

May 13, 1930.

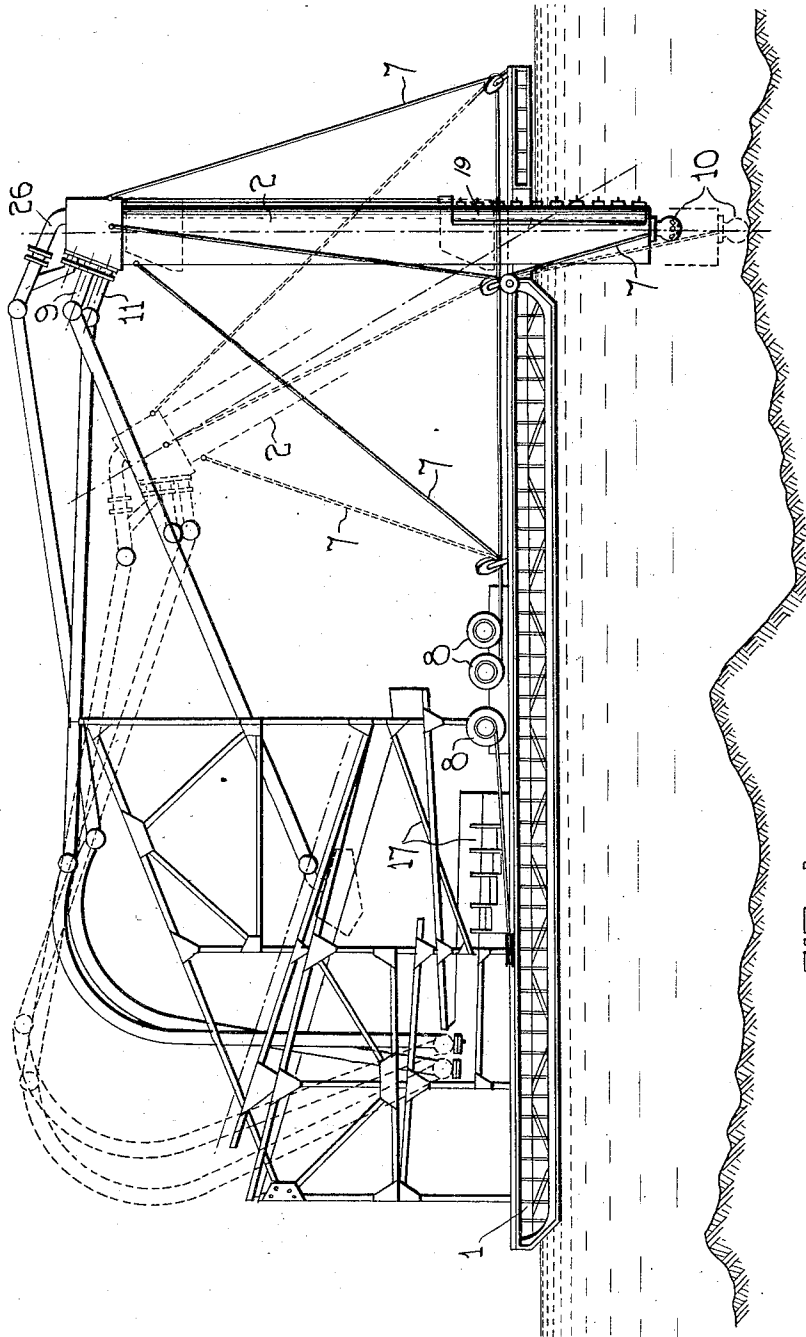
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1,758,047

