

No. 619,727.

Patented Feb. 21, 1899.

J. T. DAVIS.

APPARATUS FOR COLLECTING GOLD FROM RIVER BEDS.

(Application filed Aug. 11, 1897.)

(No Model.)

Fig. 1.

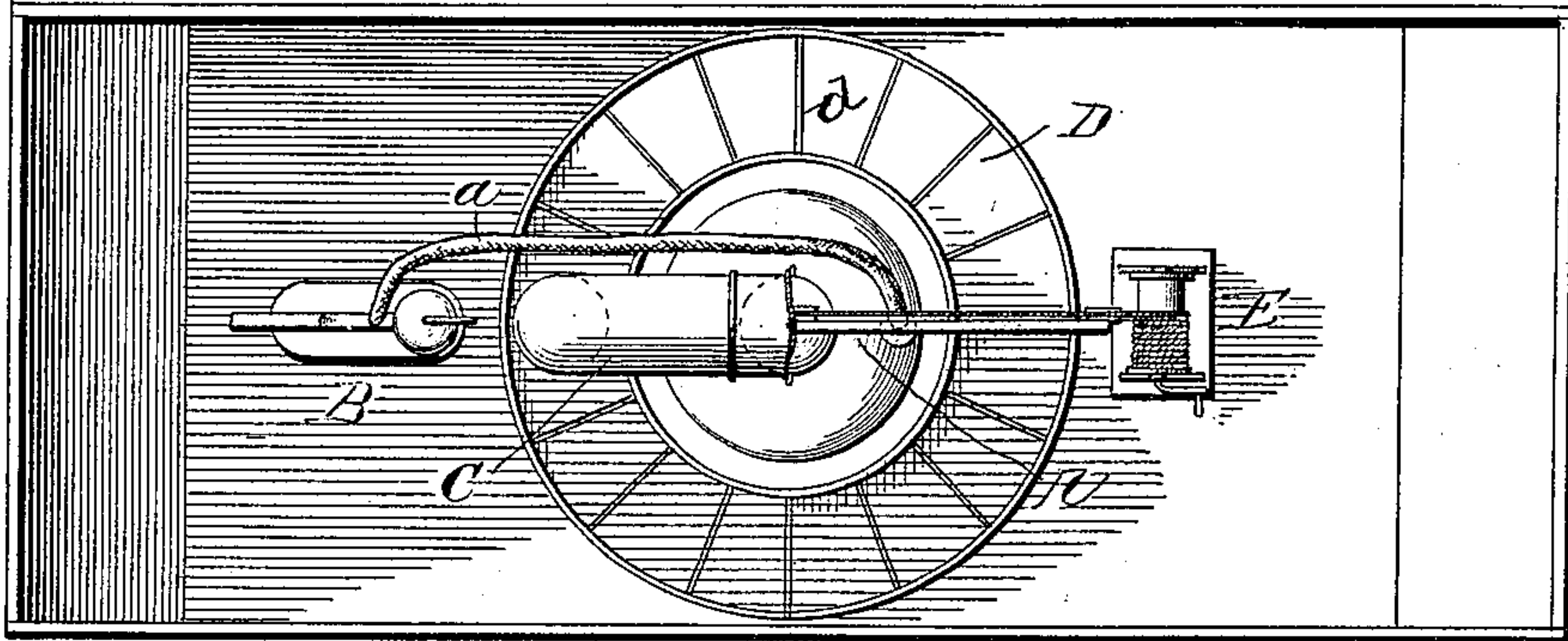


Fig. 2.

