

H. B. MOORE.  
Pulverizing Machines.

No. 198,994.

Patented Jan. 8, 1878.

Fig: 1

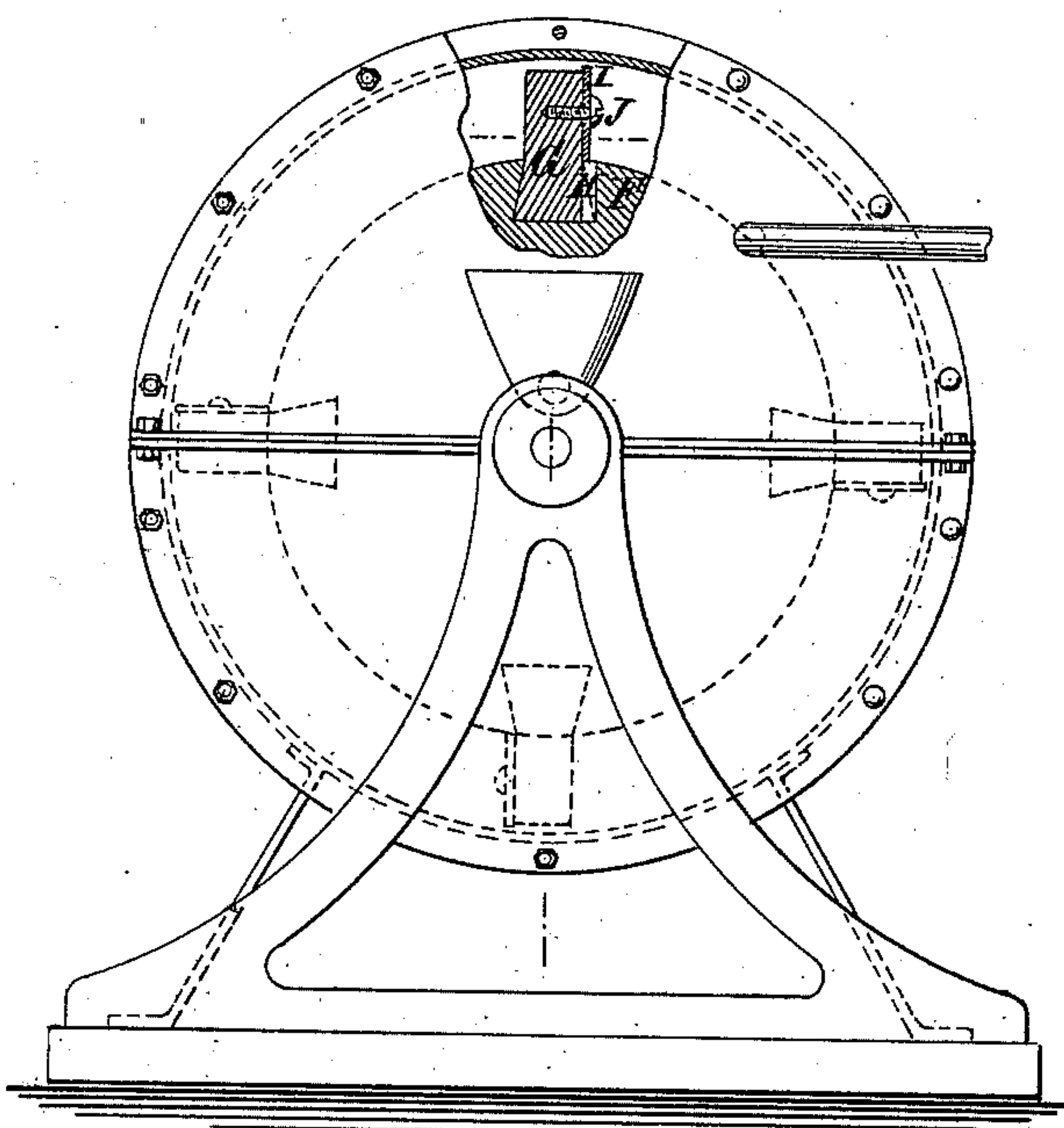


Fig: 2.

