a is placed, that may be near the point for discharging water therefrom. In the stream A, at a convenient point for access

thereto, a jet pipe 8 is supported, and at one end is furnished with a nozzle *e* that is of reduced diameter as compared with the portion of the pipe near the other end thereof. The jet nozzle *e* is introduced into the conduit pipe and disposed centrally therein, said connection of the nozzle and conduit pipe being air tight. At the opposite or intake end of the jet pipe 8, an inlet duct *q* is secured thereto, and at the point of junction or near it, a valve *h* is introduced that by adjustment controls the influx of water that passes through the jet pipe.

It will be seen that the intake end of the jet pipe 8 being opposed to the rapid current of water of the stream A, into which the jet pipe is immersed, upon opening the valve *h* more or less as may be necessary for the effective operation of the device, the jet of water forced through the pipe 8 will produce a vacuum in the portion of the conduit pipe 7 between the jet nozzle *e* and the intake nozzle *c*. Now, as the discharging end of the conduit pipe 7 is positioned lower than the intake end thereof, it will be evident that water contained in the dam will be rapidly removed by the joint action of the conduit and jet pipes, so that the bottom A′ of the stream that is within the inclosing walls of the coffer dam, will be exposed sufficiently for conducting mining operations in the dam.

A sluice or open box 9, that may be provided on its bottom with transverse riffles, or any other preferred means for separating gold in granular and scale form from waste matter, is held in place by engagement of its end portions in the walls 5, 6, through which said sluice box passes, as indicated in Fig. 1. The end of the sluice box 9 that is presented at the upper end of the coffer dam to the water current, is provided with a valve *i*, that by adjustment controls the flow of water into and through the sluice box, which may also be controlled, if desired, by a valve *m*, that is on the discharging end of the sluice box.

It will be apparent that sand and gravel, or either as the case may be, may be readily excavated from the bottom A′, and placed in the sluice box 9 for separation of gold it may contain from the gravel and sand, by washing the same or by submitting the washed material to amalgamation with mercury or the like, as is usual for saving fine gold dust from the refuse matter.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In placer mining, an apparatus embodying a coffer dam having two spaced walls, and a waterproof filling between said walls, and means for removing water therefrom automatically by siphon action.

2. In placer mining, an apparatus embodying a coffer dam, having oval contour and formed with spaced and sloped walls, a waterproof filling between said walls, a water conduit pipe having communication at one end with water in the coffer dam, and a jet pipe tapping the conduit pipe for removal of water from the dam by siphon action.

3. In placer mining, a coffer dam, a conduit pipe leading from the dam, and a jet pipe projecting into the conduit pipe outside of the dam and adapted to convey flowing water from the stream into the conduit pipe to produce siphonic action therein and thereby draw the water from the dam.

4. In placer mining, in combination, a coffer dam, means for rendering the lower edge of said dam water tight on the bottom of the stream, and a device for automatically removing water contained in the dam, comprising a main water conduit pipe tapping the wall of the dam with one end, and a valve controlled jet pipe inserted into the conduit pipe and by water flowing through said jet pipe from the stream, causing water to flow through the conduit pipe by siphon action of the device.

5. In placer mining, a coffer dam, a conduit pipe leading out through the dam and having an intake nozzle within the dam, and a jet pipe having one end projecting into the conduit pipe at an angle thereto and outside of the dam, the other end of the jet pipe having an inlet duct and a valve for controlling the inflow of water from the duct thereto.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LEANDER F. GILMAN.

Witnesses:

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