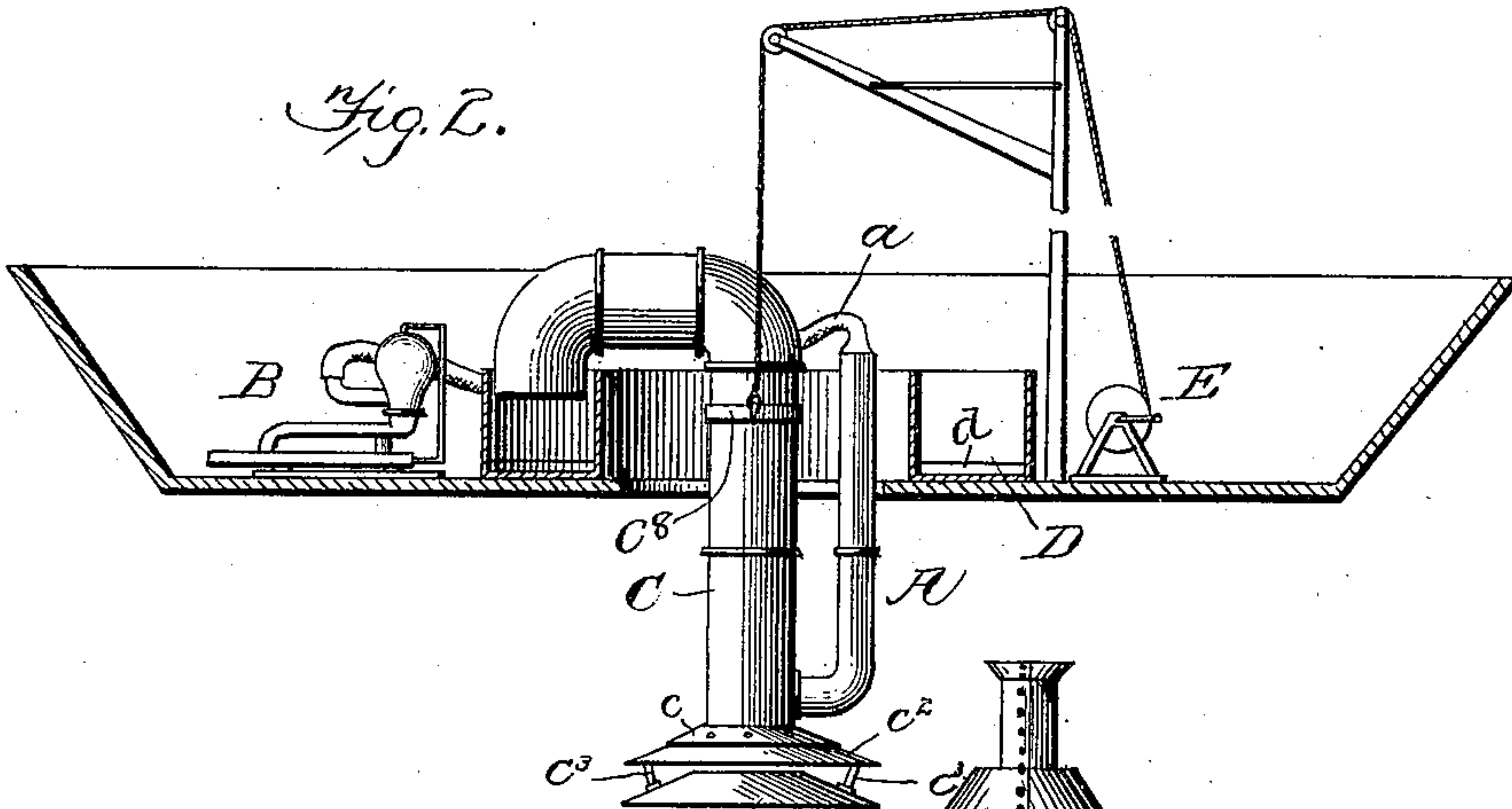


Fig. 4.