MINING OR DREDGING PLANT

Filed May 6, 1927

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

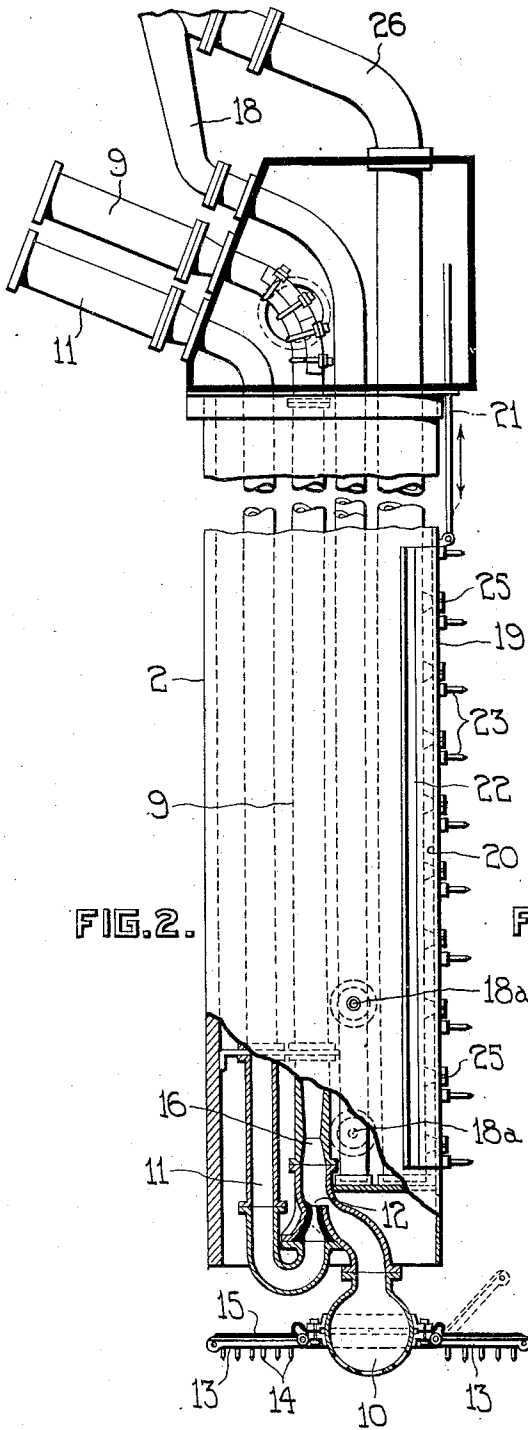


FIG. 2.

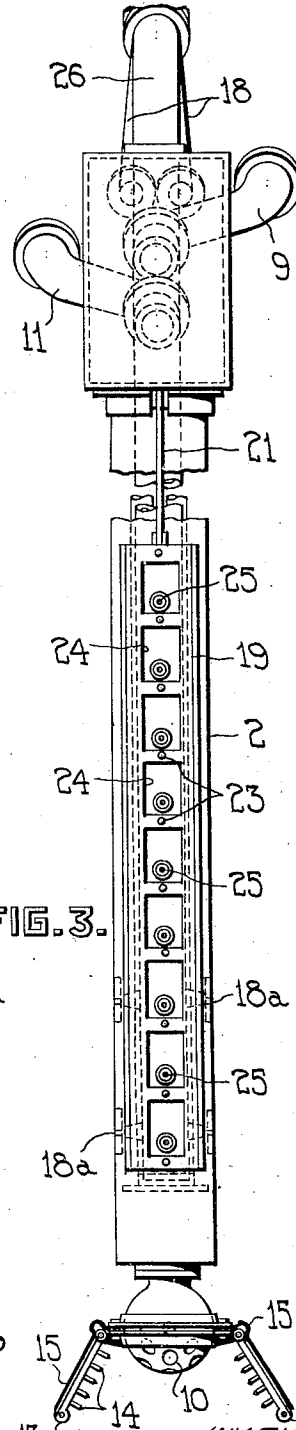


FIG. 3.

