

H. P. RUSS.
Amalgamator.

No. 23,313.

Patented March 22, 1859.

Fig. 2.

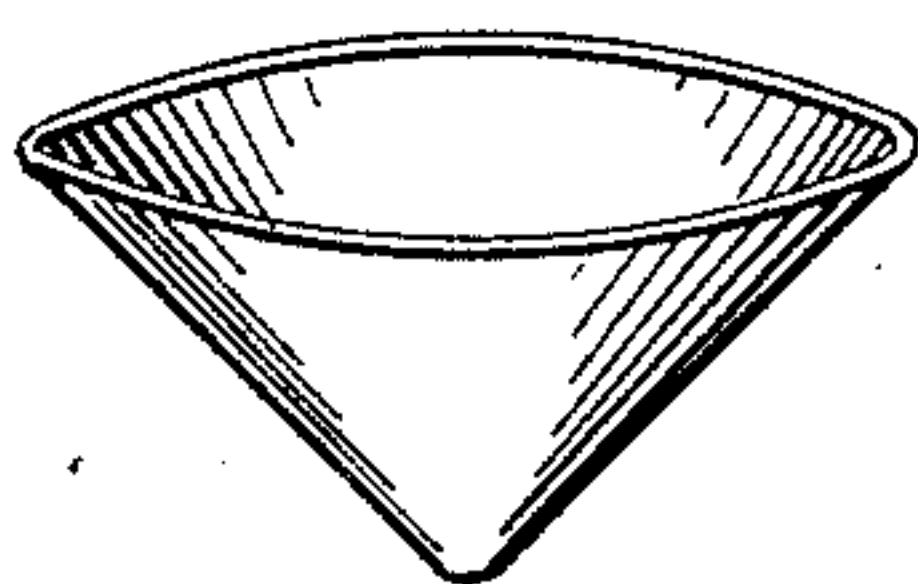


Fig. 1.

