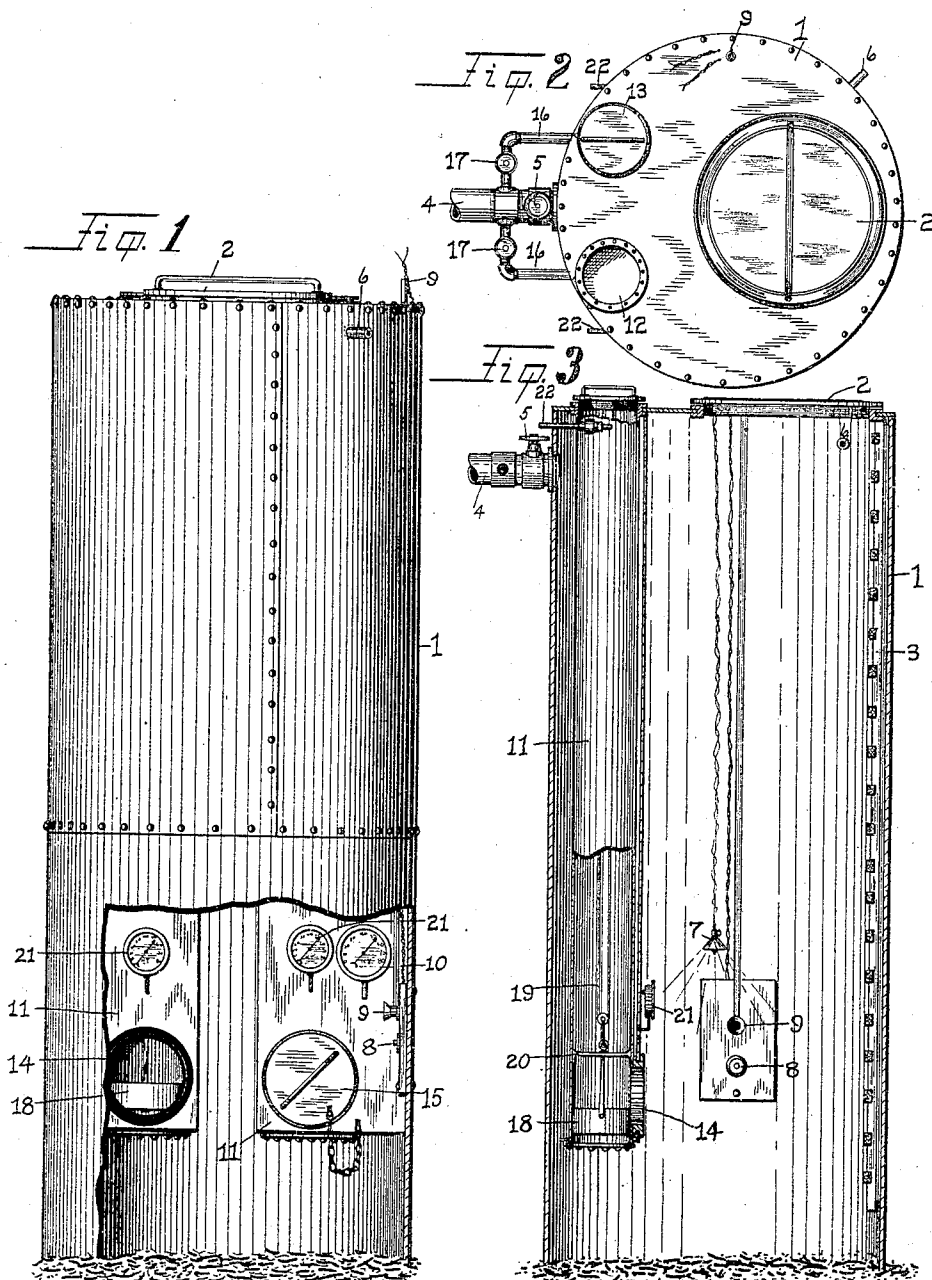


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R. HORNBECK, G. B. CAMPBELL & B. F. HITE.
DEVICE FOR PROSPECTING AND MINING FOR GOLD.

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DEVICE FOR PROSPECTING AND MINING FOR GOLD.

No. 843,606.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed January 19, 1905. Serial No. 241,893.

To all whom it may concern:

Be it known that we, ROBERT HORNBECK, GEORGE B. CAMPBELL, and BASIL F. HITE, citizens of the United States, residing at Sacramento, in the county of Sacramento, State of California, have invented certain new and useful Improvements in Devices for Prospecting and Mining for Gold in River-Bottoms; and we do declare the following to be a full, clear, and exact description of the same, 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 the characters of reference marked thereon, which form a part of this specification.

