

J. A. PEER.
Ore-Washers.

No. 142,647.

Patented September 9, 1873.

Fig. 1.

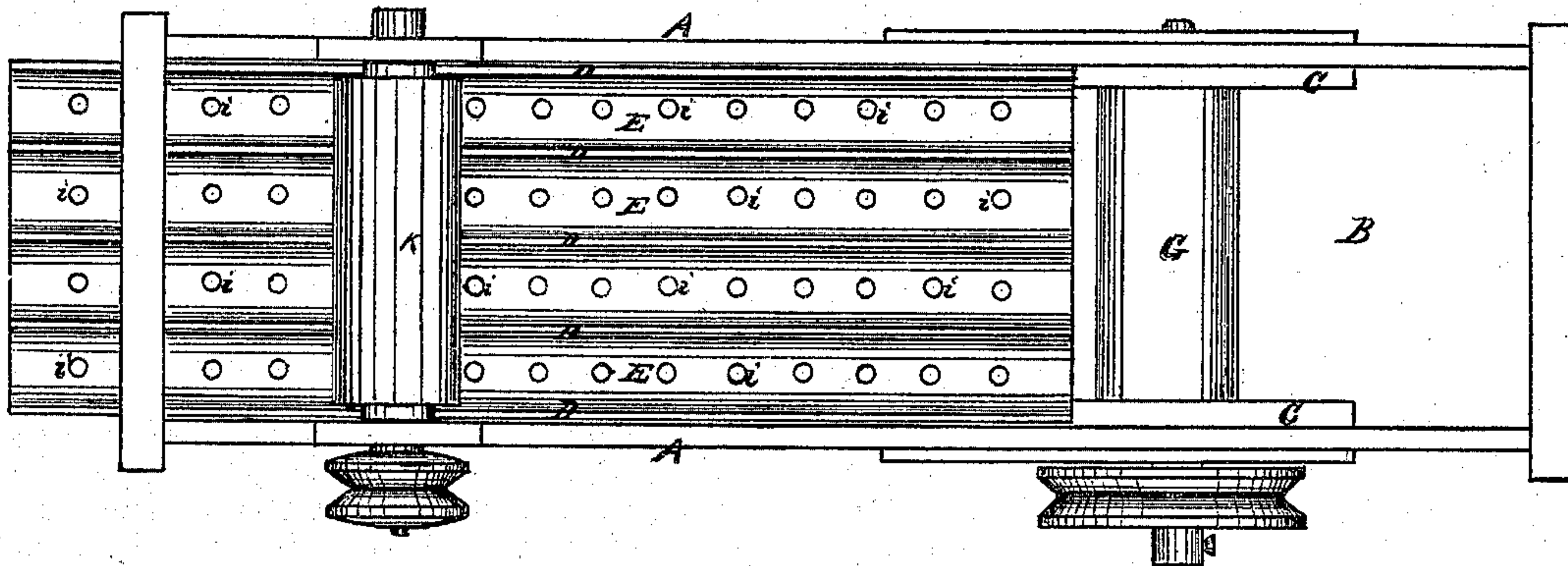


Fig. 2.

