J. H. HANCHETT.

Ore Mill.

No. 47,818. Patented May 23, 1865.

Fig. 1

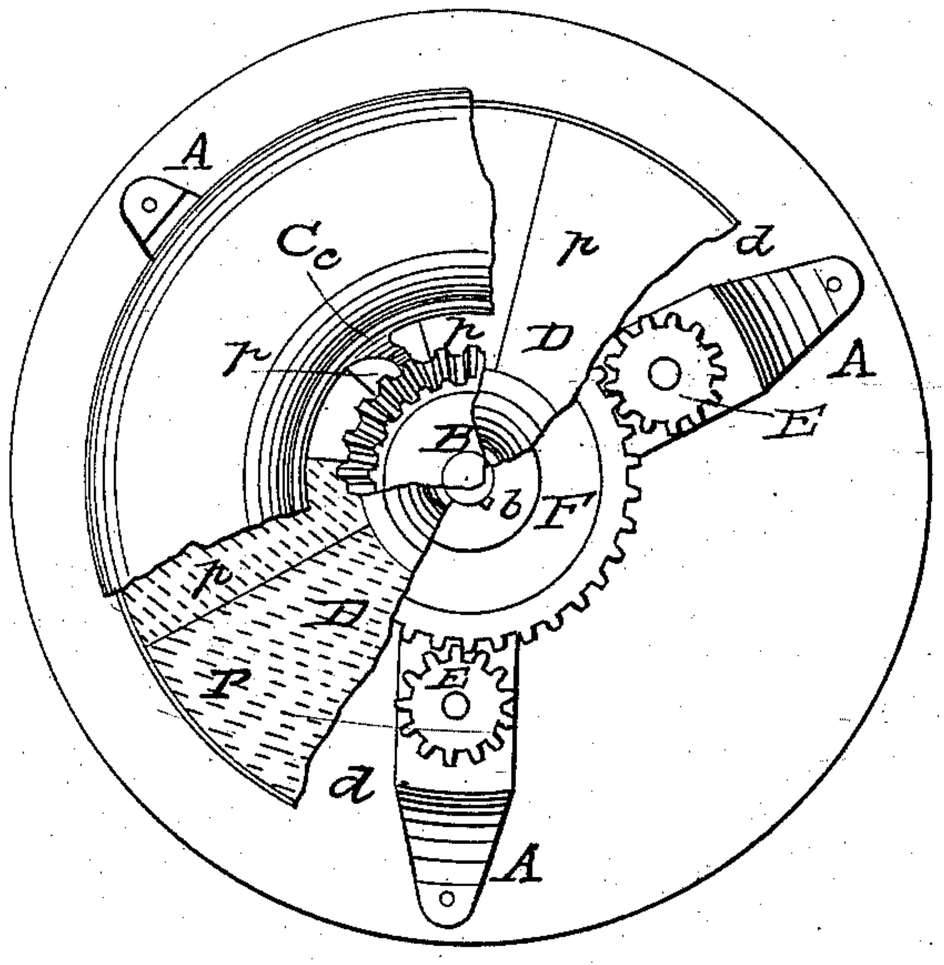
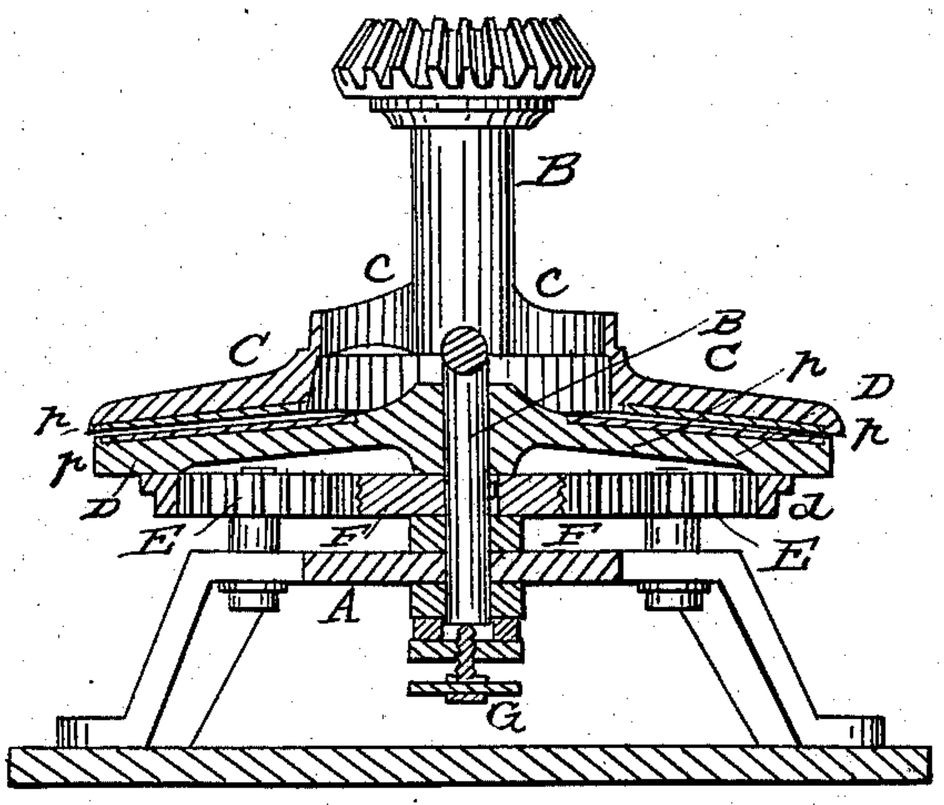


