1,645 X

E. Nott,

Grate.

Patented June 29. 1833.

Fig. 3.

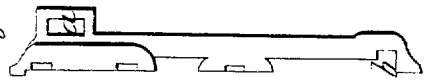


Fig. 2.

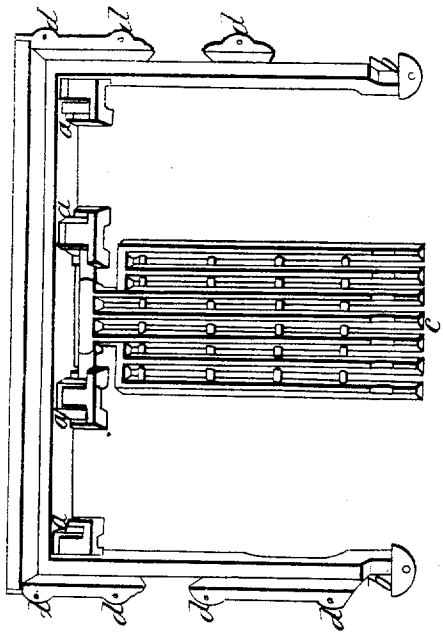


Fig. 4.

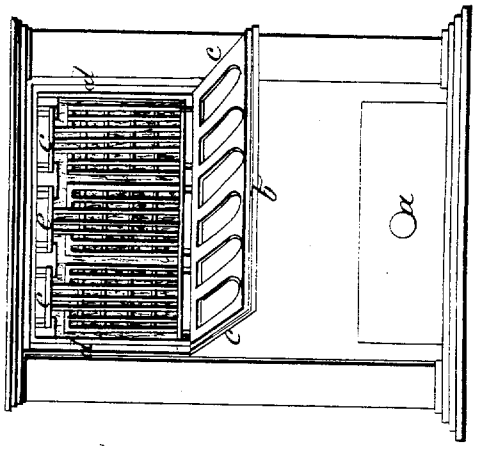
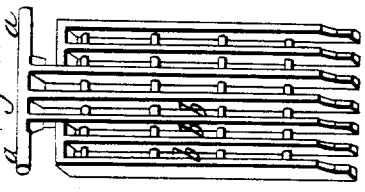


Fig. 1.



N. Peters Photo-Lithographer Washington, D.C.

7645X

June 29 1833

189.

Case L

Elisha Lob Nott.

Letters Patent.

The Schedule referred to in these Letters Patent, and making part of the same, containing a description in the words of the said Elisha Lob Nott himself of his improvement, in the treatment of metallic bodies, and of bodies generally; as well those which admit of motion while under treatment, as those which require to be at rest.

Case "L"

Specification of improvements made in the treatment of Metallic bodies and of bodies generally; as well those which admit of Motion while under treatment as those which require to be at rest.

It having been discovered that metallic bodies oxidize less when exposed to the action of the products of combustion, than when exposed to the action of the elements of combustion; And it having also been discovered that contiguous bodies at different temperatures, and moving in opposite directions, exchange temperatures, therefore certain improvements for carrying these discoveries into effect have been made; which improvements consist,— In preventing the oxidizing of metallic bodies by treating the same in all cases, in a chamber separate from the chamber of combustion; And in economizing the expenditure of heat generally by concentrating all the forces to which the same can be conveniently applied; and in arranging the whole in a series according to the degree of temperature required in each, always proceeding from the greater to the less, and in dividing the material to be treated into portions and arranging the same in descriptive localities and in shifting the same (so far as they admit of being moved) from one compartment to another, towards the chamber of Ultimate along the same channel through which the flame is caused

to

escape therefrom, and to act as if each person in each fire hole under treatment, till the whole available temperature thereof has been expended, before the same enters the chimney; all of which is effected, either, By means of a vertical reverberatory or zigzag chamber of treatment consisting of a series of compartments separated by solid and fixed floors more or less inclined and arranged one above another, and furnished with appropriate heats or ways for sustaining the human subject bodies under treatment and for passing the same down to the next locality when treated; and furnished also with apertures for inspection and for the ingress and egress of bodies, and the introduction of the requisite instruments for adjusting and removing the same. Or:— By means of a vertical reverberatory chamber of treatment consisting, in like manner, in a series of compartments arranged one above another and separated by floors in part solid and fixed, and in part open and movable, either by levers, or eccentric axes, pierceing the cremation worked from without, in such manner that the contents of each superior compartment can at pleasure be shaped down into the next inferior compartment.— Or, By means of a vertical chamber of treatment without reverberation consisting in like manner of a series of compartments arranged one above another and separated by floors more or less open and wholly movable either by eccentric or by central axes, pierceing the same and worked as aforesaid from without in such manner that the contents of each superior compartment, can be emptied by a revolution of its floors into the compartment under it. Which several chambers of treatment must be connected each at its lower extremity with the outlet for flame from the chamber of combustion,— or with the outlet for flame from a muffle, having an inlet for flame thereto from a separate chamber of

