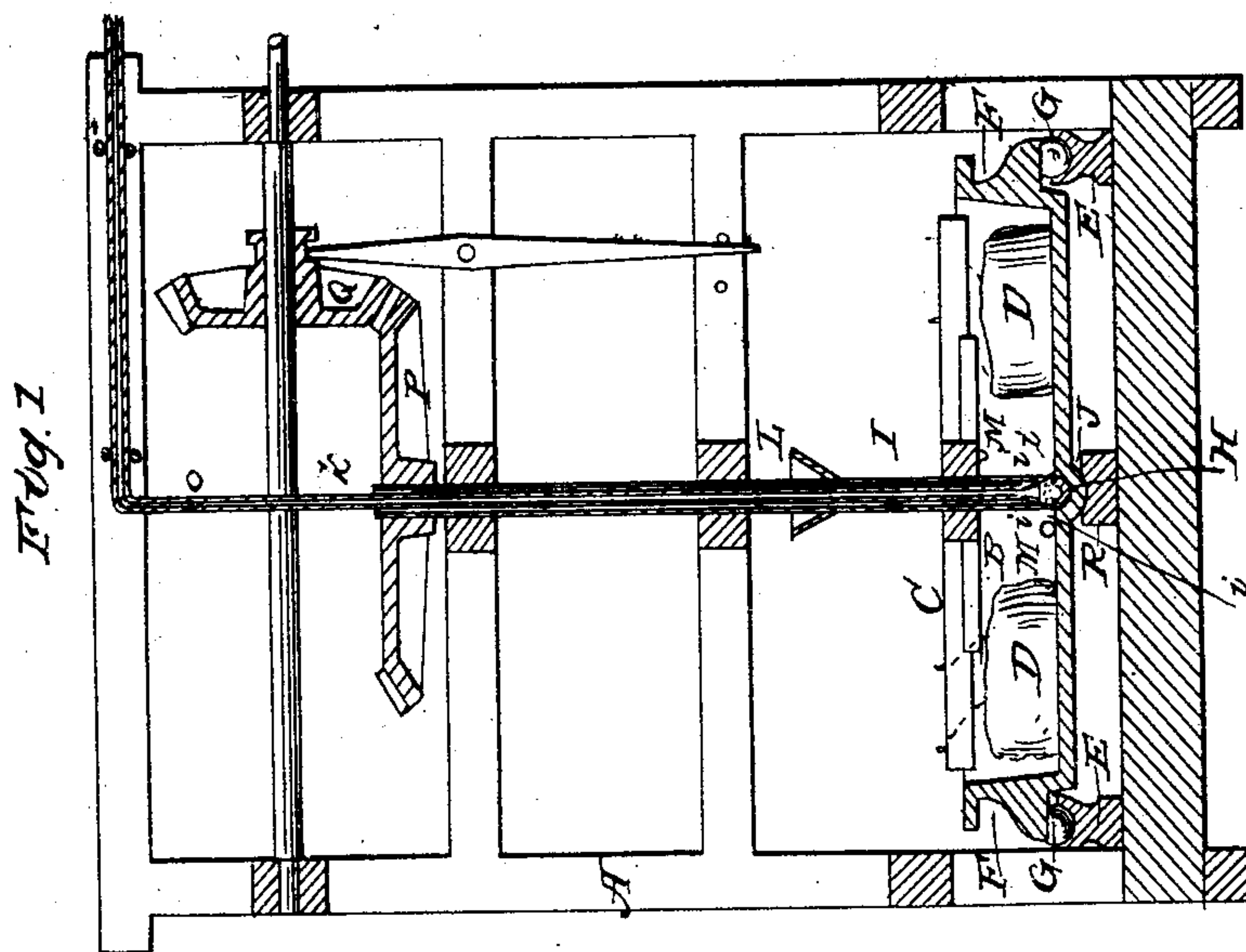
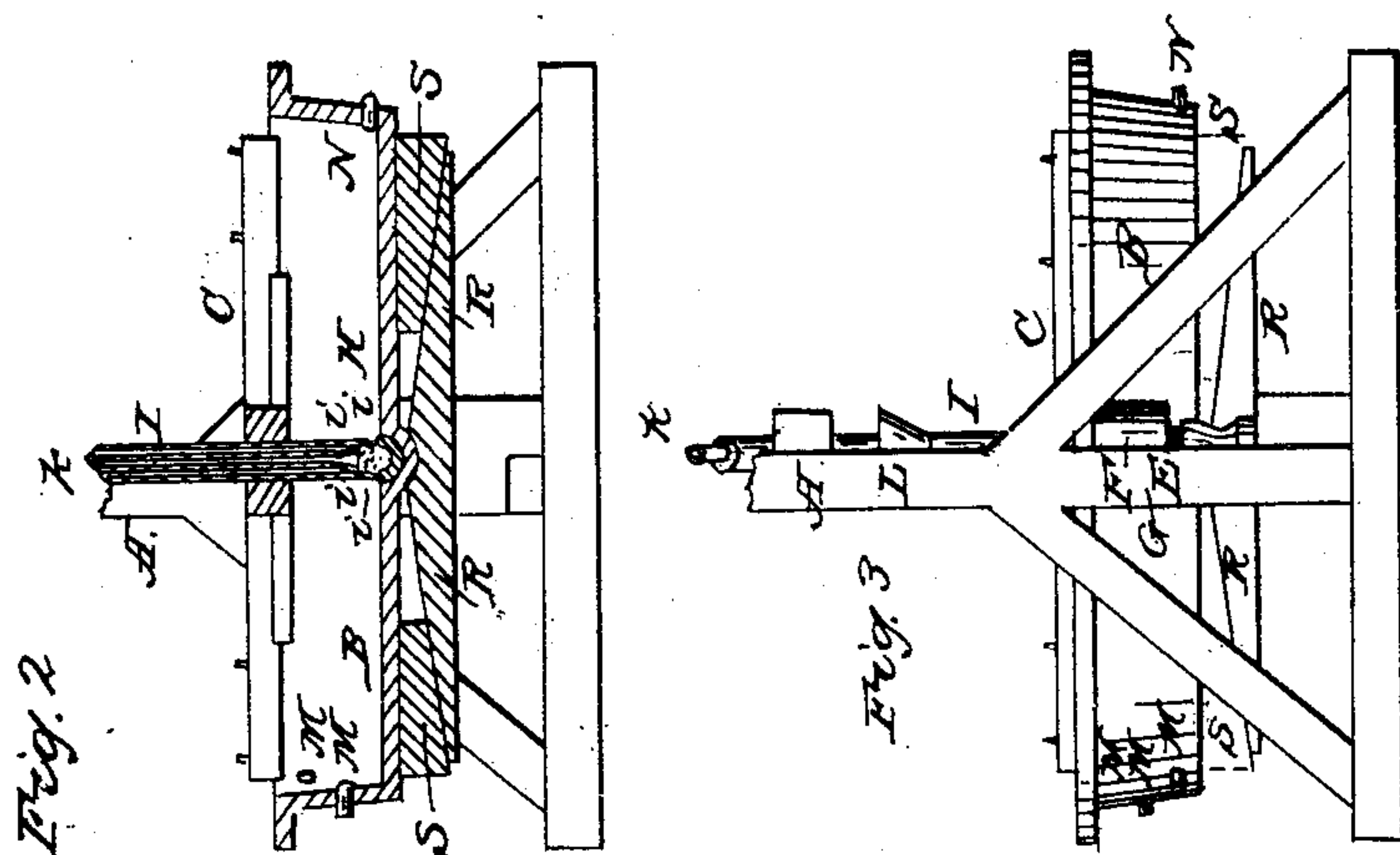


