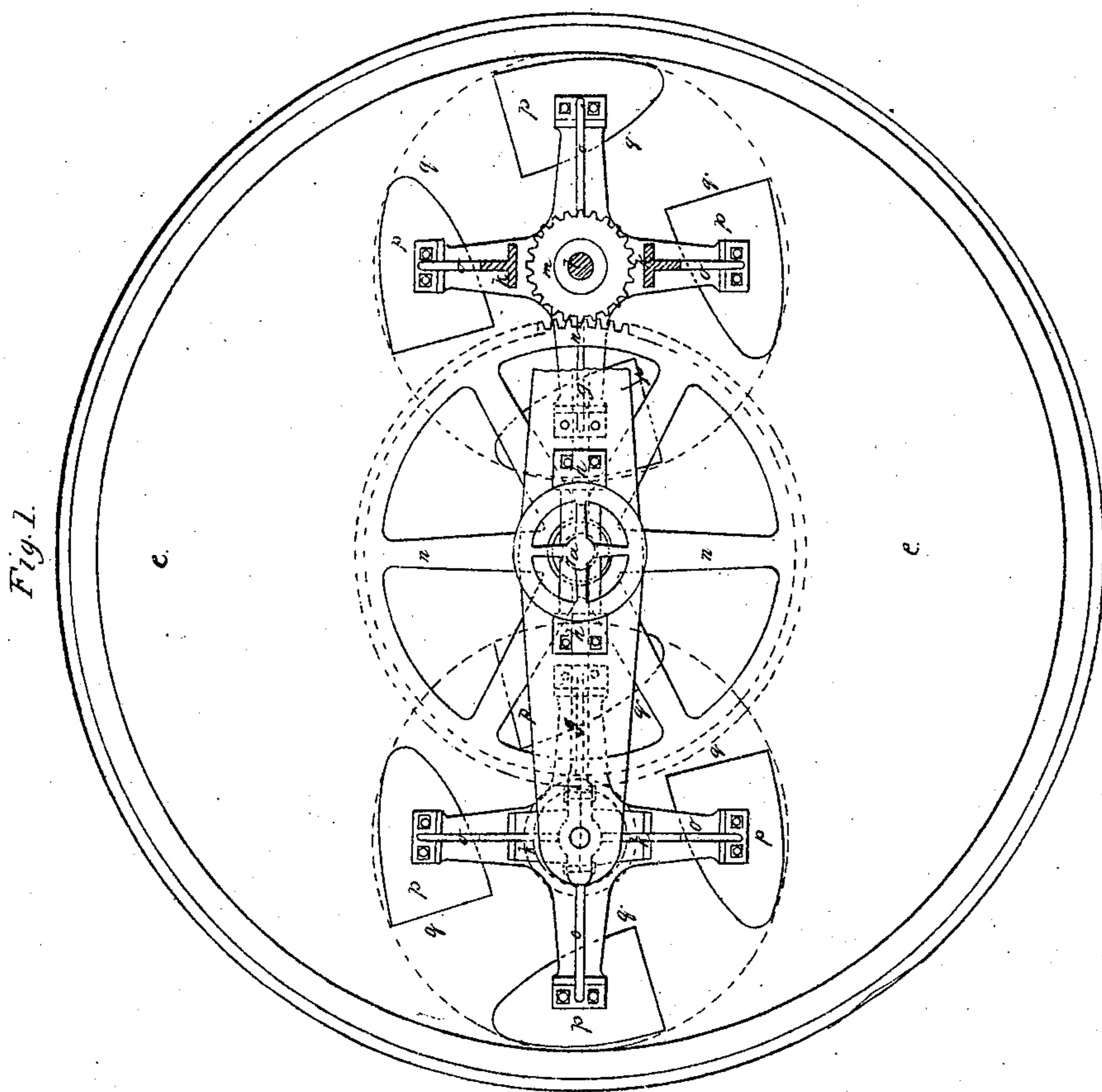


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Amalgamator.

N<sup>o</sup> 43589

Patented Jul. 19, 1864.



