

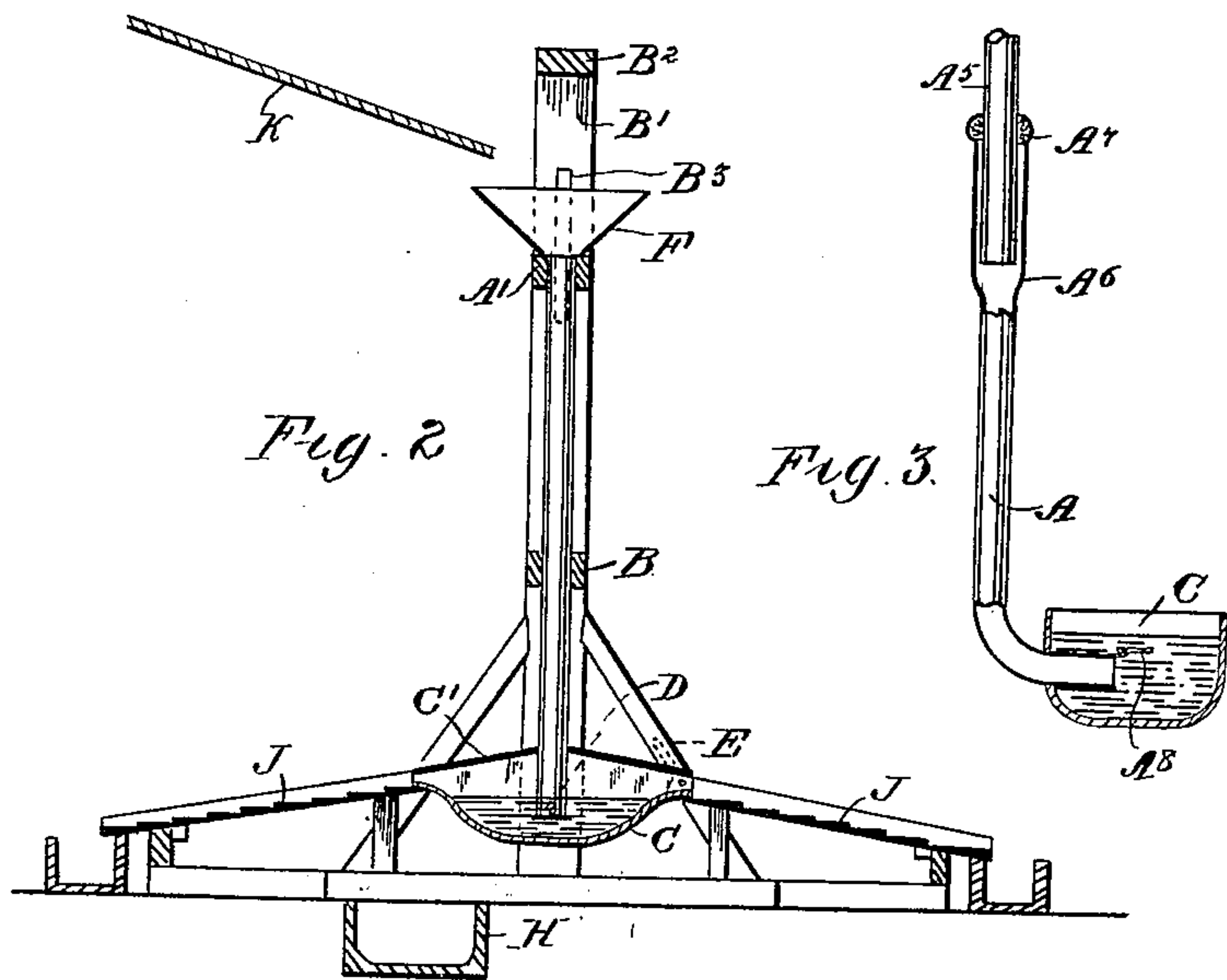
