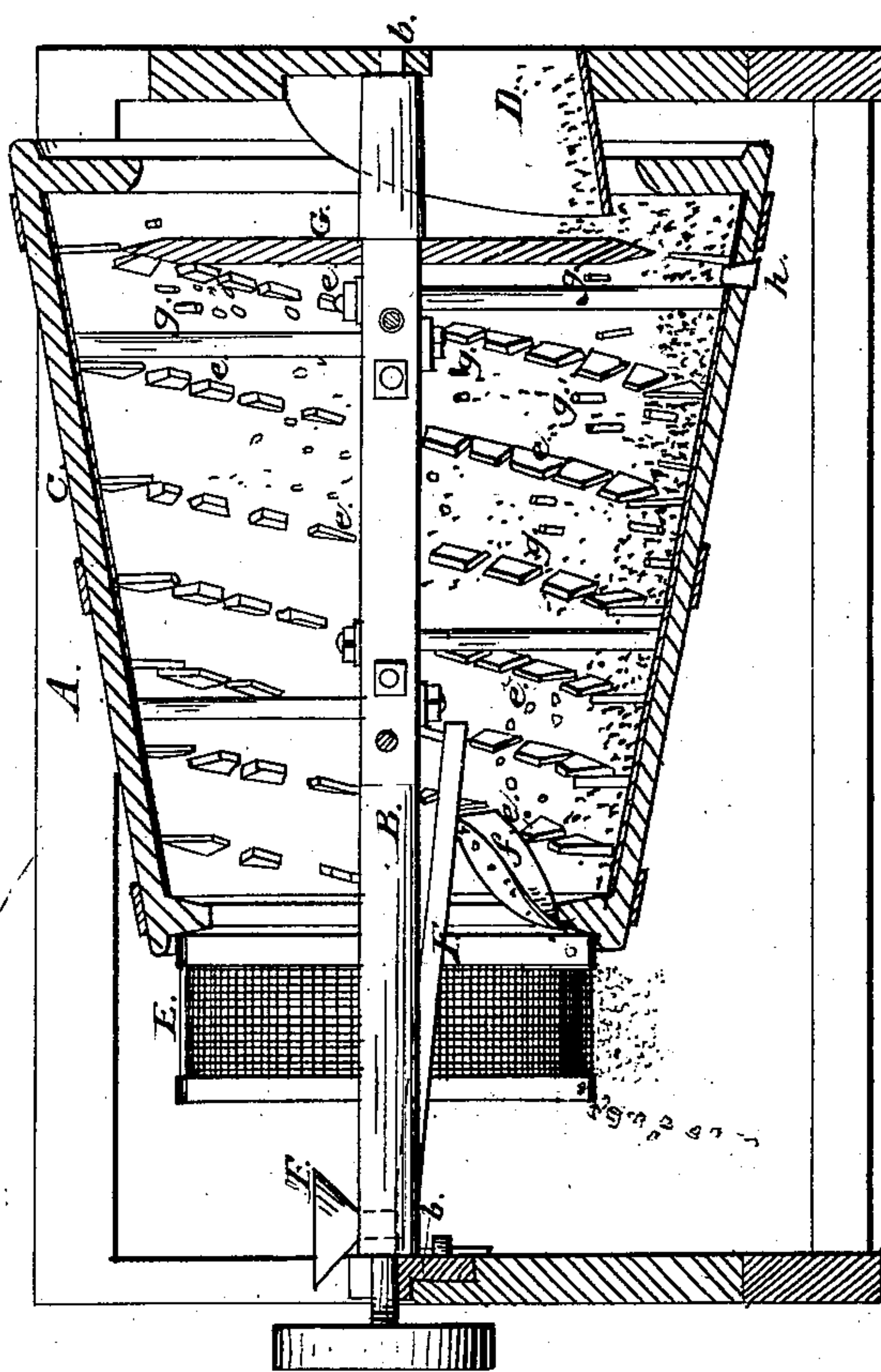


No. 14,388.

PATENTED MAR. 11, 1856.

