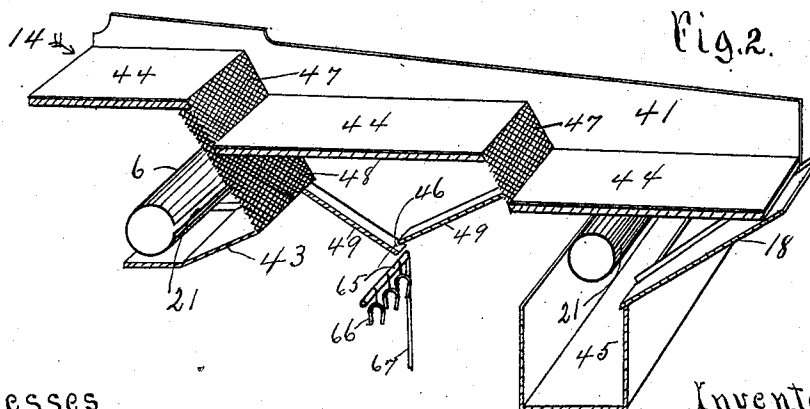
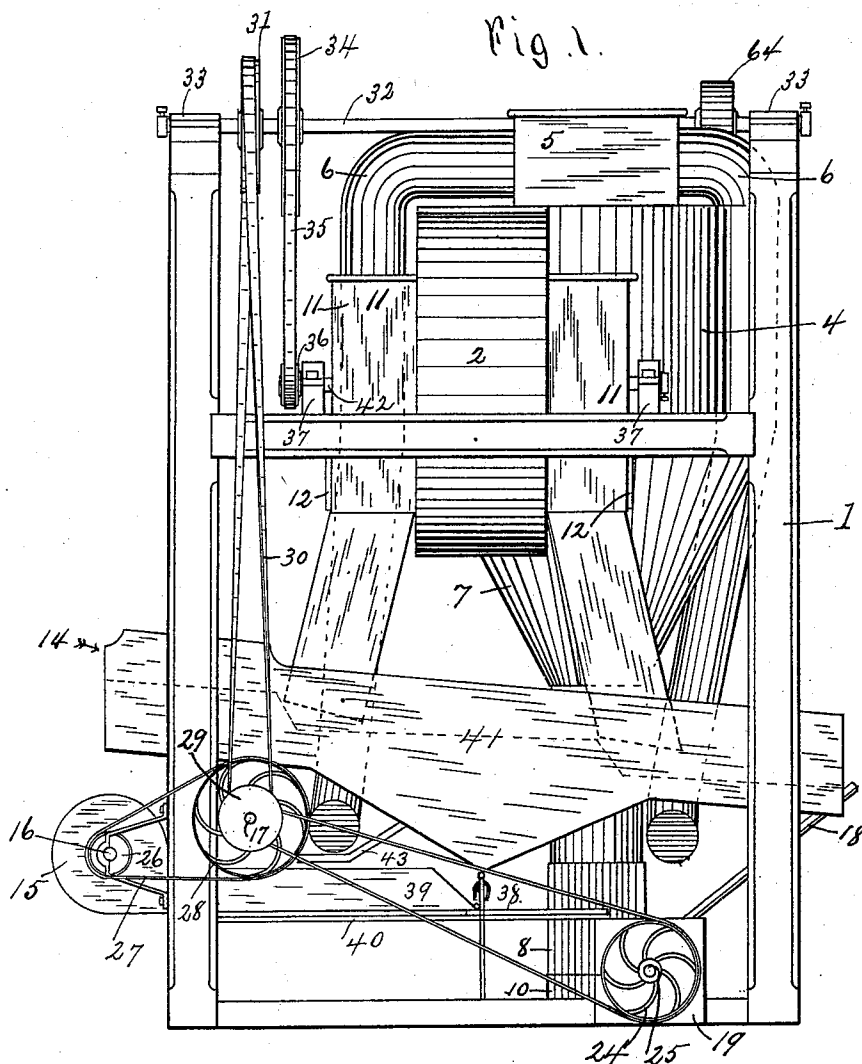


J. H. SIMISON.
DRY PLACER MINING MACHINE.

No. 539,312.

