J. V. POMEROY.

Ore Crusher.

No. 48,999. Patented July 25, 1865.

Fig. 3

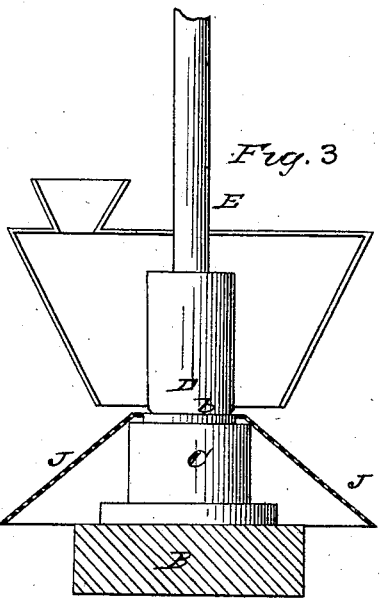


Fig. 1

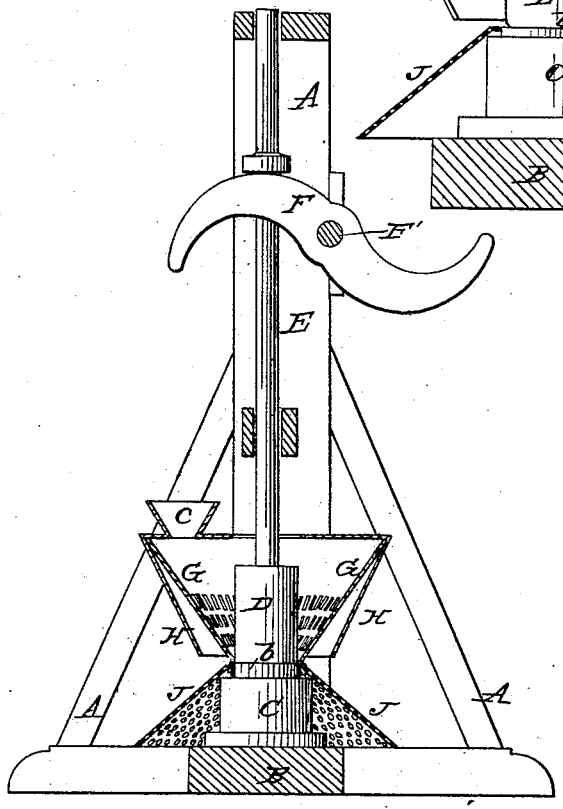
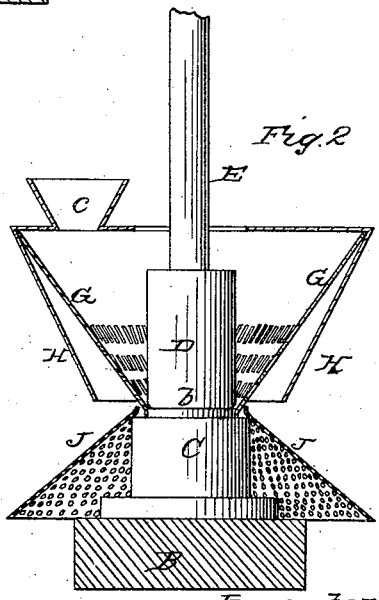


Fig. 2



Witnesses
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UNITED STATES PATENT OFFICE.

J. V. POMEROY, OF UTICA, NEW YORK.

IMPROVEMENT IN ORE-CRUSHERS.

Specification forming part of Letters Patent No. **48,999**, dated July 25, 1865.

To all whom it may concern:

Be it known that I, J. V. POMEROY, of Utica, county of Oneida, and State of New York, have invented a new and Improved Ore-Crusher; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical section through the improved machine. Fig. 2 is an enlarged sectional view of the separating contrivances. Fig. 3 shows a modification of Figs. 1 and 2.

Similar letters of reference indicate corresponding parts in the three figures.

My invention relates particularly to that class of ore-crushing machinery wherein stampers or hammers are employed for pulverizing the ore; and it consists in screening or separating the fine from the coarser portions of the ore as they leave the crusher, and also as they leave the hopper within which the crusher or hammer works, as will be herein described.

To enable others skilled in the art to understand my invention, I will proceed to describe its application to one form of crushing-machine.

In the accompanying drawings, A represents the frame of the machine, which is erected upon a firm unyielding foundation, B, and braced in a suitable manner to give it strength.

C is an anvil upon which the ore is crushed, and D is a vertically-reciprocating hammer, which is on the lower end of a stem, E, that is guided by the horizontal beams of the frame A, as shown in Fig. 1. This hammer receives its upward movement from an S-shaped lifting-cam, F, which is keyed to the rotating shaft F′. Said cam acts upon a collar, *a*, on the hammer-stem and lifts the hammer, at the same time giving it a rotary motion about its axis. When one of the curved arms of the lifter releases the hammer it falls by its own gravity and strikes the anvil or the ore which may be upon this anvil.

The upper end of the anvil C is slightly reduced so as to form a neck, *b*, for receiving around it the lower end of a hopper, G, which is represented in the accompanying drawings of a conical form, with the base or flaring end of the cone uppermost. The top of this hopper extends above the hammer and incloses it when it is upon the anvil. An opening is made through the top of the hopper G for the passage of the hammer, and another opening made through this top for the purpose of feeding the ore to be crushed through the small hopper, *c*, into the large one. Hopper G is perforated, as represented in the drawings, Figs. 1 and 2, for the purpose of admitting of the escape of the pulverized ore when it is sufficiently reduced under the hammer.

Surrounding the hopper G is a jacket, H, the lower end of which is open to admit of the free escape of the pulverized ore from the hopper G. This jacket serves as a fender for preventing the finely-pulverized ore escaping through the sides of hopper G from flying away from the machine. It serves as a concentrator for delivering the crushed ore upon the apex of a cone-screen, J, which is arranged around the anvil C, directly beneath the hopper G, as shown in the three figures of the drawings.

The screen J is intended for separating the fine dust from the crushed ore as it falls from the crushers or the hopper G, and for this purpose its perforations may be much finer than those through the hopper.

In Fig. 3 it will be seen that the perforated hopper G is dispensed with and that the screen J performs all the work of separating the fine from the coarser ore as it falls from the crusher.

The jacket or fender H may be employed to advantage with the single screen J; or some other contrivance may be used instead of this jacket for preventing the ore from scattering during the crushing operation.

By my invention I confine the ore about the top of the anvil C until it is sufficiently fine to allow it to escape, and by inclining the sides of the hopper G, as shown, the ore which is within this hopper will be kept under the hammer until it is in a condition to escape through the sides of the hopper.

Where the perforated hopper is employed in conjunction with the secondary screen J, the perforations through the hopper may be much larger than would be desirable if the secondary screen were not used, for in this case the coarse detritus which would not pass through

the secondary screen can be passed a second time through the hopper G to be recrushed.

I do not desire to confine my invention to the particular form of crushing machinery herein described, as it is applicable to crushing machinery of various kinds and for various purposes where the substance crushed requires to be screened.

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

1. The hopper G, perforated circumferentially, or on its sides, and applied to an ore-crusher for the purpose of separating the finer quartz from the coarser during the crushing process, substantially as herein described.

2. The jacket H, in combination with the screen J and crusher D C, substantially as and for the purpose described.

3. The combination of the diffusing-screen J and crusher C D, substantially as and for the purpose described.

4. Screening pulverized ore upon two or more surfaces, one of which concentrates while the other diffuses the ore during the crushing process, substantially as herein described.

J. V. POMEROY.

Witnesses:
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