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3 Sheets-Sheet 3

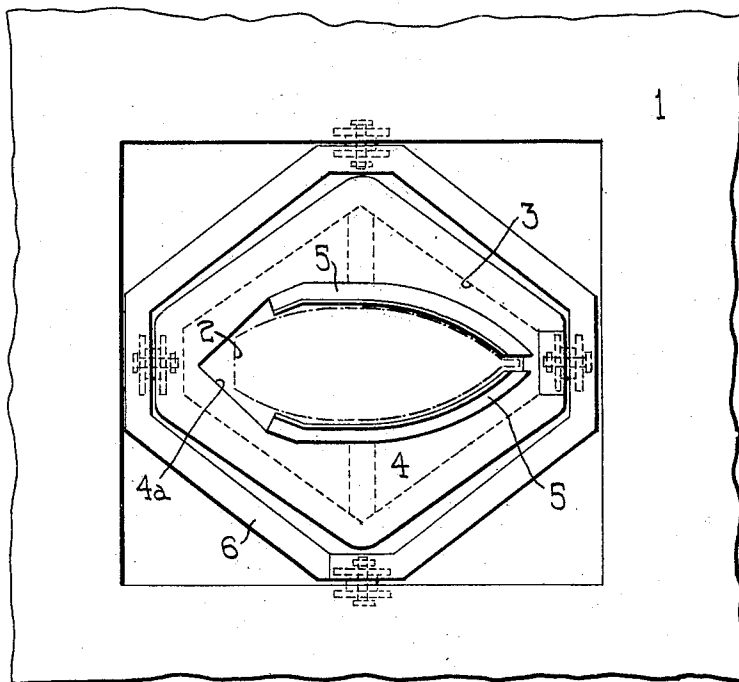


FIG. 4.

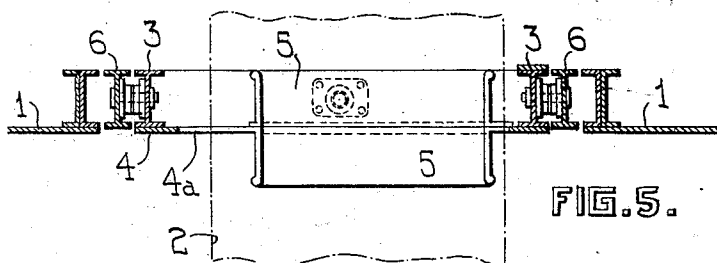


FIG. 5.

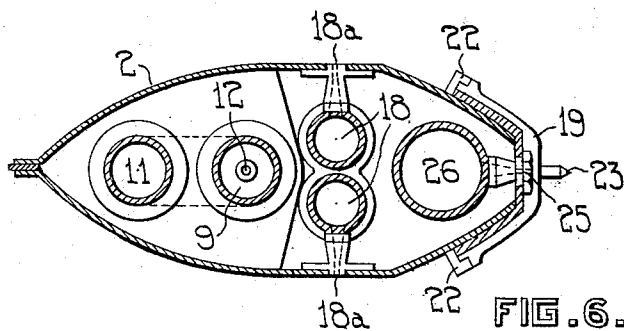


FIG. 6.

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UNITED STATES PATENT OFFICE

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MINING OR DREDGING PLANT

Application filed May 6, 1927. Serial No. 189,372.

This invention relates to means for dredging or excavating and elevating gold or other mineral bearing wash from river beds or beneath the surface of the ground, and delivering such wash for treatment and recovery of its mineral contents.

The object of the invention is to provide means for penetrating silt and overburden to reach mineral bearing wash with a minimum amount of stripping, to elevate the wash without first having to strip the ground of overburden, and to mine and/or prospect agricultural properties with a minimum amount of displacement of the upper soil or surface.

A further object of the invention is to provide means for boring into reefs to prospect for mineral bearing veins or seams, and to follow said seams without having to mine the whole reef.

The invention will be fully described with reference to the accompanying drawings, wherein:—

Figure 1 is a side elevation (partly in section) showing the mining casing mounted on a pontoon.

Figure 2 is a side elevation (partly in section) of the mining casing, and

Figure 3 is a front elevation of the same.

Figure 4 is a plan view of the universal mounting for the casing, and

Figure 5 is a sectional elevation thereof, while,

Figure 6 is a sectional plan of the said mining casing.