Patented May 14, 1895.



Witnesses

W. C. Jones.

A. R. Butler

Inventor.

John H. Simison
By U. B. Hagin atty.

J. H. SIMISON.
DRY PLACER MINING MACHINE.

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Fig. 3.

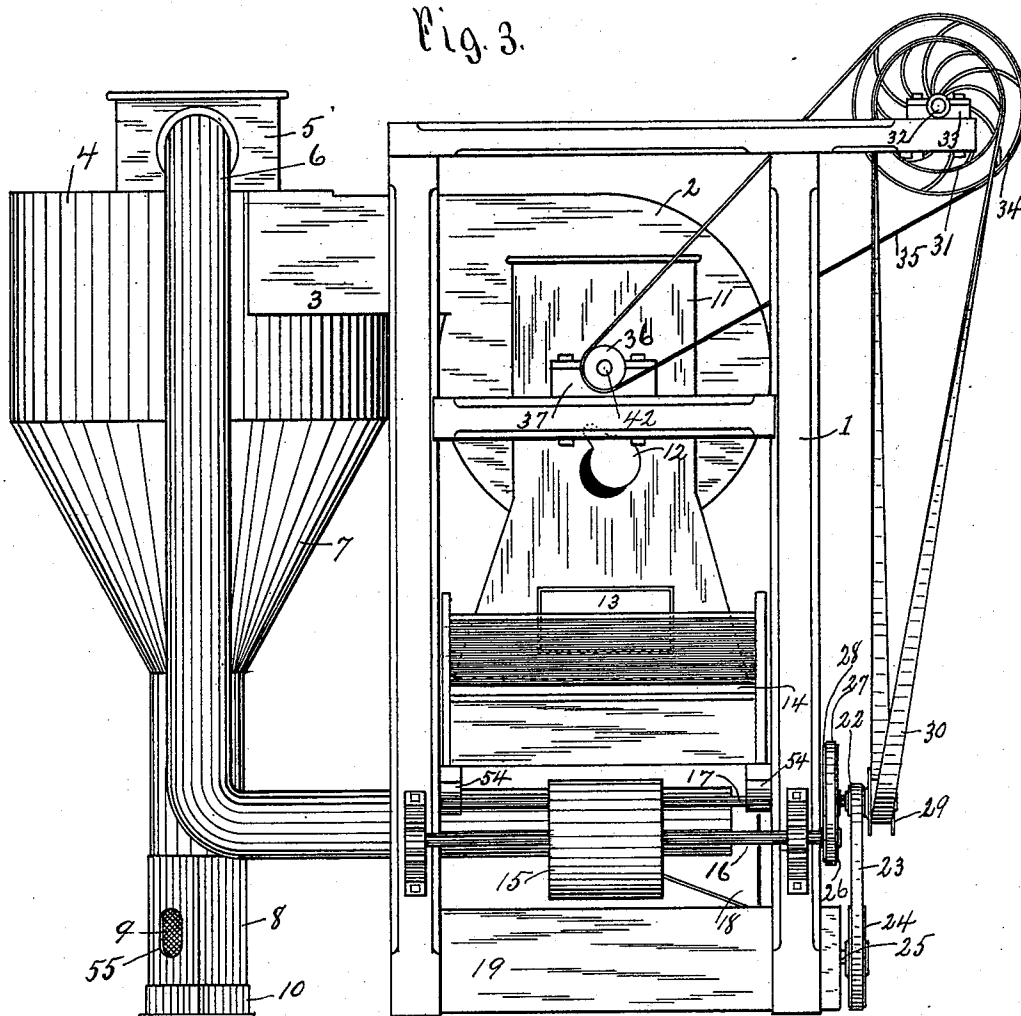


Fig. 4.

