

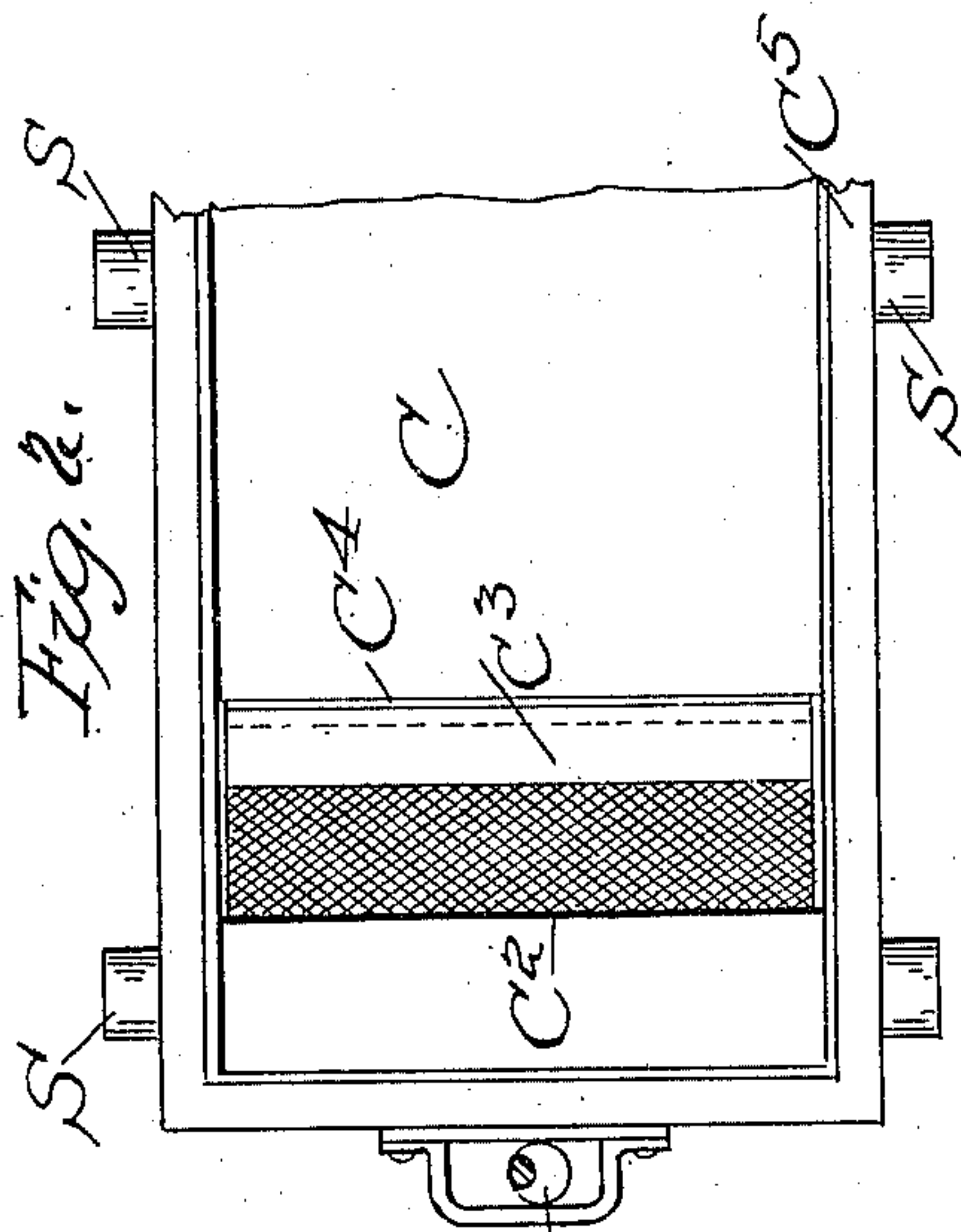
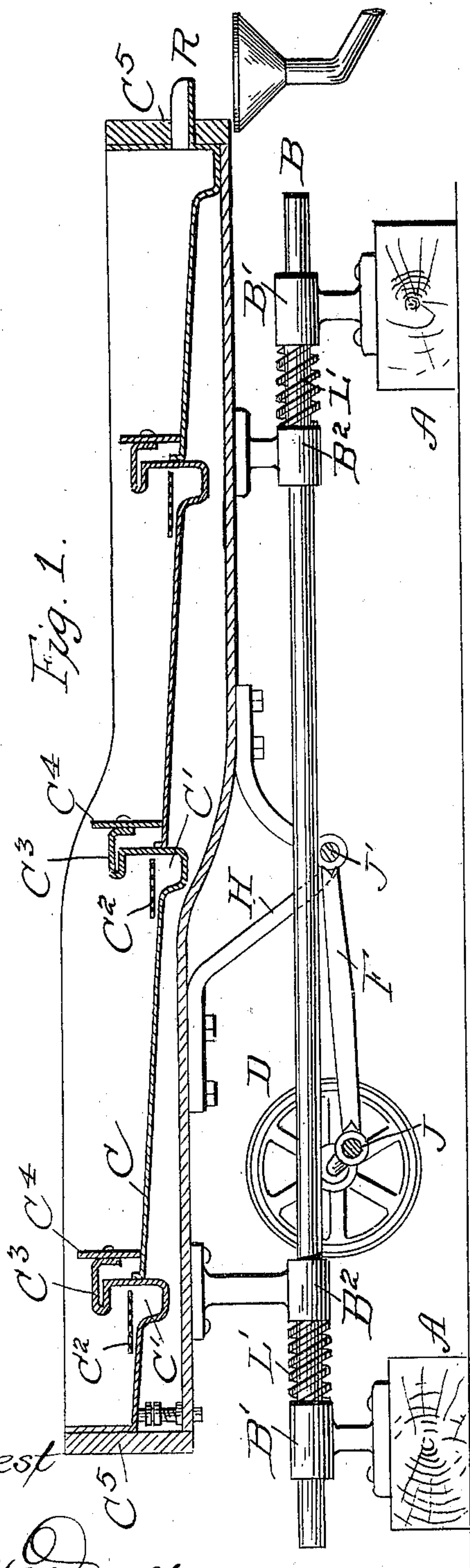
(No Model.)

