S. S. LEWIS.

Ore Washer.

No. 16,948.

Patented March 31, 1857.

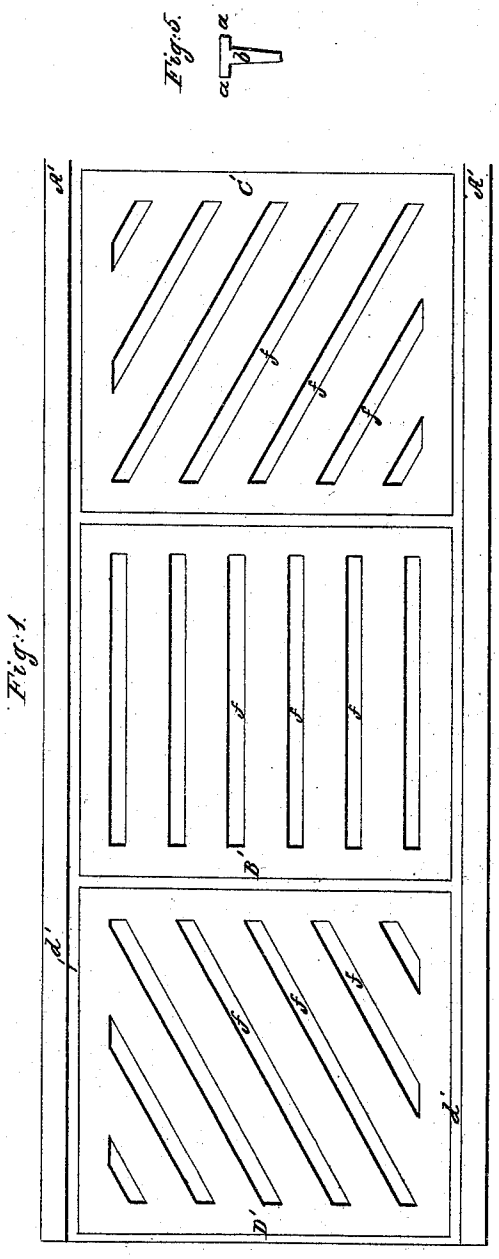

Fig. 1.

Fig. 5.

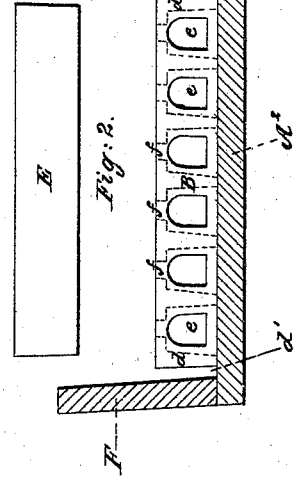

Fig. 2.

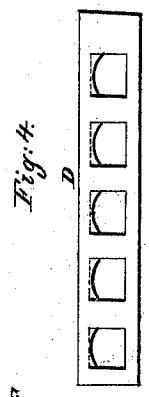

Fig. 4.

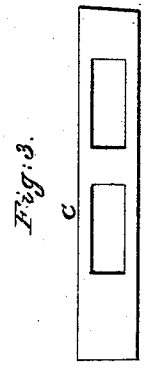

Fig. 3.

No. 16,948.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

SAML. S. LEWIS, OF SAN JUAN, CALIFORNIA.

MACHINE FOR WASHING GOLD.

Specification of Letters Patent No. 16,948, dated March 31, 1857.

To all whom it may concern:

Be it known that I, SAMUEL S. LEWIS, of San Juan, county of Nevada, State of California, have invented certain new and useful Improvements in Gold-Collectors; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, of which—

Figure 1, is a top view; Fig. 2, a transverse section of the sluice and riffle boxes or bottoms; Fig. 3, a side view of the boxes or bottoms; Fig. 4, an end view; Fig. 5, a section of a bar or rib and flanges.

The improvement consists in providing an inclined sluice with riffle bottoms, so constructed and arranged that the collection and amalgamation of gold with quicksilver can be conducted at one operation in a manner superior to any heretofore known; and in being equally applicable to the collection of gold without the employment of quicksilver.

