

*E. Coleman,
Ore Washer.*

No. 93,060.

Patented July 27, 1869

Fig. 1.

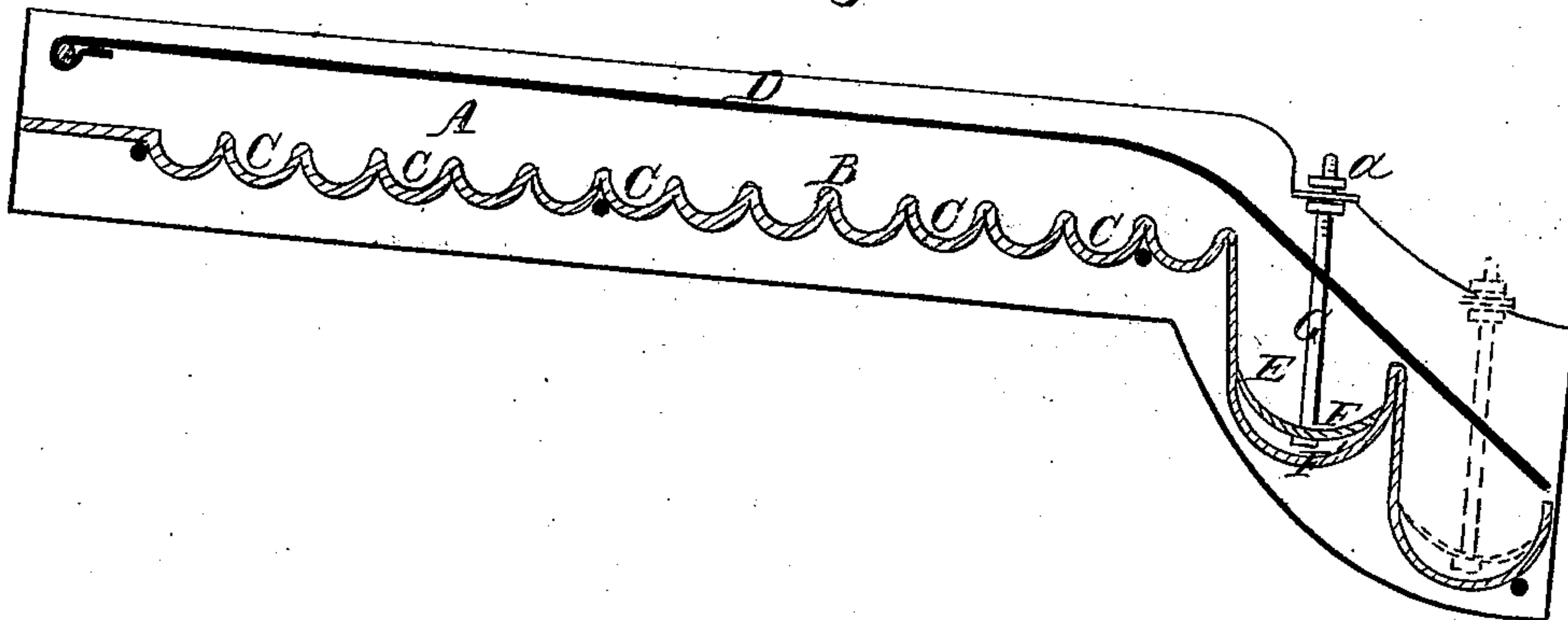
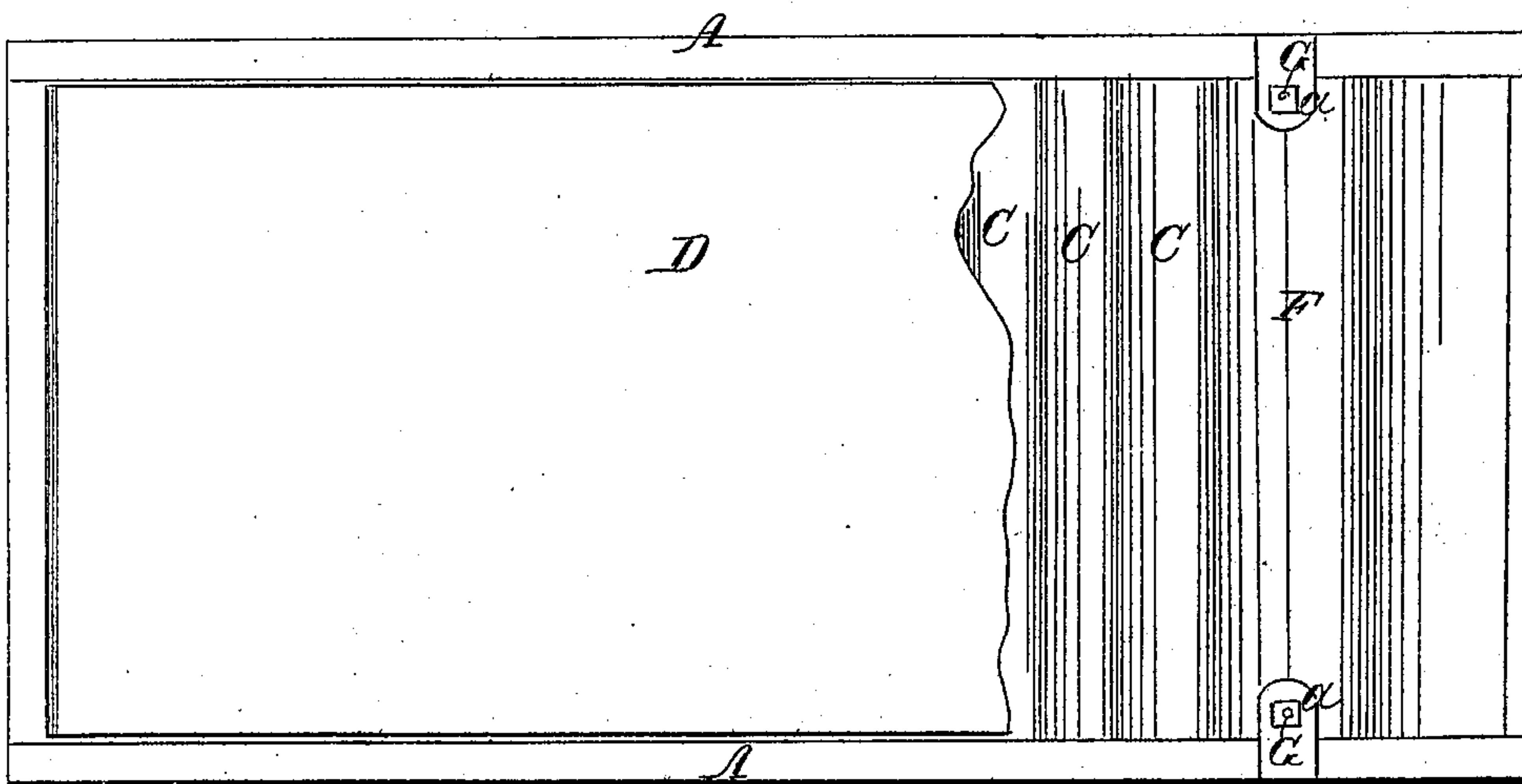