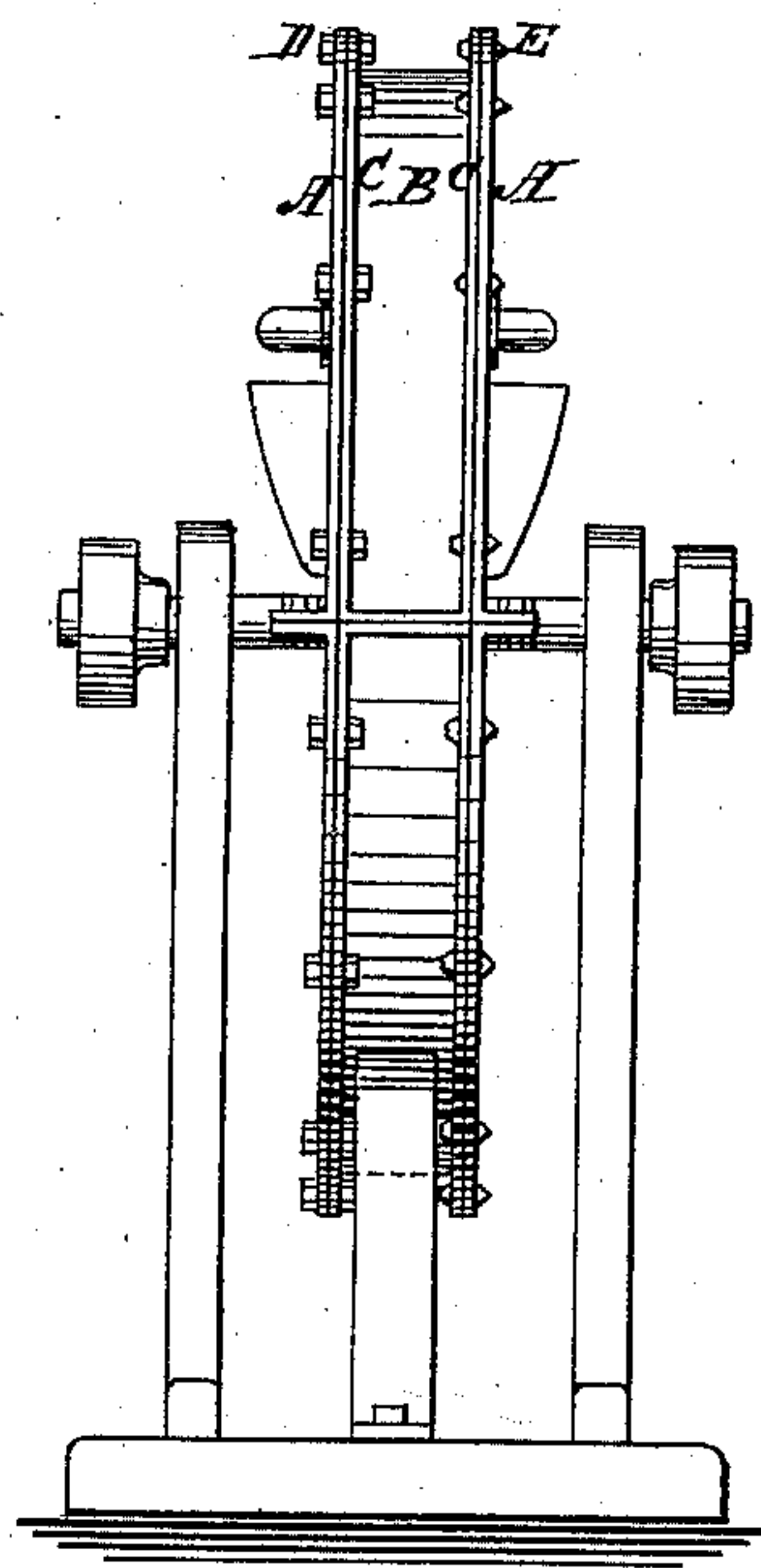


Fig: 3.

