

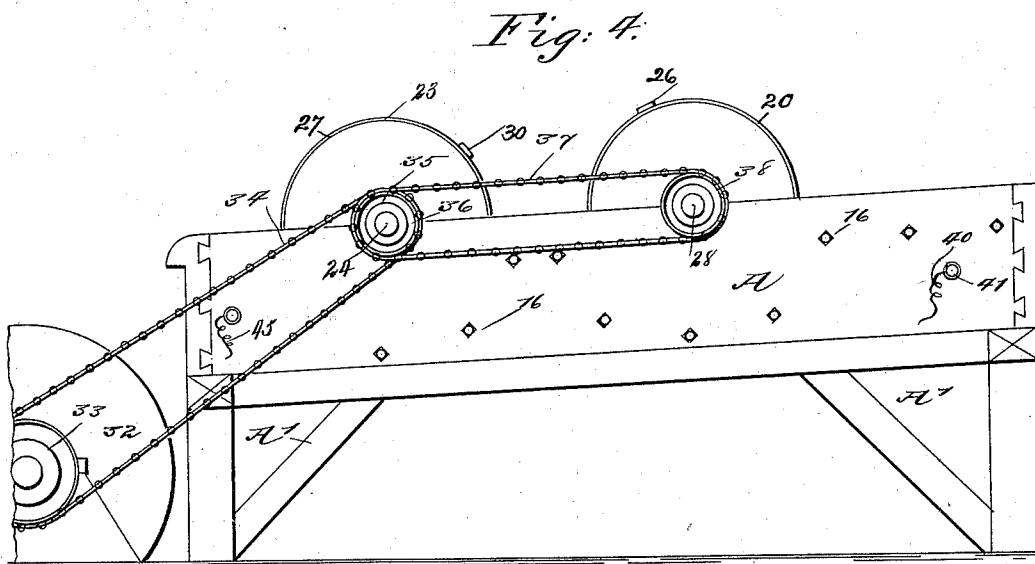
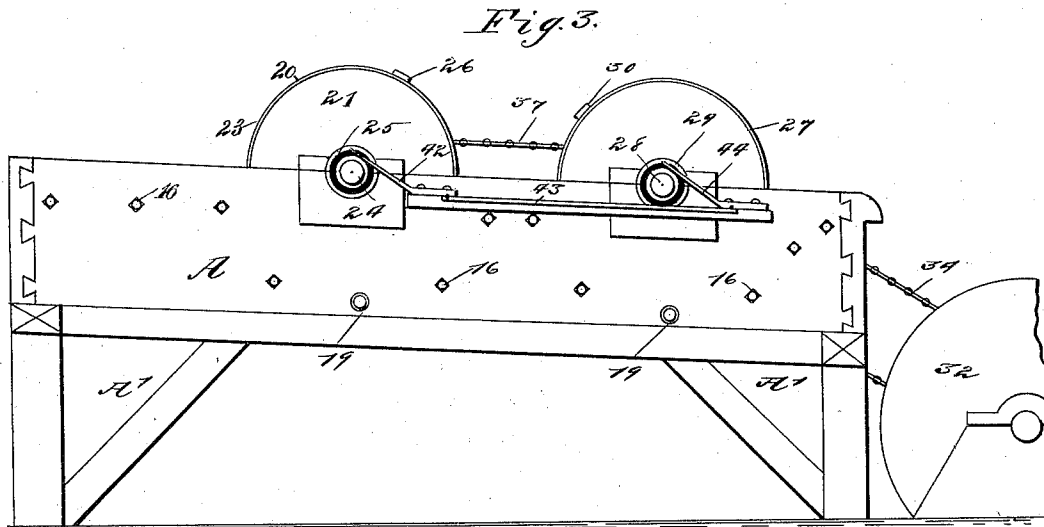
(No Model.)

2 Sheets—Sheet 2.

W. WRIGHT.
ELECTRICAL AMALGAMATOR.

No. 579,211.

Patented Mar. 23, 1897.



WITNESSES:

H. Walker
Frederick

INVENTOR

W. Wright

BY

Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM WRIGHT, OF NEW YORK, N. Y.

ELECTRICAL AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 579,211, dated March 23, 1897.

Application filed July 8, 1895. Serial No. 555,267. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM WRIGHT, of New York city, in the county and State of New York, have invented a new and Improved Electrical Amalgamator, of which the following is a full, clear, and exact description.

My invention relates to an improvement in amalgamators; and it has for its object to provide an amalgamator and means for electrically controlling the deposit-surfaces of the amalgamator.

A further object of the invention is to provide an amalgamator so constructed that the fine particles of gold will be deposited in the operation of the amalgamator upon a cylinder, from which said particles may be readily removed, and to provide a second cylinder that will cause a deposit of any gold that may have escaped from the first cylinder on a receiving surface or bed, provision being made for drawing the liquid from beneath each of the cylinders and removing the metal.

A further object of the invention is to provide a means whereby the current will be passed through from one bed to the other through the cylinders, and whereby the current may be reversed to reverse the action of the machine to effect a release of the material from its receiving-surfaces.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal vertical section through the machine, the said section being taken on the line 11 of Fig. 2. Fig. 2 is a plan view of the machine, one of the cylinders being partially in section. Fig. 3 is a view of one side of the machine, and Fig. 4 is a view of the opposite side.