W. L. CARTER.
ORE WASHER.



UNITED STATES PATENT OFFICE.

WM. L. CARTER, OF MARIETTA, PENNSYLVANIA.

ORE-WASHER.

Specification of Letters Patent No. 14,388, dated March 11, 1856.

To all whom it may concern:

Be it known that I, WILLIAM L. CARTER, of Marietta, in the county of Lancaster and State of Pennsylvania, have invented a new and useful Improvement in Rotary Ore-Washers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, which represents a longitudinal central sectional elevation of an ore washer constructed according to my invention.

This invention consists in furnishing the interior of a revolving close sided conical vessel which is arranged in such a manner that the lower side always occupies a position oblique to the horizon, with such an arrangement of shovels that by the revolution of the vessel the ore fed in at the lowest end is caused to be gradually carried by the shovels, to and out of the highest end and washed in its passage by water admitted at the highest end and meeting it during its ascent, by the natural flow of said water.

To enable those skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A, is the frame of the machine carrying the journal boxes *b, b*, of the central shaft B, of the revolving washing vessel C. This vessel C is made conical as represented, as that form enables the lower side to occupy always an inclined position. The vessel may be made of wood or iron but the most simple and cheap way of constructing it is to make it of staves bound by hoops. The ends of the vessel are open nearly to their full size. At the largest end, which is also the lowest, there is placed a fixed hopper or chute D, down which the ore is fed in and at the opposite end a cylindrical screen E, is attached to rotate with the vessel. The shovels *e, e*, with which the vessel is provided consist of flat pieces of metal arranged each obliquely and the whole forming a spiral line around the conical vessel. The spiral arrangement of the shovels collectively is not indispensable but their oblique arrangement severally is necessary to enable the ore to be carried upward from the larger to the smaller end. At the smaller end of the vessel there are shovels *f*, much longer than *e, e*, and arranged spirally to discharge the ore

upon the screen E. At certain intervals among the shovels *e, e*, about half way up from the large end of the vessel there are placed pointed pins *g, g*, which serve to break up any clay or other tenacious substance which may adhere to the ore, by throwing the pieces from one to another. The water is admitted to the vessel by a pipe F, entering the small end. Near the entrance at the large end of the vessel there is attached to the shaft a disk G, of about the same size as the entrance for the purpose of preventing the ore, when it is thrown into the hopper from entering too far into the vessel, and causing it to pass over the whole of the interior surface.

The vessel C, is to rotate slowly on its axis in a direction depending upon the oblique direction of the shovels *e, e*, and *f*, and the water entering the pipe F, remains up to the level of the lower part of the opening at the large end where there is a constant overflow. The ore fed into the larger end drop into the water and is gradually carried by the shovels *e, e*, toward the smaller end, the lumps being continually lifted by the shovels and dropped into the water higher up the vessel, by which action the foreign earthy matter is all washed off, the clay and tenacious matter being broken off in the early stages of the process by the pointed pins *g*. The earthy matter is washed away by the overflow at the opening at the large or lowest end of the vessel. The washed ore is delivered into the screen E, which is for the purpose of getting rid of sand. A hole may be made in the pipe F, to allow water to drop into the screen to give the ore a final rinsing.

Near the larger end of the vessel there is a hole and a plug *h*, to be taken out to draw off the water when the working is suspended. This is necessary in winter time to prevent the machine freezing up and becoming inoperative.

The advantage which this ore washer possesses over others consists in a great saving of water, and very perfect separation of the sand.

Having thus fully described the nature of my invention, I would state that I am aware that a cylindrical vessel with a forced current of water against the material passing through it, has been used for washing ores. This I do not claim, but,

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

5 A conical vessel provided with shovels, and pins or projections, whose shaft is horizontal, and lower side inclined, so that water introduced at one end shall have a natural flow to the other end, and meet the ores

as they pass in an opposite direction, to wash them, substantially in the manner, and for the purpose set forth.

WM. L. CARTER.

Witnesses:

JOHN AUXER,
RUSSELL A. CHILD.