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E. THORNTON. & W. THORNTON.

Improvement in Ore-Crushers.

No. 130,084. Patented July 30, 1872.

Fig. 1.

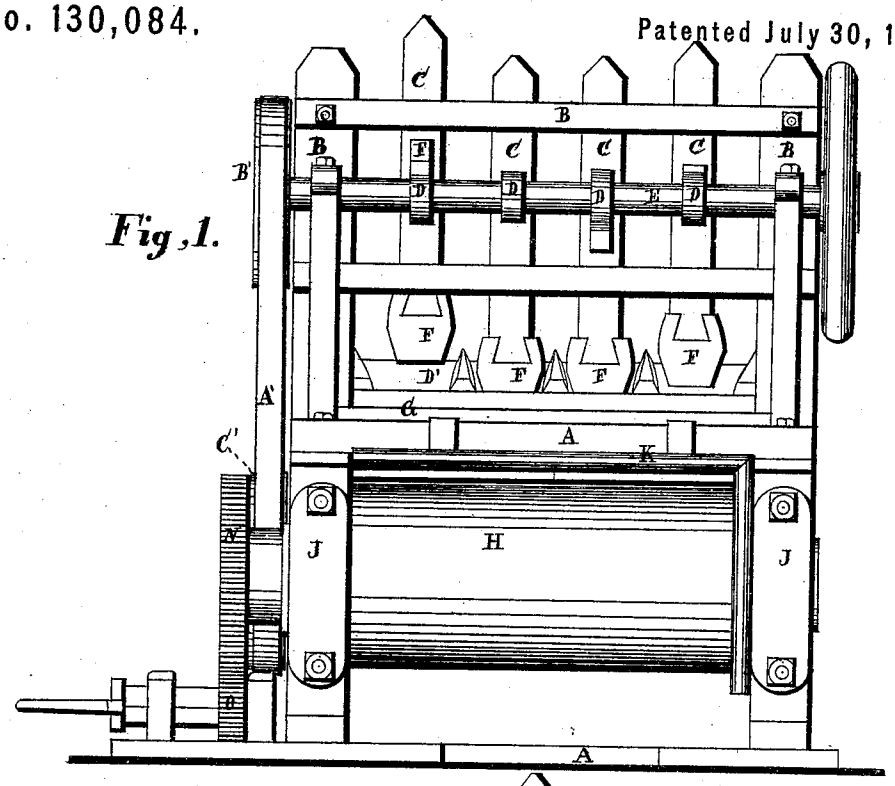
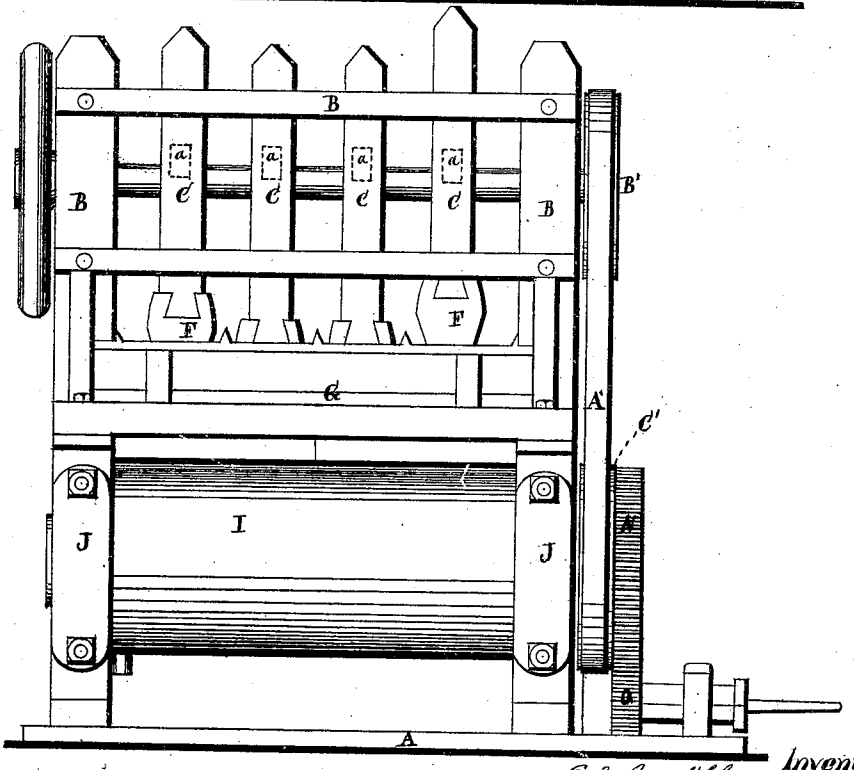


Fig. 2.