In carrying out the invention a box-frame A is constructed as the body portion of the machine, the parts being dovetailed together, as shown in Figs. 3 and 4, and this body is supported in an inclined position upon suitable legs A'. At the upper portion of the body a bed 10, of steel, is secured, extending

from the upper end to a connection with an insulating material 11, preferably placed upon a partition 12, dividing the body practically into two compartments, and the bed 10 is provided near the insulating material 11 with a concaved pocket 13, having a gutter 14 made transversely therein at or near its center. The bed is constructed with preferably downwardly-extending marginal flanges 15, secured to the body of the machine by means of bolts 16 or their equivalents. A second bed 10^a, of copper, is located at the lower end of the body. It extends from the insulating material 11 over and beyond the lower extremity of the body and is likewise provided with a concaved pocket 17, having a transverse central gutter 18. At one end of each gutter of the bed an opening 19 is made in the body, normally closed by a plug or its equivalent, through which the water on the accumulated metal may escape.

A receiving-cylinder 20 is mounted to revolve in the pocket 13 of the steel bed. This cylinder consists of two heads 21, preferably made of iron and connected by a tubular or cylindrical sheet of copper 23. The shaft 24, upon which this cylinder revolves, is held to turn in insulated bearings 25, and the cylinder is fitted with longitudinal strips or ribs 26, adapted to agitate the liquid substance contained in the pocket 13. The copper surface of this cylinder is adapted to and will, when electrically charged, receive from the pulverized and pasty mass the finer particles of gold contained therein.

A second cylinder 27, of like construction to the cylinder 20 except that the body of the cylinder is made of steel, is mounted over the copper pocket 17, and its shaft 28 is likewise held to turn in insulated bearings 29. (Shown in Fig. 3.) This steel cylinder is also provided with longitudinal stirring strips or ribs 30, and the pasty mass of liquid, together with any metal that may escape from the first or copper cylinder, will be carried over the insulated material 11 and will be deposited on the inner face of the pocket 17 in the copper bed. Ordinarily the cylinders may be driven by causing the waste liquid or waste products to fall from the lower or inclined end of the bed into the buckets 31 of a wheel 32, mounted

in suitable bearings at the lower end of the machine. The shaft of this bucket or pocket wheel carries a driving-pulley 33, which is connected by a belt 34 with a pulley 35 on, for example, one end of the steel cylinder 27, and this shaft also carries a second pulley 36, connected by a belt 37 with a pulley 38 on the shaft of the copper cylinder.

A current of electricity is passed from a dynamo 39 or other form of generator through the machine, and the circuit is made by carrying a conducting-wire 40 from the receiver to a post 41, connected with the steel bed 10, causing this bed to be positive, and the current will then pass through the water between the copper cylinder and the pocket 13 of the steel bed into the copper surface of the cylinder, rendering the same negative, and the current is then passed along the shaft of the cylinder and is taken up by a brush 42 in contact with one end of the shaft and in communication with a conductor 43, located at one side of the machine. This conductor is in communication with a second brush 44, which is in contact with the shaft of the steel or lower cylinder 27, making this cylinder positive, and the current is then conducted through the water intervening the steel cylinder and copper bed to the latter, rendering it negative, and a wire 45 is conducted from this negative bed back to the generator, it being understood, as heretofore stated, that the two beds 13 and 17 are insulated one from the other. A switch 46 is located within this circuit, normally closing the circuit in a manner to conduct the current as above described; but the current is reversed by causing the switch to engage with shunts 47, also in the circuit, to discharge the metal from the surface with which it is in contact.

In the operation of the machine the gold is taken up on the copper cylinder and is held in contact therewith, and any gold that may escape from this cylinder will be retained on the copper bed, over which the next cylinder revolves. The only chemical necessary is a solution of common salt, which is fed into the amalgamator with the crushed material. The electric current decomposes the salt, liberates the chlorine at the opposite pole, and forms a sodium amalgam at the negative pole. It will be understood that the copper surface will be coated with mercury or any substitute therefor adapted to promote amalgamation.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

1. In an amalgamator, electrodes arranged in pairs, one electrode of each pair being fixed, constituting a bed and provided with a cavity, the second electrode of each pair being mounted to revolve in the cavity of the fixed electrode, the fixed electrodes being insulated from one another, a generator, and a circuit connection between the fixed electrode of one set, the said connection being transmitted to the rotating electrode of the same set by the material adapted to intervene them, the circuit being continued to the rotary electrode of the second set and transmitted from thence to the fixed electrode through the material intervening the two, and thence back to the generator, as and for the purpose set forth.

2. In an amalgamator, electrodes arranged in pairs, one electrode of each pair being fixed, constituting a bed and provided with a cavity, the second electrode of each pair being mounted to revolve in the cavity of the fixed electrode, the fixed electrodes being insulated from one another, a generator, and a circuit connection between the fixed electrode of one set, the said connection being transmitted to the rotating electrode of the same set by the material adapted to intervene them, the circuit being continued to the rotating electrode of the second set and transmitted from thence to the fixed electrode through the material intervening the two, and thence back to the generator, and a switch contained in the said circuit, whereby the current may be reversed, as and for the purpose set forth.

3. In an amalgamator, the combination with the frame, of a bed of steel arranged at the upper part of the frame and provided with a pocket, a copper cylinder mounted in the said pocket, a second bed, of copper, in the lower part of the frame and insulated from the steel bed, said bed being provided with a pocket, a steel cylinder mounted in the pocket of the copper bed, the said cylinders being of opposite polarity, brushes engaging the shafts of the cylinders, a conductor connecting the brushes, and a generator connected with the said beds substantially as described.

WILLIAM WRIGHT.

Witnesses:

J. FRED. ACKER,

JNO. M. RITTER.