Witnesses

Thos. Geo. Harold,  
Chas. H. Smith

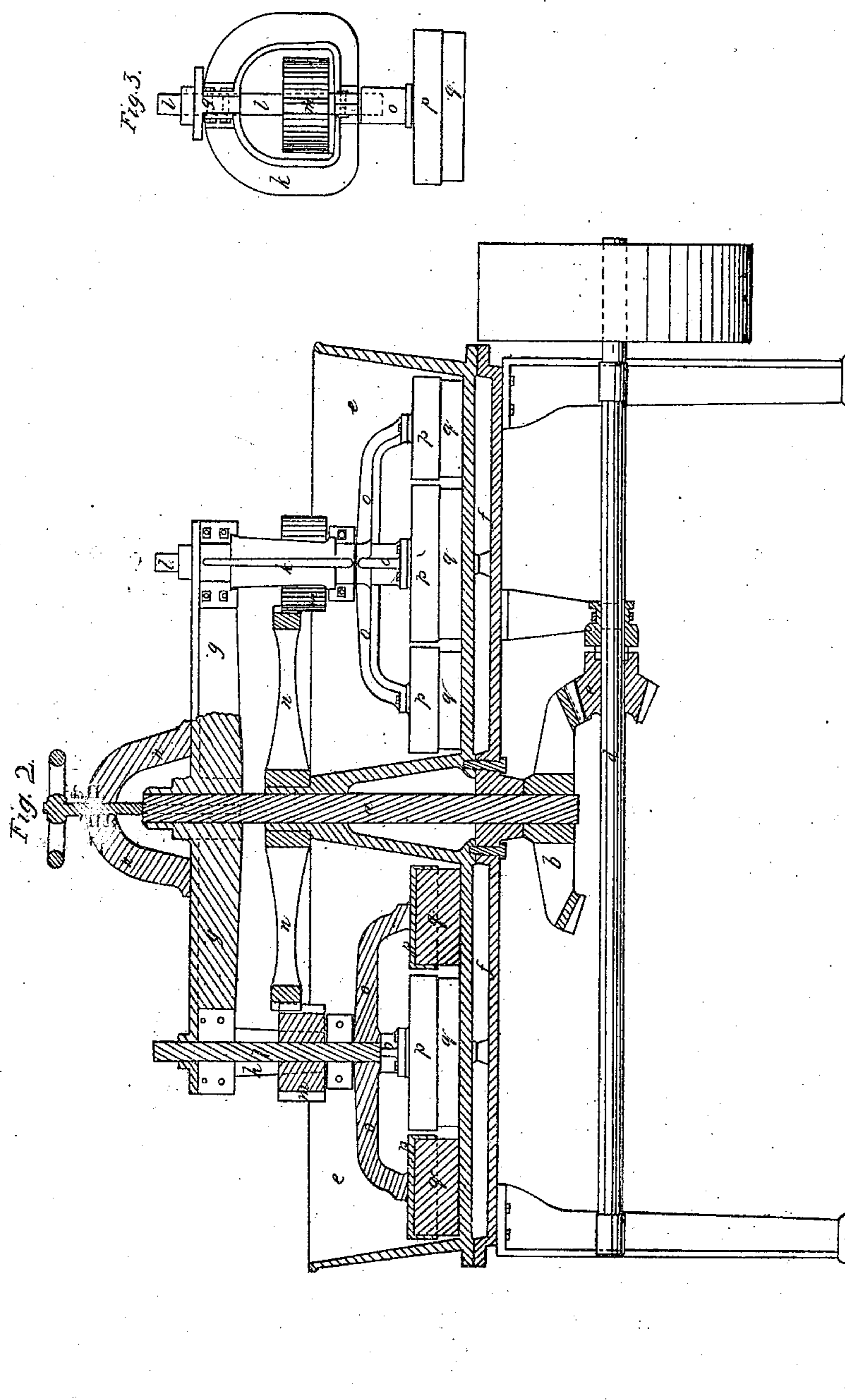
Inventor

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Inventor:

Joseph Kenyon

# UNITED STATES PATENT OFFICE.

JOSEPH KENYON, OF BLACK HAWK, COLORADO.

