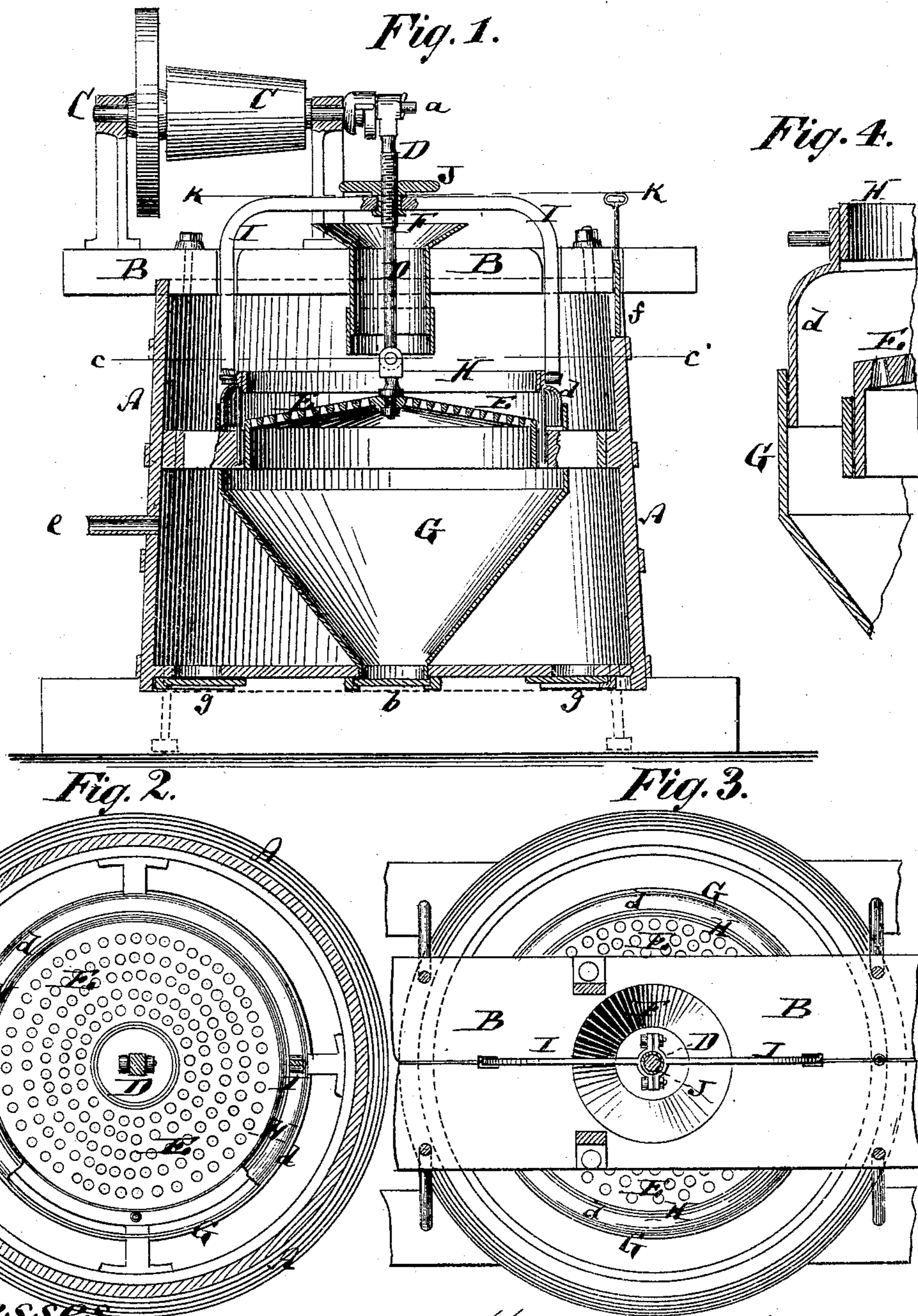


W. H. PLUMB.
Jiggers for Separating Ore.

No. 140,535.

Patented July 1, 1873.



Witnesses.
John Becker
Fred Hornum

Wm H. Plumb
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UNITED STATES PATENT OFFICE.

WILLIAM H. PLUMB, OF PATERSON, NEW JERSEY, ASSIGNOR TO JOSEPH A. STERLING, OF NEW YORK, N. Y.

IMPROVEMENT IN JIGGERS FOR SEPARATING ORE.

Specification forming part of Letters Patent No. **140,535**, dated July 1, 1873; application filed May 6, 1873.

