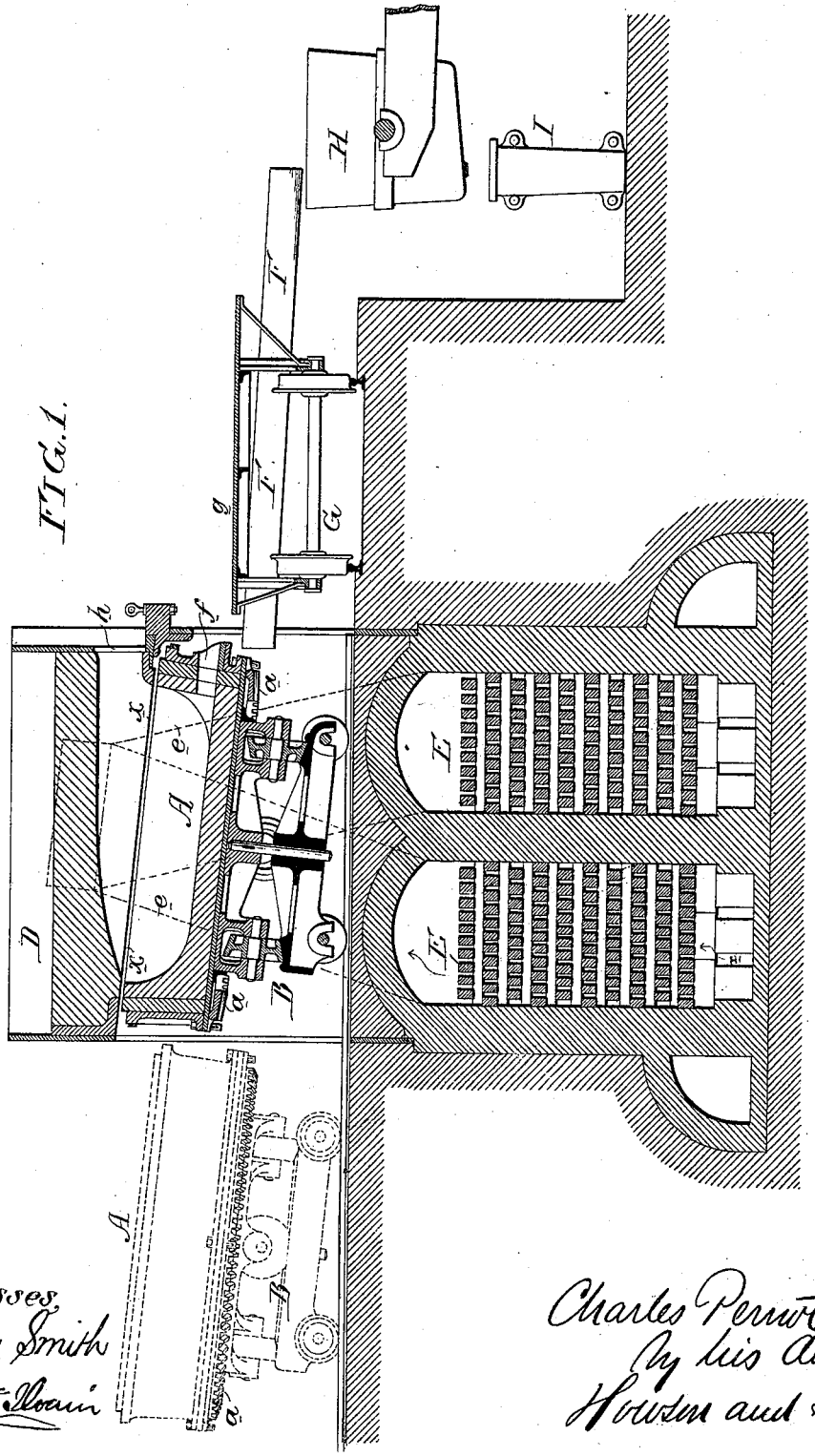
2 Sheets--Sheet 1.

C. PERNOT.

Inclined Revolving Puddling Furnace.

No. 169,033. Patented Oct. 19, 1875.

FIG. 1.



Witnesses,
Harry Smith
Thos. McIlvain

Charles Pernot
by his Attys.
Howson and Son.

