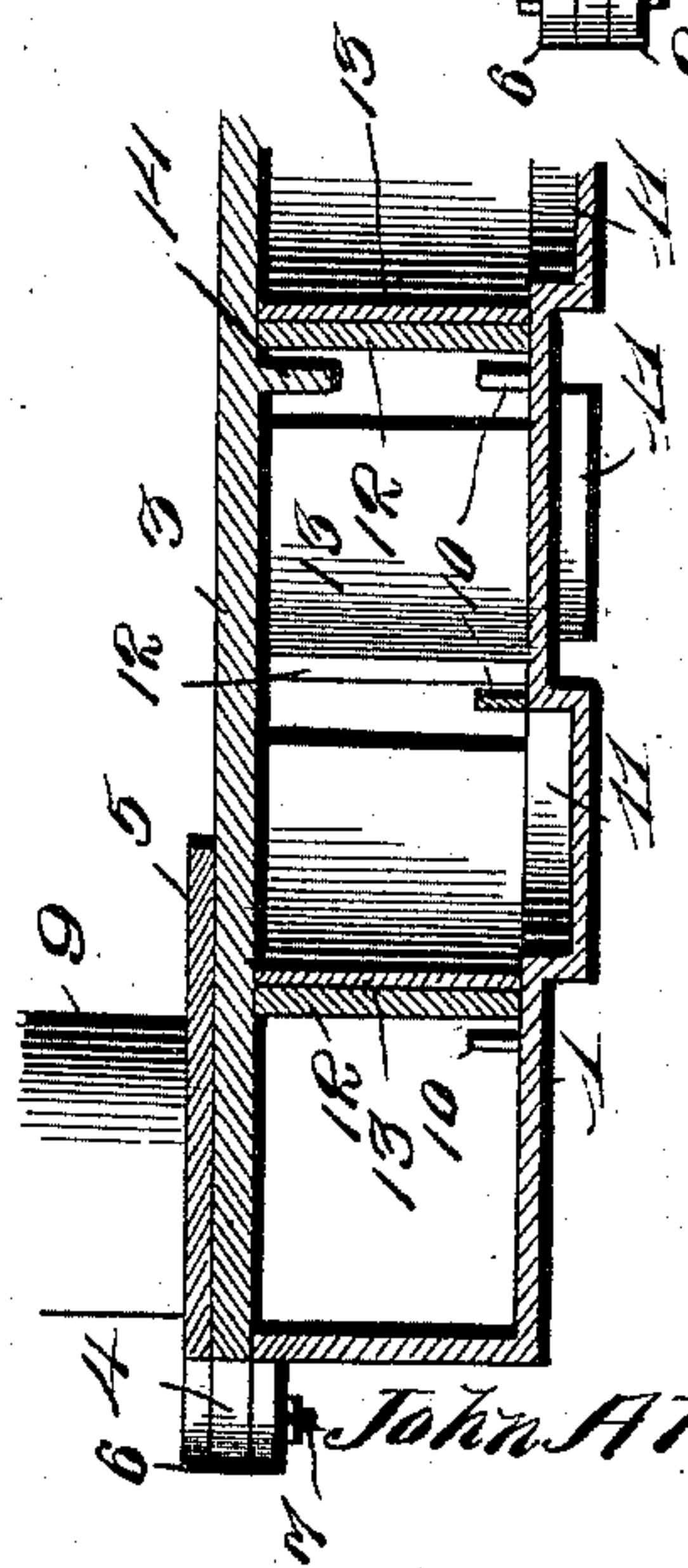
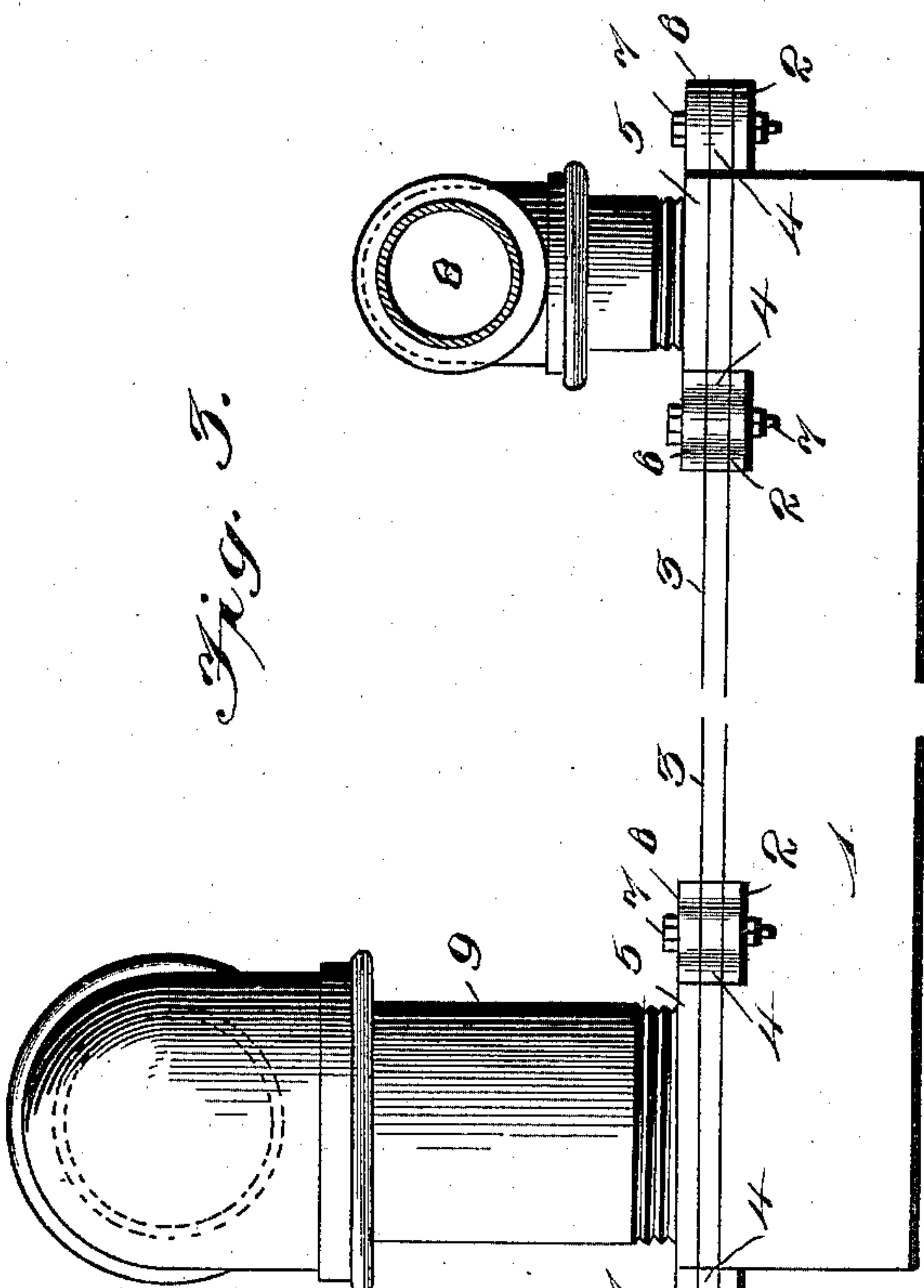
