

(No Model.)

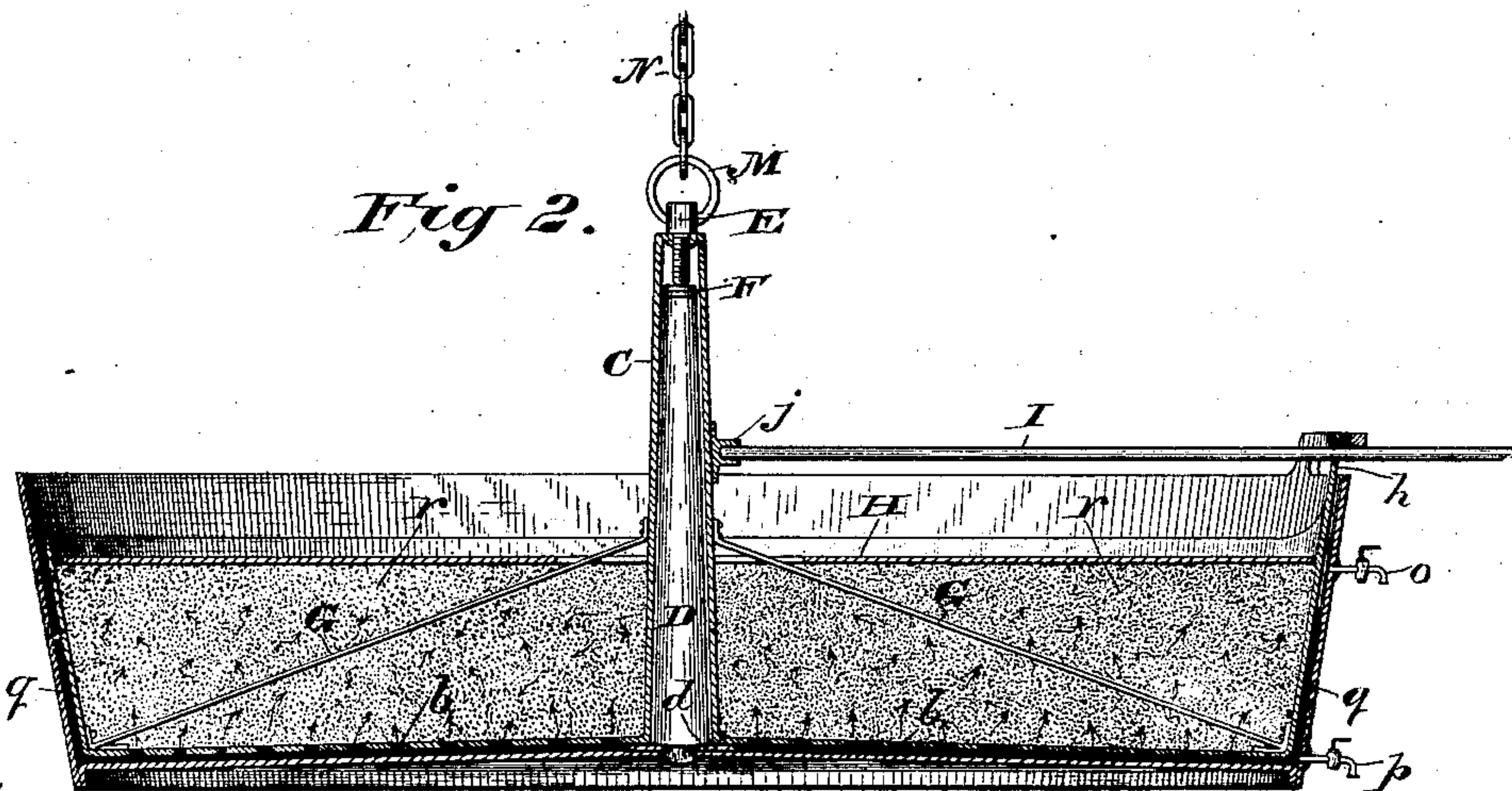
