

J. BURNS.
Improvement in Ore-Crushers.
No. 127,561. Patented June 4, 1872.

Fig. 1.

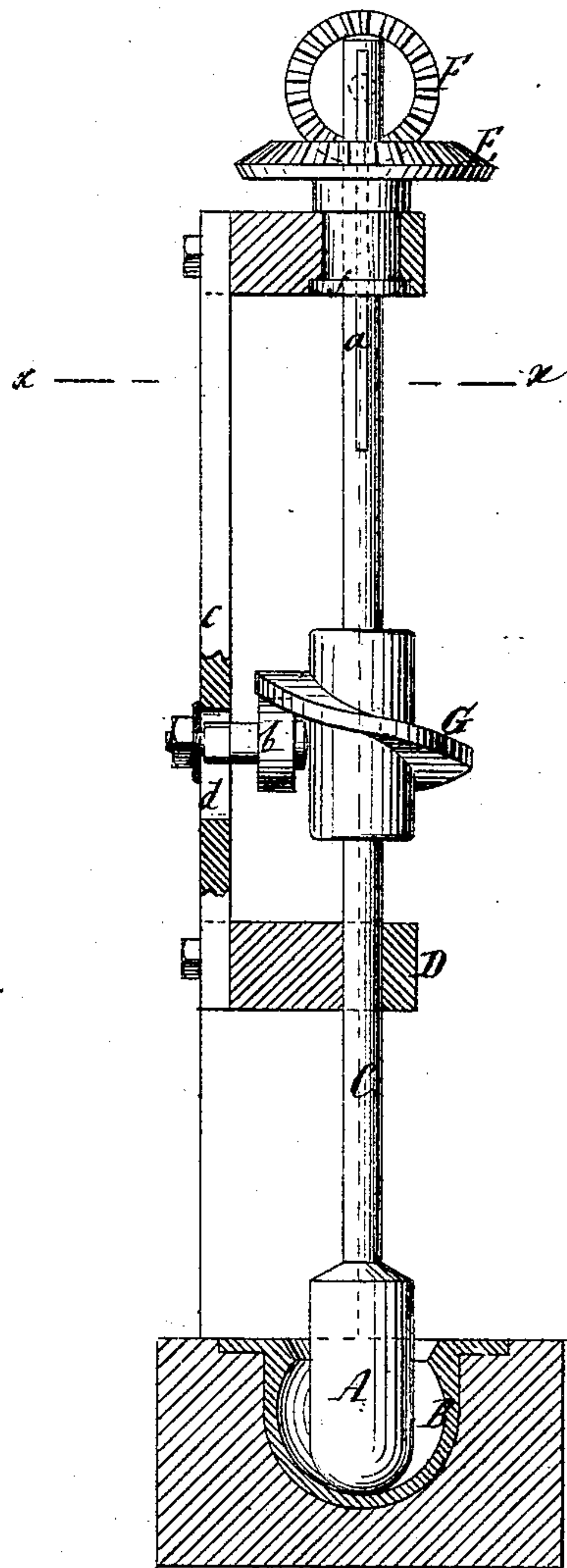
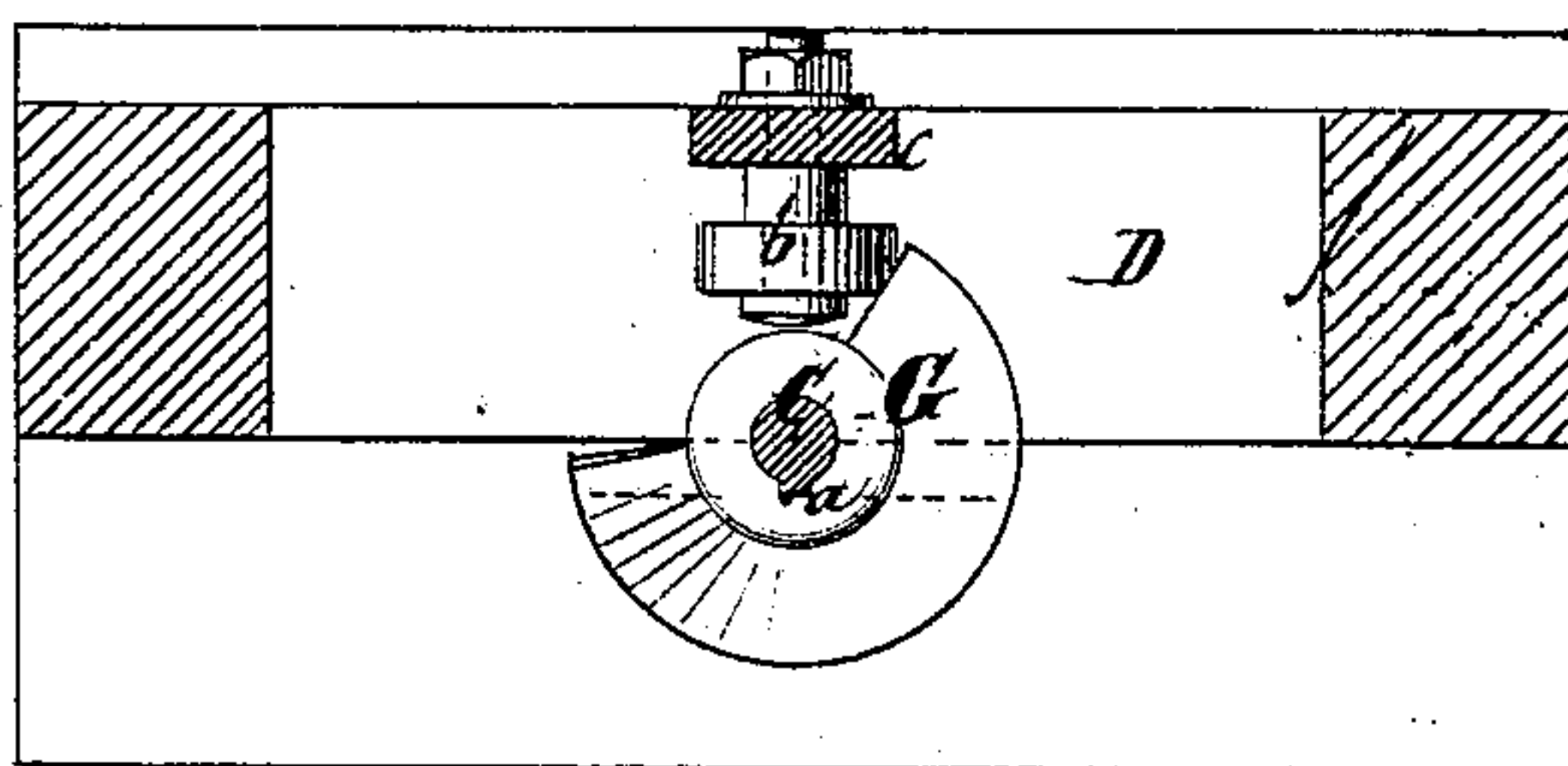