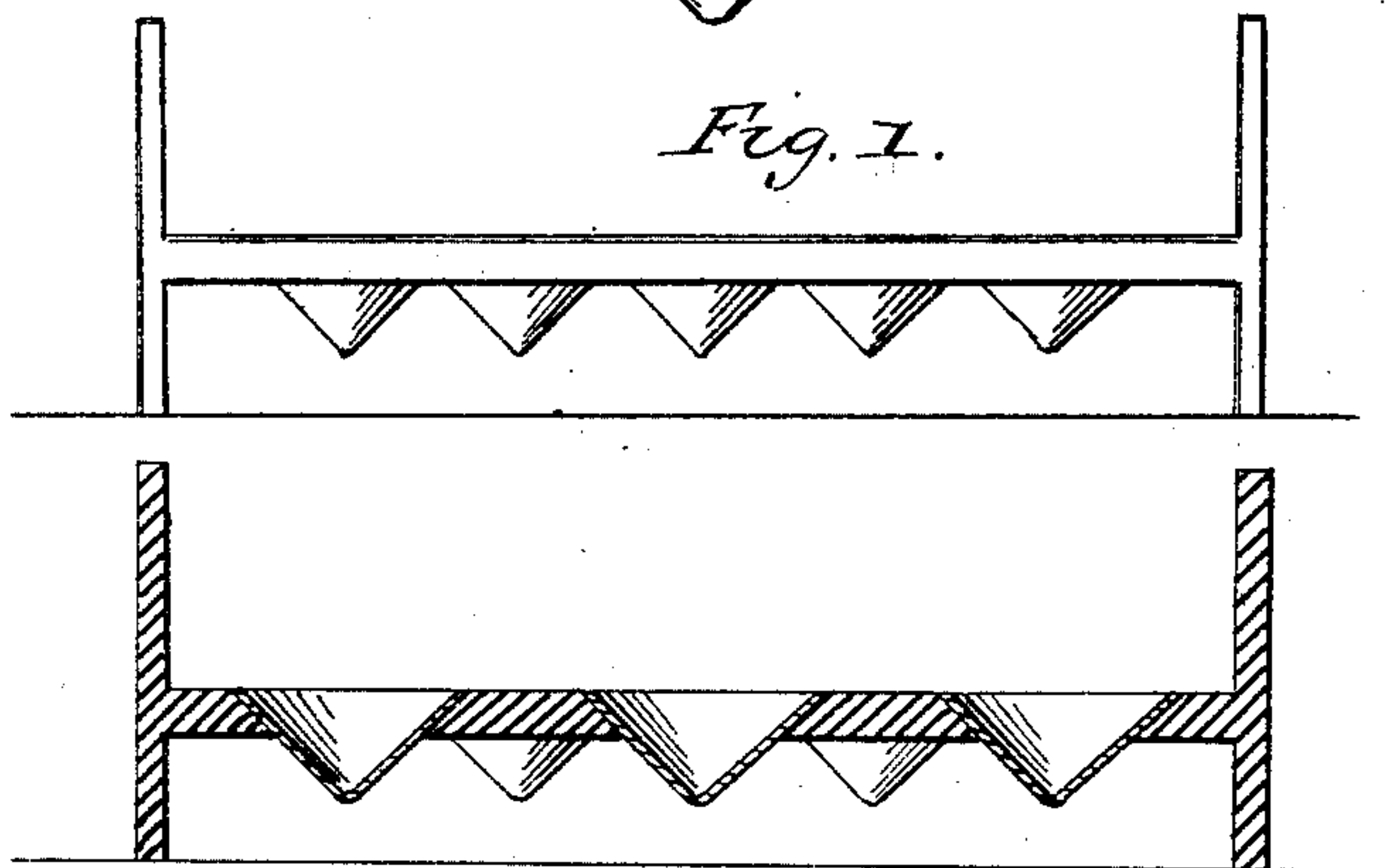
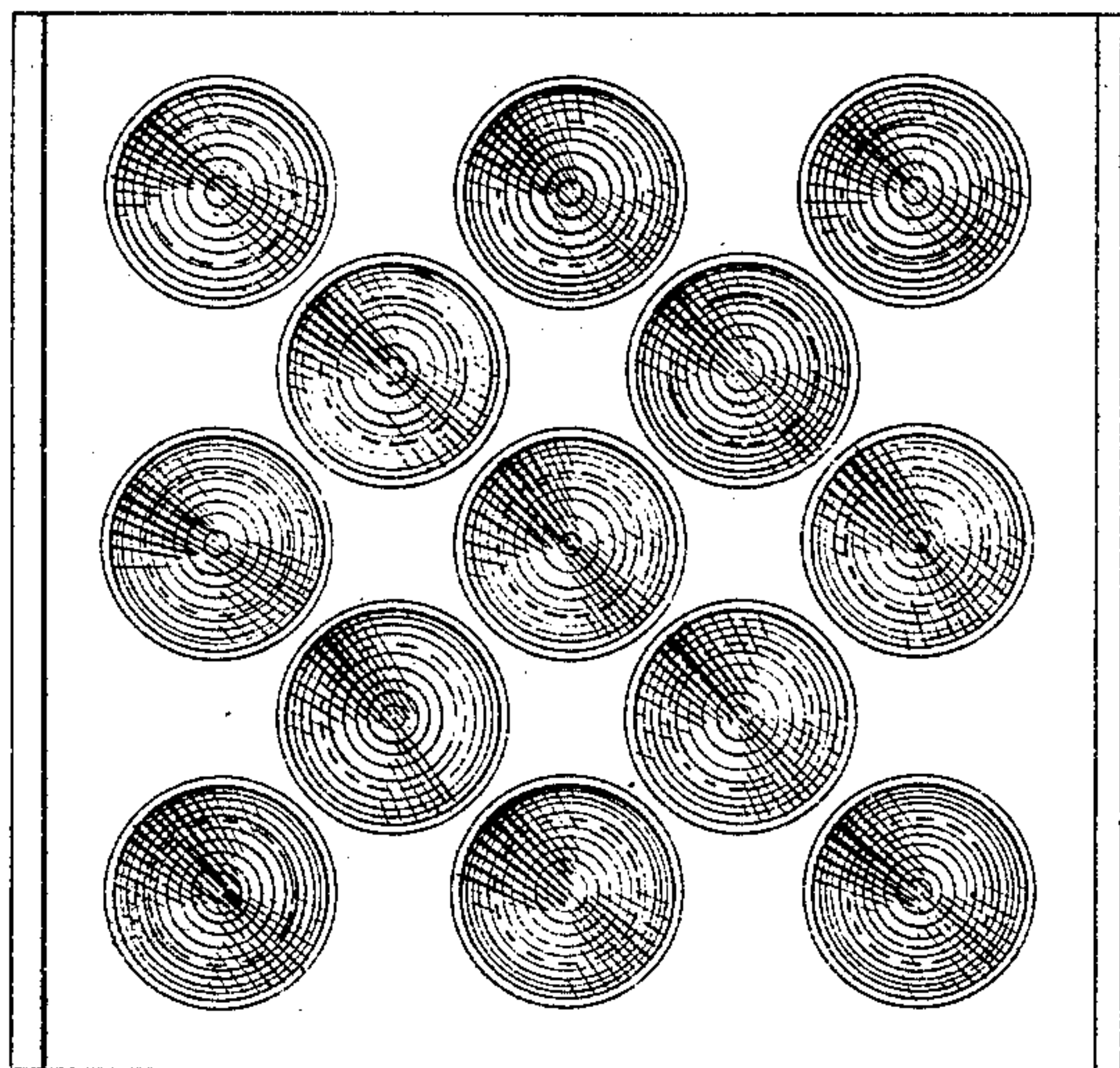


Fig. 3.



