

J. C. DICKEY.  
Ore Amalgamator.

No. 43,574.

Patented July 19, 1864.

Fig. 1.

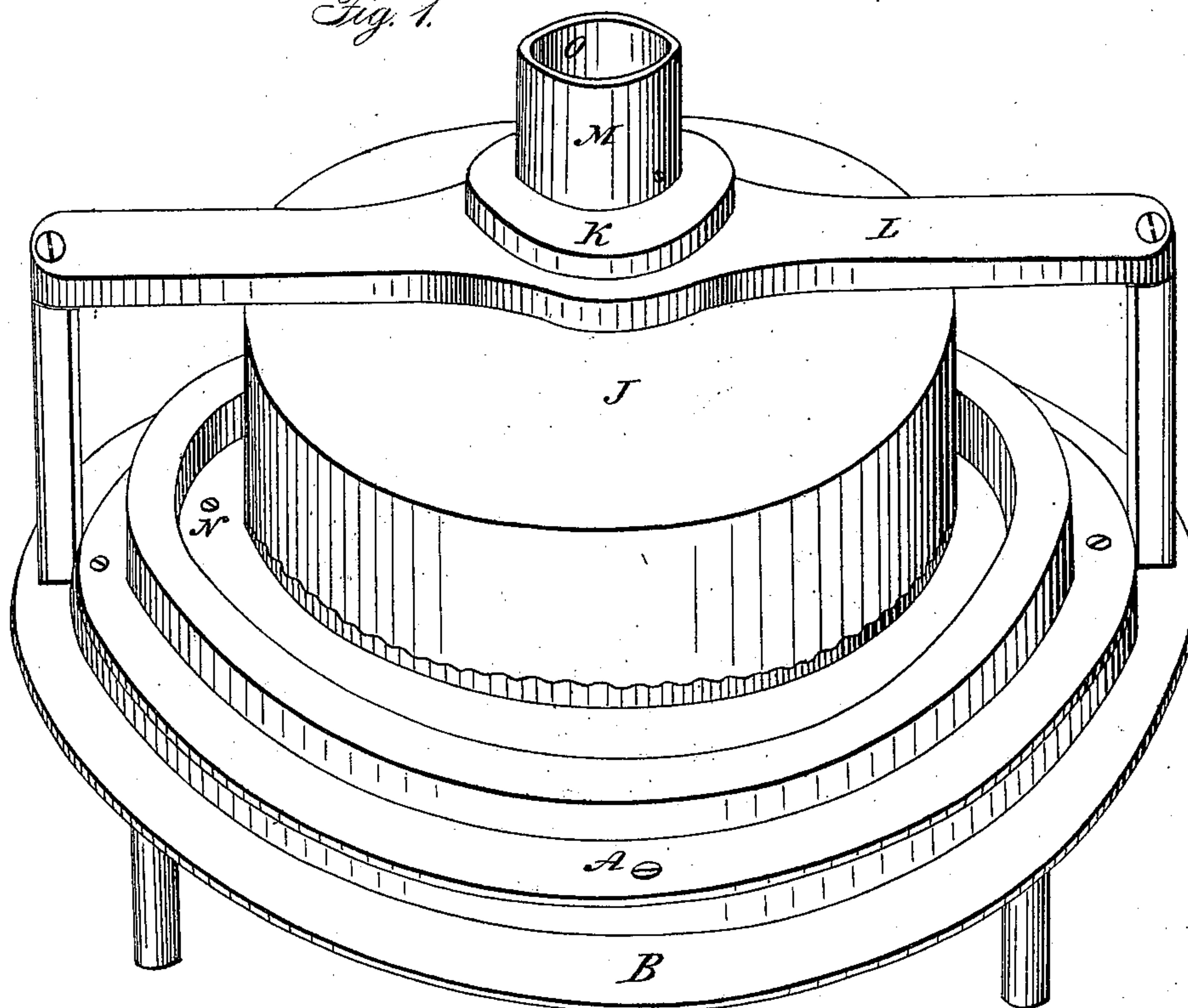
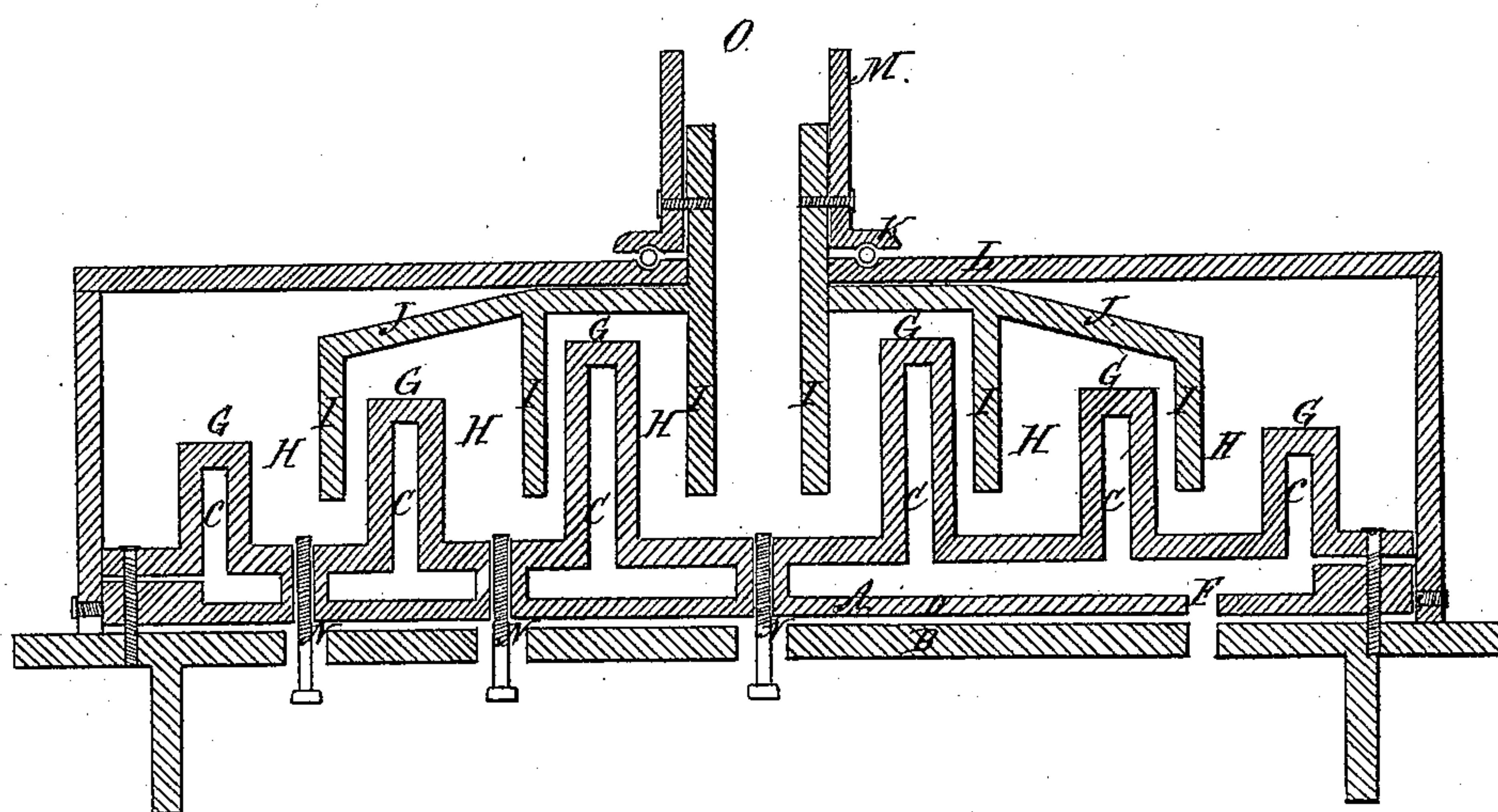


