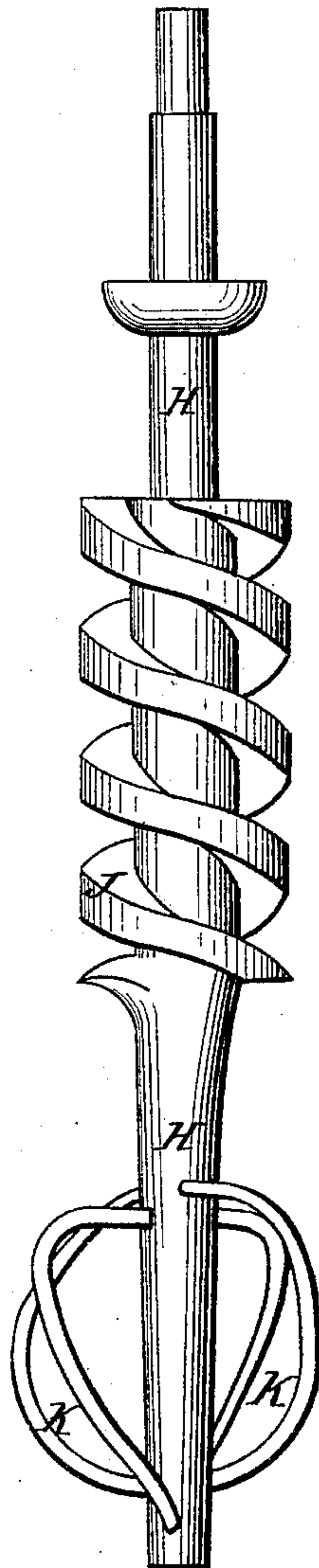
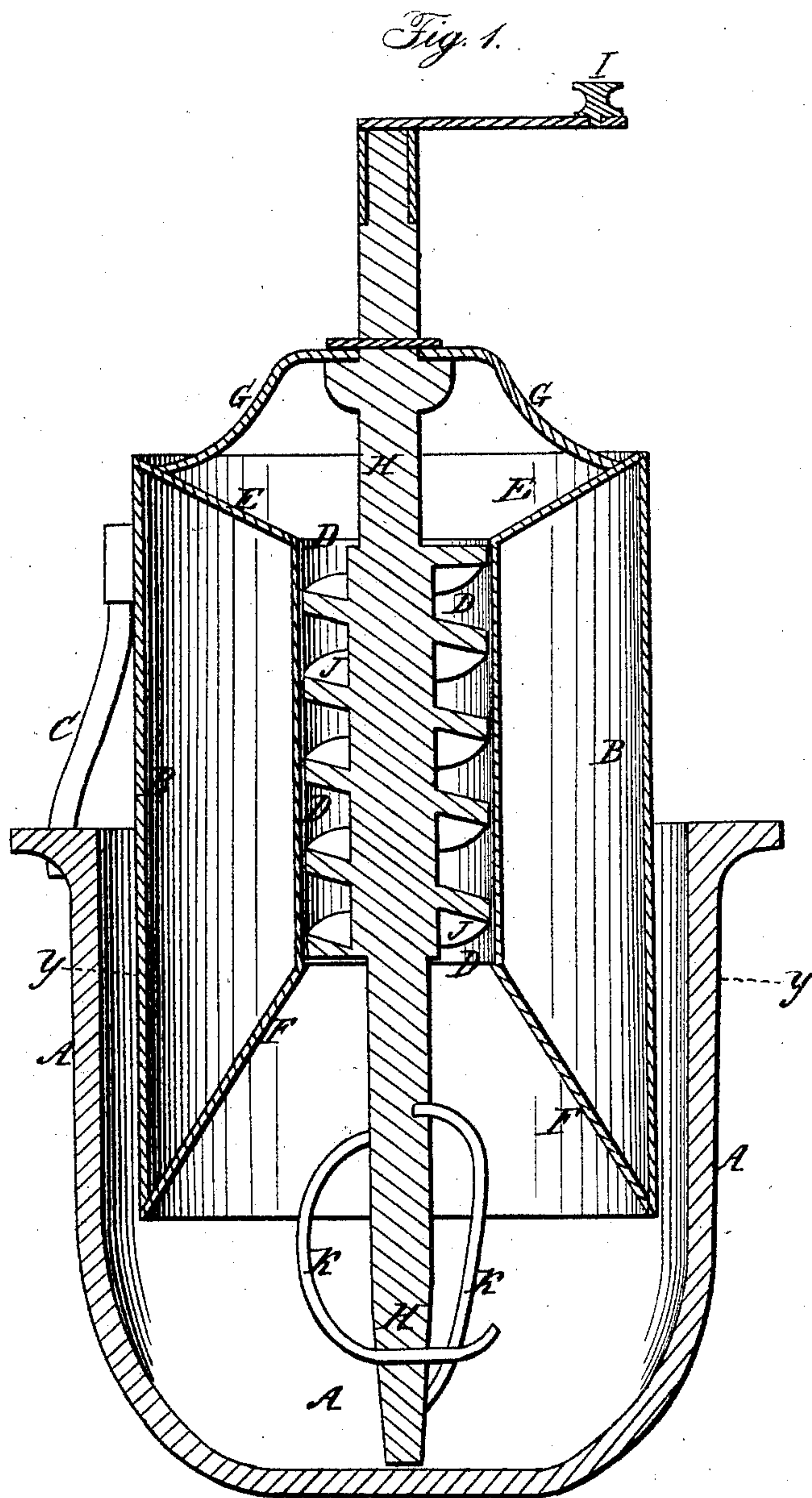