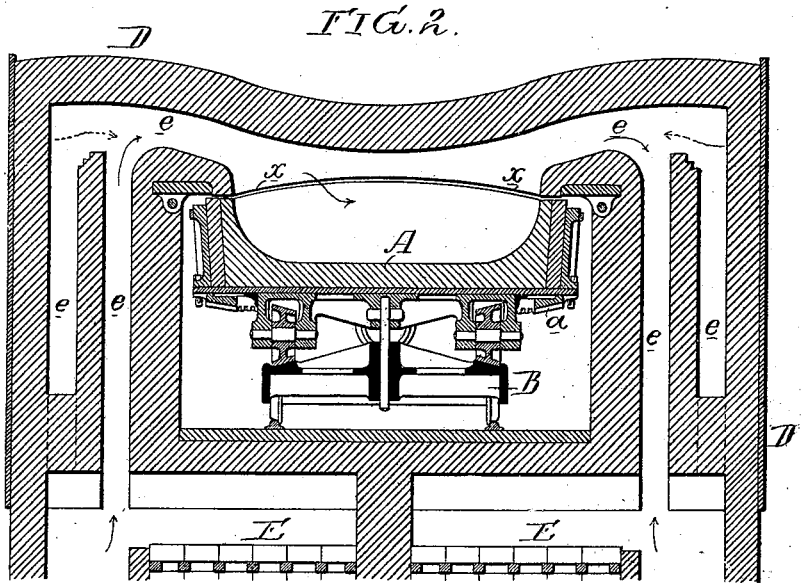
2 Sheets--Sheet 2.

C. PERNOT.

Inclined Revolving Puddling Furnace.

No. 169,033. Patented Oct. 19, 1875.

FIG. 2.



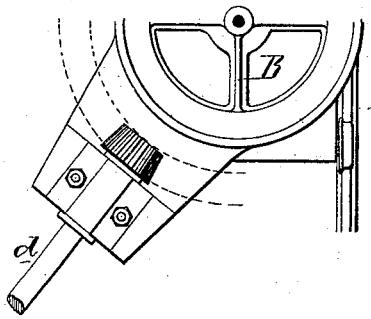


FIG. 3.

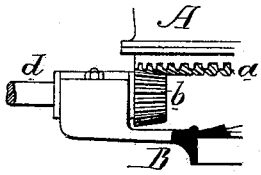


FIG. 4.

Witnesses, Harry Smith
Thomas McIlvain

Charles Pernot
by his Attys
Howson and Son

UNITED STATES PATENT OFFICE.

CHARLES PERNOT, OF ST. CHAMOND, FRANCE.

IMPROVEMENT IN INCLINED REVOLVING PUDDLING-FURNACES.

Specification forming part of Letters Patent No. **169,033**, dated October 19, 1875; application filed June 29, 1874.

To all whom it may concern:

Be it known that I, CHARLES PERNOT, of St. Chamond, France, have invented an Improvement in Apparatus for Converting Iron into Steel, of which the following is a specification:

The object of my invention is to improve the construction of converting-furnaces having inclined and removable hearths A, arranged as shown in the drawing.

The hearth or receiver A is mounted in an inclined position on a truck, B, on which it can be freely rotated, the said truck being adapted to a railway-track, upon which it can, together with the receiver, be withdrawn laterally from the furnace, as indicated by dotted lines in Fig. 1.

The receiver has on its under side a cog-wheel, *a*, into which gears a pinion, *b*, on an inclined shaft, *d*, (shown in the detached views, Figs. 3 and 4 of the drawing,) the said shaft being operated, by any suitable means, in such a manner as to impart a continuous rotary movement to the inclined hearth, and in such a manner, also, that the speed can be increased or diminished at will.

In order to avoid the necessity of packing the joint *x* between the receiver and the furnace D, I employ for heating the furnace a system of regenerators, E, similar to those of a Siemens furnace, in which the internal pressure exceeds that of the external air. The joint *x*, therefore, may be left open, without any packing, the internal pressure effectually preventing the access of external air to the contents of the furnace.

While a packing round a rotary hearth is always objectionable, and generally inefficient, it is specially so where, as in this instance, the hearth is to be withdrawn from the furnace from time to time.

The receiver has a tapping-hole, *f*, for discharging the molten steel into an inclined spout, F, on a truck, G, which can be wheeled to different points, in order to be brought opposite ladles H, from which the metal is poured into ingot-molds I. (See Fig. 1.) The truck G is also constructed with a platform, *g*, above the spout, upon which the attendants can stand when charging the receiver A, or while engaged at the working-hole *h*.

The molten cast-iron, by the action of the rotating hearth A, is thrown outward and upward by centrifugal force, and falls again toward the center in small particles, so that the whole of the mass is acted on by the gases, oxidation rapidly takes place, and the required proportion of carbon is dissipated, the result being a perfectly homogeneous steel.

I do not claim a furnace having a removable rotary inclined hearth, as this is shown in the Letters Patent of the United States issued to me on the 7th day of April, 1874. Nor do I claim the combination of a furnace and a Siemens regenerator; but

I claim—

1. A furnace in which are combined an inclined rotating and removable hearth, arranged to leave an open joint, *x*, between the hearth and the body of the furnace, and a regenerator from which heated gases are passed to the furnace under a pressure greater than that of the external atmosphere, for the purpose specified.

2. The combination of the furnace D, inclined rotary hearth A, series of ladles H, and spout F, mounted on a truck, G, to conduct the molten metal to any one of the ladles, as set forth.

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

PERNOT, CH.

Witnesses:
J. E. PAYNE,
PROSSARD.