

WILLIAM C. STYLES.

Improvement in Quartz Mills.

No. 124,637.

Patented March 12, 1872.

Fig. 1.

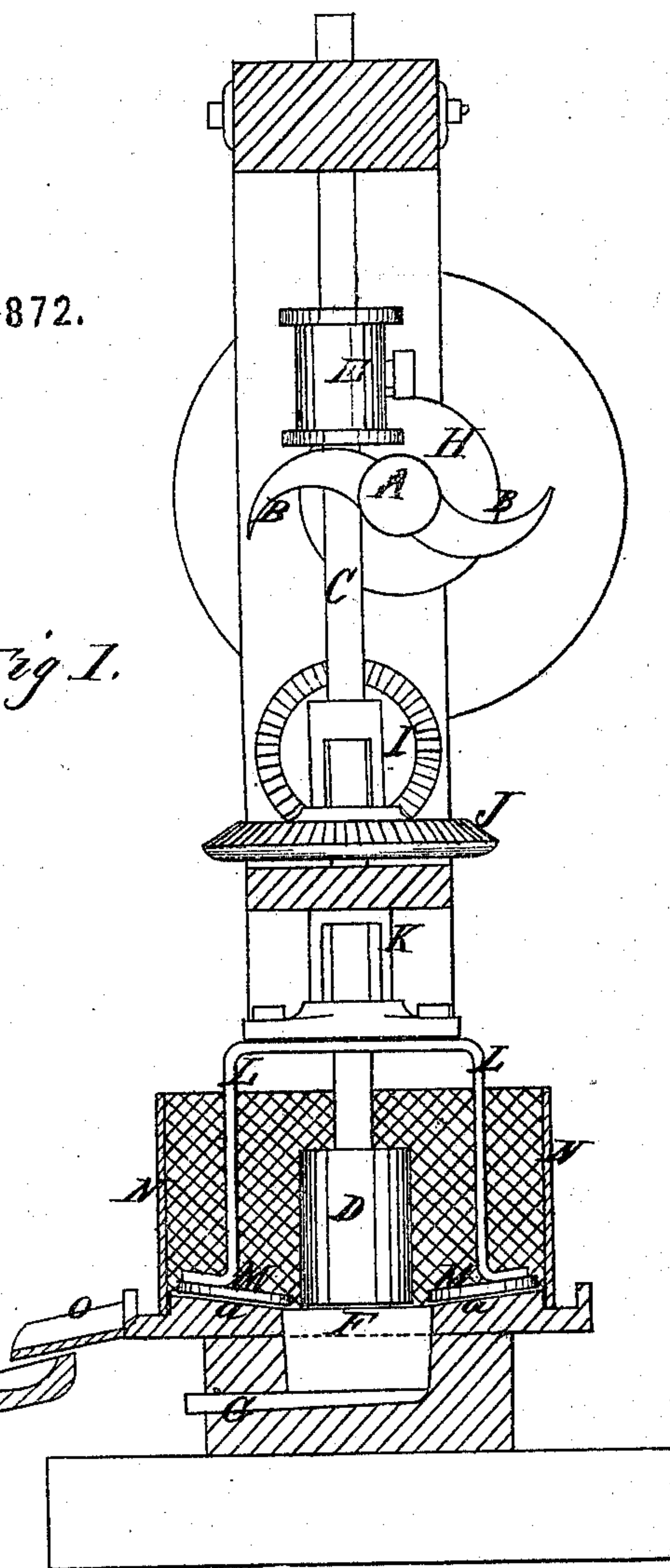
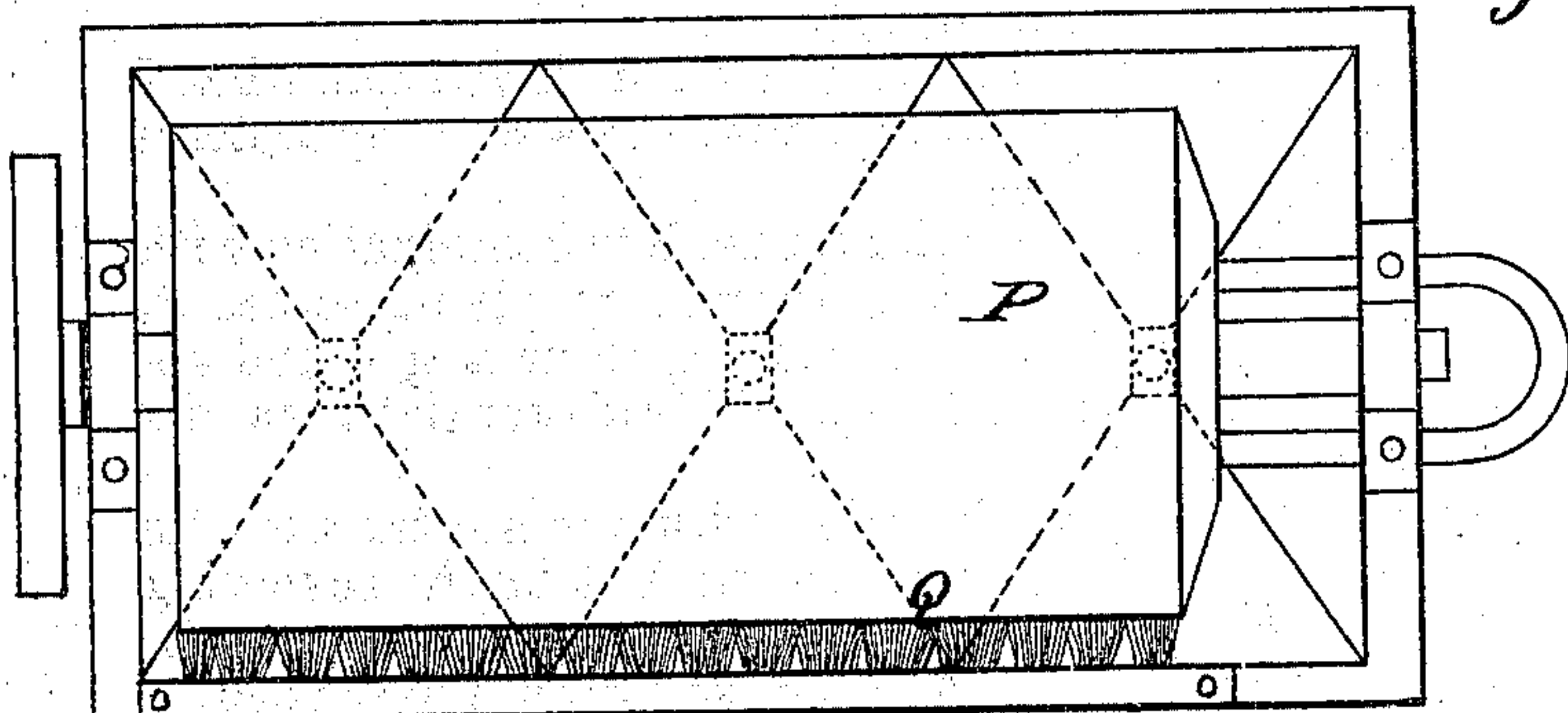
