

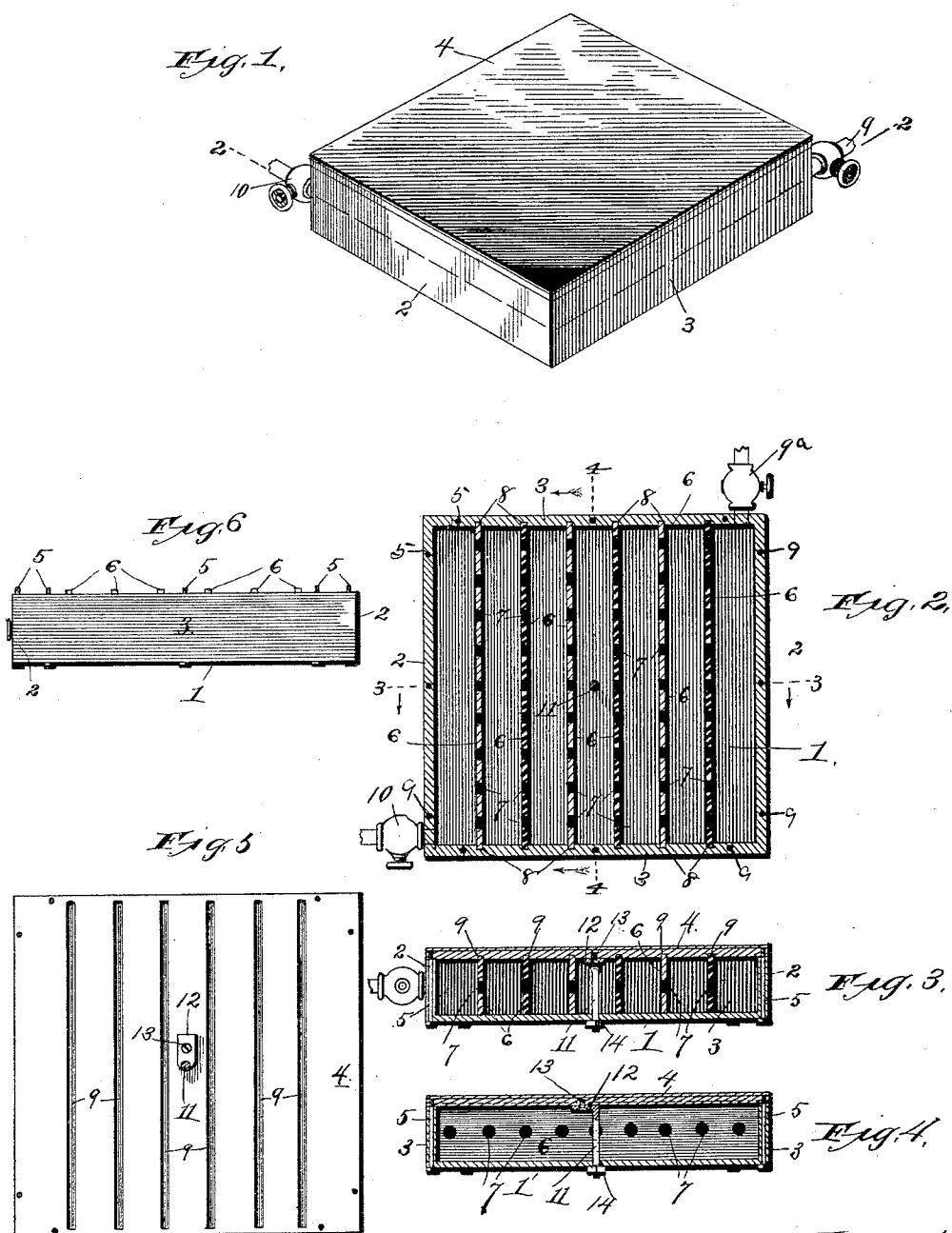
(No Model.)

G. H. CHICK.

STEAM SILVER PLATED PLATE FOR AMALGAMATING GOLD, SILVER,
OR COPPER.

No. 460,946.

Patented Oct. 13, 1891.



Witnesses:

W. H. Thorpe.
Geo. L. Coudon

Inventor:
Geo. H. Chick.

Bigdon & Bigdon
attorneys.

UNITED STATES PATENT OFFICE.

GEORGE H. CHICK, OF KANSAS CITY, MISSOURI.

STEAM SILVER-PLATED PLATE FOR AMALGAMATING GOLD, SILVER, OR COPPER.

SPECIFICATION forming part of Letters Patent No. 460,946, dated October 13, 1891.