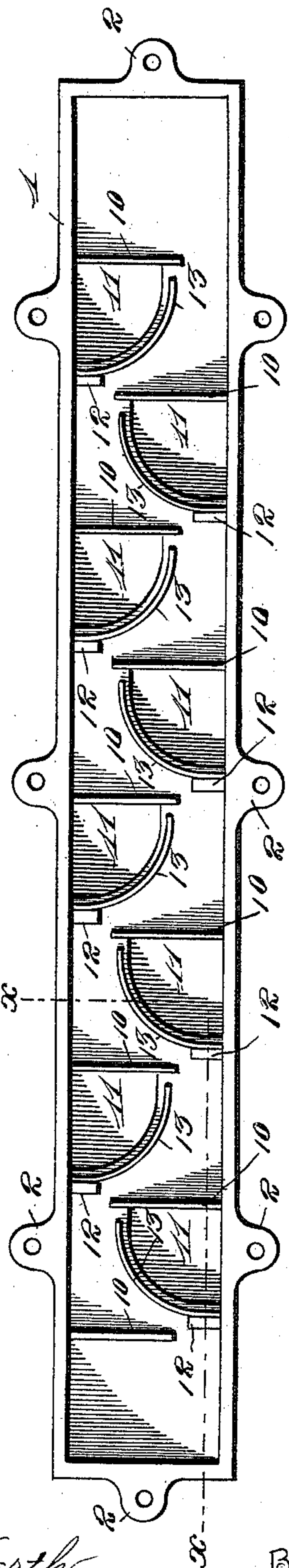