R. TAYLOR.

COMBINED RECIPROCATING CONCENTRATOR AND AMALGAMATOR.

No. 598,543.

Patented Feb. 8, 1898.



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UNITED STATES PATENT OFFICE.

ROBERT TAYLOR, OF ADELAIDE, SOUTH AUSTRALIA.

COMBINED RECIPROCATING CONCENTRATOR AND AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 598,543, dated February 8, 1898.

Application filed January 2, 1897. Serial No. 617,814. (No model.)

To all whom it may concern:

Be it known that I, ROBERT TAYLOR, a subject of the Queen of Great Britain, and a resident of Adelaide, South Australia, have invented certain new and useful Improvements in a Combined Reciprocating Concentrator and Amalgamator, of which the following is a specification.

My invention relates to an improved combined reciprocating amalgamating and concentrating machine for auriferous ores, the special object of the invention being to provide means whereby the gold and gold-bearing particles may be readily separated from the waste or gangue in crushed ore.

I construct a sloping tray or table which is incased in a suitable frame, the said frame being connected with mechanical gearing for the purpose of giving a backward and forward reciprocating motion thereto. The motion of the table is in a horizontal plane and the traverse is in the direction of the slope of the tray or table. Within the tray or table certain riffles are arranged, and consist, essentially, of recesses or wells for mercury, beyond which riffle-plates are arranged. The mercury-wells are covered with a screen of fine gauze-wire, by aid whereof the mercury is continually kept clean and in a fit state for amalgamation with the gold.

In order that my invention may be readily understood, I will now proceed to describe the same in detail, having reference to the accompanying illustrative drawings, in which—

Figure 1 is a longitudinal vertical section of table applicable to a stamp-mill, showing details of construction. Fig. 2 is a part plan of same, showing alternative driving-gear and bearings.