Application filed June 22, 1891. Serial No. 397,040. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. CHICK, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improve-
5 ments in Steam Silver-Plated Plate for Amalgamating Gold, Silver, or Copper, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

10 My invention relates to appliances for amalgamating gold, silver, copper, &c.; and the object of my invention is to produce an amalgamator which shall be simple, durable, and comparatively inexpensive in construction,
15 and which shall operate with the highest degree of rapidity and efficiency.

To the above purpose my invention consists in certain peculiar and novel features of construction and arrangement, as hereinafter described and claimed.

In order that my invention may be fully understood I will proceed to describe it with reference to the accompanying drawings, in which—

25 Figure 1 is a perspective view of my improved amalgamator. Fig. 2 is a central transverse section of the same on the line 2 2 of Fig. 1. Fig. 3 is a horizontal cross-section of the same on the line 3 3 of Fig. 2. Fig. 4 is
30 a transverse vertical section of the same on the line 4 4 of Fig. 2. Fig. 5 is an inner view of the face-plate of the amalgamator. Fig. 6 is a side elevation of the amalgamator with its face-plate removed.

35 In the said drawings, 1 designates the back portion of my improved amalgamator, the said portion being in the form of a flat plate preferably of rectangular form, as shown, and of any suitable or preferred dimensions as cir-
40 cumstances may require. This plate is preferably of cast-iron or copper, and is also galvanized, so as to prevent the body of the plate from being eaten away by rust.

2 and 3 designate, respectively, the two sides and the top and bottom portions of the amalgamator, said sides and top and bottom pieces extending at right angles from the inner side of the plate 1 and being preferably
45 formed integrally with the same.

50 4 designates the face-plate of the amalgamator, said face-plate corresponding in form with the back plate 1 and being secured in

position upon the edges of the side pieces 2 and the top and bottom pieces 3 by screw-bolts 5, which are inserted through the rear
5 plate 1 and side and top pieces 2 and 3, and the screw-threaded ends of which enter the inner face of the face-plate 4, but do not pass entirely through said face-plate. The said
60 face-plate may be secured in position in various other ways; but this is the preferred manner, inasmuch as it leaves the outer surface of the face-plate intact and unbroken,
the heads of the screw-bolts 5 being located at the outer surface of the back plate. The
65 outer surface of the face-plate 4 is coated with silver.

Within the space or interior of the amalgamator thus constructed are placed a number of parallel plates 6, which are alternately
70 of copper and zinc and which may either stand vertically, as shown, or horizontally or obliquely, as preferred. These plates are each provided with any desired number of holes or perforations 7 for a purpose to be explained,
75 and the edges of said plates are shown as resting in the grooves 9 in the inner surface of the face-plate 4.

In one end of the top piece 3 is inserted a suitable inlet-valve 9^a for steam, and in the
80 opposite end of the bottom piece 3 is inserted a suitable outlet-valve 10 for steam.

The face-plate 4 is further retained in position by a bolt 11, the inner end 12 of which extends at right angles from the body por-
85 tion of the bolt, and this end lies in contact with the inner surface of the face-plate and is secured to the face-plate by a screw 13, which passes transversely through the end 12 and enters the inner surface of the face-plate,
90 but does not pass entirely through said face-plate. The opposite or outer end of this bolt 11 is externally screw-threaded and passes entirely through the middle of the back 1 and receives a nut 14, which abuts against the
95 outer surface of the back 1, and thus retains the parts in position.

After the ore to be amalgamated has been properly prepared for the amalgamator it is heaped up against the outer surface of the
100 face-plate, and steam is turned into the indicator of the amalgamator and flows through the openings 7 of the plates 6, completely filling the interior of the amalgamator and flow-
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out through the outlet-valve 10. This steam highly heats the plates 6 and face-plate 4 and sets up a galvanic action in the alternate zinc and copper plates, which is communicated to the face-plate, and which thus causes the face-plate to rapidly and thoroughly collect all of the gold, silver, or copper in the ore and deposit the same upon the outer surface of the plate, the ore being thoroughly stirred during the action of the plate to thoroughly expose all parts of the ore to contact with the face of the plate.

It will thus be seen that the amalgamator is very simple and durable in construction and rapid and thorough in operation.

The face-plate can be readily removed whenever desired and fresh plates 6 can be easily substituted for those which may become depleted.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. An improved amalgamator consisting of

a chamber having inlet and outlet valves for steam, and alternate plates of copper and zinc located within said chamber and having each a number of openings formed in it, substantially as set forth.

2. An improved amalgamator comprising a suitable backing, side pieces, and top and bottom pieces, a face-plate removably secured upon the edges of the top and bottom and side pieces, a number of alternate copper and zinc plates interposed between the back and face plates and having a number of holes or openings, and inlet and outlet valves for steam communicating with the space between the back and face plates, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE H. CHICK.

Witnesses:

JNO. L. CONDRON,
H. E. PRICE.