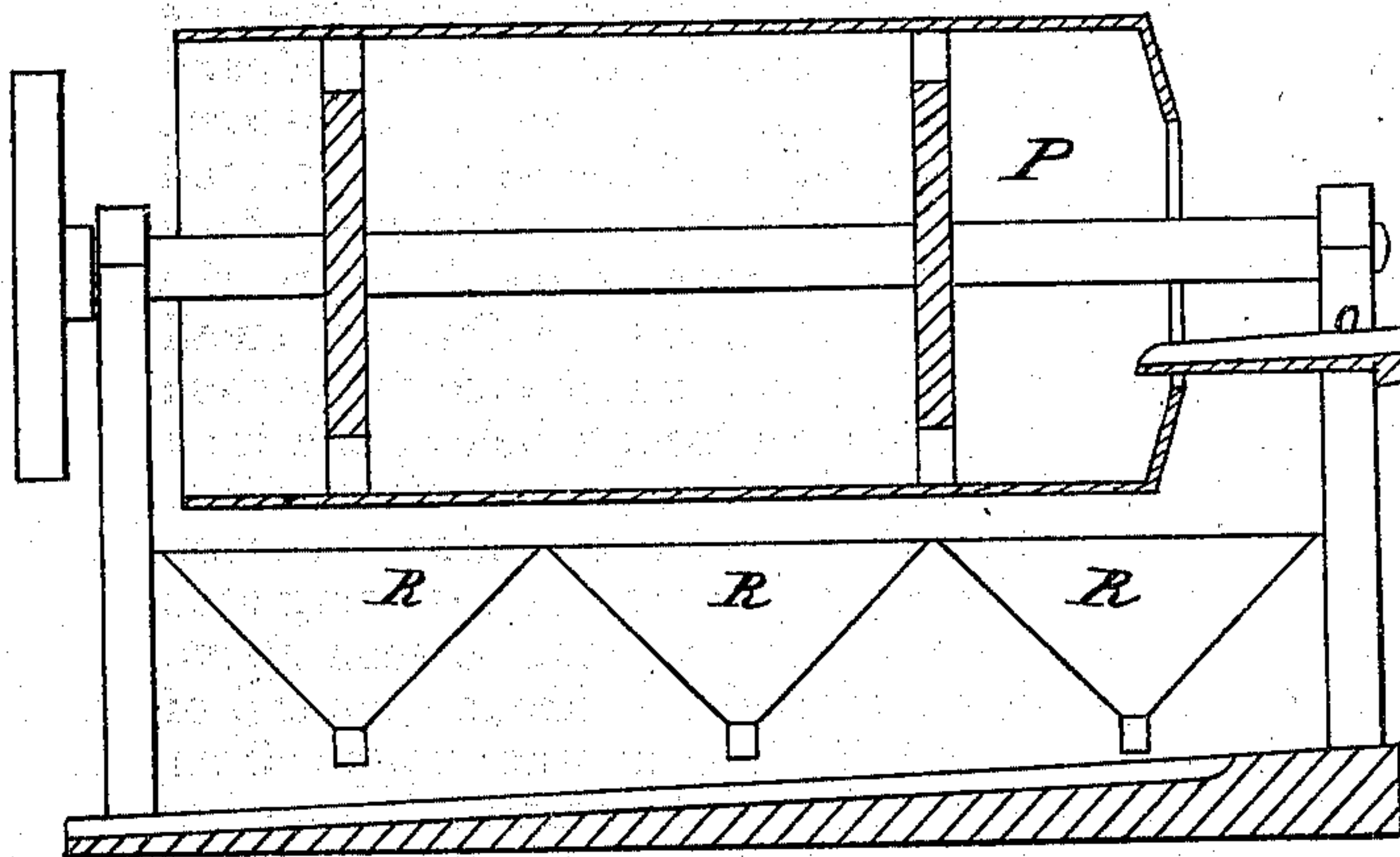
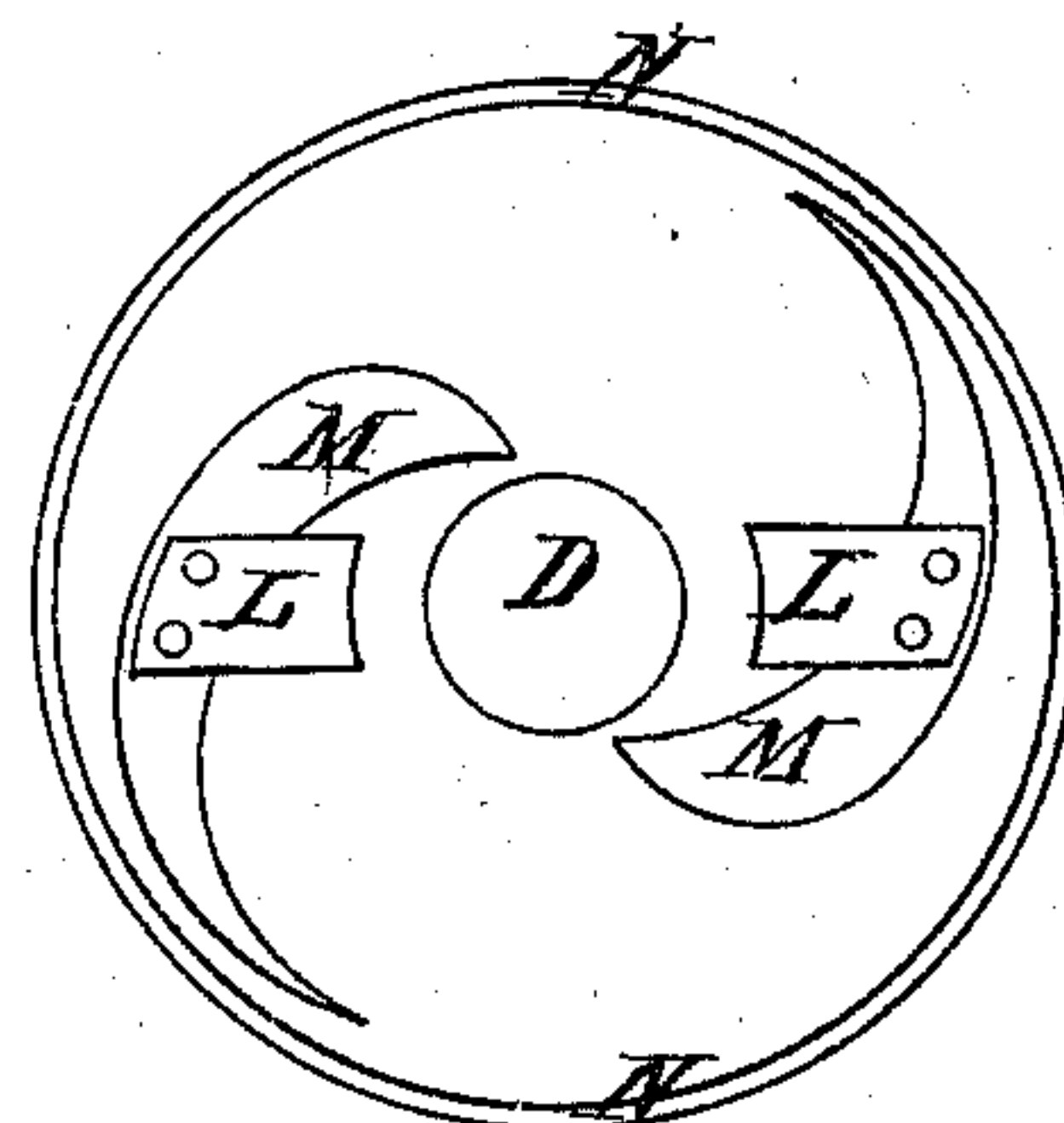