(No Model.)

J. A. RIFFLE.
AMALGAMATOR.

No. 573,163.

Patented Dec. 15, 1896.



Inventor

John A Riffe,

By *his* Attorneys,

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Witnesses
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UNITED STATES PATENT OFFICE.

JOHN A. RIFFLE, OF DENVER, COLORADO, ASSIGNOR OF ONE-SIXTEENTH
TO JAMES HIGSON, OF SAME PLACE.

AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 573,163, dated December 15, 1896.

Application filed September 1, 1896. Serial No. 604,564. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. RIFFLE, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented a new and useful Amalgamator, of which the following is a specification.

This invention relates to certain improvements in amalgamators, such as are employed for separating gold and other precious metals from sand, gravel, ores, and other substances wherein such metals are present in a free or uncombined state; and the object of the invention is to provide a device of this character of a simple and inexpensive construction adapted to separate and retain the precious metal in a substantially perfect manner.

The invention consists in an amalgamator constructed in the form of a casing or sluiceway adapted for the passage of a current or stream of water through it and provided with pockets at suitable intervals to retain mercury to amalgamate the precious metal, and amalgamated plates arranged to deflect the current from side to side in passing through the said casing or sluiceway, so as to cause the precious metal to be more completely deposited.

The invention also contemplates certain novel features of the construction, combination, and arrangement of the various parts of the device, whereby certain advantages are attained and the device is made simpler, cheaper, more compact, and durable in construction, and is otherwise better adapted and more convenient for use than other similar devices heretofore employed, all as will be hereinafter fully set forth.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a plan view of the device, the cover and inlet and outlet pipes thereof being

removed. Fig. 2 is a fragmentary section taken vertically through one end of the device in the plane indicated by the line xx in Fig. 1. Fig. 3 is a side view of the device, the central portion thereof being broken out.

Corresponding and like parts are referred to in the following description and indicated in the several views of the drawings by the same reference-characters.

Referring to the drawings, the numeral 1 represents the body of the casing or sluiceway, having an open top and made in a trough-like form, with perforated lugs or flanges 2 projecting from its upper edges, and 3 indicates the flat cover thereof, having perforated projecting lugs 4, corresponding to the lugs or flanges 2 on the body 1, and said cover 3 is provided at opposite ends with openings adapted to serve as an inlet and an outlet for the material to be passed through the amalgamator, the outlet being about twice as large as the inlet.

Over the openings at opposite ends of the cover 3 are arranged covers 5, also provided with perforated projecting lugs 6, corresponding to the lugs 4 and 2 on the cover 3 and body 1, respectively, and said lugs are engaged by bolts 7, passing through their perforations and serving to hold the cover-plates in place in the body. The inlet-opening at one end of the cover 3 connects with an inlet or supply pipe 8, while the outlet-opening at the opposite end of the cover communicates with an outlet or discharge pipe 9, as clearly shown in Fig. 3.

In the interior of the body 1 between the inlet and outlet openings of the device the bottom thereof is provided with a series of deflectors in the shape of partitions or ridges 10, each extending partially across said bottom, the first partition 10 extending from one side to a point near the other side of the trough-like body, the next partition being oppositely arranged, and so on, and behind each partition 10 is formed on the bottom of the body 1 a pocket or recessed chamber 11, adapted to hold a supply of mercury to retain the gold or other precious metal.

The rear side or wall of each pocket 11 is curved, and the said pockets are of a width about equal to the length of the partitions

10, so that the mercury in the pockets is to a degree shielded from the action of the material passing through the casing and thereby prevented from being carried away, and at the rear side of each pocket a lug or rib 12 is formed on the adjacent side of the body, and to which rib 12 is attached in any preferred way a deflecting-plate 13, preferably formed of amalgamated copper and curved to conform to the curvature of the rear side of the pocket 11, as most clearly seen in Fig. 1.

The cover-plate 3 is also provided at suitable intervals with depending transverse flanges 14, extending down inside the hollow of the body 1 and serving to deflect the material passing through the amalgamator, so as to bring the particles of precious metal into contact with the amalgamated plates 13 and also with the mercury in the pockets 11.

In operation the gravel, sand, or other substance containing the precious metal is fed through the device by means of a stream of water, the curved plates 13 serving to deflect the stream passing through the device from side to side of the trough-like body and forming eddies therein over the pockets, so that the heavier particles carried by the water will be deposited into said pockets and retained therein by being absorbed by the mercury.

The device constructed as above described is extremely simple and inexpensive in its nature and is adapted for use in working all kinds of gold-bearing materials, the precious metal being separated by the action of the eddies in precipitating and the mercury in absorbing.

Having thus described the invention, what is claimed as new is—

1. In an ore-separator, a casing or sluiceway having a series of pockets at intervals in the length of its bottom, deflectors located in advance of the pockets, and curved plates arranged in the rear of the pockets and considerably higher than the deflectors, substantially as and for the purpose set forth.

2. In an ore-separator, a casing or sluiceway having a series of pockets at intervals

in the length of its bottom, the pockets of one series alternating with and coming opposite the spaces formed between the pockets of the adjacent series, straight deflectors arranged in advance of the pockets and disposed in parallel relation, and curved plates located in the rear of the pockets, substantially as set forth.

3. In an ore-separator, a casing or sluiceway having a series of pockets at intervals in the length of its bottom, the pockets of one series alternating with the pockets of the other series and the two sets of pockets bordering upon the side walls of the casing and having their front sides straight and their rear sides curved, straight deflectors located in advance of the pockets, and curved plates arranged in the rear of the pockets and considerably higher than the deflectors, and the deflectors and curved plates having their outer ends touching the side walls of the casing, substantially as set forth.

4. The herein-described ore-separator, comprising a casing having a supply-pipe communicating therewith at one end and a discharge-pipe at the opposite end, and formed at intervals in the length of its bottom with a series of pockets disposed in alternate relation, the front sides of the pockets being straight and their rear sides curved, and having inwardly-extending ribs at its sides and depending flanges at its top, straight deflectors located in advance of the pockets and about in vertical alinement with the depending flanges, and curved plates at the rear of the pockets and having their outer ends secured to the aforesaid ribs, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN A. RIFFLE.

Witnesses:

R. L. SAMUEL,
PAUL F. ENGLER.