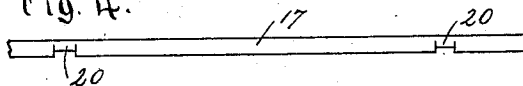
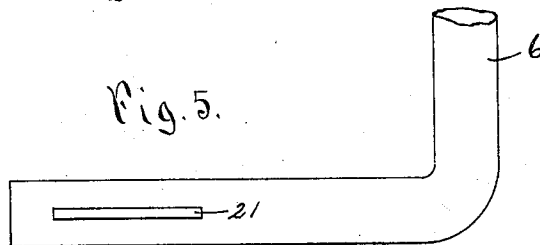


Fig. 5.



Witnesses

A. R. Butler.
W. C. Jones.

Inventor
John H. Simison
By N. B. Hagin,
att'y.

J. H. SIMISON.
DRY PLACER MINING MACHINE.

No. 539,312.

Patented May 14, 1895.

Fig. 6.

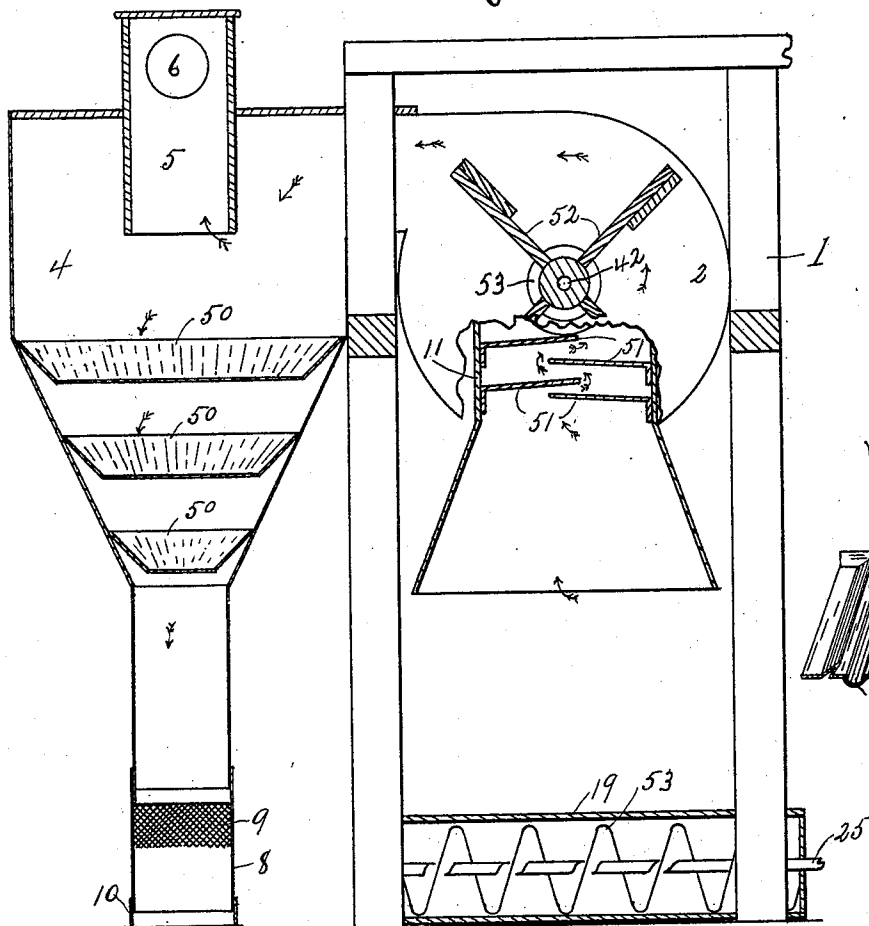


Fig. 9.

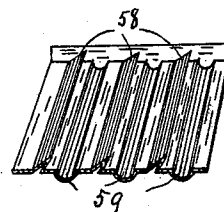


Fig. 7.

