G. SCHMAUCH.

ORE AND COAL JIGGER.

No. 186,370. Patented Jan. 16, 1877.

Fig. 1

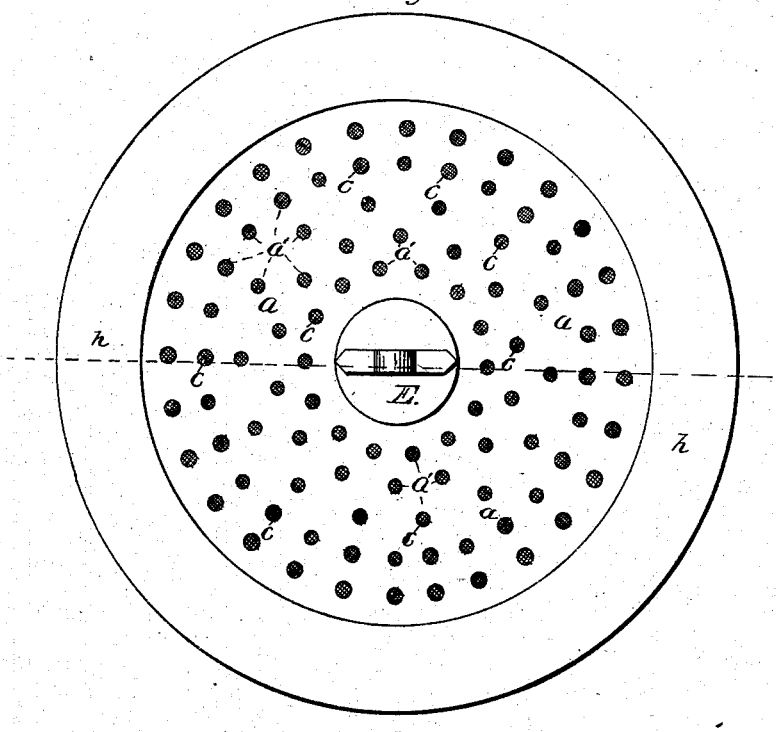
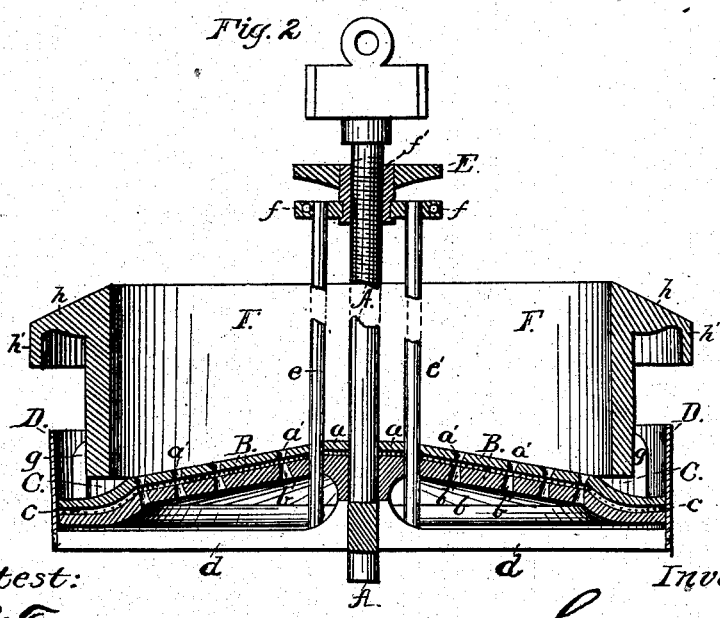


Fig. 2



Attest:

S. F. Tacy

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F. Bielfeld

Inventor:

George Schmauch

UNITED STATES PATENT OFFICE.

GEORGE SCHMAUCH, OF MAUCH CHUNK, PENNSYLVANIA.

IMPROVEMENT IN ORE AND COAL JIGGERS.

Specification forming part of Letters Patent No. **186,370**, dated January 16, 1877; application filed December 4, 1876.

To all whom it may concern:

Be it known that I, GEORGE SCHMAUCH, of Mauch Chunk, in the county of Carbon and State of Pennsylvania, have invented certain new and useful Improvements in Ore and Coal Jiggers; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Heretofore in the separation by jiggers of coal from slate, and extraneous matter from ores, a difficulty has arisen in maintaining a bed of the heavier particles, for the materials to be separated, since, as the machines are ordinarily built, in discharging the heavier particles the bed is destroyed, and also escapes through the valve, and the separation is consequently imperfect. In separating ores, such as lead, iron, &c., it is beneficial to preserve the very fine or dust ores, which, by the present machines, is lost, as they escape mingled with the sand or impure qualities of the ore into the body of the heavier material, the separation being, therefore, imperfect, inasmuch as the impure material is combined with the pure. In the separation of the slate and sulphur from the screening of bituminous coal it has heretofore been impossible to preserve the dust (which is just as valuable for coke as the large particles) on account of its escaping through the perforations and the discharge-valves into the heavier material, the same as the dust, ore, and sand of lead, iron, &c.

