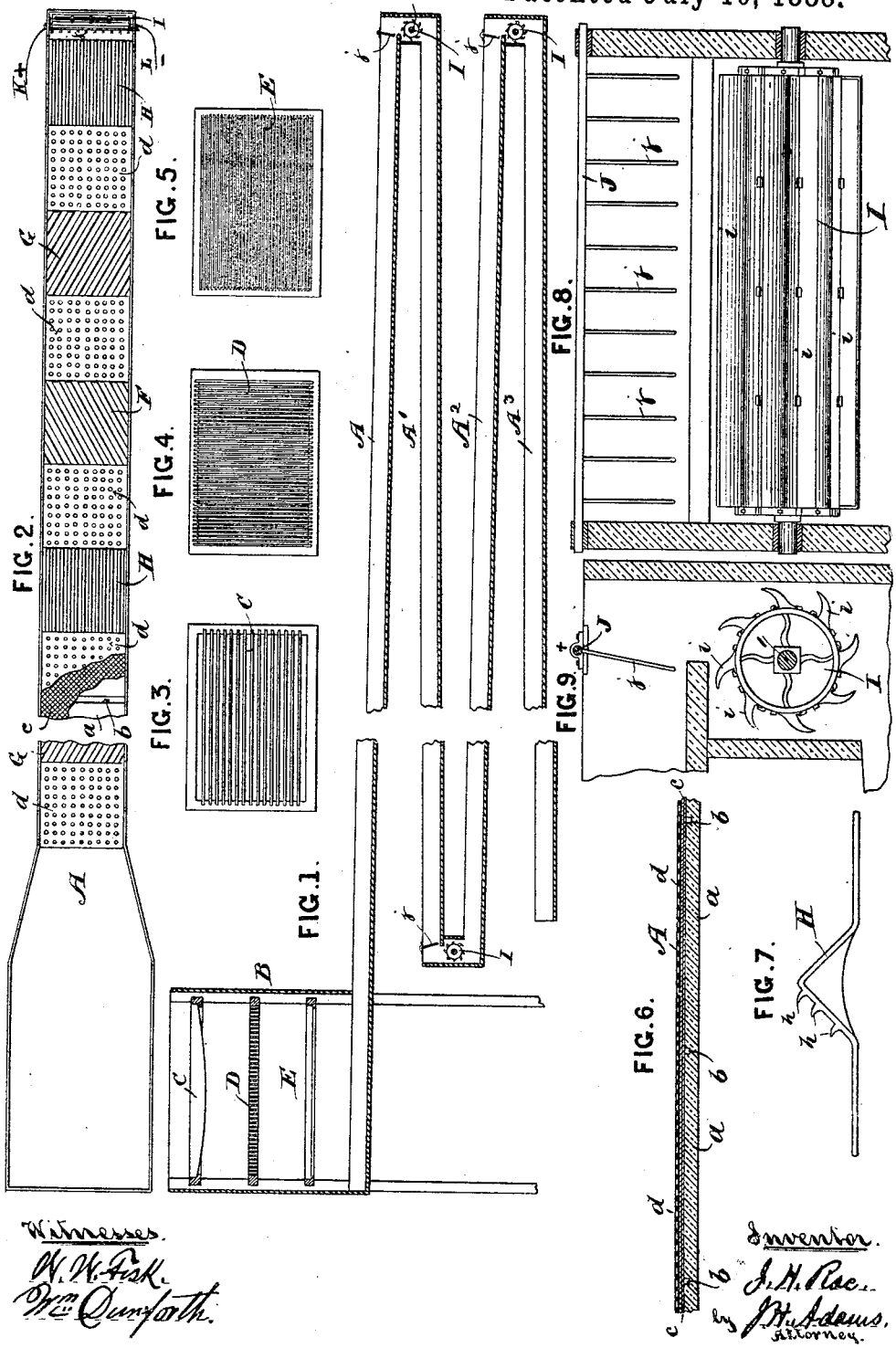
(No Model.)

J. H. RAE.

SLUICE BOX.

No. 386,030. Patented July 10, 1888.



Witnesses.
W. W. Fisk.
Wm. Dunforth.

Inventor.
J. H. Rae.
by W. Adams.
Attorney.

UNITED STATES PATENT OFFICE.

JULIO H. RAE, OF BOSTON, MASSACHUSETTS.

SLUICE-BOX.

SPECIFICATION forming part of Letters Patent No. 386,030, dated July 10, 1888.