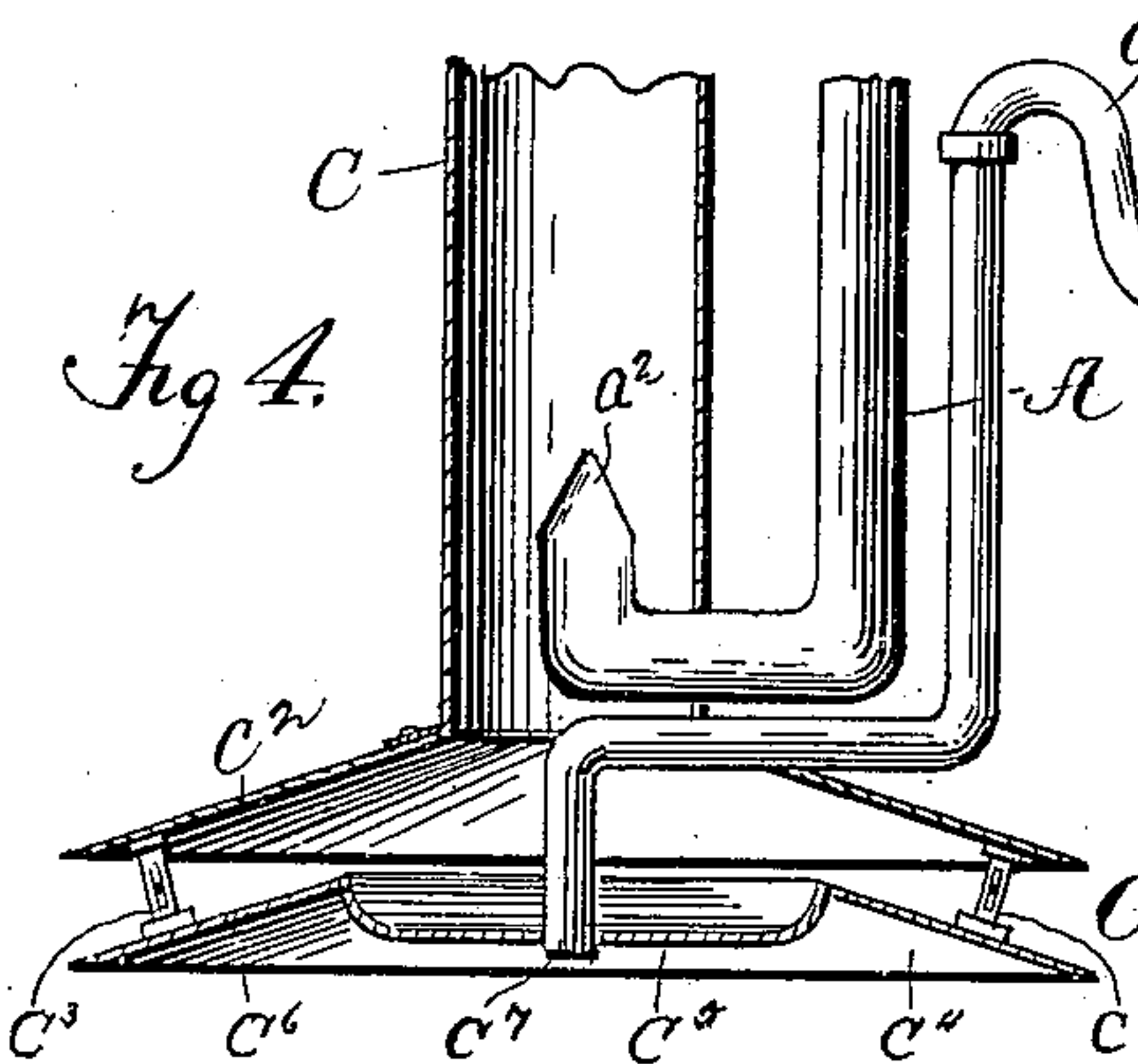
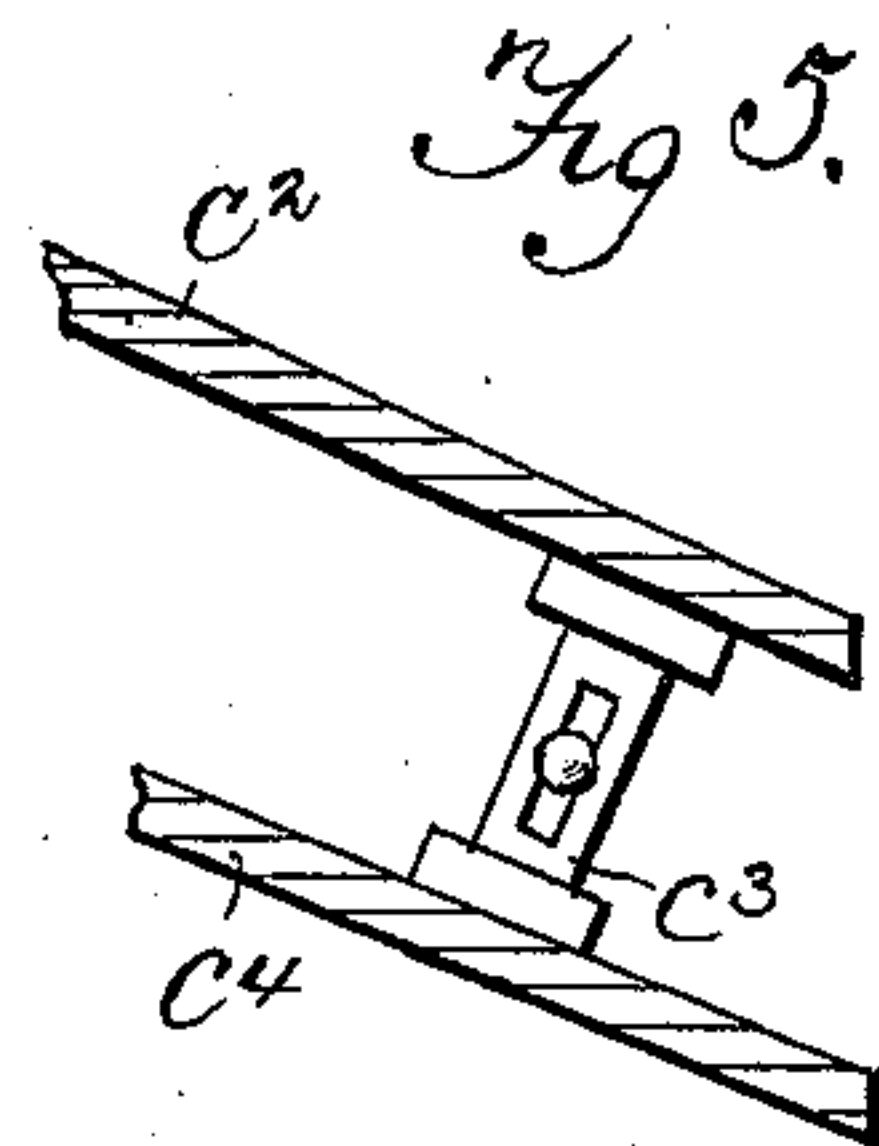
