J. Myers, Jr.

Metal Plate.

No. 108,042. Patented Oct. 4, 1870.

Fig. 1.

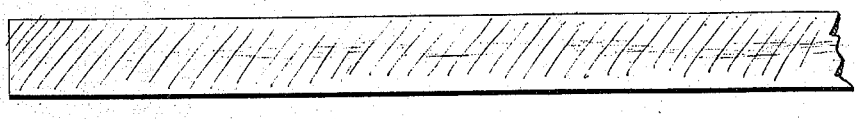
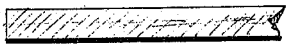


Fig. 2.



Witnesses.
A. W. Almquist
Alex. F. Roberts.

Inventor.
J. Myers Jr.
per Munn & Co.
Attys.

United States Patent Office.

JAMES MYERS, JR., OF WILLIAMSBURG, NEW YORK.

Letters Patent No. 108,042, dated October 4, 1870.

IMPROVEMENT IN METAL PLATES OF IRON AND STEEL.

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, JAMES MYERS, Jr., of Williamsburg, in the county of Kings and State of New York, have invented a new and useful Improvement in Homogeneous Steel and Iron Plates and Sheets; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

Figure 1 is a sectional view of a portion of one of my improved plates.

Figure 2 is a sectional view of a thinner plate or sheet.

Similar letters of reference indicate corresponding parts.

My invention has for its object to furnish sheets or plates of malleable or wrought-iron, which shall be so formed that the interior or core of the plates or sheets shall be ordinary malleable or wrought-iron, and the outer part or envelope shall be of steel, formed from homogeneous plates or sheets of malleable or wrought-iron, by the conversion of the outer portions of such plates or sheets into steel by chemical processes, as hereinafter more fully described.

These plates or sheets are more particularly designed for boiler-iron plates, and for making plow mold-boards, shovel-plows, and other articles which require to be cut out of plate-metal, bent and hardened, so that the interior of the article so formed shall have the toughness and difficulty of rupture which is found in wrought or malleable iron, and, at the same time, the hard and wearing surface of steel. This may be done by employing the processes for converting iron into steel described in the patents granted to Thomas J. Barron January 1, 1867, and to John F. Boynton July 16, 1867; reissued December 1, 1868.

In preparing these plates or sheets, plates or sheets of malleable or wrought-iron of any desired thickness are placed in a refractory retort of suitable size, and capable of being surrounded by a flame of heated gas, so that the contents of the retort, when heat is applied by any suitable means, may be brought to about a white heat.

Gases surcharged with carbon by being passed through a carbonizing vessel, and then enriched by being mixed or combined with the vapors or hydrocarbons or gases produced by any of the processes described in the patents granted to John F. Boynton, dated July 16, 1867, and reissued December 1, 1868, and to Thomas J. Barron, dated January 1, 1867, are introduced into the retort aforesaid, and passed over and around the heated plates or sheets, converting the outer portions of said plates or sheets into steel, the conversion proceeding progressively inward as the process is continued. It may be continued until the plates or sheets are converted throughout into steel, or it may be continued so long as is require to give the desired thickness to the exterior envelope of steel, the interior portions of the plates or sheets remaining unchanged.

I do not wish to limit myself in the conversion of the outer portions of plates or sheets into steel to any particular process, nor to the use of any particular gas, nor even to gas alone, as it may possibly be found advantageous to effect such partial conversion by the direct contact of solid carbon.

By this means I obtain plates and sheets possessing great advantages for use as boiler iron, and for the manufacture of plow mold-boards, shovel-plows, and other articles requiring at the same time strength and hardness.

I am aware that reissued Letters Patent No. 3,222, dated December 1, 1868, were granted the Barron's Patent Steel Manufacturing Company, of New York, N. Y., assignees of John F. Boynton, for improvement in converting iron into steel, and the invention patented in said reissued Letters Patent I do not claim.

Having thus described my invention,

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

Homogeneous plates or sheets of steel and iron, the interior or case of which shall be wrought or malleable iron, and exterior, for any desired thickness, steel, formed from homogeneous plates or sheets of wrought or malleable iron, by the conversion of the outer portion of said plates or sheets into steel by chemical processes, substantially as and for the purpose herein described and set forth.

The above specification of my invention signed by me this 11th day of August, 1869.

JAMES MYERS, JR.

Witnesses:

GEO. W. MABEE,

JAMES T. GRAHAM.