The object therefore of my invention is the construction of a jigging-sieve for separating ore, coal, or the screenings of bituminous coal, which will preserve the entirety of the bed of the heavier particles, and will prevent the coal or ore-dust from being discharged with the impure particles; and it consists in an adjustable dam or ring at the edge of the perforated bottom to maintain the proper bed; second, in the combination with said adjustable dam or ring of the perforated bottom formed with a recessed or curved circumferential reservoir between the dam and the perforated bottom; third, in the construction of the double conical perforated bottom with an intervening wire screen; fourth, in the peculiar upper stationary dam; and, further, in the combination, construction, and arrangement of the various parts, all as more fully hereinafter explained.

To enable others skilled in the art to make and use my invention, I proceed to describe the same in connection with the drawings, in which—

Figure 1 is a top view, and Fig. 2 is a central vertical section.

Like letters denote corresponding parts in each figure.

A represents a rod, reciprocated vertically by a lever in the usual manner. Near the lower end of the rod is secured a conical perforated bottom, B, through which the rod passes centrally. This bottom is composed of an upper part, *a*, having perforations *a'*, and a lower part, *b*, with perforations *b'*, the perforations *a'* in the upper part tapering downwardly, while those in the lower part *b* taper upwardly, as shown. Between the two parts of the conical bottom is placed a wire-screen, *c*. The edge of the conical bottom is depressed to form a reservoir, C. D is a ring encircling the reservoir C. This ring is provided with crossed pieces *d*, secured inside to the lower part of the same, through the intersection of which passes the rod A, allowing the crossed pieces to slide easily on the said rod. Two small rods, *e e'*, are secured to the crossed pieces *d*, pass up through the perforated bottom, and are attached at their upper ends to a yoke, *f*. This yoke slides on the rod A, and is secured to a screw-wheel, E, which engages with a screw-thread, *f'*, on said rod A. By these means the ring D can be raised and lowered.

F is an annular dam, supported above the reservoir C upon piers *g*, leaving a space, *g'*, between the lower edge of such dam and the bottom of the reservoir. The piers *g* are fastened to the bottom B by bolts passing up through such bottom. The upper part of the dam F is provided with an inclined wing, *h*, having a vertical prolongation, *h'*.

In operation, the ring D, which forms a dam to the material in the reservoir C, is adjusted to the desired elevation above the bottom of

such reservoir, to suit the quantity of heavier materials in the matter to be separated. The heavier particles sink to the bottom and form the bed, filling up the reservoir. After the adjustable ring has once been set, it requires no further attention, since the heavier material, as it accumulates, will discharge itself over the ring, always leaving a bed on the perforated bottom. The lighter material is discharged over the dam F.

The object of having the holes *b'* taper upwardly is to give force to the current of water, while the object of constructing the perforations *a'* with a downward taper is to form recesses for the accumulation of the sand ores or the small particles of the heavier materials. The screen *c* prevents the small particles from escaping through the perforations into the heavier material below, and at the same time permits a current of water to enter up through such perforations into the mass of the material to be separated. It has also been ascertained that some materials to be separated require a stronger current of water than others, and it has heretofore been impossible to govern this without substituting an entire new bottom with smaller or larger perforations, as required. In my machine, however, this is accomplished by making the perforations as large as will be required for any class of separation, and, when smaller openings are necessary, by taking out the fastenings, securing the two bottoms together, and moving the parts slightly one upon the other, so as to close more or less the perforations.

I have, by practical experiments, been able by this machine to separate all of the sulphur and slate from bituminous coal-screenings, and at the same time prevent the waste of any of the coal-dust, and in ores to prevent the mixture of sand with the pure ores.

The benefits to be derived from the use of this machine for the separation and saving of large quantities of valuable materials heretofore wasted, will be readily seen by those skilled in the art, for whom this specification is mainly intended.

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

1. A jigger-box, consisting essentially of a sloping sieve-bed, B, having a depressed circumferential well or pocket, C, with a vertically-adjustable rim, D, and an inner overflow-dam, F, the several parts being arranged relatively as described, whereby the proper depth of material is maintained on the sieve-bottom, and the separation rendered more complete, substantially as herein set forth.

2. In a jigger, the conical perforated bottom B, consisting of two parts, *a b*, having openings *a' b'*, and the wire-screen *c*, substantially as described and shown.

3. In a jigger, the combination, with the perforated bottoms and the rod A, of the adjustable ring D, cross-pieces *d d*, rods *e e'*, yoke *f*, and screw-wheel E, constructed and arranged substantially as described and shown.

4. The combination, in a jigger, of the rod A, perforated conical bottoms D, provided with the circumferential reservoir C, adjustable ring D, and dam F, constructed and arranged substantially as described and shown.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

GEORGE SCHMAUCH.

Witnesses:
F. BERTOLETTE,
S. H. TACY.