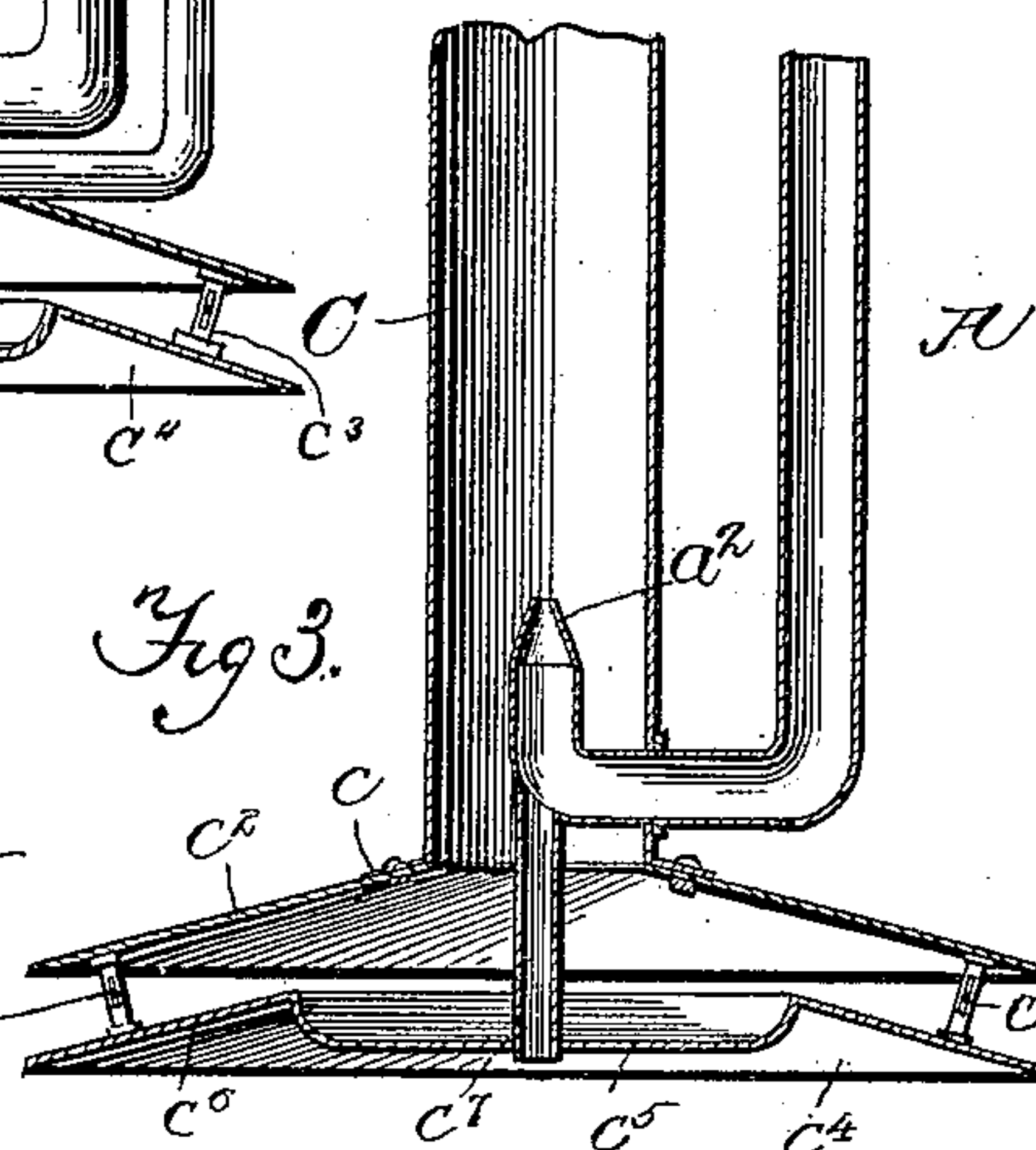