## IMPROVEMENT IN AMALGAMATORS.

Specification forming part of Letters Patent No. 43,589, dated July 19, 1864.

*To all whom it may concern:*

Be it known that I, JOSEPH KENYON, of Black Hawk, in the Territory of Colorado, have invented, made, and applied to use a certain new and useful Improvement in Amalgamators; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is a plan of said amalgamator with part of the upper cross bar removed. Fig. 2 is a vertical section of said apparatus with the mullers on one side in elevation, and Fig. 3 is a detached elevation of said mullers.

Similar marks of reference denote the same parts.

In amalgamators heretofore employed a circular basin has been used in which mullers are fitted to revolve and rub and grind the ores after they have been comminuted in order that the mercury contained in such vessel may amalgamate with the gold in the ore. In this class of amalgamators the ores sometimes accumulate and are pushed along in front of the mullers, and do not all come equally in contact with the quicksilver, and the water in the pan, that carries off the earthy matters, receives a whirling and centrifugal motion that is apt to throw the particles of amalgam off with the tailings.

The nature of my said invention consists in a series of mullers revolving upon a shaft that is itself revolved around the pan, so that each muller travels as a cycloidal curve around in the pan, and a much greater rubbing and amalgamating action is obtained, and the centrifugal action of the water is entirely prevented, so that the same remains nearly level and the banking up of the earthy matter in front of the mullers is prevented.

I also fit my mullers in such a manner that they can be gradually raised from the bottom of the pan while revolving, so as to maintain the agitation on the water for washing the earthy matters out of the amalgam while said amalgam gradually subsides in the pan, thereby there will be no loss of amalgam when the water and earthy matters are drawn off.

In the drawings, *a* is a vertical shaft propelled by the gearing *b* and *c* and shaft *d* to competent power. The shaft *a* is in the center of the circular or ring-formed pan *e*, which may be formed with a double bottom, *f*, so that steam may be introduced in cold weather

to maintain a proper temperature of the contents of the pan.

*g* is a cross-head set on a feather upon the upper end of the shaft *a*, which cross head is fitted with a yoke, *h*, through which the screw *i* passes and rests upon the end of the shaft *a*, so that the cross-head *g* can be either raised or lowered by turning the screw *i*, even while the apparatus is in motion.

At the ends of the cross-head *g* pendent frames or bows *k k* are firmly attached, carrying the vertical shafts *l l*, upon which are pinions *m m*, gearing into the stationary wheel *n*, and said pinions are wider than the wheel *n*, so as to remain in gear when the cross-head is raised by the yoke-screw *i*.

At the lower end of each shaft *l* are arms *o o*, which may be two or more in number. I have shown four such arms to each shaft *l*, and upon their ends are irons *p p*, receiving the mullers *q q*.

It will now be seen that as the shafts *l l* are themselves carried around with the cross-head *g* the said shafts *l* have a rotation imparted to them, which moves the mullers and causes them to travel in a cycloidal line around the pan, both thoroughly mixing the pulverized ore and water, and rubbing the same with the amalgam upon the bottom of the pan, thereby at the same time preventing any banking up of the earthy matter in front of the mullers and avoiding any centrifugal action on the water, so that the water remains nearly level.

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

1. A series of mullers connected by arms or supports with a shaft that revolves in its own bearings and also moves around the pan, so that each muller receives a cycloidal movement, for the purposes and substantially as specified.

2. The arrangement of the cross-head *g*, bows *k*, shafts *l*, wheel *n*, and pinions *m m*, for giving motion to the mullers, as set forth.

3. The yoke *h* and screw *i*, in combination with the cross-head *g* and cycloidal revolving mullers carried by the shafts *l*, as and for the purposes specified.

In witness whereof I have hereunto set my signature this 21st May, 1864.

JOSEPH KENYON.

Witnesses:

THOS. GEO. HAROLD,  
CHAS. H. SMITH.