Our device relates to improvements in mining apparatus; and our object is to produce a pneumatic device which will facilitate mining, prospecting, and investigation of deposits in streams, river-beds, channels, and all places where water would otherwise prevent reaching the bed-rock or hard-pan. The principle involved consists in dispelling the water by means of compressed air from a tube or caisson or combination of tubes or caissons, which may be raised to or lowered from the deck of a barge or other floating device, made for transporting and operating the same, down to the bottom of the stream, where men may mine and raise the material through gates and hoisting-tubes or caissons to the surface for examination. This object we accomplish by the peculiar construction and adaptation of parts herein fully described, and particularly pointed out in the claims appended.

Reference is to be had to the accompanying drawings, in which similar characters of reference indicate corresponding parts in the several views.

Figure 1 is a side elevation of our improved device, partly broken out. Fig. 2 is a top plan view of our device. Fig. 3 is a sectional view of same.

1 is the main tube, which is bottomless and which is provided with a screw, hinge, or other air-tight top or lid 2 and a ladder 3 leading from the said lid to the bottom of said tube.

4 is a compressed-air pipe leading into the tube 1 and provided with a stop-cock 5, 6 is an escape-valve leading from the inside to the outside of said tube 1, 7 is an electric lamp,

8 an electric bell, and 9 a speaking-tube, all of which are suitably located within said tube 1 and connected with any suitable points outside said tube.

10 is a suitable pressure-gage, located at any suitable point within the tube 1 and adapted to indicate the pressure in said tube.

11 are smaller tubes inclosed within the tube 1 and having openings 12 through the top of said tube 1, which openings are provided with screw or other air-tight caps 13. 14 are openings in the sides of the tubes 11, near the bottom thereof, which openings are provided with screw or other suitable air-tight caps 15. 16 16 are small pipes leading from the pipe 4 into the tubes 11 and provided with stop-cocks 17. 18 are hoisting-buckets fitted into the tubes 11 and supplied with any suitable hoisting-tackle 19, and 20 are guide-bars for steadying the motion of said hoisting-buckets. 21 are gages for indicating the pressure in the tubes 11, and 22 are escape-valves leading from the inside of said small tubes to the outside of said main tube.

The operation is as follows: The workmen get into the main tube 1 by removing the lid 2, and the lid is then replaced and the tube 1 is lowered into the water at the desired point. Suitable air-pressure machinery (not shown) is connected to the pipe 4, and air is forced into the tubes 1 and 11 until the water is all dispelled therefrom. The stop-cocks 5 and 17 are then closed. When the operator finds what he considers good pay-dirt, he opens one of the caps 15 and fills one of the buckets 18 and then closes the cap 15 again and signals the operator on the float by means of the electric bell. The cap 13 is then opened and the bucket hoisted to the surface, and while this is being done the operator in the tube 1 is filling the other bucket. When the said first bucket is emptied, it is again lowered and the cap 13 fastened down, and so on. As soon as the said cap 13 is removed the air in the tube naturally escapes, so when the said cap 13 is closed and before the cap 15 is again opened the said tube 11 must be filled again with compressed air; otherwise when the said cap 15 was opened the water would rush into the said tube 1.

While we have shown two of the smaller tubes, still in practice any number desired may be used.

We have now entered into a full, clear, and exact description of the details of construction and adaptation of parts embraced in the present and preferred embodiment of our invention. We do not wish to be understood, however, as confining ourselves to such specific detail, as such changes and modifications may be made in practice as fairly fall within the scope of our claims.

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

1. In a device of the character described, a main bottomless tube, an air-tight cap on the upper end of said tube, a plurality of smaller tubes arranged within said main tube and suspended from the top thereof, said smaller tubes being closed at both ends and having openings near their lower ends, air-tight covers for said openings, said main tube and smaller tube adapted to be filled with compressed air, and hoisting means arranged within the smaller tubes, substantially as described.

25 2. In a device of the kind described, a main bottomless tube, a head or closure on the upper end of said tube and having an opening, an air-tight closure for said opening, a smaller tube suspended within the main tube and closed at its lower end, an air-tight closure for the upper end of said smaller tube, said smaller tube having an opening near its lower end, an air-tight closure for said opening, hoisting means within said smaller tube, said smaller tube and the main

tube adapted to receive compressed air, and gages for indicating the air-pressure in said tubes, substantially as described.

3. In a device of the kind described, a main, bottomless tube, means for forcing air into said tube, an escape-valve located within said tube and leading to the outside thereof, and means for hoisting material from the bottom to the top of said tube, as set forth.

4. In a device of the kind described the combination of a main, bottomless tube, an air-tight cap on the top of said tube, a large pipe leading into said tube and provided with a stop-cock, two small tubes located within said main tube and having openings through the top of said main tube, said openings being provided with air-tight caps, openings in the sides of said small tubes near the bottom thereof, escape-valves leading from the inside of the small tubes to the outside of the main tube, air-tight caps for said last-named openings, small pipes leading from said large pipe into said small tubes, said pipes being provided with stop-cocks, and a hoisting apparatus arranged within each of said small tubes as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ROBERT HORNBECK.
GEORGE B. CAMPBELL.
BASIL F. HITE.

Witnesses:

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