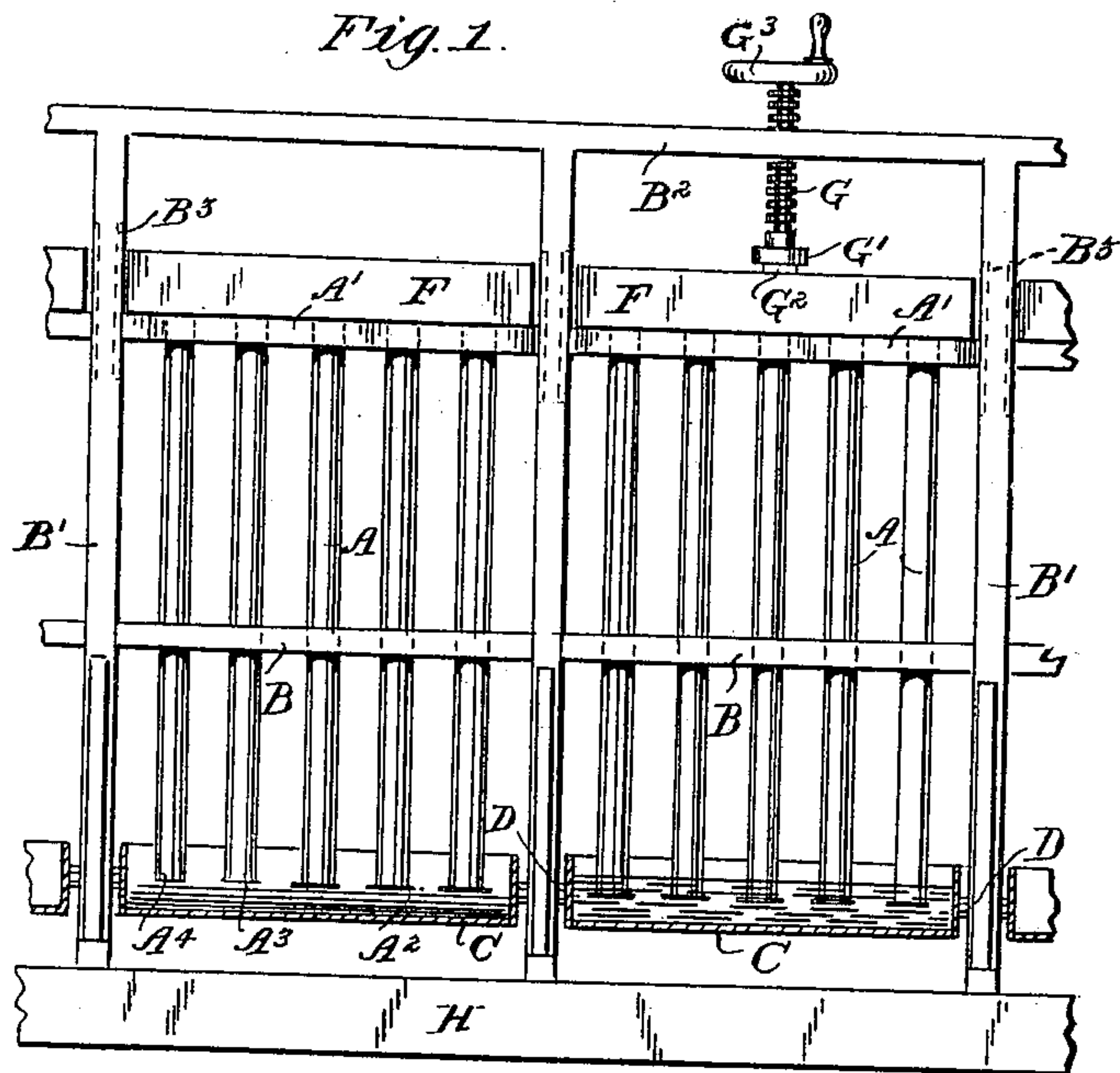
No. 635,236.