Fig. 2.



Witnesses

J. L. Boone  
Geo. W. Strong

Inventor

William C. Styles  
by His Attorneys  
Dewey & Co.



# UNITED STATES PATENT OFFICE.

WILLIAM C. STILES, OF NEVADA CITY, CALIFORNIA.

## IMPROVEMENT IN QUARTZ-MILLS.

Specification forming part of Letters Patent No. 124,637, dated March 12, 1872.

### SPECIFICATION.

*To all whom it may concern:*

Be it known that I, WILLIAM C. STILES, of Nevada City, county of Nevada, State of California, have invented an Improvement in Quartz-Mills; and I do hereby declare the following description and accompanying drawing are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

My invention relates to an improvement in quartz-mills, such as are employed for pulverizing gold and silver bearing rocks in order to fit them for the purposes of amalgamation. It consists in the use of two or more circular mortars having inclined floors, and provided with scrapers which revolve in a horizontal plane about the stamps so as to carry the rock to the center and beneath the stamps. From these mortars the pulverized rock passes out through coarse circular screens to a cylindrical screen, which revolves on a horizontal axis. The finer part of the pulp then passes through into hoppers beneath and from these is carried to the amalgamators, while the coarser particles which will not pass through this screen, will be discharged at the end into a hopper, from which they are conveyed to still a third mortar, where it is so pulverized as to pass through the surrounding fine screen.

Referring to the accompanying drawing for a more complete explanation of my invention, Figure 1 is a front elevation of battery showing the cylinder. Fig. 2 is a plan. Fig. 3 is an end view of the batteries and a side view of the cylinder.

A is the horizontal cam-shaft of a battery, carrying any suitable number of cams, B. In the present case only two stamps are shown, but it is obvious that any number can be employed and arranged in the same manner. C is a stamp-stem. D is the stamp, and E is the tappet by which the cam elevates the stamp. The mortar is made with an inclined bottom as at *a a*, and the shoe or die F is placed in an opening in the center. Whenever it is necessary to remove the shoe it can be done by inserting a wedge in the opening shown at G. A pulley, H, is keyed to the cam-shaft, and by means of a belt drives the gear I. This gear in turn moves the gear J which is secured to

the sleeve K, so that it turns freely about the stem C. Bent arms L are secured to the sleeve and carry at their lower ends the scrapers M, which serve to move the contents of the mortar toward the center so as to carry it all under the stamp. When sufficiently pulverized, the pulp is allowed to pass through a coarse circular screen, N, which surrounds the mortar, and from this it slides down the spout O, and is discharged into the horizontal cylindrical screen P, which is revolved partly under water so that the particles will be carried through the screen during its revolution and fall into the hoppers R. A sort of brush or scraper, Q, is arranged to bear against one side of the screen and remove any particles of sand or other matter that may chance to become wedged in the meshes of the screen, and tend to choke it so as to prevent the pulp from passing through. From these hoppers the finely-ground pulp is carried through small tubes or pipes, which connect with the bottom of the hoppers into a trough below, and from this it is conveyed directly into vats or other receptacle where the amalgamation is accomplished. The coarser particles not being able to pass through the revolving-screens above mentioned, are carried out through the end of the screen, and fall into another hopper from which they are carried by small tubes, as before described, to a third battery where they are further reduced before being sent to the amalgamating vats.

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

1. The circular screen N in combination with the hearths *o o*, cylindrical revolving screen P, brush Q, and hoppers R, all arranged and applied to a quartz-mill, substantially as described.

2. In combination with the mortar with its inclined floor, as shown, I claim the revolving scrapers M, with their operating devices, substantially as and for the purpose described.

In witness that the above described invention is claimed by me I have hereunto set my hand and seal.

WM. C. STILES. [L. s.]

Witnesses:

CHARLES MARSH,  
T. L. NICHOLSON.