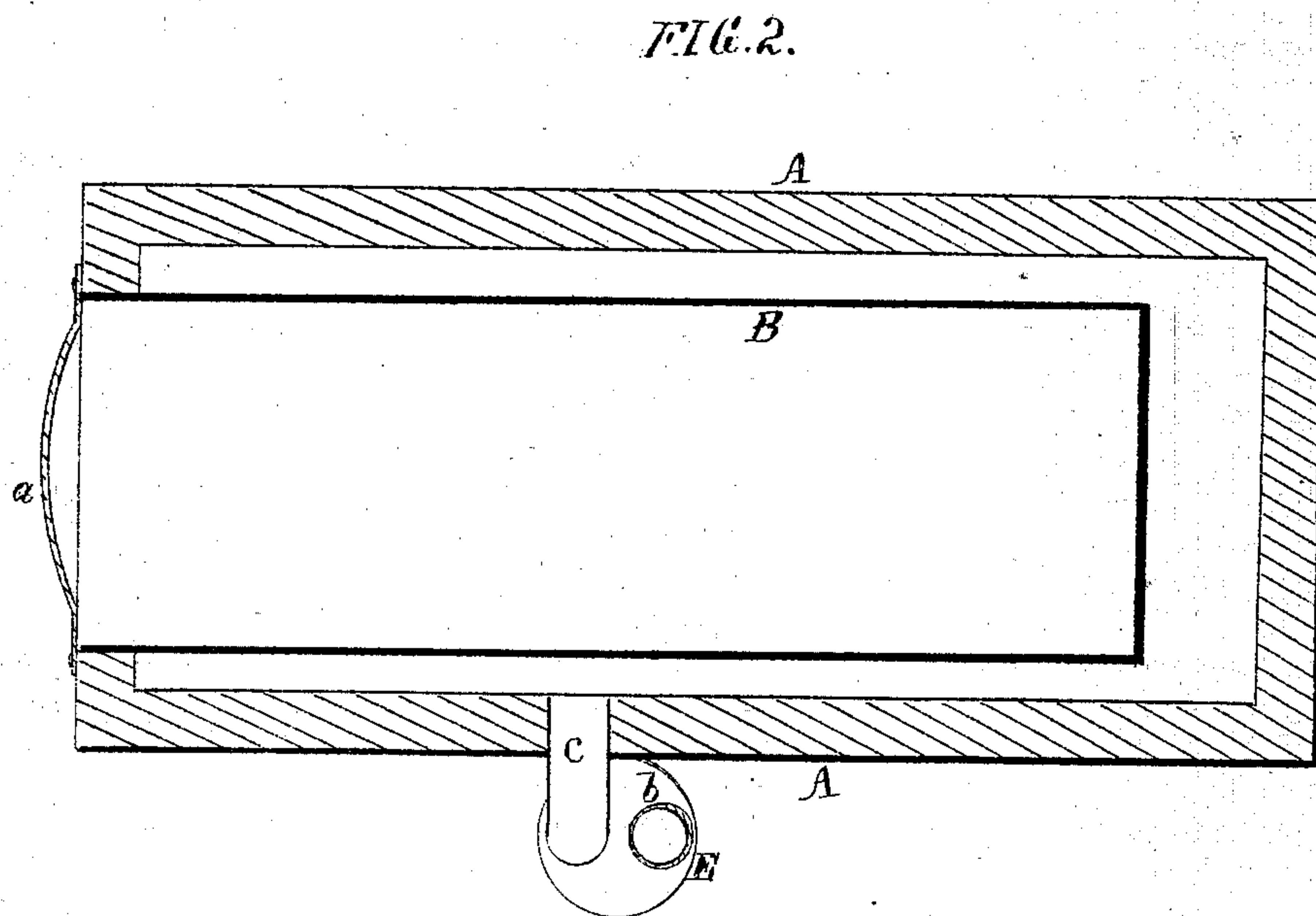
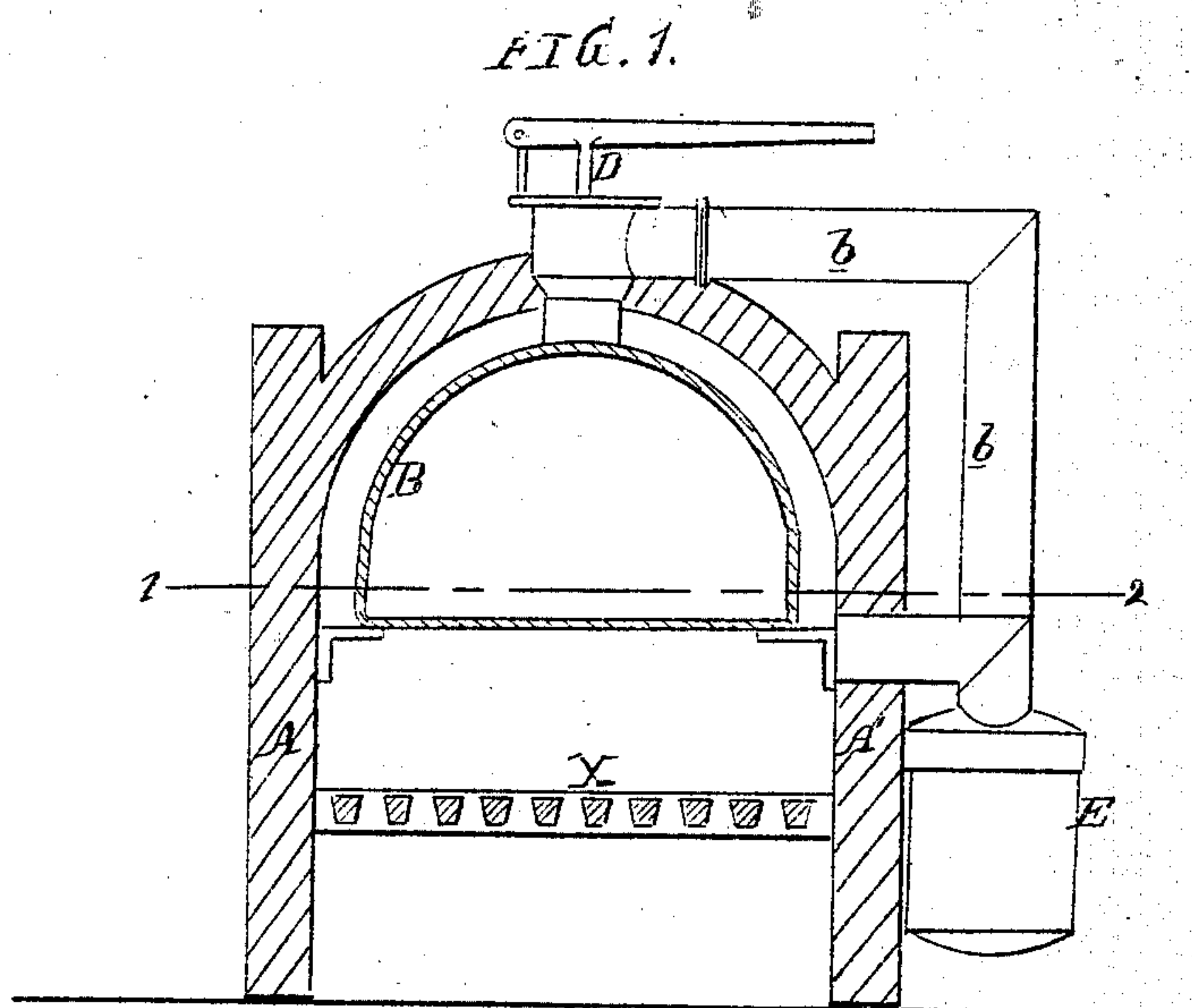