Where the apparatus is to be used for prospecting or dredging river beds and the like, a pontoon 1 is provided of suitable length and width and provided with the necessary gaints and hog framing to carry the machinery.

One or more casings 2 are provided and are suitably guyed, the length of said casings depending on the depth to which it is desired to mine and the capacity and number of said casings depending upon the number of yards per hour of wash it is desired to treat.

The cross sectional shape of the casing 2 is preferably double-convex (see Figure 6), so that in swift running rivers it has a stream line effect, and in dry land or paddock min-

ing, offers a minimum amount of resistance, the walls of said casing being of metal of sufficient thickness to stand any strain under normal working conditions.

The casing 2 is adapted to be raised or lowered in a vertical direction and to be inclined within certain limits in order that its lower end may be brought into contact with any desired portion of the river bottom or ground being worked, and to this end is made slidable through a frame 3 covered by a metal plate 4 and having an opening 4^a through the latter in shape approximately the cross sectional shape of the casing 2. Angle iron members 5 secured both on top of and below the plate 4 around the sides of the opening 4^a act as rubbers for the sides of the casing 2 to slide upon or against.

The frame 3 is pivoted at opposite ends to the sides of a slightly larger frame 6, which is in turn pivoted at its opposite sides to the deck framing members of the pontoon 1 or the like. By this means a universally jointed fitting is provided through which the casing 2 is slidable, and by means of which it can be allowed any reasonable inclination out of the vertical.

Raising or lowering of the casing 2 through the universal fitting above described is effected by means of ropes or cables 7 secured to the upper and lower ends of said casing 2 and carried around pulley blocks or the like to suitable winches 8.

A pipe 9 of suitable diameter is passed down inside the casing 2 and is terminated slightly below the lower end of the latter by a perforated ball or spherical fitting 10, while a further pipe 11 also passing vertically through said casing 2 is returned upwardly at its lower end and fitted with a nozzle 12 entered in a bend in the aforesaid pipe 9 so as to be directed upwardly in the latter.

The pipe 11 is adapted to be supplied with water under considerable pressure from any convenient source, such as a pump carried on the pontoon 1, and to be delivered through the nozzle 12 upwards through the pipe 9, thereby causing suction to be created at the spherical fitting 10 with the result that mineral wash or the like in the vicinity of said

fitting 10 is sucked up and delivered through the said pipe 9 to be treated as desired.

Hinged around the sides of the spherical fitting 10 is a collapsible grid 13 which is constructed in sections capable of hinging movement independently of one another. The undersides of the grid sections 13 are provided with tines or teeth 14 to prevent said sections 13 lying close on the ground or river bed, while their upper sides are completely covered and linked together by means of a greenhide sheet 15. Consequently material sucked into the spherical fitting 10 must pass beneath the greenhide sheet 15 and between the teeth 14, the spacing apart of the latter regulating the size of material permitted to enter the pipe 9.

The interior diameter of the pipe 9 is suitably restricted as at 16 above the nozzle 12 in order to create in combination with the latter the desired induction, and the upper end of said pipe 9 is connected by means of flexible joints and piping to a desired point where the wash is deposited or precipitated on to suitable gold or other mineral saving appliances 17.

Further hydraulic pipes 18 also located in the casing 2 have nozzles 18^a projected through the sides of the said casing in order that inaccessible places where mineral deposits may be found but can be recovered by ordinary means, can be sluiced out.

Suitable flexible or jointed piping is connected to the upper ends of the hydraulic pipes 11 and 18 in order to connect them to the pumping machinery.

The casing has added to it an armoured bow 19, hereinafter referred to as the "cutter shield" projecting from the skin of said casing 2 by suitable construction leaving a space 20 between the inner surface of the cutter shield 19 and the outer surface of the casing 2.

The cutter shield is adapted to have a reciprocating motion vertically directed by means of a rod 21 worked by any suitable means such as a motor and crank (not shown) or the like, the said cutter shield 19 operating between vertical guides 22 secured to the said casing 2.