Fig. 2.



*Witnesses
J. L. Dorn
Wm. Gerlach.*

*Inventor:
Ezra Coleman
By his Attys
Dewey & Co.*

United States Patent Office.

EZRA COLEMAN, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO HIMSELF AND ALMOND F. COOPER, OF SAME PLACE.

Letters Patent No. 93,060, dated July 27, 1869.

IMPROVED SLUICE AND BLANKET FOR COLLECTING GOLD AND SILVER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, EZRA COLEMAN, of the city and county of San Francisco, State of California, have invented an Improved Sluice and Blanket Metal-Saving and Concentrating Machine; and do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains, to make and use my said invention or improvement, without further invention or experiment.

The object of my invention is to provide an improved arrangement of metal-saving and sulphuret-concentrating devices, by means of which not only the heavy particles of gold, amalgam, and quicksilver are saved, but also the light and fine particles known as float-gold.

It also consists in an arrangement of graduated concentrating-troughs, into which the pulp is precipitated after the free metal and amalgam have been extracted, and by means of which the sulphurets are concentrated.

Referring to the accompanying drawings for a more full explanation of my invention—

Figure 1 is a vertical section of the sluice.

Figure 2 is a plan.

A A are the two sides of a sluice, and B is the bottom.

The bottom B of the sluice is formed of a sheet of copper or other metal, or wood formed into indentations, channels, or depressions C C, running transversely across the sluice. These depressions are shown in the drawings annexed hereto, as representing a series of circular channels, but the form of the depression or general outline is of but little consequence to the carrying out of my idea. The depressions are to be filled with quicksilver, after the sluice has been set at the proper or desired angle, thus forming a sheet of mercury over which the pulp is to be passed.

When ore-pulp is mixed with water, or even after the pulp has been treated by any of the known devices for taking up the precious metals, there are found to be floating upon the surface of the water fine particles of gold, known as float-gold, the specific gravity of which is not sufficient, especially in moving water, to precipitate it to the bottom along with the heavier particles.

To save this float-gold has been the object of a number of inventions, but the fact still remains that a certain portion of the precious metals is thus run off and wasted. To save this fine gold, I employ a blanket, D, of just the width of the sluice, one end of which is attached across the upper end of the sluice by any suitable means, at a sufficient height to allow the stream of water to pass beneath it. This blanket

is allowed to extend loosely the whole length of the sluice, so that when the stream of water is passing over the sluice, the blanket will sweep the surface, and take up these fine particles of gold which may be floating on its top.

Blankets have been and still are in use for saving sulphurets and catching small particles of gold, but in all cases heretofore the pulp, or tailings, mixed with water, have been passed over the blanket, instead of placing the blanket over the stream, and allowing it to sweep the surface, for the purpose of catching the floating particles.

After the water and pulp or tailings have passed over the sheet of quicksilver, as contained in the transverse depressions C, and is freed thereby of the free gold, amalgam, and quicksilver, and of the surface-floating gold by the blanket D, it is precipitated into a trough, E, placed at the end of the sluice at a proper distance below it. This trough is provided with a false bottom, F, of the same contour as the real bottom F', and the sides of the trough rise upwards parallel to each other, so that the false bottom F will fit at any point it may be placed, being adjusted by a long screw, G, on each side, moved up and down by a nut, a, or it may be adjusted by other suitable means.

The object of having an adjustable false bottom is to enable the operator to make the trough shallow or deep, as the volume of water carried in the sluice, and the character of the ore being worked require. The form of this trough is immaterial, but I prefer the form shown in the drawings.

As before stated, the tailings and water are precipitated from the inclined sluice into the trough, where the sulphurets, by their specific gravity, find their way to the bottom, while the refuse matter is carried over the side of the trough, and falls into another trough of similar construction, placed at a suitable distance below.

These troughs may be multiplied to as great an extent as is necessary to separate the sulphurets from the tailings, the whole forming a series of descending troughs of equal or different depths, according to the amount of water carried in the sluice, and the character of the sulphurets to be concentrated.

After the pulp or tailings have been passed over one set of sluices and descending troughs, if not sufficiently purged of its metals and sulphurets, it may be passed over any additional number of similar devices that may be found necessary.

Having thus described my invention,

What I claim, and desire to secure by Letters Patent, is—

1. Forming the bottom of the sluice into transverse depressions C C, for the purpose of receiving and being filled with quicksilver, substantially as described,

2. Passing the pulp or tailings over an extended sheet of quicksilver, or over successive bodies of quicksilver, said sheet or bodies being contained in transverse depressions in the bottom of the sluice, substantially as described.

3. The blanket D, secured or arranged so as to sweep or impinge upon the surface of the moving pulp or stream, for the purpose of arresting and detaining fine particles or float-gold, substantially as above specified.

4. The descending graduated concentrating-troughs, either with or without the adjustable false bottoms F, constructed and arranged substantially as and for the purpose described.

In witness whereof, I have hereunto set my hand and seal.

EZRA COLEMAN. [L. S.]

Witnesses:

GEO. H. STRONG,
JNO. L. BOONE.