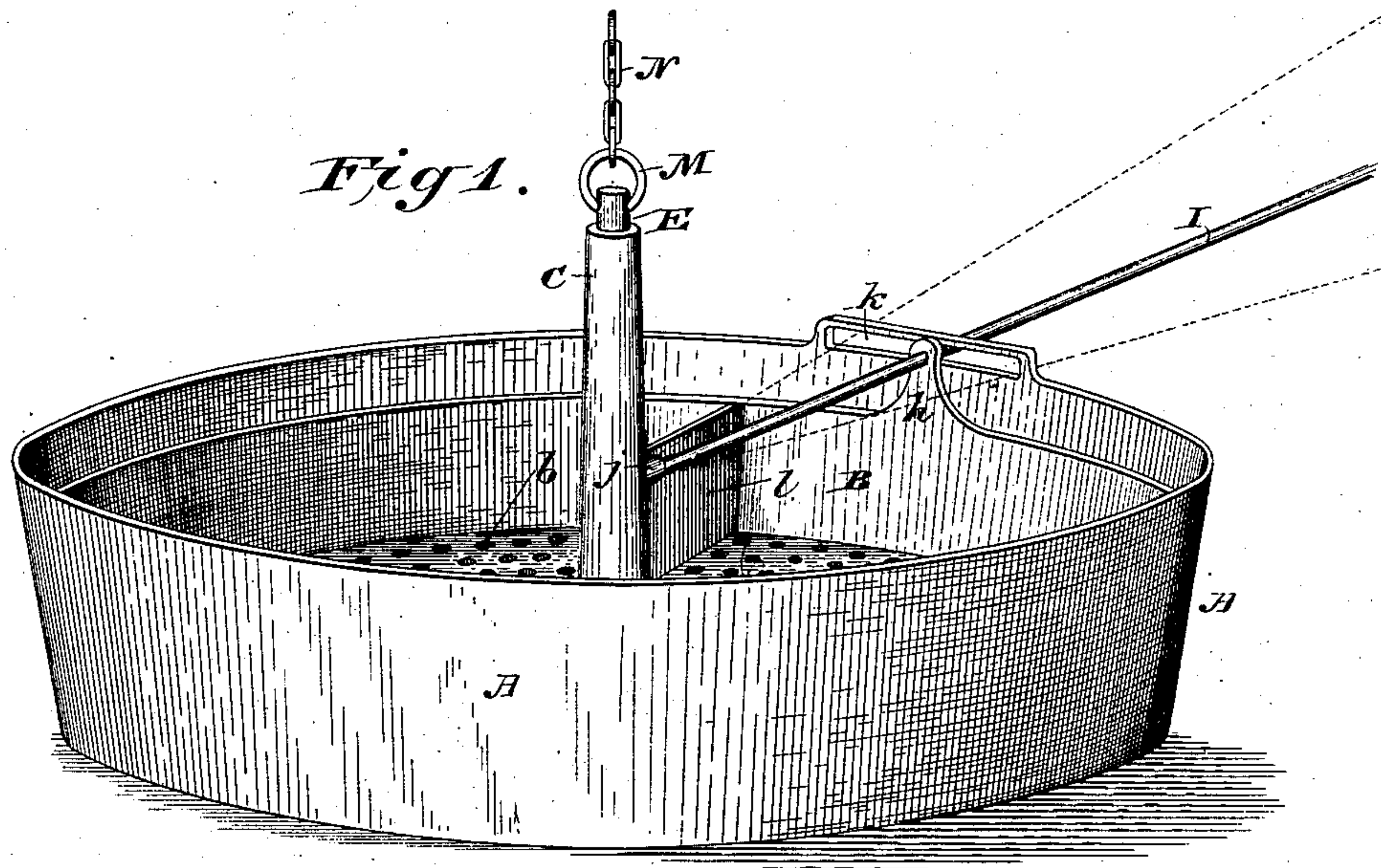
2 Sheets—Sheet 1.