Charles Adams - Improvement in Reducing Manganese Ores.

71355

PATENTED
NOV 26 1867



Witnesses { *Wm Albert Steel.*
John Parker. }

Chas. Adams
By his Atty
H. Howson

United States Patent Office.

CHARLES ADAMS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
HIMSELF AND HENRY R. HAINS, OF THE SAME PLACE.

Letters Patent No. 71,355, dated November 26, 1867; antedated November 15, 1867.

IMPROVEMENT IN REDUCING MANGANESE ORES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, CHARLES ADAMS, of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented an Improvement in Reducing Manganese; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention consists in reducing ores of manganese by carburetted hydrogen gas under pressure, as described hereafter.

In order to enable others familiar with processes of this class to practise my invention, I will now proceed to describe the mode of carrying the same into effect, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a sectional elevation of apparatus which may be used in carrying out my invention, and

Figure 2 a sectional plan on the line 1 2, fig. 1.

A A' are the side walls of a furnace, in which is secured a metal retort, B, and below one end of the latter is a grate, X. Near the centre of the retort is a safety-valve, D, with which communicates a tube, *b*, the lower end of the latter projecting into a closed vessel, E, which is partly filled with water, and to the front end of the retort is fitted a cap or cover, *a*. A pipe, *c*, extends from the top of the vessel E through the wall A, and into the fireplace above the fuel, for a purpose described hereafter. Manganese ore is introduced into the retort, together with tar, petroleum, or other hydrocarbon, the lid *a* is secured firmly in its place, and a fire is kindled in the furnace. After the manganese in the retort has been heated to such a degree as to liberate a portion of its oxygen, the safety-valve is raised, when the gas will pass from the retort through the tubes *b* and *c* into the fireplace, where it will aid in consuming the products of combustion, the water in the vessel E acting as a trap to prevent the flame (should an ignitable gas be liberated) from passing to the retort. After the escape of the gas, the valve is again closed until the material in the retort is at such a temperature, and the gases attain such a pressure, that a combination is effected between the remaining portion of oxygen in the manganese and the carburetted hydrogen gas evolved from the tar or other material. By the extraction of the oxygen from the manganese ore, as thus described, a crude manganese or carburet of manganese is formed, which is highly valuable for combining with iron in the manufacture of steel, and for other purposes.

Although I have shown and described a particular form of apparatus for reducing the manganese with carburetted hydrogen gas under pressure, it will be apparent that the character of the apparatus may be varied without departing from the main feature of my invention.

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

The reduction of the ores of manganese by carburetted hydrogen gas under pressure, in the manner described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES ADAMS.

Witnesses:

CHARLES E. FOSTER,

W. J. R. DELANY.