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Fig. 3.

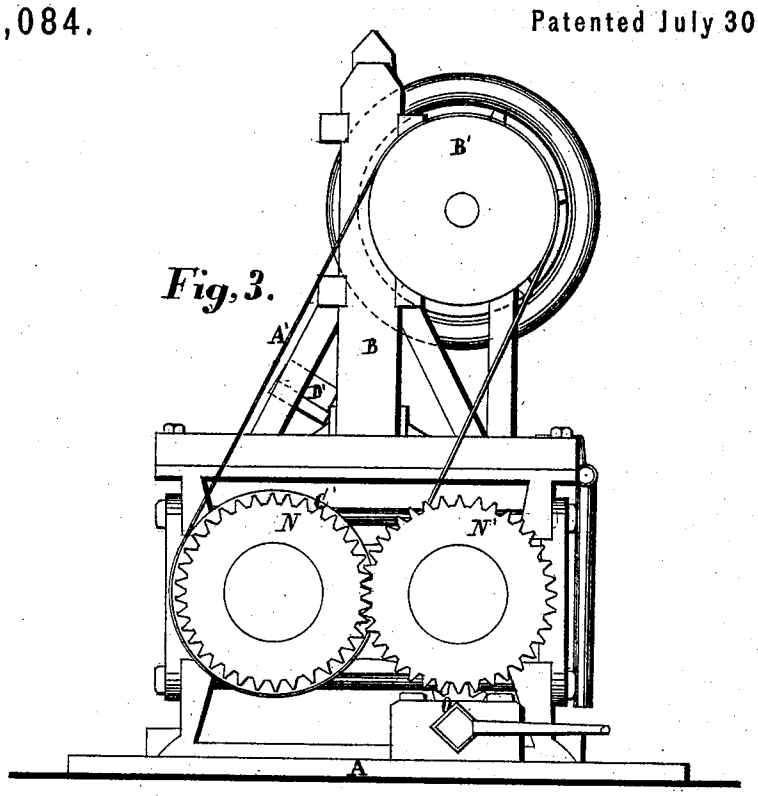
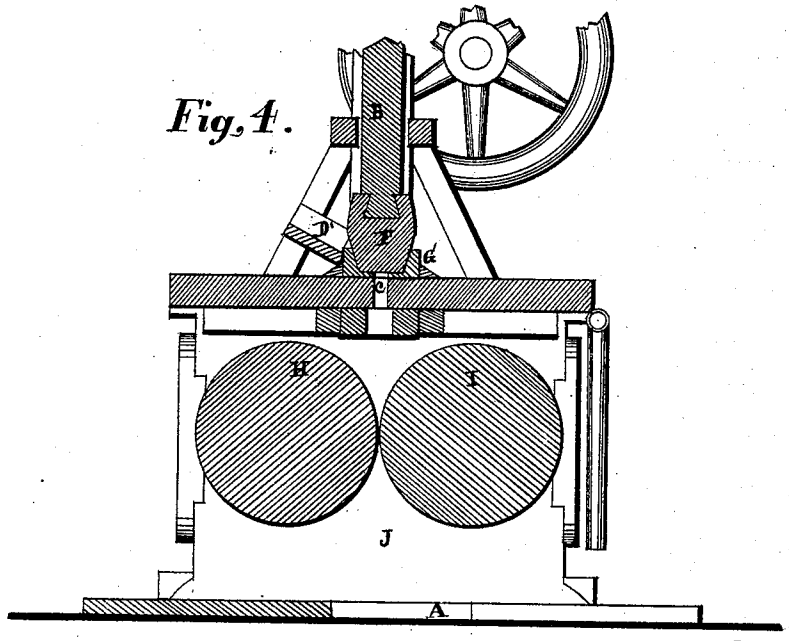


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDWARD THORNTON AND WILLIAM THORNTON, OF SHARON, PENNSYLVANIA.