T. R. TIMBY.

COMBINED AMALGAMATOR AND SEPARATOR.

No. 281,651.

Patented July 17, 1883.



Attest  
Geo. T. Smallwood.  
Geo. Wheelock

Inventor  
Theodore R. Timby  
BY *Knigh & Bro.*  
attys

(No Model.)

2 Sheets—Sheet 2.

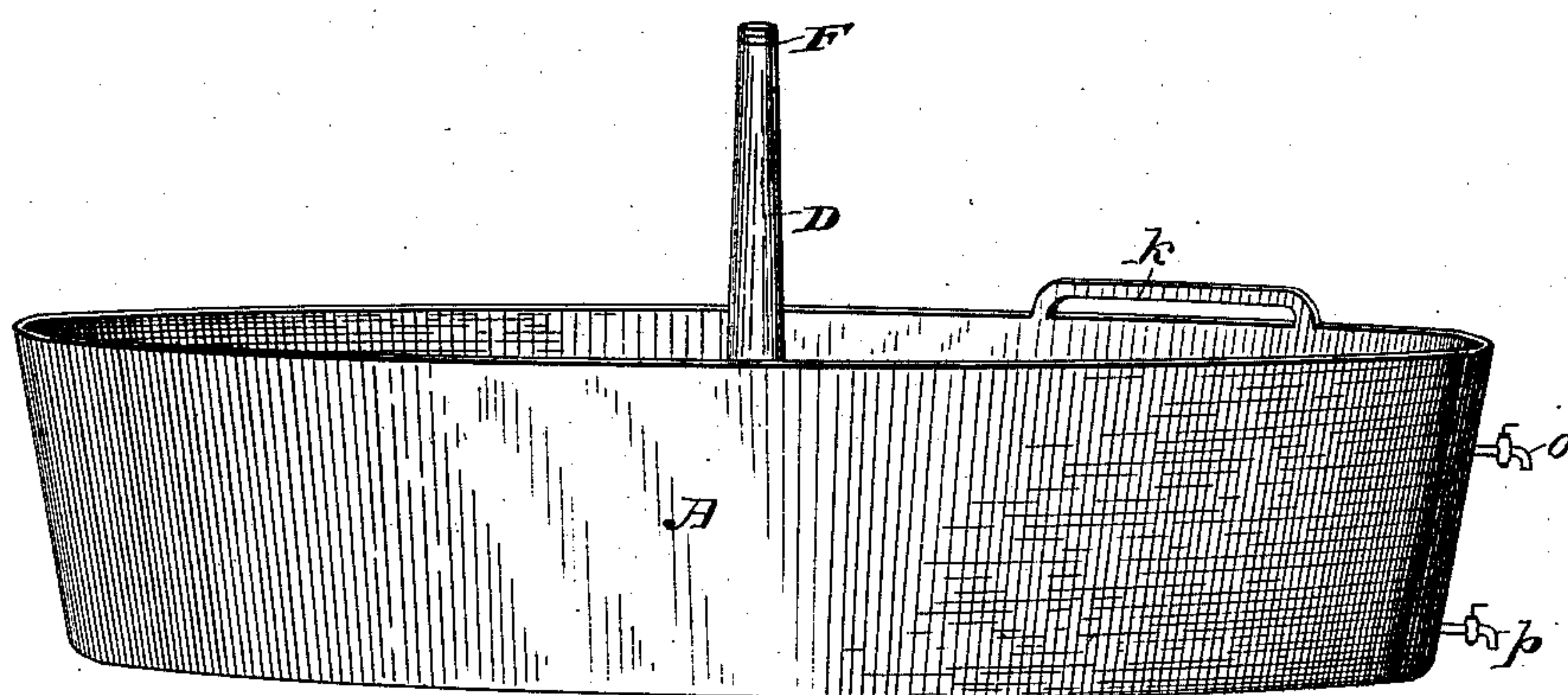
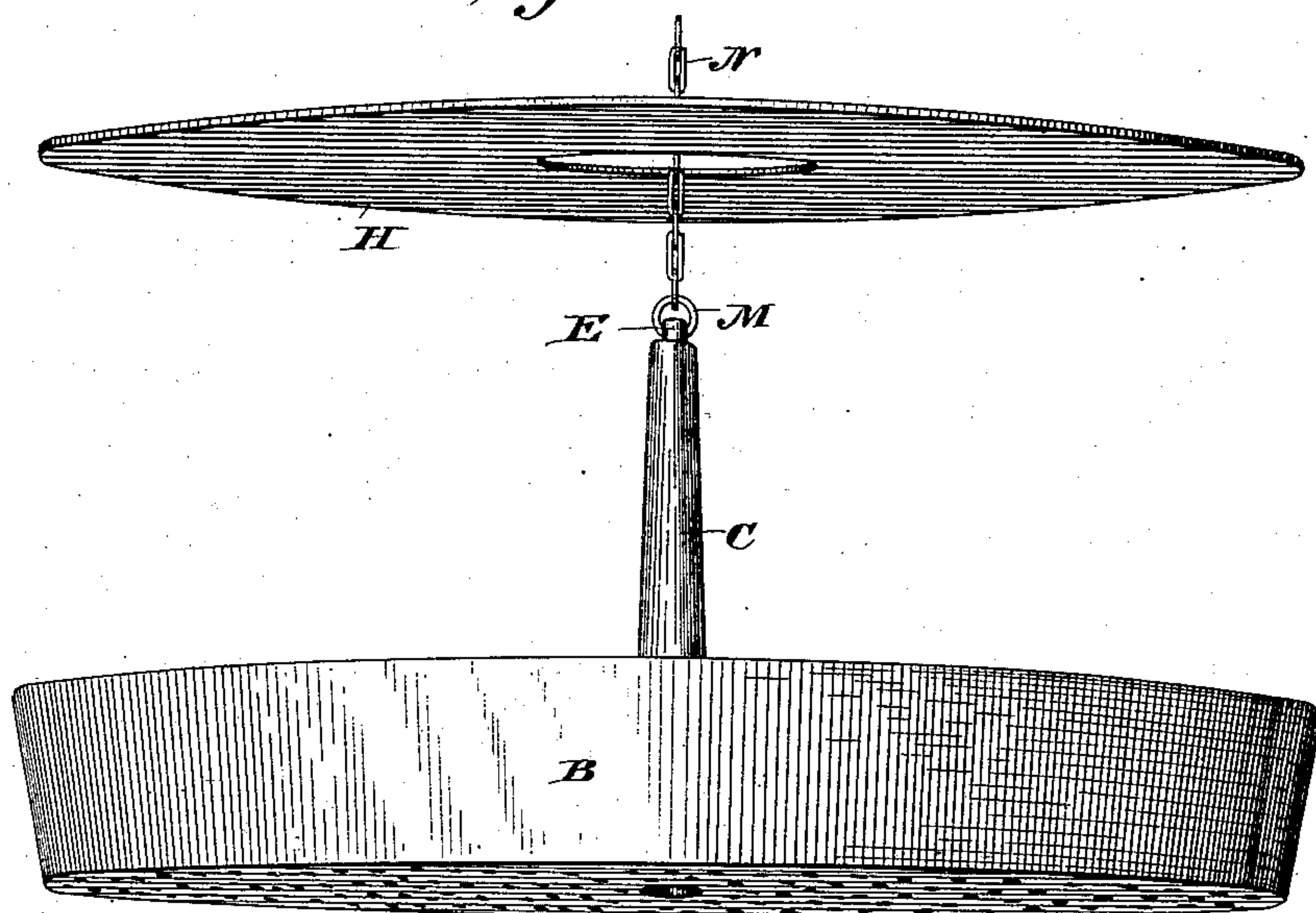
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*Fig 3*