combustion

combustion, or with a cupola or other furnace constructed in the usual manner. And each must also be connected at its upper extremity with an additional section of a horizontal chamber of treatment exhibited in one or more channels for the application of the surplus heat in the treatment of additional bodies requiring lower temperatures, as pit coal and resin contained in retorts for the production of gas; and water in boilers for the generating of steam, to be employed for driving an engine and thereafter for heating additional water for dying, bleaching, or any other process. For further information reference must be had to the drawings and explanations hereunto prefixed.

Summary.

The improvement herein contemplated consists; in preventing the oxidizing of metallic bodies by heating them, whether in cupolas, forges, or other furnaces, in a chamber separate from the chamber of combustion, and in economizing the expenditure of heat in the treatment of bodies generally that admit of being exposed naked to the action of the fire, and of being moved from one locality to another during the process; by concentrating all the processes to which the same heat can conveniently be applied, and arranging the order thereof according to the intensity of temperature required by each, proceeding always from the greater to the less; and by dividing into portions the bodies to be heated, and arranging the same in successive localities, and moving such as admit of motion during the process successively nearer to the chamber of treatment; and by putting the raw material to be treated, and exclusive of heat contained in the cupola, forge, or furnace, into the compartment farthest from the chamber of combustion and withdrawing the material when treated, from the compartment nearest the chamber of combustion; and in causing the flame from the common chamber of combustion to be sufficient to energize pro-

processes in succession, until the whole available temperature thereof is expended, before the same is passed to the chimney, by means of a chamber of treatment interposed between a cupola, forge or other furnace, and a boiler; or chimney if no boiler be in use; the same being constructed, connected, and managed either as exhibited in fig. 1, or in fig 2. or in fig 3, or in fig 4. or partly as exhibited by the one, and partly by the others; or by any other means, provided only the chamber of treatment be separated from the chamber of combustion throughout.— And provided the different processes to which the same heat can be applied be concentrated, and the succession ordered according to the degree of temperature required by each, and provided also the material to be treated apart from the cupola, forge or furnace be divided into parcels arranged in successive localities, and if capable of motion, be moved in one direction towards the chamber of combustion along the same channel through which the flame is passing from the chamber of combustion in an opposite direction.—

I therefore claim as my invention and improvement the diminishing of the oxidizing of metallic bodies by treating them whether in cupolas, forges, or other furnaces, in a chamber distinct from the chamber of combustion, and the economizing of the expenditure of heat in the treatment of bodies generally by concentrating all the processes to which the same heat can conveniently be applied, and arranging the order thereof according to the intensity of the temperature required by each.— And the dividing of the bodies to be treated exclusive of those contained in the cupola, forge, or other furnace into portions and arranging the same successively in successive localities, and in moving the bodies that admit of motion while under treatment, towards the chamber of combustion, along the same channel through which the flame is passing from said chamber in an opposite direction;— the said heating the

the new material into the locality furthest from the chamber of combustion, and removing the material sufficiently heated from the locality nearest the chamber of combustion; by means of a special chamber of treatment, constructed, connected, and managed as already described; and is exhibited either in Fig 1. or Fig 2, or Fig 3. or Fig 4. the same being interposed between a cupola, forge, or other furnace, and the boiler, or the chimney if no boiler be in use; or by any other means, provided the chamber of treatment be separated from the chamber of combustion throughout; and provided the different processes to which the same heat can be applied be consistently and the succession ordered according to the degree of temperature required by each, and provided also the material to be treated be divided into parcels arranged in successive localities and if capable of motion, be moved in one direction towards the chamber of combustion along the same channel through which the flame is passing from the chamber of combustion in an opposite direction, together with the issues to which the same has been or may hereafter be applied in the reduction of Ores; the manufacture of iron or other Metals; the melting or heating of the same to be cast or wrought into different forms, together with the other processes of art with which the same may be combined.

Witnesses
J. K. Boyd
D. Boyd

Eliphet Nott

Drawings on Parchment

(1500 words)

(Granted 2d June 1853.)