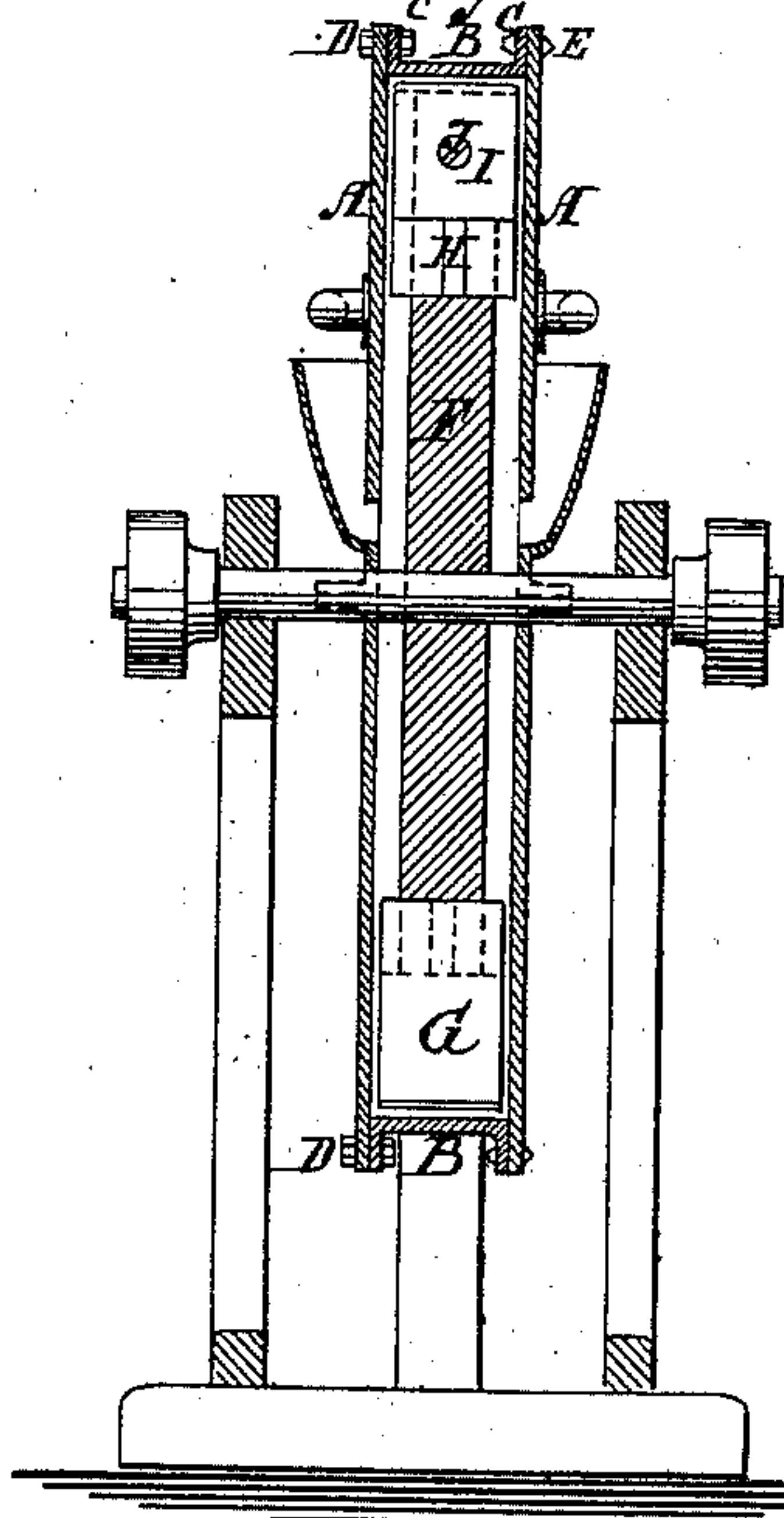
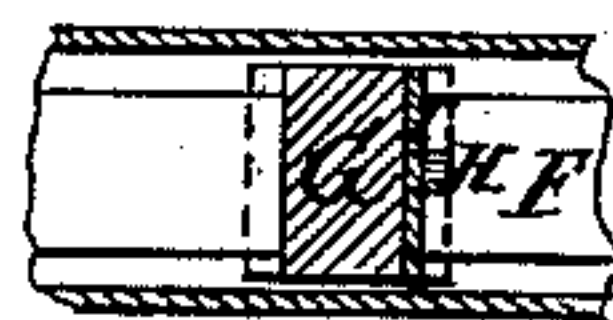


Fig: 4.



Witnesses:

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Inventor:

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att'y.



# UNITED STATES PATENT OFFICE.

HARRISON B. MOORE, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN PULVERIZING-MACHINES.