W. H. BUTLER.  
Dry Amalgamator.

No. 49,975.

Patented Sept. 19, 1865.



Witnesses:

*Edward Bebb*  
*Geo. E. Brown*

Inventor:

*W. H. Butler*  
*By atty. A. B. Strongman*

# UNITED STATES PATENT OFFICE.

W. H. BUTLER, OF CHICAGO, ILLINOIS.

## IMPROVED AMALGAMATING APPARATUS.

Specification forming part of Letters Patent No. 49,975, dated September 19, 1865.

*To all whom it may concern:*

Be it known that I, W. H. BUTLER, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Amalgamating Gold; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a vertical section through an apparatus which successfully accomplishes the object; and Fig. 2 represents a detached view of the feeding-screw and stirrer, by which the material is forced into the amalgam and stirred while held under the pressure of the feeder.

My invention consists in using a forced feed and holding the quartz down in the amalgam by pressure while it is stirred and mixed therewith without exposing any portion of it at the surface of the amalgam until it is ready to leave the amalgam.

To enable others skilled in the art to make, use, and apply my invention, I will proceed to describe the apparatus by which I have successfully carried it out.

A is an iron or other metal reservoir or vessel for containing the amalgam, which may rise up to or near the dotted line *y y*. If lead be used as the amalgam, then heat is applied to the bottom and sides of the vessel to keep it in a fluid state. If quicksilver be used, then the heat is dispensed with.

B is a metallic case, supported upon the vessel A by the brackets C, said case extending down inside of the reservoir A below the surface of the amalgam. This case is made of an exterior and interior shell, leaving a cylindrical opening, D, through its center. Its upper head, E, is a section of an inverted cone, so as to form a funnel, into which the quartz is placed, and its lower head, F, is a section of an upright cone, so as to form an inverted cup for containing the quartz after it is forced into it, and is further designed for holding the quartz under pressure submerged in the amalgam.

In a bridge-tree, G, which spans the top of the funnel, is supported a shaft, H, which may be turned by a crank, I, or any other suitable mechanism. This shaft passes down through the cylindrical opening D, and has upon it a screw-thread, J, or its equivalent, for taking and forcing the quartz from the funnel or hopper down into the amalgam. On the lower end of the shaft H there are stirrers K, for thoroughly mixing the quartz with the amalgam. The quartz carried down by the screw-feeder J spreads when it arrives at the apex of the inverted cup at the bottom of the case B, and is there held submerged in the amalgam, and can only rise to the surface of the amalgam after it has passed below or under the lower edge of the case B, the gold having incorporated itself with the amalgam, from which it is afterward separated by any of the usual well-known processes.

The case B may be made in two parts for the convenience of making, or for its ready removal and replacement.

The pot, vessel, or reservoir A may be covered to keep in the heat when heat is applied in the amalgamating process, and this, together with the quartz floating upon its surface, will prevent to a great extent the oxidization of the lead.

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

Feeding the quartz into the amalgamating-vessel by a forced feed and holding it immersed or submerged therein by pressure while it is thoroughly stirred and mixed with the amalgam, using therefor an apparatus constructed and operating substantially as herein described and represented.

W. H. BUTLER.

Witnesses:

GEO. W. ELLIS,  
W. L. BUTLER.