IMPROVEMENT IN ORE-CRUSHERS.

Specification forming part of Letters Patent No. **130,084**, dated July 30, 1872.

To all whom it may concern:

Be it known that we, EDWARD and WILLIAM THORNTON, of Sharon, in the county of Mercer and State of Pennsylvania, have invented a certain new and Improved Machine for Preparing Ores for Smelting, &c.; and we do hereby declare that the following is a full, clear, and complete description thereof, reference being had to the accompany drawing making part of the same.

Figure 1 is a front elevation of the machine. Fig. 2 is a rear elevation. Fig. 3 is an end elevation. Fig. 4 is a transverse vertical section.

Like letters of reference refer to like parts in the several views.

SPECIFICATION.

The nature of this invention relates to the preparation of ores for smelting; and the object thereof is the combination of two machines for reducing the ores—first, by stamping them to a certain fineness, and then passing them, thus reduced, immediately to the rolls for crushing, by allowing the stamped ores to fall directly from the beds of the stamps, through the bottom thereof, directly onto the rolls, arranged for that purpose directly under the stamps.

Of the above-specified machine the following is a more full and complete description.

In the drawing, A is a platform, on which is mounted a frame, B, Fig. 3. In the cross-beam of said frame is arranged a series of stamps, C, which are vertically operated by the toes D, secured on the shaft E, Fig. 1, journaled in a section of the frame, and which, as the shaft revolves, the toes thereof lift on lugs projecting from the side of the stamps, arranged in corresponding relation thereto. Said lugs are indicated by the dotted lines *a*, Fig. 2. F are the feet of the stamps, the sides of which taper downward, and are made to drop into corresponding beds, G, as shown in Fig. 4. Through the bottom of each bed is cut a narrow slot, *c*, the purpose of which will presently be shown. H I, Fig. 4, are a pair of smooth-faced rollers, having their bearings in the housings J, on which are supported the platform and stamps above described. Said rollers run close upon each other, as shown in Fig. 4, the line of contact being immediately under the opening or slots *c* referred to, which slots are in line therewith. Said rollers are operated by the gearing N N′, Fig. 3, the wheel N′ engaging a pinion, *o*, to which the power is applied. The shaft E, carrying the toes D, above alluded to, is driven by a belt, A′, and pulleys B′ C′.

The practical operation of the above-described machine is as follows: The ore to be crushed is conducted into the stamp-beds by throwing it in the chutes D′, Figs. 1 and 4, down which it slides into the beds, wherein it is reduced by the action of the stamps to a degree of fineness that will allow it to pass through the slots in the bottom of the stamp-beds, from which it falls down upon the rollers, and is thereby crushed between them to the proper degree of fineness for the furnace. By thus superimposing the stamps upon the crushing-rollers, and in such relation to them as described, we are enabled to reduce the ores to the necessary degree of fineness by once handling it, as the stamped ore falls directly from the stamps to the rollers, thereby saving the time, labor, and expense of shoveling it from the stamp to the rollers, as is usually done by the use of two separate detached machines for reducing ores. K, Fig. 1, is a pipe for conducting water to the rollers, so that they can be kept clean by preventing the crushed ore from adhering to them. The beds of the stamps are so constructed that they can be removed from under the stamps for the purpose of repairs, or, when worn out, to be replaced by new ones.

Claim.

What we claim as our invention, and desire to secure by Letters Patent, is—

The combination of the herein-described stamping apparatus, consisting of the stamps C and perforated beds G, when operated as described, with the crushing-rollers H I, as arranged to co-operate jointly therewith, in the manner and for the purpose set forth.

ED. THORNTON.
WILLIAM THORNTON.

Witnesses:
W. H. BURRIDGE,
JOHN D. WILLIAMS.