Fig. 3.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR COLLECTING GOLD FROM RIVER-BEDS.

SPECIFICATION forming part of Letters Patent No. 619,727, dated February 21, 1899.

Application filed August 11, 1897. Serial No. 647,859. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. DAVIS, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Apparatus for Collecting Gold from River-Beds; and I do hereby 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.

This invention relates to apparatus for collecting gold from sand, gravel, silt, &c.

The object is rapidly to elevate gold-bearing sand, gravel, and the like from the bottoms of rivers, streams, &c., and at the same time agitate the sand immediately beneath the apparatus, so that there will be no escape of any gold in the vicinity of the apparatus. With this object in view the invention consists in the novel construction and combination of parts of an apparatus, such as specified, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like letters of reference indicate corresponding parts, I have illustrated a form of embodiment of my invention, although it is to be understood that other forms of embodiment thereof may be employed without departing from the spirit of the same.

In the drawings, Figure 1 is a view in plan displaying a boat equipped with the apparatus. Fig. 2 is a view in elevation of the apparatus, partly in section. Fig. 3 is an enlarged detail view in section of the elevator-pipe, pressure-pipe, and attached parts. Fig. 4 is a view in elevation displaying the manner in which steam may be employed in connection with the apparatus. Fig. 5 is a detail view, on an enlarged scale, showing the means by which the adjustment between the hood and the pan may be effected.

Referring to the drawings, A designates the pressure-pipe, one end of which is connected by means of a flexible section of pipe *a* with an ordinary force-pump B, operated by suitable power. (Not shown.) The pressure-pipe is by preference arranged on the outside of the elevator-pipe C and enters the same as near its lower end as practicable and is then

turned within the elevator-pipe at substantially a right angle to the length of the pipe and terminates in a constricted or reduced end constituting a nozzle *a*². By having the pressure-pipe A enter the elevator-pipe C at the point designated I obtain the greatest possible suction to lift the gravel and the like to the discharge end of the elevator-pipe.