Fig. 2.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## IMPROVED APPARATUS FOR WASHING AND AMALGAMATING GOLD.

Specification forming part of Letters Patent No. **43,574**, dated July 19, 1864; antedated July 11, 1864.

*To all whom it may concern:*

Be it known that I, JULIUS C. DICKEY, of Saratoga Springs, in the county of Saratoga and State of New York, have invented a new and improved Mode of Constructing Machinery for Washing and Amalgamating Gold; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in making the machine A, Figure 2, with the recesses C, and introducing into said recesses hot water, steam, hot air, &c., for the purpose of aiding in washing and amalgamating gold.

Fig. 1 is a perspective view, and Fig. 2 a cross-section, of the machine A, the machine being made of iron or other known material, and secured to the frame B.

The bottom D, Fig. 2, of the cone E is firmly secured in position by means of screws, and the hot water is introduced into the recesses C through the hole F by means of a conductor connected with a vessel containing hot water. It is also contemplated introducing hot water, &c., into the recesses at any other part of the cone E, and have a furnace located under the cone for the purpose of heating the water in the recesses. The introduction of hot water, &c., into the recesses C has an expansive effect upon the mercury and gold in the channels H, and therefore renders the amalgamation of the gold much more certain. The circular projections G, Fig. 2, which form the circular channels H and recesses C, I make of any desirable height and number, each succeeding projection from the center of cone E being made not as high as the one preceding, by which arrangement of said projections the water containing pulverized quartz-bearing gold will pass through the channels by their own force and action. These circular projections G may be, however, made all of an equal height, except the one in the center of the cone, and the water forced through the channels by means of the large body of water located in the center of the cone, and the action of the circular projections I, Fig. 2, on the under side of the rotating cap J. The water, &c., may pass out of the outer or largest of the channels H through an opening made in the side of the channel, or otherwise,

the channels being made of any desirable form and size. The circular projections I, Fig. 2, made on the under side of cap J, rotate in the channels H, and force the water, &c., containing gold in contact with mercury located in the bottoms of the channels H, and thereby secure the amalgamation of the gold. It is contemplated making projections on the projections I, so as to agitate the water, &c., in the channels, and thereby assist in washing and amalgamating the gold.

To the cap J, Fig. 2, I secure the circular support K, said support K being made with a circular recess on the under side, and secured to the cap J after the support L is put on the cap J, the support L being also made with a circular recess on its top to correspond with that made on support K, the support L being supported at either end by the frame B, and the cap J being made to rotate on round balls located and working in the circular recesses in and between the supports K and L. It is also contemplated making the cap J to extend beyond the outer channel, and have it rotate on rollers, wheels, &c., secured to the outer projection of the cone E. The pulverized quartz, with the water, &c., is allowed to run into and through the machine through the opening O of the cap J.

In order to give the cap J a rotating motion, power may be applied to the top of the cap, as shown at letter M, by means of a belt; or a cog-wheel may be secured to the cap, as shown at letter M, working in a cog-wheel secured to a shaft secured in bearings on the support L.

The cap J may be raised or lowered by means of set-screws or other suitable arrangement.

When it is desirable to remove the amalgam in the channels, the screws or stop cocks N, Fig. 2, are removed, and the amalgam drawn off into a receptacle.

In some cases I contemplate introducing hot water or steam, or heating water with quartz and mercury, (and when desirable with a suitable chemical composition,) in an airtight receptacle before I allow it to pass through the machine, so as to secure a more perfect amalgamation of the gold. A receptacle or drum may be, however, made or located for this purpose in the center of the cone E.

The said receptacle for heating the water, quartz, &c., before passing through the machine, I contemplate making in the form of a drum, and have it revolve, and made with projections running lengthwise or otherwise on the inside of the drum, to force the mercury in contact with the quartz, gold, &c., as the drum revolves. I contemplate having the quartz remain in this air-tight revolving drum (which may revolve in or over a furnace or fire) about a half-hour, after which it is allowed to pass through the machine A.

I make a working machine with about twelve of the channels H, and when deemed necessary I allow the quartz, &c., to run through two of the machines, in order to secure a more perfect amalgamation of the gold.

This machine is similar in some respects to that patented by me August 28, 1860, but will be found to be much more efficient, by reason of the addition of the recesses C, for the reception of hot water, &c.

It is manifest that the form and arrangement of the parts may be somewhat varied without a departure from the spirit of my invention.

I claim—

Making the machine A with the recesses C, for the purposes set forth.

JULIUS C. DICKEY.

Witnesses:

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