*Attest:*  
*Geo. T. Smallwood,*  
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*Inventor*  
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# UNITED STATES PATENT OFFICE.

THEODORE R. TIMBY, OF NYACK, NEW YORK.

## COMBINED AMALGAMATOR AND SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 281,651, dated July 17, 1883.

Application filed May 17, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, THEODORE R. TIMBY, a citizen of the United States, residing at Nyack, in the county of Rockland and State of New York, have invented certain new and useful Improvements in a Combined Amalgamator and Separator, of which the following is a specification.

My invention relates to that class of ore separators and amalgamators in which the ore, previously reduced to powder or pulp, is brought in separate charges into contact with the mercury of the amalgamating-bath agitated therein and the exhausted gangue removed therefrom to give place to a new charge of powdered ore, this process being repeated until the amalgam is sufficiently rich, when it is drawn off for the extraction of the precious metal by any usual method.

My invention particularly consists in a separating and amalgamating apparatus composed of an outer pan or vessel, in which the quicksilver is placed, and having in its center a pivot for a second pan or vessel adapted to be placed interior to the first. The interior vessel is provided with a perforated bottom, so that when the said vessel is charged with ore pulp or powdered ore and depressed within the outer pan the quicksilver in said outer vessel is forced into the mass of ore. Water is supplied to the mass to aid in the separation and amalgamation and a cover placed over the ore and within the interior vessel to aid in pressing the same down into the quicksilver bath. Means are also provided for shaking the interior vessel to aid in the precipitation of the heavier particles of the ore for the purpose of bringing them into contact with the quicksilver; also, for supporting and adjusting the interior pan, or for its removal for the purpose of dumping the gangue, all which will be more fully described and claimed in the sequel.