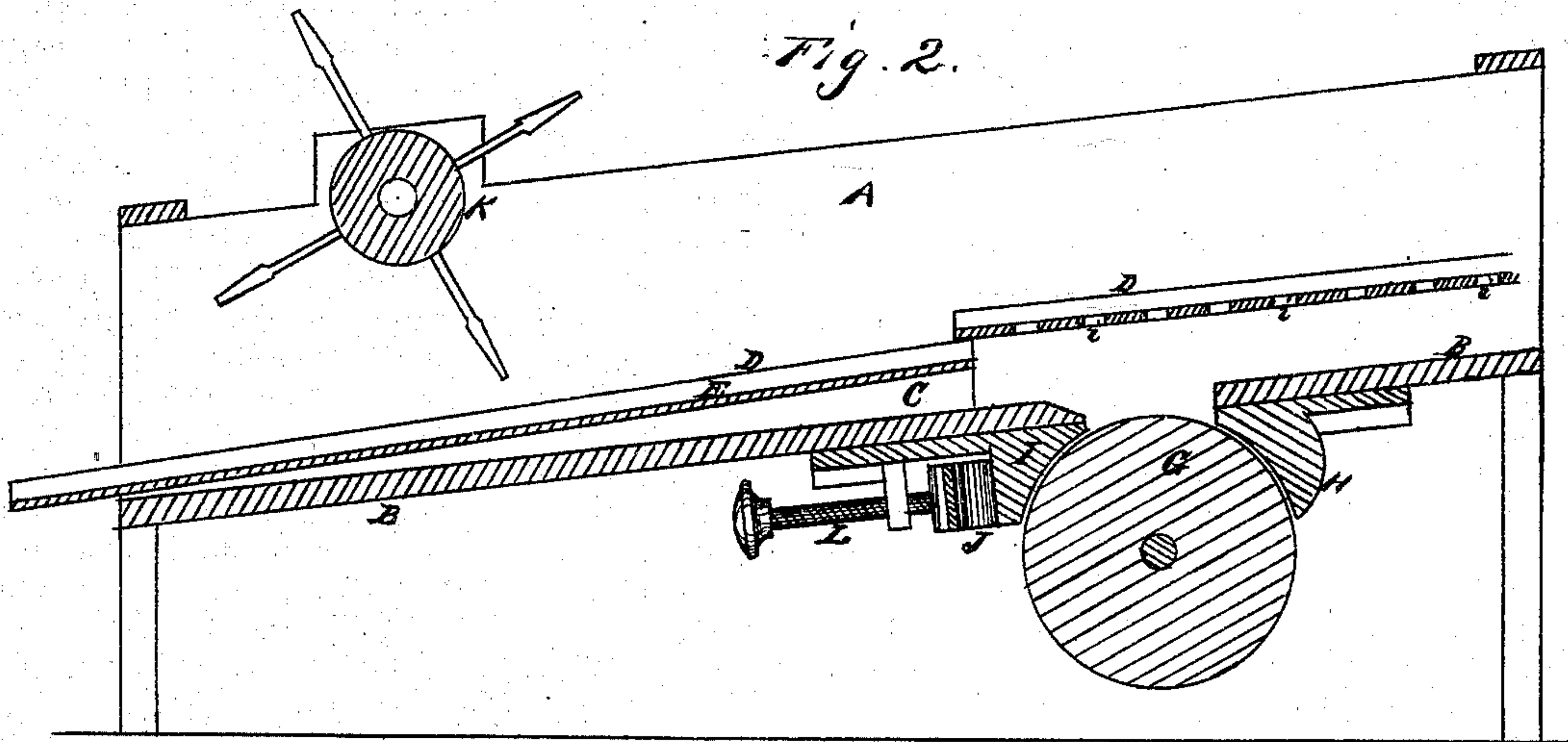
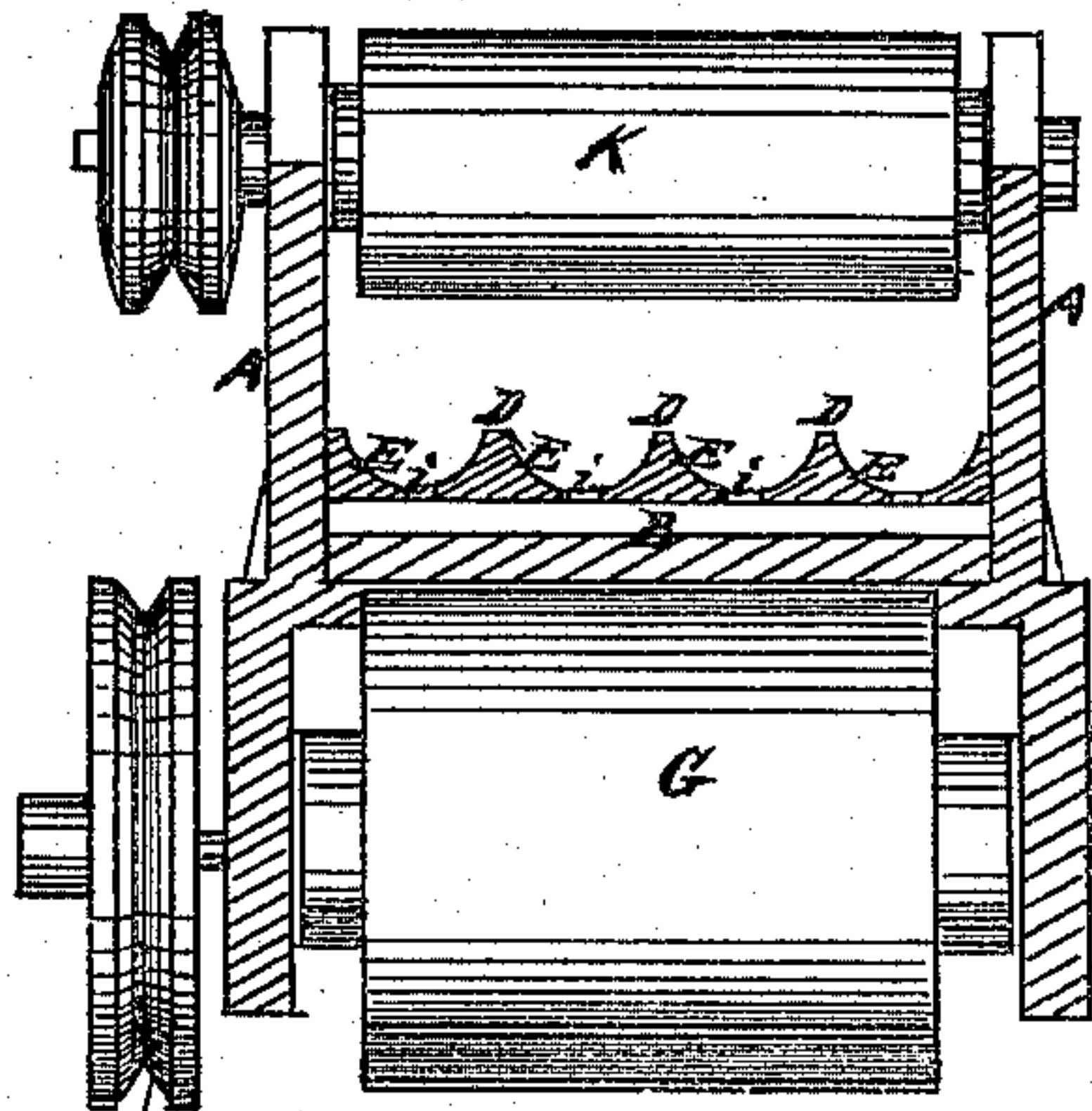