Specification forming part of Letters Patent No. **198,994**, dated January 8, 1878; application filed November 29, 1876.

*To all whom it may concern:*

Be it known that I, HARRISON BRAY MOORE, of Brooklyn, Kings county, and State of New York, have invented new and useful Improvements in Pulverizing and Grinding Machines, of which the following is a specification:

This invention has reference to improvements on machines used for disintegrating, grinding, or reducing to powder various substances, such as earths, stones, quartz, grains, and other natural products, also manufactured articles, such as litharge, colors, and other chemical compounds, and also all other substances requiring to be finely pulverized; and it consists, essentially, in a mode of securing the keys which fasten the beater projections in the disk by the wearing-plates.

In the accompanying drawings, Figure 1 is a side elevation of my improved machine with part of the case removed. Fig. 2 is a front elevation. Fig. 3 is a transverse section of the case and the rotary beater taken parallel with the shaft. Fig. 4 is a detail of the revolving beater in section.

The machine consists, essentially, of the stationary metallic case and the inclosed revolving beater, (shown in the drawing,) which, in general form, are like machines of this character heretofore used, but which have been of such faulty construction that they have failed to stand the wear of use, which, owing to the high velocity required of the beater, is very severe.

Heretofore the two sides or heads A of the case have been fastened to rim B by bolts passing through them and the flanges C of the rim, and extending across the front of the rim, so that they were surrounded by the atmosphere between the two flanges, and thus were not so much heated as the rim by the friction of the machine, and, consequently, would not expand equally with it; and, generally, the case has been made of cast-iron, while the bolts were wrought-iron, which aggravated the difficulty of unequal expansion, thus causing looseness of the case and breakages, which prevented the keeping of the case tight, as it is required, and soon destroyed it altogether.

For remedying this defect I propose to make the case entirely of rolled metal, preferably Bessemer steel, and to bolt or rivet the heads

or sides A of the case independently to the flanges C, as shown at D and E, thus using much shorter bolts or rivets, and intimately confining them with the metal of the case, so that both are alike exposed to heat and cold, and will expand and contract alike, and thus avoid all undue strains on the bolts or rivets, and enable the case to keep perfectly tight.

The revolving beater, which consists of a disk, F, with projections G, has been heretofore constructed of cast metal for the disk, with steel or wrought-iron projections bolted, screwed, or riveted on, and, like the case, has been subject to looseness by unequal expansion and contraction, which caused the projections to break off frequently, and being very heavy and running very fast, they were projected through the case with great force, destroying it and endangering life and property.

My improvement in the beater consists of making both the disk and projections of rolled or hammered metal, preferably steel, and in connecting them by dovetail joints, as shown, whereby they do not become loose by expansion or contraction, and it is impossible for the beaters to be thrown off tangentially, even though they be not tightly fitted, and all bolts and screws for holding them on are avoided, only a small key, H, being required to fasten them against lateral movement, which key may be very light, as the machine does not exert any force against it; whereas, in the common arrangement, the bolts are subjected to the powerful effect of the centrifugal force generated by the rotation of the disk, besides the strains incident to the grinding of the material under treatment.

I represents wearing-plates of hardened steel, applied to the faces of the projections for protecting them from wear, and for being removed from time to time to renew the wearing-surfaces more cheaply than the projections could be, which plates, together with the faces of the projections to which they are attached, I propose to make square, and to fasten by a bolt, J, in the center, so that all the edges of the plates will serve alike at the wearing-point, which is at the outermost edge from the center disk, and the plate may be turned from time to time to change the edges as they wear



away; and the plates may also be reversed as to their sides, so that one plate will present eight wearing-edges.

The keys I propose to fit so as to drive them in from the periphery of the disk on the side to which the wearing-plates are applied, as shown, in order to secure them by the wearing-plates, which I fasten on above the heads of the keys.

To enable the keys to be removed readily when required, they may have hook-heads, and be sunk in a recess in the face of the disk, allowing them to be pried out.

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

The wearing-plates of the beater projections and the keys for fastening said projections, combined and arranged in the manner described, for locking the keys by the plates, substantially as specified.

HARRISON B. MOORE.

Witnesses:

F. A. THAYER,  
WM. J. MORGAN.