To all whom it may concern:

Be it known that I, WILLIAM H. PLUMB, of Paterson, in the county of Passaic and State of New Jersey, have invented an Improved Ore-Separator, of which the following is a specification:

Figure 1 is a vertical central section of my improved ore-separator. Fig. 2 is a horizontal section of the same on the line *c c*, Fig. 1. Fig. 3 is a top view thereof, partly in section, the line *k k*, Fig. 1, indicating the plane of the section. Fig. 4 is a detail vertical section, showing the relative positions of the shaker, adjustable ring, and stationary lower funnel.

Similar letters of reference indicate corresponding parts in all the figures.

The object of this invention is to produce an apparatus for separating various kinds of ore in accordance with their varying degrees of specific gravity and varying quantitative proportions, such as coal or slate or other various kinds of ores. The invention consists in the application, above a shaking or reciprocating bottom that receives the ore to be separated, of a vertically-adjustable ring, which is raised or lowered in conformity to the proportionate quantities of the varying kinds of ores, and to their respective degrees of specific gravity. The invention also consists in providing said ring with a flange that projects outwardly and downwardly, and overlaps or enters the mouth of a stationary funnel, into which the heavier material is discharged from the shaker, while the lighter material passes over the top of the ring into an outer receptacle, being, by said flange, prevented from entering the funnel or inner receptacle. The invention also consists in suspending the aforementioned ring, by means of a yoke, from a nut that is fitted to a threaded portion of the rod from which the shaking-plate is suspended. Finally, the invention consists in combining with the subject-matter above mentioned a surrounding tub, which receives the water used for washing the ore near the middle, and discharges it over the top, the water aiding in its upward flow to separate the several kinds of ore in the desired manner.

In the accompanying drawing, the letter A

represents the embracing tub or outer vessel containing my improved ore-separating device. B is a frame arranged above said tub, and supported thereon or otherwise held in suitable position. This frame B carries a horizontal driving-shaft, C, to which rotary motion is imparted by a belt or otherwise, and which connects, by a crank, *a*, with a vertical rod, D, that is suspended centrally into the tub A, as shown. From the lower end of the rod D is suspended a (preferably circular and slightly conical) grate or platform, E, which constitutes a support for the ore to be separated, such ore being conveyed to the grate E through a stationary funnel or tube, F, which is secured in the frame B and embraces the rod D, as shown in Fig. 1. When the shaft C is revolved the rod D will be moved up and down, the grate E, therefore, also reciprocating to impart the requisite shaking motion to the ore it supports. The grate E is properly perforated for the passage of water, discharge of dust, &c. G is a funnel placed within the lower part of the tub A, and embracing with its upper part the grate E, as shown in Fig. 1, and more clearly set out in Fig. 4. This funnel G, being at its upper part larger in diameter than the grate E, receives the matter discharged over the edge of E and conveys it to the bottom of the tub A, where a central opening, *b*, is provided for the discharge of such matter. H is a ring about as large in diameter as the grate E, and suspended by a yoke, I, from a nut, J, which is secured upon a threaded upper portion of the rod D. The yoke I is swiveled on the nut, as shown, so that by turning the latter the yoke with the ring H may be moved up and down at will. An outwardly and downwardly projecting flange, *d*, extends from the ring H, as shown in Fig. 4, and enters close into or embraces the mouth of the funnel G, said flange being of such length as always to be in contact with the funnel G, no matter how far the ring H is raised or how much it may be lowered. Water is admitted to the tub A at or near the middle through a supply-pipe, *e*, and is discharged at the top of said tub through a gate, *f*.

The ore to be separated is poured through

the funnel F upon the grate E, while the ring H is lowered, the said grate being properly shaken or vibrated as soon as the supply of ore has been placed upon it. During such vibration the ore will necessarily adjust itself on the grate E, the heavier settling to the bottom, the lighter coming to the top. When so much ore has been placed upon the grate that it will reach to or above the rim of the ring H the latter is raised sufficient to allow the heavier settlements of the ore to roll off the grate into the funnel G, while the lighter material will flow over the top of the ring H into the tub A, thence to be discharged through openings g. The material is constantly being supplied after the ring has once been adjusted to its proper position with reference to the grate, in such proportions that the lighter material, raised during the vibrations of the grate, will be brought to and above the upper edge of the ring, and in position therefore to be discharged into the tub, while the heavier material will, from the grate, enter the funnel G.

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

1. The ore-separator, containing the reciprocating grate E in conjunction with the vertically-adjustable ring H, which ring is arranged above and nearly in line with the rim of the grate, substantially as and for the purpose specified.

2. The combination of the ring H, having the outwardly and downwardly projecting flange d, with the lower stationary funnel G, and with the grate E, as and for the purpose set forth.

3. The yoke I connected by the nut J with the stem D of the grate, and serving to support the adjustable ring H, as set forth.

4. The tub or outer vessel A, receiving the water-supply at or near its middle and discharging the same from the top, and embracing the reciprocating grate E and adjustable ring H and stationary funnel G, as and for the purpose specified.

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Witnesses:

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