WOODWORTH & WETHERED.

Ore Amalgamator.

No. 32,548.

Patented June 11, 1861.



Witnesses
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UNITED STATES PATENT OFFICE.

SELIM E. WOODWORTH AND JAMES S. WETHERED, OF MURPHYS, CALIFORNIA.

ARASTRA.

Specification of Letters Patent No. 32,548, dated June 11, 1861.

To all whom it may concern:

Be it known that we, SELIM E. WOODWORTH, of Murphys, Calaveras county, and State of California, and JAMES S. WETHERED, of the city and county of San Francisco and State aforesaid, have invented a new and Improved Arastra for the Reduction of Precious Metals from Ores and Tailings; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification.

A, is a frame work of wood; B, is a cast-iron pan; C, is a spider frame, to which stone drags or mullers D, are attached; the arastra is furnished with ball and socket joints, as shown at G, so as to allow it to be tipped; the stone drags D, are set in motion, when required, by an upright hollow shaft I, driven by proper shafting and gearing; a steam or water pipe, or a pipe to be used for both purposes, is represented by K, as passing through the shaft I, to the center and bottom of the arastra; L, is a cup of copper, or other suitable metal, placed around the shaft I, to be filled with an alkaline substance, for neutralizing the oil or grease which may run from the journals, and collecting the same so that it shall not fall into the arastra.

Two flanges F, F, diametrically opposed to each other, extend from the circumference of the arastra, each of these flanges terminating into a ball pivot G. These ball pivots rest in semispherical, cup shaped bearings E, E.

The center of the bottom of the arastra is provided with a similar semispherical cavity J, which serves as the bearing for the ball pivot H, at the lower end of the hollow shaft I. The centers of the three semispherical bearings G, G, J, are in one line. From this construction it will be evident that the arastra is free to swing, said line being the axis of such swinging motion, and yet the hollow shaft I, will retain its bearing in the center of the bottom of the arastra. This arastra being balanced on the two ball pivots G, G, as described, can easily

be swung or tilted, on withdrawing one or the other of the wedges S, S, which support the arastra in a horizontal position during the process of amalgamation. The arastra when thus placed in an inclined position can be emptied and the contents be drawn off, by withdrawing one of the stoppers M, N, near the bottom of the arastra.

As the arastra is made of cast iron, the flanges F, F, ball pivots G, G, and center bearing J, can all be cast in one piece with the arastra, thus simplifying and cheapening the construction. Another advantage of an iron arastra is that it is much lighter than a stone arastra and can be easier handled and transported. The principal advantage, however, consists in the fact that the bottom surface of the iron arastra being perfectly smooth does not permit a portion of the mercury to settle and remain inactive as it does in the pores of a stone arastra. We have found by long experience that there is much less loss of mercury and more perfect amalgamation obtained by substituting cast-iron for stone-arastras, as described.

The construction of the cup shaped bearing J, in the center of the bottom of the arastra, allows us to arrange the perforations i, (intended for the escape of the steam introduced into the hollow shaft I,) close to the bottom of the arastra whereby the efficiency of the jets of steam in stirring up and agitating the contents of the arastra, will be much increased.

Having described our invention what we claim as new and desire to secure by Letters Patent, is:

The combination of a cast iron arastra with ball bearings G E, G E, and ball pivot H, of hollow center shaft I, constructed in the manner and for the purposes described.

S. E. WOODWORTH.

JAS. S. WETHERED.

Witnesses to signature of Selim E. Woodworth:

CHAS. CRANDALL,

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Witnesses to signature of James S. Wethered:

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