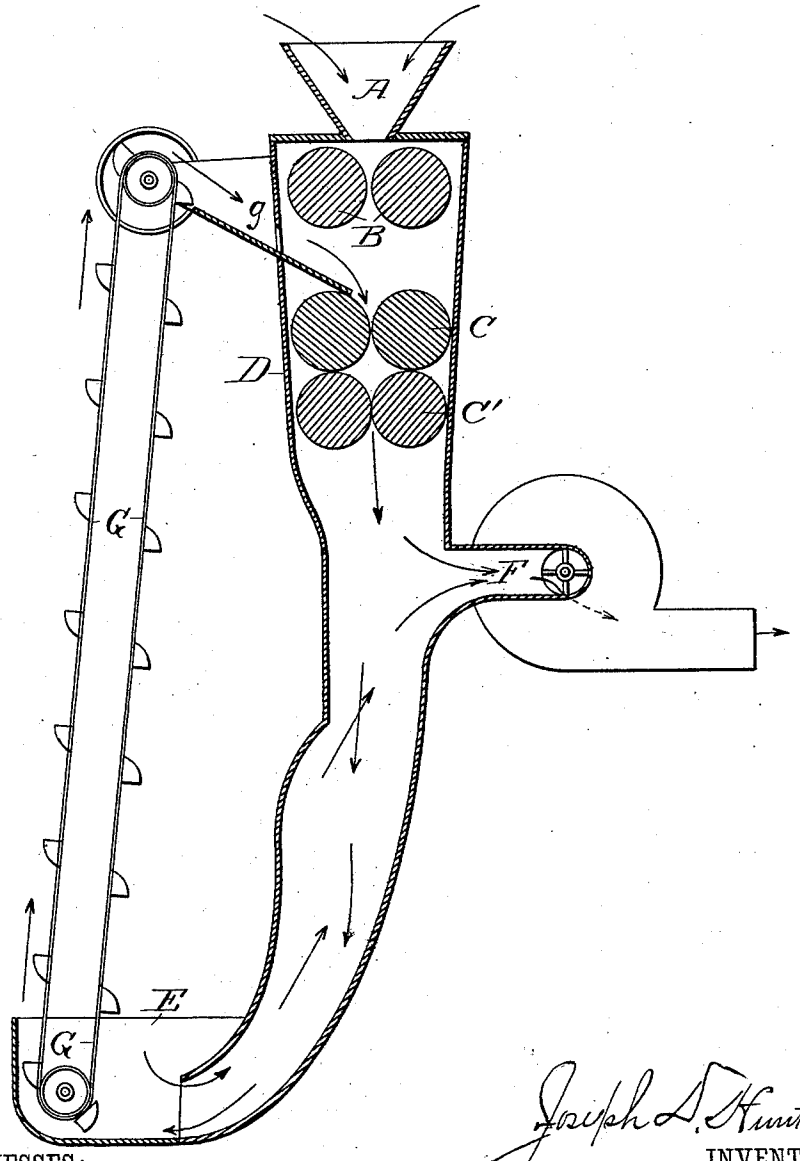
(No Model.)

J. D. HUNTINGTON.

ORE PULVERIZER AND SEPARATOR.

No. 302,256. Patented July 22, 1884.



WITNESSES:

D. S. Hallock

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UNITED STATES PATENT OFFICE.

JOSEPH D. HUNTINGTON, OF CHICAGO, ILLINOIS.

ORE PULVERIZER AND SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 302,256, dated July 22, 1884.

Application filed December 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH D. HUNTINGTON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ore Pulverizers and Separators; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to letters of reference marked thereon, which form a part of this specification.

The principal difficulty that has heretofore attended the crushing of ore has been the inability to free the finer crushed particles of ore from the coarser and heavier ones.

My invention obviates the above difficulty and effectually separates the finer from the coarser particles of ore after they have left the crushing devices, carrying the finer particles to a separate chamber for treatment, and returning the coarser particles to the crushing devices to be recrushed. This I accomplish by exhaust mechanism, exhausting the air immediately below the pulverizing-rollers and at an angle to the crushed and falling ore, and by the means for returning the coarser ore to the pulverizing-rollers.

The drawing represents a vertical transverse section of the apparatus.

Reference being had to the drawing, A represents a suitable hopper, into which the ore is placed preparatory to being crushed or disintegrated.

B represents the first pair of crushing-rollers, placed immediately below the hopper A, and C and C′ are the second and third pairs of rollers, arranged a suitable distance below the first pair of rollers in the same vertical plane. These rollers are arranged in a suitable case, D, in the side walls of which they have their bearings, which latter, it will be understood, are sufficiently yielding to permit of the passage between them of the ore to be crushed. This case D may, for convenience of expression, be divided into an upper chamber, in which operate the rollers, and a lower chamber, extending below the lower pair of rollers. The lower chamber extends straight downward from the lowest pair of rollers for a distance sufficient for the atmospheric resistance to separate and loosen the crushed ore, and then deflects to one side, so as to guide the coarse particles of ore into the bin E, from whence, as will hereinafter be explained, it is conveyed back to the crushing-rollers. Opening into the lower chamber of the case D at about the junction of the said straight and curved parts thereof is the exhaust-passage F, leading to the exhaust-fan, which latter may be placed in any convenient position, as desired. This exhaust is arranged at right angles to the falling ore, and when in operation it creates a draft from both the upper and lower chambers, but principally from below, because from that direction the air has a less obstructed passage to the same. Thus as the draft passes upward it is directly opposed to the falling particles of ore, and, together with the more direct suction of the exhaust, effectually removes from the disintegrated ore the dust and finer particles thereof, conveying them to a separate chamber, where they are properly treated. The heavier coarser particles continue their downward course, and are guided into the bin E, from whence they are elevated by an elevator, G, to a chute or side hopper, *g*, and there delivered to be fed to the second pair of rollers.

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

The herein-described ore pulverizer and separator, consisting of the rollers, the exhaust-outlet arranged below the same, as set forth, the case inclosing the rollers, and the means for elevating the disintegrated coarser ore to be recrushed, substantially as hereinbefore set forth.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

JOSEPH D. HUNTINGTON.

Witnesses:

JAMES H. COYNE,

FRANK D. THOMASON.