Similar letters of reference are used to denote like parts wherever they occur in the drawings.

In my appliance A is the framework or foundation on which the superstructure rests and upon which brackets, such as B', are arranged for the purpose of supporting the horizontal slide-rods B, which work within the guides B². Within a suitable table-frame C⁵ I arrange a table consisting of one, two, or more lengths, as more particularly illustrated in Fig. 1 of the drawings. The said table or parts thereof are so constructed as to enable

them to be set at an angle to suit the quality of the ore it is intended to treat. At convenient intervals along the tables and at right angles thereto the mercury-wells C' are arranged, Fig. 1. Immediately above the mercury-wells and extending backward therefrom the gauze-wire screens C² are placed. A narrow opening or space is left between the surface of the trays and the under side of the gauze screen, as shown.

C³ is a riffle-plate, preferably having its upper part so arranged as to form a horizontal step or surface, as illustrated, and there is also a space between this riffle-plate and the edge of the screen. A splash-board is attached to the riffle, as shown at C⁴.

In order to prevent any jarring of the machine when at work, I provide suitable buffering-gear, such as springs. (Illustrated at L' in Fig. 1 of the drawings.)

The method of applying my invention is as follows: The tables and riffles are amalgamated in the ordinary manner and mercury is placed in the various mercury-wells C'. A backward and forward horizontal reciprocating motion is imparted to the tables by means of the driving-wheel D, acting through the crank J and link F, connected by rock-shaft J' to bracket H. The crushed ore is then allowed to flow from the battery-launder or other source of supply along the surface of the table C. The heavy coarse gold in transit down the table passes under the screen C² and enters direct into the mercury-well C'. The finer gold passes over the gauze screens C² and comes into contact with a portion of the mercury which is slopped or splashed from the mercury-wells C' through the meshes of the screen C² or through the space between the screen and riffle at each motion of the machine. As the mercury flows back again into the mercury-well C', either through the meshes of the gauze or through the spaces at the front or back thereof, it carries the amalgamated gold with it. Other particles of gold are retarded by the riffle splash-boards C⁴, and in falling back are retained by the amalgamated step of the riffle-plate C³. The constant agitation of the mercury and its frequent passage through the gauze-wire screen keeps the surface bright and clear, so that it readily amalgamates with the gold. All the

fine gold and gold-bearing particles which escape the first riffle are again treated by subsequent riffles in the manner above described. The meshes of the screens and the height of the riffle splash-boards are adjusted to suit the fineness of the gold it is desired to save at any particular part of the table, and the spent ore or waste flows away through the outlet R.

10 It will be noticed from Fig. 1 that the table is formed of a series of pieces, each being bent to form a mercury-well and a riffle-plate and each being further bent to provide a flange for the attachment of the splash-board. The
15 sections are bent up and the attachment between the sections is made at a point on the side of the riffle-plate opposite to that upon which the screen is located.

Having now particularly described and as-
20 certained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a reciprocating amalgamator, the combination of the inclined table, the mercury-
25 pockets therein, the perforated plates extending over the pockets and substantially parallel with the table to overlie the same with a space between the said table and the plate at

its upper or forward end, and the riffle-plate extending up from the table with a space between it and the lower edge of the perforated plate, said riffle-plate having an overturned upper part extending over the perforated plate, substantially as described. 30

2. In combination in an amalgamator, a series of sheet-metal sections forming a table each section being bent downwardly to form a mercury-well C' and bent upwardly to form a riffle-plate with a screen arranged above the mercury-well and extending over the same
40 and also over a part of the table-bottom, said screen having an opening or passage between it and the table-bottom and having an opening between its edge and the face of the riffle-plate, the next section of the table being connected upon the opposite side of the riffle-
45 plate from that upon which the screen is located, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in the
50 presence of the subscribing witnesses, this 21st day of October, 1896.

ROBERT TAYLOR.

Witnesses:

CATHERINE HOGAN,
JOHN HERBERT COOKE.