Fig. 3.



Witnesses
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By his Attys
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UNITED STATES PATENT OFFICE.

JOHN A. PEER, OF GRASS VALLEY, CALIFORNIA.

IMPROVEMENT IN ORE-WASHERS.

Specification forming part of Letters Patent No. 142,647, dated September 9, 1873; application filed June 18, 1873.

To all whom it may concern:

Be it known that I, JOHN A. PEER, of Grass Valley, Nevada county, State of California, have invented a Flume Riffle and Discharge; and I do hereby declare the following description and accompanying drawings 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 improvement without further invention or experiment.

The object of my invention is to provide an improved flume riffle and discharge which is more especially adapted to be employed in gravel, hydraulic, or free-gold washing where there is rich black sand and free gold, amalgam or other heavy substances, which it is desired to save without frequent stoppages; and it consists in the employment of a peculiar riffle, which is constructed of alternate longitudinal ridges and depressions, having a curvilinear bottom, either perforated wholly or in alternate sections, whereby the sand and metallic particles will become concentrated in the bottom of these depressions, and will move along without clogging until they reach some of the perforated discharge-openings, through which they will fall into the bed of the flume or sluice. The rocks and large stones will be carried down upon the ridges, and will not wear the bottoms of the depressions, nor tend to sweep the valuable particles along out of the sluice.