Patented Oct. 17, 1899.

H. S. COPE.
AMALGAMATING APPARATUS.

(Application filed Mar. 16, 1898.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY SPENCER COPE, OF MELBOURNE, VICTORIA.

AMALGAMATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 635,236, dated October 17, 1899.

Application filed March 16, 1898. Serial No. 674,111. (No model.)

To all whom it may concern:

Be it known that I, HENRY SPENCER COPE, a subject of the Queen of Great Britain, and a resident of No. 266 Collins street, Melbourne, in the Colony of Victoria, have invented a certain new and useful Amalgamating Apparatus, of which the following is a specification.

The object of this invention is to provide an amalgamating apparatus by which pulverized auriferous earths or tailings with water are caused to pass through a body of mercury in such a manner that every particle of free gold contained in the material will be thoroughly distributed and come in contact with the mercury (which is kept in a live state) and be thus recovered as amalgam, the essential feature being the employment of an adjustable pipe or pipes or passage or passages of such length and diameter and arranged relative to the mercury so that the volume of material passing through it or them will cause a displacement of and find a passage through the mercury in an even and regular manner. At the same time the mercury is kept in a state of agitation. My invention thus obviates the necessity of employing motive power to force the material through the mercury.

In order to make my invention clear, I will now refer to the accompanying sheet of drawings, in which—

Figure 1 shows a side elevation of the apparatus, a portion being in section. Fig. 2 shows a vertical transverse section of the apparatus, and Fig. 3 an alternative arrangement of a part.

A A show pipes which pass through and are secured in sliding plates A' and pass through fixed guide-plates B, secured to standards B'. The bottom ends A² of the pipes A are flanged and arranged to project into an open dish or receptacle C, set beneath the same. The tops of the pipes are in communication with hoppers F, which are mounted upon the sliding plates A' and into which the pulverized auriferous material and water is fed from the chute K. The sliding bars A' have tongues which project and are arranged to move in slots B³ in the standards B'. Means are provided for raising or lowering the pipes, such as the following: a screw-rod G, which terminates in a box G', set upon a cross-plate G², secured to the top of the hopper. The rod

passes through top plate B² of the fixed frame. A hand-wheel G³ is set at the top of the screw-rod, so that on turning the said wheel the hopper and pipes will be lowered or raised at will. I may provide cog-wheels on the slide-bar to work in fixed racks, so as to obtain an even rise and fall of the pipes. It will be understood that other means for raising and lowering the pipes might be employed in lieu of the above.

The receptacles C are pivoted to the standards B' by pins D, set at the ends of the receptacles, and a spring-catch having a pin which projects into a hole formed in the end of the dish is set upon the stay of the standards at E to hold the receptacle C in a horizontal position. Any suitable form of catch may be employed for this purpose.

J represents a riffle-table over which the sludge or material freed of its gold contents passes and by which any mercury that may escape from the receptacle C will be saved in the riffles or wells.

H represents a gutter or channel into which the contents of the receptacle C when the mercury is surcharged with gold is poured.

H might be a removable trough.

The pipes A may be bell-mouthed at the bottom, as at A³, or plain, as at A⁴; but a flange is preferable, and I might employ in place of a number of pipes, as illustrated, a single pipe or passage of a more or less rectangular form in each panel of the apparatus.

The receptacle C will be closed by a cover C', and similarly the hopper will be covered and locked in the ordinary manner.

In practice I have found that pipes two feet long of an inch and a half diameter inserted into the mercury to a depth of about an inch and a half will work well; but I do not confine myself to these proportions.

In operation the material containing the free gold is fed into the hoppers F, passes down the pipes A into the mercury-receptacles C, where the free gold is held by the mercury, and the waste material, with the water, passes on to the riffle-tables J and is conducted away in the ordinary manner. The depth of pipes in the mercury is adjusted so that the material will pass through in an even and regular manner, while at the same time keeping the mercury in a live and active con-

dition. When the mercury is saturated with gold, the amalgam may be poured out of the receptacle C into the trough H by releasing the catch E and turning the dish upon its pivots D, the table J being first removed to allow of this operation. Fresh mercury is then supplied to the receptacle, and the gold may be recovered from the amalgam in the trough H in the ordinary manner.

10 In Fig. 3 I show an alternative arrangement. In this case the pipe A is conducted into the receptacle C at its side or end, (or in some cases at its bottom,) the said pipe being adjustable in length by means of sliding portion
15 A⁵, which is arranged to insert into the enlarged portion A⁶ and in which a packing-ring is provided at A⁷ to prevent the escape of material. The portion A⁵ communicates with a hopper, and means are provided for
20 raising and lowering it, as before. A⁸ is a baffle-plate set above the exit of the pipe A and which causes the material to be thoroughly distributed through the mercury.

Having now particularly described and as-
25 certained the nature of my said invention and

in what manner the same is to be performed, I declare that what I claim is—

In an amalgamating apparatus and in combination with the frame, a plurality of pipes A, arranged vertically in said frame, and having their lower ends flanged as described, guide-plates B, and sliding plates A' having a limited vertical movement, a chute K, and a hopper F through which the upper ends of the pipes pass and into which the pulverized
30 auriferous material and water is adapted to be fed from said chute, a mercury-containing receptacle C pivotally arranged below said pipes, a screw-spindle for raising and lowering said pipes, riddle-tables J located one at
35 either side of said receptacle and a trough H to receive the amalgam, submitted as described.

Signed at Melbourne, in the Colony of Victoria, Australia, this 7th day of February, 45
1898.

HENRY SPENCER COPE.

Witnesses:

C. W. WADE,

A. HARKER.