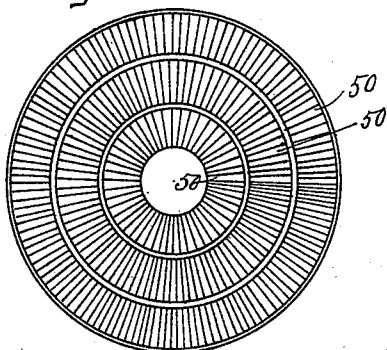
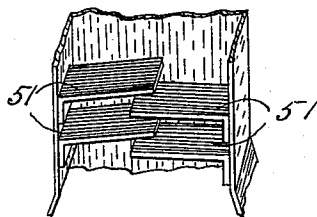


Fig. 8.



Witnesses.

A. R. Butler
W. C. Jones.

Inventor.
John H. Simison
By N. B. Hagin
Atty.

(No Model.)

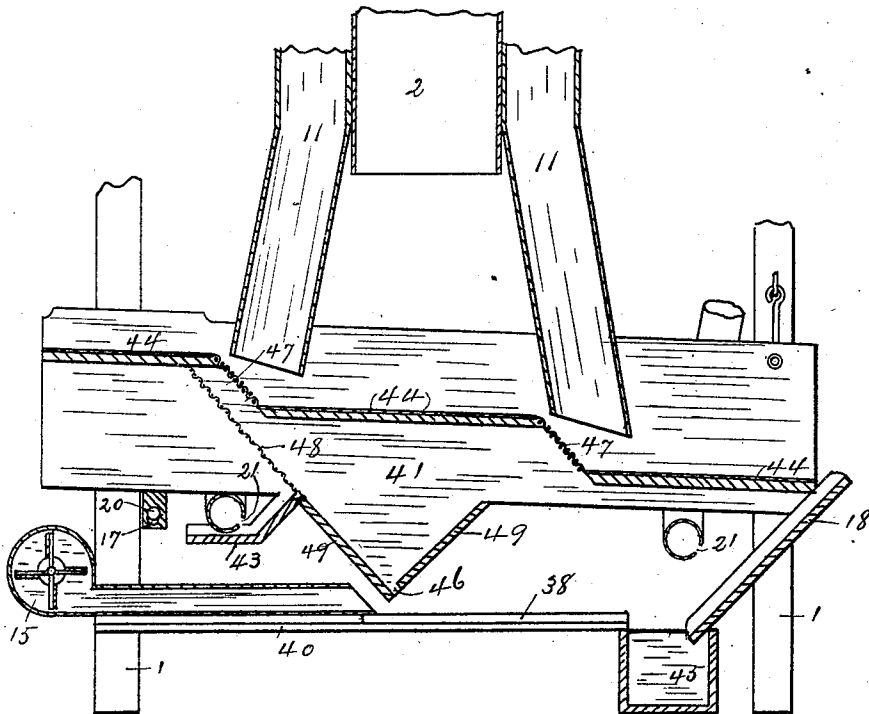
4 Sheets—Sheet 4

J. H. SIMISON.
DRY PLACER MINING MACHINE.

No. 539,312.

Patented May 14, 1895.

Fig. 10.



Witnesses

W. H. Allen
O. G. Baker

Inventor

Inventor
John H. Simison
P. 31. 24

By W B Hagin atty

UNITED STATES PATENT OFFICE.

JOHN H. SIMISON, OF WICHITA, KANSAS, ASSIGNOR OF SEVEN-TENTHS TO
W. C. JONES, H. R. BUTLER, AND GEORGE W. LARIMER, OF SAME PLACE.

DRY PLACER-MINING MACHINE.

SPECIFICATION forming part of Letters Patent No. 539,312, dated May 14, 1895.