Fig. 2



WITNESSES
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INVENTOR
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UNITED STATES PATENT OFFICE.

JAMES H. HANCHETT, OF BELOIT, WISCONSIN.

IMPROVEMENT IN PULVERIZING TAILINGS FROM GOLD-WASHERS.

Specification forming part of Letters Patent No. **47,818**, dated May 23, 1865.

To all whom it may concern:

Be it known that I, JAMES H. HANCHETT, of Beloit, in the county of Rock and State of Wisconsin, have invented a new and useful Improvement in Mills for Grinding and Pulverizing the Tailings from Mines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of my machine, certain parts being represented as broken, to show more perfectly the internal arrangement. Fig. 2 is a vertical section of the grinding parts.

The nature of my invention consists in such an arrangement and construction of parts as insure a rapid and perfect grinding of the substances.

That others may understand my improvement I will more particularly describe it.

A is a frame, upon which the working parts of the machine are mounted. B is the driving pinion and shaft. C is the upper grinding-surface, which is rigidly attached to the shaft B and revolves with said shaft. D is the lower grinding-surface, which revolves upon the lower part of the shaft B as an axis, but by the interposition of the pinions E E and F it revolves in a direction opposite to the movement of C and the shaft B. The shaft B is supported beneath by the screw G, by means of which the plates C and D are adjusted, and caused to grind fine or coarse, as desired. The plate C is connected to the shaft B by the arms *c c*, leaving the open annular space through which the substances to be ground are to be introduced. Upon the lower side of D is the annular internal-geared wheel *d*, into which the small pinions E are geared. Upon the shaft B is the feather *b*, which, engaging in a suitable groove in the wheel F, causes it to revolve with the shaft, and this wheel, engaging with the small pinions E, causes the motion of D to be reversed. The grinding-surfaces of C and D may be made of hardened steel, or other suitable material, in the form of plates or blocks that can be attached and detached at pleasure, as shown at *p*. The grinding-surfaces are so formed as to be slightly inclined and gradually to approach each other, so that a free delivery is insured, but the substances are gradually ground finer and finer as they approach the periphery of the grinding-surfaces.

When repairs are necessary, the whole machine may be taken apart by lifting the shaft B out of its bearings, which done, leaves the plate D resting only on the pinions, from which position it only needs to be raised to leave the pinions E E and F loose upon their pivots and readily removed.

It will be observed that, by my construction the plates between which the operation of grinding is performed revolve in contrary directions, the effect of which is that the effective speed of the grinding-surfaces is double what it would be if but one surface moved, the speed of the driving power being the same. This secures a material saving in regard to the motive power, as the increase of resistance is greater in ratio than the increase of speed.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The grinding-disk C, constructed as shown, and provided with the shaft B, having eth feather *b* thereon, as and for the purpose set forth.

2. The grinding-disk D, provided with the internally-geared flange *d*, constructed and operating as and for the purpose herein set forth.

3. In combination with the disks C and D, and shaft B, the gear-wheels F and E E E, when all the parts are arranged to operate as and for the purpose herein set forth.

JAMES H. HANCHETT.

Witnesses:

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