Application filed April 5, 1886. Serial No. 197,784. (No model.)

To all whom it may concern:

Be it known that I, JULIO H. RAE, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sluice-Boxes for Saving Gold, &c., of which the following is a specification.

The object of my invention is to provide an improved sluice-box and apparatus for effectually saving small particles of gold, quicksilver, and amalgam, that are usually lost in placer, hydraulic, and river mining; and the invention consists in certain details of construction hereinafter set forth, and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 represents a longitudinal vertical section through a sluice-box and apparatus embodying my invention, parts being shown as broken away. Fig. 2 is a plan or top view of the sluice-box. Figs. 3, 4, and 5 are plan views of various grisleys or gratings. Fig. 6 is an enlarged section showing the construction of the bottom of the sluice-boxes. Fig. 7 is a side view of a riffle for breaking or retarding the flow of water in the sluice-box. Figs. 8 and 9 are respectively longitudinal and transverse vertical sections showing the electric or amalgamating wheel placed at the end of each section of the sluice-box.

A A' A^2 A^3 represent sections of a sluice-box over one end of which is erected a box or case, B, in which are supported three grisleys or grates, C D E, one over the other.

The material to be worked is deposited upon the upper grate, C, the space between the bars of which I prefer to be about two and one-half inches, so as to retain the bowlders or large rocks, which, after being well washed, are removed by a rake or shovel. The spaces between the bars of the grate D, I prefer to be about one inch and the spaces between the bars of the grate E about one-quarter of an inch, so that all the coarser rocks and stones will be removed from the material before it reaches the first section, A, of the sluice-bar.

The bottom of the sluice-box is composed of, say, two-inch plank, *a*, (see Figs. 1 and 6,) with grooves *b* cut transversely therein, forming what I term "wells," preferably about four feet apart. Upon this bottom is placed matting or cloth, *c*, over which are perforated iron plates *d*.

The object of the matting or cloth is to retain any fine gold, amalgam, or "floured" quicksilver that may have passed through the perforated plates *d*, and the wells *b* are for receiving any extra quicksilver that may have accumulated beneath the matting, the iron plates *d* serving to protect the matting and any deposit of gold, amalgam, or floured quicksilver that may have passed through.

The sluice-box is also provided with the ordinary riffle, H, of the form shown in Fig. 7—that is, raised in the center and provided on the front side with projections *h*. The riffles H are used alternately with the ordinary riffles, F G, or as frequent as may be required for breaking, backing, or retarding the flow of water if by accident the sluice-box should become too full or the flow of water too rapid.

At the end of each section of the sluice-box is fitted a water-wheel, I, the buckets *i* of which are made detachable and are of copper amalgamated with quicksilver, the same as the coppers of a stamp-mill. Above the wheel I is fitted a bar, J, provided with a series of fingers, *j j*, that extend down nearly to the bottom of the sluice-box. The bearings of both the shaft J and the shaft that carries the water-wheel I are insulated from the riser of the sluice-box, and the positive wire K from a battery or other electrical source is in connection with the bar J, and the negative wire L is in connection with the shaft of the water-wheel I, the water making the electrical connection between the two. By this arrangement any floured quicksilver, amalgam, or fine gold that may be in the water will be arrested and retained by the buckets *i* of the electrical wheel, and the deposits can be scraped off.

The sluice-box may be made in any desired number of sections and an electric wheel be placed at the end of each section or any desired section or sections, and instead of the sections of the sluice-box being placed one above the other, as shown, they may be arranged in a continuous or straight line. The electrical wheel or amalgamator may be used in connection with the sluice-box of any quartz-mill.

I am aware that woven wire gauze or an

gamated perforated sheet metal with cloth or canvas under the same have been employed in combination with a sluice-box, and that magnetic and amalgamated fans have been employed; and, further, that a series of revolving and stationary electrodes, (anodes,) in combination with riffles containing mercury, have also been employed in combination with a sluice-box. These I do not claim; but

What I claim as my invention is—

1. The riffle H, raised in the center and provided with projections *h* on one side of said raised center, in combination with a sluice-box, substantially as shown, and for the purposes described.

2. In combination, a sluice-box, a wheel, I, having buckets *i*, and bar J, having fingers *j*, and means for transmitting an electrical current to the water from a battery, dynamo, or other electrical source, substantially as and for the purposes described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JULIO H. RAE.

Witnesses:
J. H. ADAMS,
ABEL C. WHITTIER.