Hard metal spikes 23 project from the apex of the cutter shield 19, and there are a series of holes 24 in said shield between each spike 23, providing an alternate hole and spike for the whole length of the shield. The holes 24 are to provide for the operation of sluicing nozzles 25 located in the casing wall and fed with water from a pipe 26 inside the latter.

The spikes 23 are for the purpose of disintegrating the materials they come into contact with, such disintegrated material then being sluiced by the water from the jets or nozzles 25 down to the spherical member 9 where it is sucked up the pipe 9 in the herein before described manner, the wash falling from the spikes 23 and nozzles 25 to the spher-

ical fitting 10 passing down the space 20 between the cutter shield and the casing wall.

What I claim as new and desire to secure by Letters Patent is:—

1. In a hydraulic excavator, a supporting platform, a casing mounted for swinging and sliding movement relative to the platform, a pipe extending longitudinally of the casing and terminating below the same in a spherical mouthpiece, a second pipe extending longitudinally of the casing and terminating in an upwardly opening nozzle leading into the first mentioned pipe above the mouthpiece, and a size regulating screen carried by the mouthpiece.

2. In a hydraulic excavator, a supporting platform, a casing mounted for swinging and sliding movement relative to the platform, a pipe extending longitudinally of the casing and terminating below the same in a spherical mouthpiece, a second pipe extending longitudinally of the casing and terminating in an upwardly opening nozzle leading into the first mentioned pipe above the mouthpiece, and a size regulating screen carried by the mouthpiece, said casing being of substantially oval shape in cross section so as to offer the least resistance to rapidly flowing water.

3. In a hydraulic excavator, a supporting platform, a casing mounted for swinging and sliding movement relative to the platform, a pipe extending longitudinally of the casing and terminating below the same in a spherical mouthpiece, a second pipe extending longitudinally of the casing and terminating in an upwardly opening nozzle leading into the first mentioned pipe above the mouthpiece, and a size regulating screen carried by the mouthpiece, said screen being movable to accommodate itself to the height of the surface being operated on.

4. In a hydraulic excavator, a supporting platform, a casing mounted for swinging and sliding movement relative to the platform, a pipe extending longitudinally of the casing and terminating below the same in a spherical mouthpiece, a second pipe extending longitudinally of the casing and terminating in an upwardly opening nozzle leading into the first mentioned pipe above the mouthpiece, a cutter shield arranged for slidable co-operation with the exterior of the casing, cutting projections carried by the shield, and means for delivering a jet of water through the shield adjacent the projections.

5. In a hydraulic excavator, a supporting platform, a casing mounted for swinging and sliding movement relative to the platform, a pipe extending longitudinally of the casing and terminating below the same in a spherical mouthpiece, a second pipe extending longitudinally of the casing and terminating in an upwardly opening nozzle leading into the first mentioned pipe above the mouthpiece,

and pipes extending longitudinally of the casing and having nozzle outlets opening is adapted for vertical and swinging movement relative to the support.

5 6. In a hydraulic excavator, a supporting platform, a casing mounted for swinging and sliding movement relative to the platform, a pipe extending longitudinally of the casing and terminating below the same in a spherical mouthpiece, a second pipe extending longitudinally of the casing and terminating in an upwardly opening nozzle leading into the first mentioned pipe above the mouthpiece, a cutter shield arranged for slidable co-operation with the exterior of the casing, cutting projections carried by the shield, means for delivering a jet of water through the shield adjacent the projections, and pipes extending longitudinally of the casing and having nozzle outlets opening through the wall of the casing at different heights longitudinally of the latter.

7. In a hydraulic excavator, a support formed with an opening, an outer frame pivotally supported at diametrically opposite points in said opening, an inner frame pivotally connected to the outer frame on a line at right angles to the pivotal mounting of the outer frame, a guide frame rigidly carried by the inner frame, and a casing slidably mounted in the guide frame, whereby the casing is adapted for vertical and swinging movement relative to the support.

In testimony whereof I have hereunto set my hand.

DANES JENSEN.

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