My discharging device consists in the employment of a cylinder extending across below the bottom of the sluice, and just beneath an opening made in this bottom. The cylinder turns closely against the opening upon one side, and upon the other has a spring-plate pressing against it, which constantly rubs the discharging gold, which may be rust, so that it will be easily amalgamated, and, at the same time, it will give enough to allow the concentrated material to pass through. This cylinder may be turned by a paddle-wheel in the flume, or by other convenient power.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a plan or top view of my riffle. Fig. 2 is a longitudinal section in elevation. Fig. 3 is a transverse section.

A A are the sides of a flume or sluice, and

B is the bottom. Side rails C C are placed at an inclination in the bottom of the sluice, and, as this has always a considerable inclination toward its discharge end, the riffles, which lie upon these inclined rails, can be so placed that the end nearest the discharge will lie above the front end of the following riffle, as shown, and yet have a sufficient slope to permit water to flow freely down the sluice, falling from the lower end of each upon the beginning or front end of the next one. These riffles are cast, preferably, of white iron, and consist of plates formed of alternate longitudinal ridges D D, of some height, and depressions E, which lie between these ridges. These depressions are made of a curvilinear cross-section, which gives a bottom of such shape that there will be no danger of clogging, while its shape is very superior for concentrating the heavy materials. I prefer to make this part of the riffle as thin as possible; and it is protected from wear or breakage by the ridges, over which the boulders, stones, and coarse gravel will pass out of contact with the bottom of the depressions. The ridges also serve to prevent the rocks from sweeping the sand and metals out of the sluice. In order to save the concentrated material I perforate the bottom of the depressions with numerous holes *i i*, through which the sand will fall upon the bottom of the sluice. I prefer to perforate only the alternate section of the riffles, so that the sand, which will concentrate on the plain depressions, will fall through the perforations on the riffle next below. Beneath each perforated riffle I make an opening or slot, which extends across the sluice. Just beneath this opening is a cylinder, G, mounted on journals, so as to rotate closely against the flanges or plates H and I placed below the sluice, and curved to fit the cylinder. The plate H is made fast to the bottom of the sluice, but the plate I is fitted to slide to and from the cylinder, so as to allow particles of varying size to pass through. A spring, J, serves to keep the plate I at all times as close as the passage of the sand will permit, and this partly polishes the rust gold, so that it will be amalgamated easily. A screw, L, serves to adjust the tension of the spring.

The cylinder G is rotated by any convenient means; but the simplest will be by a water-

wheel, as at K, which will be turned by the current in the sluice; and power can be communicated by a belt.

By this construction I am enabled to save all the precious metals and heavy black sand, which is often very rich in free gold, but which will fill up the ordinary sluice-riffles, so that after a short time everything will be carried out of the sluice as certainly as if there were no riffles in it. This necessitates frequent stoppages for the purpose of cleaning up, which my constant-discharging device remedies. The riffles will ordinarily be made in sections of one foot wide by four feet long, so as to be easily handled and removed, if required; and the ridges between the depressions may be rounded, although this will occur by the natural wear in time.

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

1. The riffles D E, in combination with the inclined side rails c c, as and for the purpose described.

2. The discharging-cylinder G, rotating between the fixed flange H and the adjustably-sliding flange I at the bottom of the flume, constructed to operate as a constant-discharging device, substantially as herein described.

3. A flume or sluice riffle and discharge, consisting of the longitudinally corrugated and perforated riffles, placed as shown, in combination with the rotating discharge-cylinder G, the whole operating substantially as and for the purpose herein described.

In witness whereof I hereunto set my hand and seal.

JOHN ANTONE PEER. [L. S.]

Witnesses:

GEO. H. STRONG,
C. M. RICHARDSON.