The nature of the invention consists in constructing the riffle-boxes, with bars forming an upper surface over which the large débris or rock shall be carried by the stream of water employed, while the finer portions of soft rock, ground on the bars by attrition thereof, with the magnetic sand and precious metal, shall be subjected to a sub or under current of water while passing between the ribs of the aforesaid bars. The valuable portion, consisting of gold and quicksilver as an amalgam when the latter metal is employed being retained by transverse bars or ledges, while the sub current deflected by means of ribs forming the support to the surface bars has full play and operation on the finer portions, as they pass the bars and are carried gradually toward the lower end of the sluice.

To enable others to understand the application and value of my improvement, it were well to describe the character and condition of the deposit of precious metal. The prospector having selected a hill of considerable altitude containing gravel, clay, sand and the precious metal, a veritable tunnel or cut is made at the base of the hill so as to reach the solid rock forming the underlay of the deposit; in this opening a sluice or flume is placed with a moderate declination say of an inch to the foot and in length we will suppose one hundred feet. A shaft is then sunk from the top of the hill, and reaching the tunnel; water is now conveyed by hose or pipe and the jet thereof is directed at the foot of the shaft against the gravel, sand, and stones (many of which are soft and resemble rotten rock,) so as to undermine the mass, which falls into the sluice upon the riffle bottom thereof; thus the whole is thrown down and washed by the water from the aforesaid pipe or conduit, without the necessity of handling.

The riffles are best made of cast iron so as to prevent the abrasion of the edges thereof, and by the employment of metal instead of wood the pockets are more perfectly preserved for retaining the amalgam therein.

A portion of the riffles or bottoms are made with the bars (*b*, *b*,) running parallel with the sides of the sluice (see B′, Fig. 1,) another portion with the bars placed angularly thereto (see D′,) while a third portion have the bars antagonistic to those last named, (see C′.) The object of these changes in direction of the bars and ribs will be hereafter explained.

The surface or floor of the riffle box is formed by flanges (*a a*) of the bar or rib *b* (see Fig. 5): the frame supporting and united with the bars, is of a rectangular figure, of such a width that a small space *d′*, *d′*, shall be formed between their sides (*d*) and that of the sluice F: (see Fig. 2.) The lower edges of the bars and the edges of the frame supporting them are in close contact with the surface of the flume or sluice A^2, thus forming distinct channel ways below the surface of the boxes, for the passage of water, &c., through openings (*e*, *e*) of an arched form (see Fig. 2,) in the ends of the riffle boxes. In the boxes with diagonal bars the sides thereof have openings (see fig. 3) for the passage of the current, from the short bars.

The water employed flows freely over the surface formed by the flanges of the bars and carries with it the large boulders of gravel that fails to pass through the grating or openings, *f f*, *f*. The sub current being received under the floor formed by the flanges *a a* of the bars or ribs, *b*, is first directed as shown in the drawings toward the side of the sluice at a suitable angle, then the current is taken by the next riffle with direct bars by which the current is accelerated, then carried by antagonistic bars toward the opposite side of the flume and so

on in succession, first to the right, then direct and then to the left. If it were not for this arrangement an undue eddy would be created (as in a zig zag arrangement) and an undue deposit of silt would result.

When quicksilver is empolyed, it is simply sprinkled over the surface of the upper riffles or boxes.

To collect the deposit, all the riffles must be removed from the sluice and the amalgam may be swept into a suitable receptacle or pan.

I am aware that G. B. Palmer in 1831 secured a patent for an improvement in rocking machines for collecting gold in which he used "a perforated iron plate or sieve" in connection with boxes having transverse divisions "so tight as to prevent water or any other thing passing except over them" and I am also aware that without this proposed mode is employed as a rocking machine, its operation in collecting metallic deposits would be inefficient and defective and not applicable to the sluice system, although he uses a part of the water introduced above his perforated plates or sieves. I therefore do not claim the mere use of an under current of water irrespective of the construction and arrangement of my riffles; but

Having fully described my improvement what I claim as my invention and desire to secure by Letters Patent is—

The employment of riffles or bottoms constructed in the manner substantially as described so that an under current of water may be used between the ribs in connection with that flowing over the surface of the bars of the riffles in the manner and for the purposes set forth.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

S. S. LEWIS.

Witnesses:
JOHN F. CLARK,
JOHN S. HOLLINGSHEAD.