Application filed June 18, 1894. Serial No. 514,962. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. SIMISON, a citizen of the United States of America, residing at Wichita, in the county of Sedgwick and State of Kansas, have invented certain new and useful Improvements in Dry Placer-Mining Machines, of which the following is a specification, reference being had therein to the accompanying drawings, and the figures of reference thereon, forming a part of this specification, in which—

Figure 1 is an end view of my improved dry placer-mining machine. Fig. 2 is a perspective sectional detail. Fig. 3 is a side view of my machine. Fig. 4 is a detail of one of the shafts. Fig. 5 is a detail of a portion of one of the air-pipes. Fig. 6 is a cross-sectional view showing the construction of the interior of the machine. Fig. 7 is a detail view looking down on the amalgamation-cones in the conical-shaped cylinder. Fig. 8 is a sectional detail perspective showing the amalgamation-plates in the air-shaft leading to the larger fan. Fig. 9 is a perspective cross-sectional view of one of the amalgamation-pans. Fig. 10 is a longitudinal section of the jig, the fan, and the boxes 11.

This invention relates to certain improvements in machines for dry placer mining, and its object is to provide a means for separating gold from sand and dirt, without the use of water and consists of the frame for holding the several parts, the means of operating the same, the fans, and air chambers, for providing a current of air, the amalgamation plates, pans and cones, and is so constructed that it can be taken apart and moved in small pieces into places where other machines can not be transported.

1 represents a wooden frame for holding the several parts of the machine.

2 represents a case for the larger fan.

3 is a case inclosing an air passage way from the larger fan into one side of the cylindrical air chamber 4.

5 is a box or case which passes through the center of the top of the cylinder 4, with its lower end opening into the cylinder, the other end extending above the cylinder, to which are secured the air pipes 6 and 6, which are provided with the openings 21, and 21 at their

lower ends, which also carry some of the particles of dirt and gold down through the openings 21 and 21 to the pan 43 and the chute 18.

7 is a conical air chamber at the lower end of the cylinder 4, the smaller end of which connects with the pipe 8, which is provided with the sieve 9, which slants toward the opening 55, the lower portion of the sieve being on a line with the bottom of the opening.

10 is a cap on the extreme lower end of said pipe.

11 and 11 represent boxes or casings for holding the amalgamation plates 51. A current of air caused by the suction of the fan 52 passes through the screen wires 47 and up through the said boxes 11, and through the openings 53 and 53 in the side of the case 2, to the fan 52 in the cylinder 2. 12 and 12 are lids for opening or closing holes in the side of said air boxes 11, and 11, for governing the supply of air.

44, 44 and 44 represent copper plates, which may be used as amalgamation plates, by coating them with mercury. 41, and 41 are sides to which the said plates are secured.

47 and 47 are coarse screens.

48, is a fine screen under one of the coarse screens, for separating the gold dust from the dirt and sand, the gold dust passing through into the pan 43 and the coarser particles passing down on the inclined way 49 through the opening 46 to the amalgamation pan 38.

64 is a drive pulley which is keyed to the shaft 32 which runs in the bearings 33 and 33.

34 is a pulley keyed to the shaft 32 and is connected with the pulley 36, by the belt 35. The pulley 36 is keyed to the shaft 42, which runs in the bearings 37 and 37. The fan 52 is also keyed to the shaft 42. The pulley 31, is keyed to the shaft 32, which turns the pulley 29, by means of the belt 30. The pulley 29, is keyed to the shaft 17. The amalgamation plates 44, 44 and 44 are given a shaking motion through the medium of the bearings 54 and 54 which are secured to the sides 41 of the frame and run on the cams 20 and 20, of the shaft 17. The discharge end of the jig or amalgamation plates are pivotally hung to the standards on either side of the frame 1.

22 is a small pulley keyed to the shaft 17 which is connected to the pulley 24 by means

of the belt 23. The pulley 24 is keyed to the conveyer shaft 25. The conveyer 53, runs in the amalgamation box 19. The pulley 28 is keyed to the shaft 17, and by means of the
 5 belt 27 runs the pulley 26 which is secured to the shaft 16, which also carries the air blast fan 15, which is for the purpose of carrying a strong current of air through the air chamber 39, to the pan 38, for separating the gold from
 10 the dirt and sand.