Fig. 2.



Witnesses:
C. Wählers.
Ernst Bilhacker.

Inventor:
Jabez Burns
Van Santvoord & Hauff
attys

UNITED STATES PATENT OFFICE.

JABEZ BURNS, OF NEW YORK, N. Y.

IMPROVEMENT IN ORE-CRUSHERS.

Specification forming part of Letters Patent No. 127,561, dated June 4, 1872.

To all whom it may concern:

Be it known that I, JABEZ BURNS, of the city, county, and State of New York, have invented a new and Improved Machine for Comminuting Ores and other Materials; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a vertical section of my invention. Fig. 2 is a horizontal section of the same in the plane *xx*, Fig. 1.

Similar letters indicate corresponding parts.

This invention consists in a stamper, which receives a continuous revolving motion, and on the rod of which is secured a sectional spiral cam which acts against a stationary tappet in such a manner that when the cam strikes the tappet the stamper is raised, and after the stamper has dropped it continues to revolve on the material in the pan, thus combining with its blows a certain grinding action, whereby the operation of comminuting quartz or other materials is greatly facilitated. By raising or lowering the tappet the grinding action of my stamper can be diminished or increased, as may be required.

In the drawing, the letter A designates a stamper which works in a pan, B, and the rod C of which extends through a guide-bar, D, and through a bevel-wheel, E, which receives a continuous revolving motion by another bevel-wheel, F, mounted on the driving-shaft of the machine. The bevel-wheel E is prevented from rising up by a shoulder, *f*, on its hub, (see Fig. 1,) and it is connected to the rod C by means of a feather-key, *a*, so that said rod can freely rise and fall while it is compelled to rotate with the bevel-wheel E. On the rod C is secured a segmental spiral cam, G, and as said rod revolves this cam is brought in contact with a tappet, *b*, that is firmly secured in a rod, *c*, forming a portion of the main frame

of my machine. By the action of the spiral cam against the stationary tappet the stamper is raised, and as the end of the cam passes the tappet the stamper drops, and then it continues to revolve while bearing down upon the material in the pan until the cam comes again in contact with the tappet. By these means my stamper exerts a grinding action in addition to the crushing action produced by its blows, and by combining these two effects I am enabled to comminute ore, mustard, nutmeg, maize, and such articles that cannot be ground in a pure state, in a comparatively short time, and the comminuted articles produced by my stamper are of uniform fineness, and, if required, they can readily be reduced to an impalpable powder. The tappet *b* is, by preference, made in the form of a roller, so as to reduce friction, and it is secured in a slot, *d*, so that it can be adjusted up or down. If it is moved down, the height to which the stamper is raised is reduced, and at the same time the duration of the grinding motion is proportionally increased, and by these means I am enabled to adapt my stamper to the nature of the material to be comminuted.

In practice, a number of my stampers will be arranged round a common center, so that their motion can be produced by a common master-wheel meshing into cog-wheels mounted on the several stamper-rods. If desired, the face of the stamp-head may be grooved so as to increase the grinding effect and to force the parts away from the center of the pan.

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

The combination of a spiral cam, G, and tappet *b* with a stamper, A, and gears E F, by which said stamper has imparted to it a continuous rotary motion and a rising-and-falling motion, substantially as set forth.

JABEZ BURNS.

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.