On the lower end of the elevator-pipe C is a flange *c*, to which is bolted or otherwise secured an inverted-bowl-shaped hood *c*², having feet or legs *c*³, adapted when the machine is in operation to keep the hood always sufficiently elevated above the rock, upon which the legs may rest to permit the free entrance of sand, gravel, and the like into the elevator-pipe. Secured to these legs in any suitable manner is a basin-shaped receptacle constituting a catch-pan *c*⁴, the function of which is to catch the sand, gravel, and fine gold that pass through the space between the two edges formed by the hood and the said pan around the entire circle formed by these parts, and by regulating the space between these edges the lifting force of the elevator-pipe may be increased or diminished at will. To effect this regulation, the pan is provided with legs somewhat similar to those on the hood, and the pairs of legs are provided with slots, through which passes a bolt for holding the legs assembled in proper position with relation to each other. It will be seen that by loosening these bolts the pan may be moved to or from the hood in a ready and expeditious manner. The pan *c*⁴, as shown in Fig. 3, has a centrally-depressed portion *c*⁵, constituting the catch-basin proper, and a downwardly-inclined edge or rim *c*⁶, to which the legs are bolted.

Arranged below the discharge end of the elevator-pipe is a circular trough or sluice-box D, provided with suitable riffles *d*, operating, as usual, to retain the gold lifted past the catch-basin.

Entering the lower portion of the nozzle *a*² is a water-pipe *c*⁷, which extends through the pan *c*⁴ and operates to convey the water from the pressure-pipe beneath the pan, and thus drive any sand and gold thereunder outward to the rim of the pan, and thence by the inflow of water produced by the suction in the delivery-pipe into the space between the

hood and pan, where it will settle in the depressed portion c^5 and there remain until the pan is again brought to the surface. The pipe c^7 also operates to stir up the gravel and force it out from under the pan, so that it can also be sucked up through the elevator-pipe and discharged into the sluice-box. The pump, which comprises the elevator-pipe C, pressure or delivery pipe A, hood c^2 , pan c^4 , and water-pipe c^7 , is carried by a suitable boat provided with an opening in its center, through which the elevator and pressure pipes pass. To adapt the pump for use in deep as well as shallow water, I provide additional joints or sections, which may be secured to the two pipes C and A, as their length is to be increased, and to raise or lower these pipes a suitable windlass E is provided, around which is wound one end of a chain, the other end of which is secured to a collar c^8 on the elevator-pipe. By this arrangement the elevator-pipe C and pressure-pipe A may be raised or lowered at will, so as to meet the requirements of the case.

The operation of the apparatus is as follows: The elevator-pipe C and pressure-pipe A are let down through the opening in the bottom of the boat until the legs of the hood rest upon the bottom of the stream or the river. The force-pump B is then started up and water is forced down through the delivery-pipe A and upward through the nozzle a^2 into the elevator-pipe C, thereby causing a suction which operates to draw up into the elevator-pipe the sand, gravel, and the like contiguous to the pan. As fast as the elevator-pipe sinks it is lengthened by the joints referred to, and this is kept up until bed-rock is reached. The elevator-pipe is then raised, and the pan c^4 is secured in position beneath the hood and the elevator-pipe is again lowered, and the operation continued until the bed-rock is cleared up of all sand, gravel, and gold, which result is attained by the water passing out of the pipe c^7 and forcing the sand, gravel, &c., immediately under the pan into the pan, where it is caught and retained. The elevator-pipe is then raised to the surface and the pan removed and the gold therein collected, the same operation being repeated each time the elevator-pipe is brought into contact with a fresh surface of river-bottom to be cleaned.

It is to be understood that this apparatus is adapted for use in regions of great cold and where ice prevents mining operations being carried on in winter. To effect this end, it will be simply necessary to substitute a steam-pipe c^9 for the water-pipe c^7 , as shown in Fig. 4, and supply this pipe with hot water or steam from a boiler c^2 , as indicated.