The current of air caused by the larger fan 52, by passing, (as it does) into the air chamber 4, on one side causes the air to rotate in the chamber, thus causing all the gold and
 15 dirt that fall, to strike the amalgamation cones 50, 50 and 50, the gold remaining on the cones, and the dirt finding its way down to the screen 9 which carries it out through the opening 55, allowing the finer particles to pass
 20 through the screen into the cup 10. The opening 21 in the pipes 6 may be turned so the openings will send the current of air up through the screen 47.

The magnets 66 are supported on the rod
 25 65, below and near the opening 46, and are for the purpose of separating any particles of iron, or what is known as black sand, from the gold.

In use the material is fed in the machine at
 30 14, passes over the first plate 44, where a current of air, caused by the suction of the fan 52, passes through the screen 47 taking the lightest of the material up through the air box 11, the balance passing over the second
 35 plate 44, where a second current of air passing through the second screen 47, carries the lightest of the remaining material up through the opening in the opposite air box 11, the remainder passing over the third plate 44, down
 40 the chute 18 into the conveyer box 45 where it is carried off by the conveyer 53, the material, by passing over the several amalgamation plates having had the gold separated therefrom. The material which has been taken
 45 up on either side passes around the amalgamation plates 51 and 51, through the openings 53 and 53 into the fan case 2, where it is discharged through the opening into the cylinder 4. The heaviest of the material from
 50 there drops down over the amalgamation cones 50, 50 and 50, out through the opening 55, the flour gold passing through the screen 9 into the cap 10, which can be removed at any time. The lightest of the material that
 55 reaches the cylinder 4, passes up through the opening in the box 5, into the pipes 6 and 6 where it is discharged through one of the openings 21 into the pan 43, and through the opening 21 of the opposite pipe into the conveyer
 60 box 19.

When the material is first placed on the plate 44, some of the finest drops through the first screen 47, when the fine screen 48 catches

it and carries it down on the incline 49, through the opening 46 to the pan 38, at which point
 65 the current of air from the blast fan 15, blows the material over the raised wedge shaped surfaces 58, the gold dropping in the grooves 59, 59 and 59 which are partly filled with mercury, the dirt and sand, passing over into the
 70 conveyer box.

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

1. A placer mining machine consisting of
 75 the combination of a jig having sieves 47 for separating the coarse and finer particles of gold and sand, the fan 52 for creating a strong current of air, the cylinder 4, the inverted
 80 cones 50, the box 5, pipes 6 and 8, the air passage way 3 leading into said cylinder 4 on one side giving the air a spiral motion, the air passage ways 11, said fan 52 causing a suction of air through the said sieves 47, and up
 85 through the air passage ways 11, the conveyer 53, and the means for operating the several parts substantially as shown and for the purpose specified.

2. The placer mining machine described, having the cylinder 4 provided with a tangential inlet, the central upward air exit, and conical lower portion provided internally with inwardly projecting inverted conical amalgamation plates, substantially as shown and described.

3. In the placer mining machine described, in combination with the frame and means of operating the several parts, the jig pivotally hung to said frame, having the amalgamation plates, the wire screens connecting said
 100 plates, the finer wire screen 48, the inclined ways 49 provided with the opening 46, the blast fan 15, the amalgamation pan 38 and the magnets 66, substantially as shown and described.

4. In the dry placer mining machine, the combination of the frame for holding the several parts, the means for operating the same, the jig pivotally hung to the frame, the boxes 11, the amalgamation plates, one end secured
 110 to the inner wall of said boxes, the loose end of one extending below and past the opposite plate, the fans, for producing a current of air, the cylinder 4, the conical shaped cylinder 7, the amalgamation cones 50, secured to
 115 the inner wall of the cylinder 7, the pipe 8, the sieve 9, slanting toward the opening 55, the amalgamation pan 38, provided with the wedge shaped surfaces 58, and the grooves 59, the magnets 66, and the conveyer 53, substantially as shown and for the purpose specified.

JOHN H. SIMISON.

Witnesses:

H. R. BUTLER,
 W. C. JONES.