Witnesses
Edw L. Sharp
A. Manning

Inventor:

Horace P. Russ.

UNITED STATES PATENT OFFICE.

HORACE P. RUSS, OF SAN FRANCISCO, CALIFORNIA.

IMPROVED AMALGAMATOR.

Specification forming part of Letters Patent No. 23,313, dated March 22, 1859.

To all whom it may concern:

Be it known that I, HORACE P. RUSS, of the city and county of San Francisco, and State of California, have invented and made and applied to use certain new and useful improvements in means for saving or amalgamating precious metals, which I term "Russ's Amalgamating-Cones;" and I do hereby declare that the following is a full, clear, and exact description of the construction, form, and application of the same, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is an end view of my amalgamating-cones. Fig. 2 is a perspective view of the cups or cones, and Fig. 3 is a plan of a sluice with the amalgamating-cones inserted ready for use.

In the successful use of the straight sluice it is necessary that its longitudinal descent should be gradual from the place of its beginning to the discharge, and that its bed or base board should present a perfect horizontal level, in order that while the descending stream is void of concussion by the absence of irregularities the level base should receive the stream equally distributed over its surface. To effect this result by the present mode is almost impracticable. The sluices are made of wood, which, being constantly exposed to the elements, are warped into irregular curves or lines, varying with their change, the course of the stream passing through or over them. This error was opposed by the introduction of cast-iron sluices, but their use was in practice but for a short time, for as it is necessary for the miner to raise his sluices for the purpose of cleaning up once in about every six days, it was found so very expensive to handle such heavy sluice-boxes that they were abandoned and are not now, to my knowledge, in use.

The nature of my said invention is to avoid the necessity of removing the cast-iron or other metallic and durable sluice-boxes by the introduction of movable cups or cones of cast-iron, wood, &c., or of copper lined with an amalgamation of quicksilver, as shown in Fig. 2, into holes cast or drilled into the bed of said sluice-boxes, with a beveled line corresponding to the decreasing line of the cone.

I am aware that plain sheets of copper galvanized or covered with quicksilver, forming a bright coat of amalgam between the two metals, has been used, and are occasionally now

used in the bottoms of sluices for the purpose of catching or saving fine gold, but the plan is defective for the following reason: The plate of copper rests upon an inclined plane, and as the gold is collected upon its surface in the form of amalgam the heavy stream of water, aided by the great friction of the sand, ore, or gravel, drives the particles of amalgam into globules, which, attaining a certain size, present an impeding surface to the rush of the stream, and are eventually carried away beyond the reach of the miner. With the movable cups or cones such accident or effect cannot take place, the particles of gold are arrested on the inclines of the interior, and whenever the globules attain sufficient gravity they fall into the body of quicksilver, (which is placed in the base of each cone,) and are thus held in security.

By the use of movable cups or cones for amalgamation in sluices or other apparatus used in mining for the precious metals many valuable advantages are obtained. The line of sluices may be formed of cast-iron or other durable material, and become fixed in permanent and proper line and last for many years, avoiding thereby the great expense to which the miner is at present subjected by the constant renewal of his wooden sluices, which are worn away by the friction of the sand and gravel in a very short time.

By the use of the aforesaid movable cups or cones for amalgamation the labor of cleaning up or gathering the amalgam can be performed at the leisure of the miner without stopping the operations of his sluices, and at night the cups or cones can be removed with facility to a place of security.

What I claim as my invention, and desire to secure by Letters Patent, is—

Portable or movable cups or cones of copper galvanized or amalgamated with quicksilver inside, or manufactured of other materials—such as wood, cast-iron, &c.—to be placed in holes in sluice-boxes or other apparatus used in mining for the precious metals, substantially as and for the purposes specified.

In witness whereof I have hereunto set my signature this 4th day of December, 1858.

HORACE P. RUSS. [L. S.]

Witnesses:

EDWN. L. THERP,
T. W. TALIOFERRO.