(No Model.)

C. C. HOWE.

GRINDING MILL.

No. 527,986. Patented Oct. 23, 1894.

Fig 1

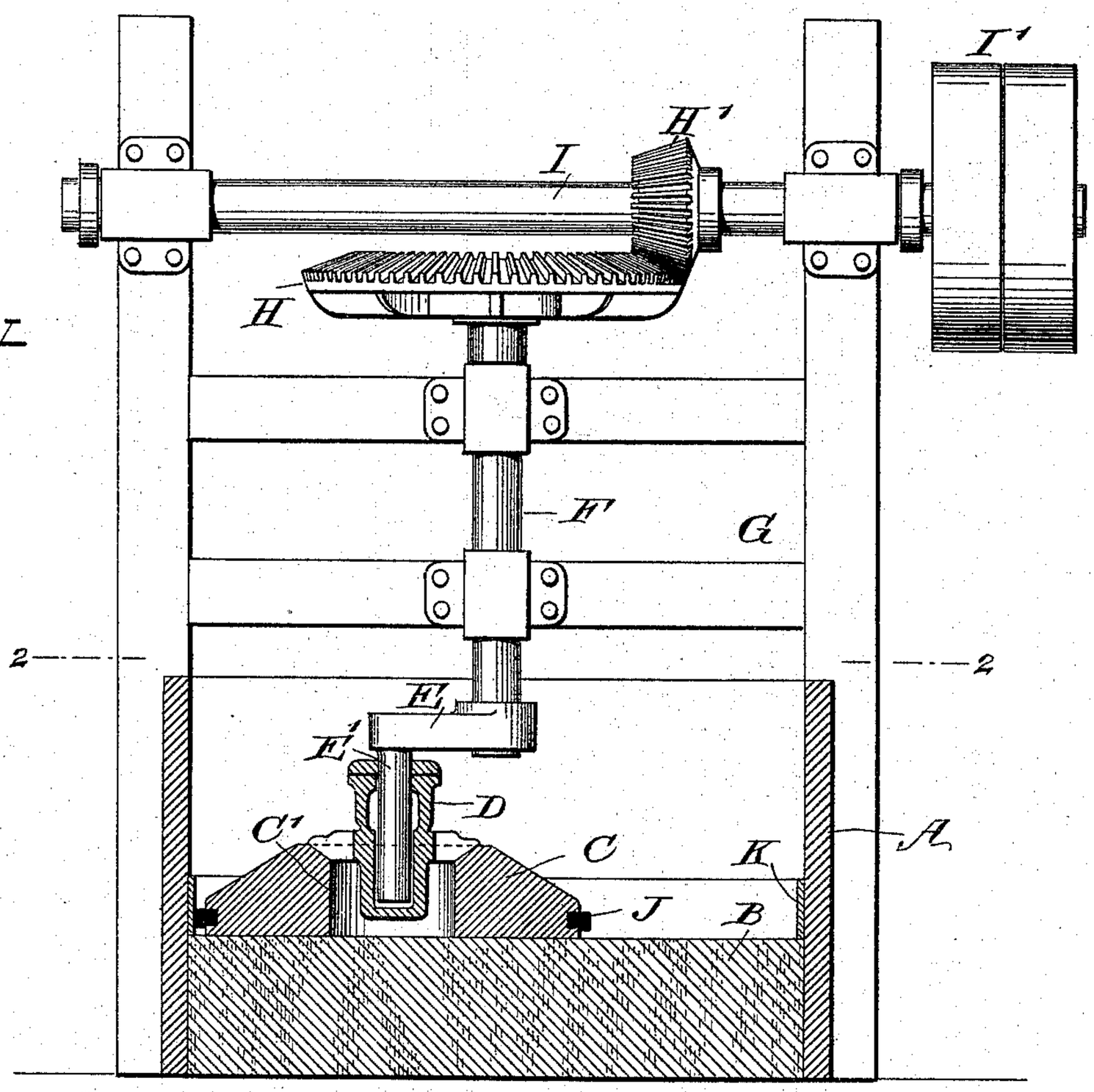
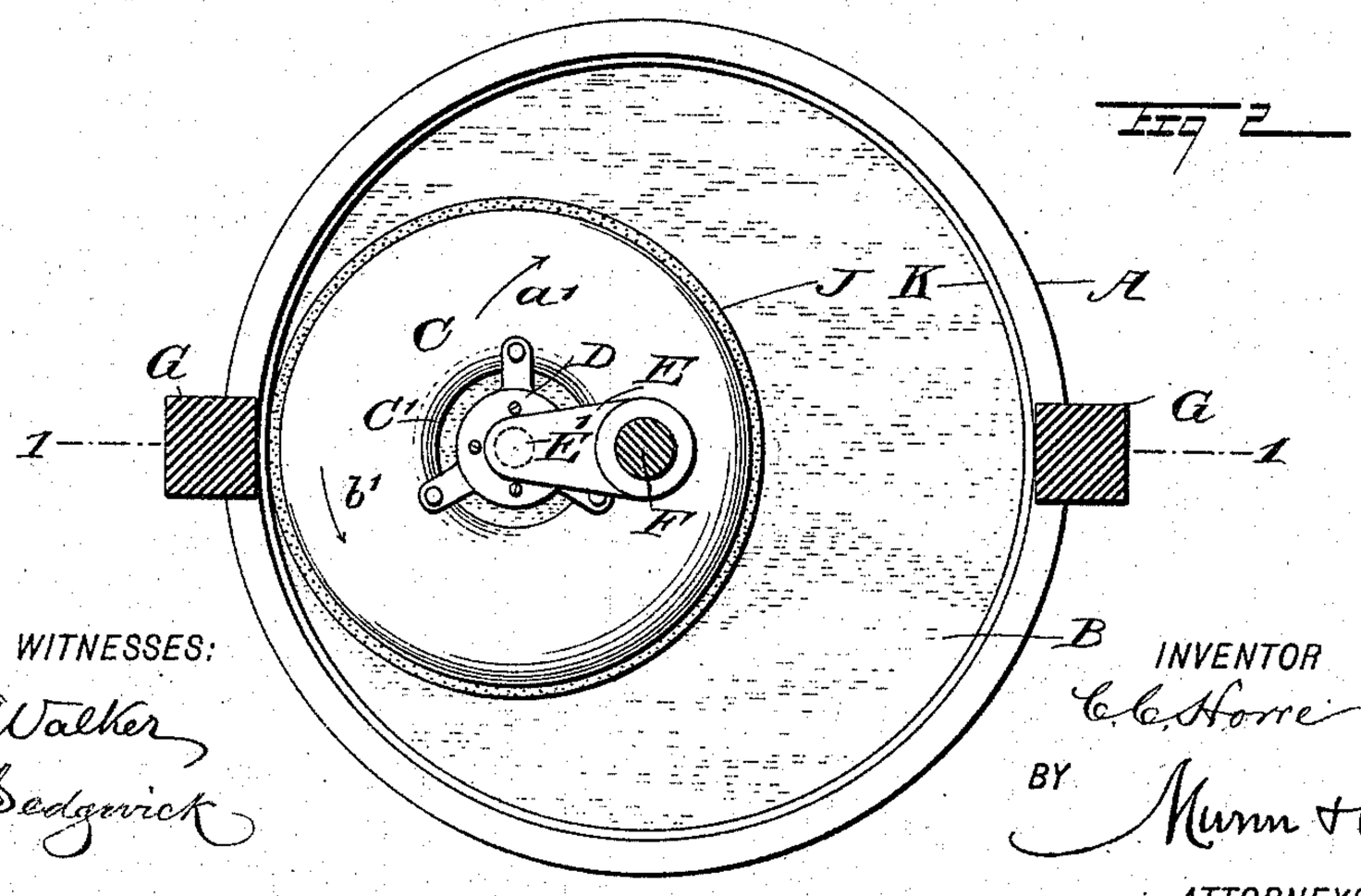


Fig 2



WITNESSES:

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CHARLES C. HOWE, OF WESTERLY, ASSIGNOR TO THE SHANNOCK MICA COMPANY, OF SHANNOCK, RHODE ISLAND.

GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 527,986, dated October 23, 1894.

Application filed November 10, 1893. Serial No. 490,545. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. HOWE, of Westerly, in the county of Washington and State of Rhode Island, have invented a new and Improved Grinding-Mill, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved grinding mill, which is simple and durable in construction, very effective in operation, and designed for grinding substances of all descriptions, but more especially for grinding mica and similar substances in a liquid.

The invention consists of certain parts and details, and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional side elevation of the improvement on the line 1—1 of Fig. 2; and Fig. 2 is a sectional plan view of the same on the line 2—2 of Fig. 1.

The improved grinding-mill is provided with the tub or other receptable A, in which the grinding is carried on. The bed B, of this receptacle A, is preferably made of wood, with the grain on the end of the wood, so as to present at its upper face a hard rubbing surface. On the top of this bed B, is held in grinding contact with the bed B, a muller C, made circular and formed in its center with an eye C′, through which the material can pass to the grinding surface between the bottom of the muller and the top surface of the bed B. In the eye C′ is held a socket D, loosely engaged by the wrist pin E′ of a crank arm E, secured to the lower end of the shaft F, arranged vertically, and journaled in suitable bearings in a framework G, erected on the receptable A. The upper end of the shaft F, preferably carries a beveled gear wheel H in mesh with a beveled pinion H′, secured on the longitudinally extending shaft I, likewise journaled in the frame G, and provided with fast and loose pulleys I′, connected by a belt with suitable machinery to impart a rotary motion to the said shaft I, and by the pinion H′ and gear wheel H, to the shaft F, so that the latter by its crank arm E, carries the muller C around in the receptacle A.

In the periphery of the muller C is arranged an elastic band J, preferably made of rubber and in frictional contact with a band K, secured to the inner face of the receptacle A, directly over the bed B. Now, as the muller C is in frictional contact with the said band K, and the muller is carried around by the crank arm E, it will revolve, caused by the band J rolling off on the ring K so that a double motion is given to the said muller and any point on its periphery will describe an epicycloidal curve. Thus, when the crank arm E moves in the direction of the arrow *a′*, the muller C will rotate in the direction of the arrow *b′*, at the time it is moved around by the said crank arm within the receptacle A. This muller in sweeping around the receptacle A on the upper surface of the bed B, revolves backward on its own center, so that it has a double eccentric motion, and consequently a larger grinding capacity. By this arrangement the two grinding surfaces of the muller C and bed B, are substantially changed so that both wear perfectly uniform, and the bed will always remain level at its upper surface.

The top surface of the muller C, is beveled outward and downward, so that the muller in moving against the material readily causes the latter to travel up the beveled surface to pass into the eye C′ and to the grinding surface of the muller and bed.

In grinding mica the muller is made of stone and runs on a hard wood bed formed of wood blocks having their grain on the end of the wood. By this combination of a stone muller and wooden bed, great brilliancy is given to the mica, as the process is more in the nature of smoothing down or flaking the material, than grinding it.

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

1. In a grinding mill, the combination with a receptacle having a bed in its bottom, of a muller having a central eye and provided with a socket in said eye, and a revolving shaft provided with a crank arm having a wrist pin projecting loosely into the said

socket to permit the muller to turn thereon, substantially as described.

2. A grinding mill comprising a receptacle having a bed, and a circular fixed band at the inner surface of its side, a muller adapted to be carried around in the said receptacle and resting with its under side on the top surface of the said bed, and an elastic band in the periphery of the said muller, and in frictional contact with the band in the said receptacle, substantially as shown and described.

3. A grinding mill, comprising a receptacle having a bed of wood, the grain of which is vertical, a muller having a central eye and provided with a socket in said eye and with an elastic band on its periphery, and a revoluble shaft provided with a crank arm having a wrist pin working loosely in the socket of the muller, substantially as described.

CHARLES C. HOWE.

Witnesses:
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