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

1. An apparatus of the character specified, comprising an elevator-pipe and a pressure or delivery pipe entering near the bottom of the

elevator-pipe and turned upward therein and having its end terminating in a nozzle concentrically disposed with relation to the elevator-pipe, an inverted, bowl-shaped hood arranged at the lower end of the elevator-pipe and a water-pipe tapped into the delivery-pipe in line with the nozzle and discharging below the hood, substantially as described.

2. An apparatus of the character specified, comprising an elevator-pipe and a pressure or delivery pipe entering near the bottom of the elevator-pipe and turned upward therein and having its end terminating in a nozzle concentrically disposed with relation to the elevator-pipe, a water-pipe tapped into the delivery-pipe and discharging in a direction opposite to that of the pressure-pipe, an inverted, bowl-shaped hood arranged at the lower end of the elevator-pipe and a catch-basin concentrically disposed with relation to the pipe and jet, substantially as described.

3. An apparatus of the character specified, comprising an elevator-pipe and a pressure or delivery pipe entering near the bottom of the elevator-pipe and having its end turned upward therein and terminating in a nozzle concentrically disposed with relation to the elevator-pipe, an inverted, bowl-shaped hood arranged at the lower end of the elevator-pipe, a pan adjustably connected with the hood and means for supplying fluid below the pan, substantially as described.

4. An apparatus of the character specified, comprising an elevator-pipe and a pressure or delivery pipe entering near the bottom of the elevator-pipe and having its end turned upward therein and terminating in a nozzle, a hood arranged at the lower end of the elevator-pipe, a centrally-located catch-pan secured to the hood, and means for supplying fluid through and below the pan, substantially as described.

5. An apparatus of the character specified, comprising an elevator-pipe and a pressure or delivery pipe entering near the bottom of the elevator-pipe and having its end turned upward therein and terminating in a nozzle, a hood arranged at the lower end of the elevator-pipe, a pan secured to the hood, and a water-discharge pipe connecting with the pressure-pipe and passing through and below the pan, substantially as described.

6. An apparatus of the character specified, comprising an elevator-pipe and a pressure or delivery pipe entering near the bottom of the elevator-pipe and having its end turned upward therein and terminating in a nozzle, a hood arranged at the lower end of the elevator-pipe and provided with slotted legs, a pan arranged below the hood and provided with slotted legs, and bolts passing through the slots in the sets of legs, whereby to permit removal and replacement of the pan, or adjustment thereof, to or from the hood, substantially as described.

7. In an apparatus of the character specified, the combination with a boat having an open-

ing in its bottom, of an elevator-pipe arranged
in said opening and carrying at its bottom a
hood, a pan secured to and separated from the
hood, a pressure or delivery pipe entering near
5 the bottom of the elevator-pipe and turned up-
ward therein and terminating in a nozzle, a
water-discharge pipe connecting with the pres-
sure-pipe and extending through the pan, and
means operating to raise or lower the elevator-
10 pipe to permit removal of material from the
pan, and also to allow additional sections to
be added to the said pipe, as requisite, sub-
stantially as described.

8. In an apparatus of the character specified,
15 the combination with a boat having an open-
ing in its bottom and a sluice-box located ad-
jacent to the opening and provided with suit-
able riffles, of an elevator-pipe arranged in said
opening and having its discharge-mouth over

the sluice-box, a hood carried by the lower 20
portion of the elevator-pipe, a pan secured to
and separated from the hood, a pressure or
delivery pipe entering near the bottom of the
elevator-pipe and turned upward therein and
terminating in a nozzle, a water-discharge pipe 25
connecting with the pressure-pipe and extend-
ing through and below the pan, and a wind-
lass carrying a chain for supporting the ele-
vator-pipe to raise and lower the same, and to
permit the addition of sections to the said pipe, 30
as requisite, substantially as described.

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

JOHN T. DAVIS.

Witnesses:

R. G. DYRENFORTH,
R. M. ELLIOTT.