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

Figure 1 is a perspective view of my improved separating and amalgamating apparatus. Fig. 2 is a vertical section of the same.

Fig. 3 is a perspective view, showing the parts detached.

A is the outer pan or vessel; B, the inner vessel, perforated at bottom, as shown at *b*, and provided with central conical supporting-socket, C, adapted to surround a central pivot, D, made fast to the outer vessel, A, and thus to support the vessel B within the vessel to prevent contact and friction between the surfaces of the two vessels.

At top of the socket C, I place a screw, E, and upon the top of pivot D one or more washers, F, adapted to receive the end of the screw, so as to prevent the same from wearing on the top of the pivot D. The washers F may be replaced as often as desired. By means of this arrangement I am enabled to raise or lower the inner vessel within the outer, so as to regulate the depth of insertion of the ore into the quicksilver. If desired, the inner vessel may be so far lowered as to rest at bottom upon a flange or washer, *d*, surrounding the pivot D, said flange serving in such case as an additional wearing-surface for the inner vessel.

Braces G, extending from the socket C to the side of the inner pan, serve to support the outer portion of the pan under the weight of ore.

H is a cover, made of such size as to enter the inner pan, and, by being pressed down, to more thoroughly press the ore into the quicksilver and force the quicksilver into the ore.

One side of the inner pan is provided with a lip or projection, *h*, pierced to receive a lever, I, which is adapted to enter a socket, *j*, prepared for it on the socket C.

The outer pan, A, is also provided with a slot, *k*, to allow the free play therein of the lever. If desired, however, this slot in the outer pan may be dispensed with and the lever so arranged as to make a complete circuit of the pan when shaking the same.

Radially within the inner pan is placed a partition or web, *l*, to insure the movement of the mass of ore with the inner pan when shaken.

At M is shown a ring attached to the top of the socket C, or to the screw therein, to permit of the removal of the inner pan by a derrick, the chain of which is shown at N.

*o* represents a cock for drawing off the wa-

100



ter, if desired, and *p* a cock for drawing off the amalgam.

The operation of the apparatus is as follows: Having placed a quantity of quicksilver within the outer pan, as shown at *q*, the inner pan, B, containing ore *r*, is lowered by means of a derrick within the amalgamating-pan and pressed down into the quicksilver, which by consequence rises through the perforations *b* into the body of the ore, as shown by the arrows. The cover is then placed over the ore and forced down to still further assist in the intermingling of the ore and quicksilver, if desired. The lever *I* is passed through the slot *k* and lip *h* and into the socket on the socket C, and by means of this lever the inner pan is given a vibratory motion around the central pivot to aid in bringing each heavy particle of the ore into contact with the mercury. The arrangement of this shaking device is such that at each end of the stroke of the lever the pan and its contents will be given a slight concussion, which aids materially in separating the heavier parts of the ore and shaking it down into contact with the quicksilver. When after a suitable time it is thought that all or nearly all of the precious metal has been absorbed by the quicksilver, the lever is removed and the inner pan lifted by means of the derrick. When a little above the pan the vessel B may be struck sharply to fully discharge the amalgam into its holder A. The vessel B is then conveyed away and the gangue dumped out and the vessel again charged with ore. The operation is thus continued, the same quicksilver being used until it has been well charged with the precious metal and a rich amalgam produced. The water used in the

process is then tapped off through the cock *o* and the amalgam through the lower cock, this latter product being carried away for the extraction of the precious metal in any usual or preferred manner.

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

1. A separating and amalgamating apparatus consisting of an outer pan or vessel to contain mercury and an inner perforated pan having means for shaking it, and a radial wing or partition fixed in said inner pan and compelling the movement of the contained ore therewith, as described.

2. The combination of the outer pan, A, inner pan, B, post D, socket C, and the partition *l*, fixed to the pan B, and socket C, substantially as and for the purposes set forth.

3. In an ore-containing pan having a central socket-support, the braces adapted to support the sides thereof from the central socket, as described.

4. The combination of an outer pan to contain mercury, an inner perforated pan to contain ore, a central post rising from the outer pan, a socket attached to the bottom of the inner pan and fitting over the post, and a screw forming an adjustable support between the socket and the post, so as to regulate the height of the inner pan, and thereby its immersion in the mercury in the outer pan, substantially as described.

THEODORE R. TIMBY.

Witnesses:

A. E. TRUMBULL,  
H. E. KNIGHT.