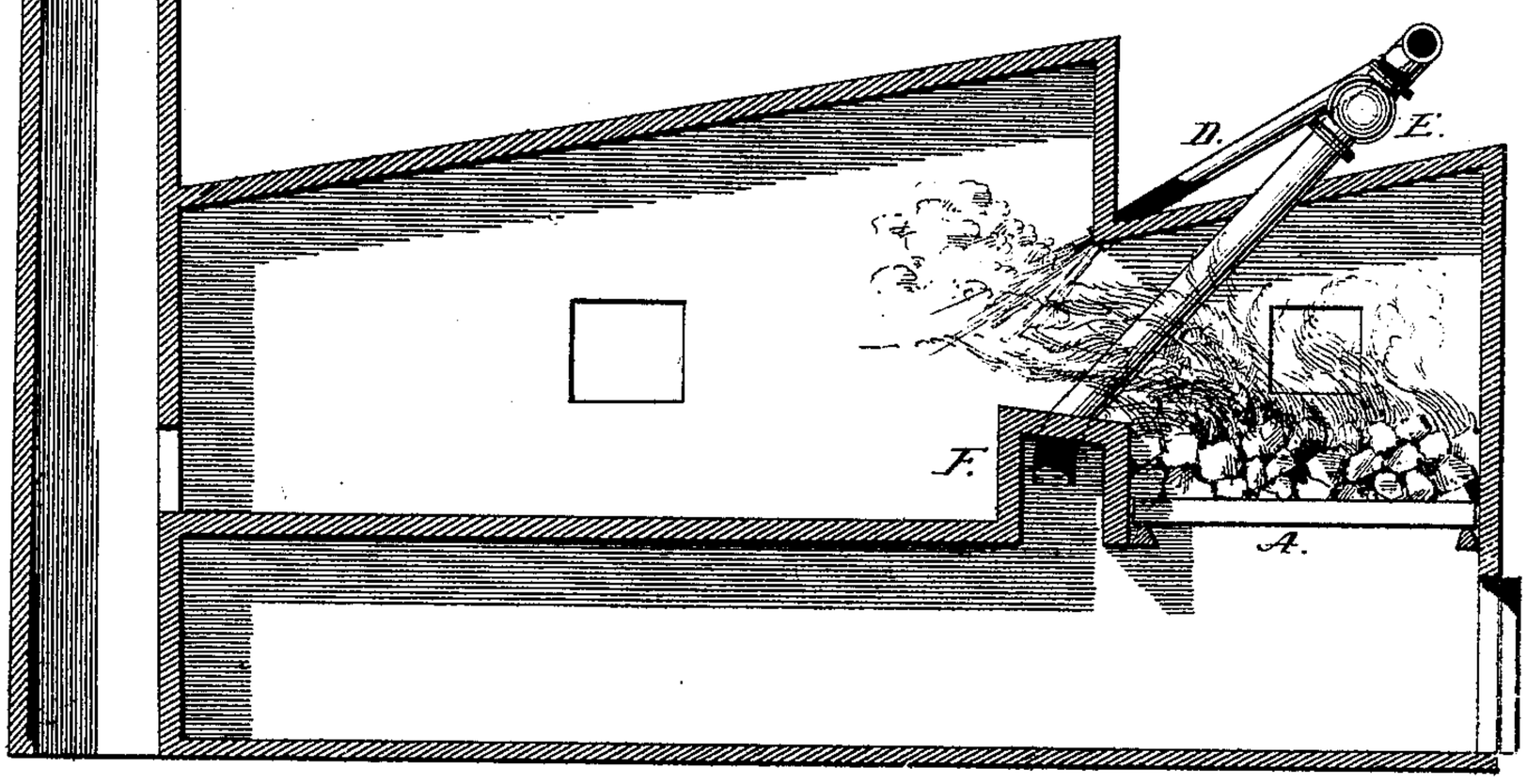
IRA HERSEY.

Improvement in Puddling and Reverberating Furnaces for the Manufacture of Iron and Steel.

No. 126,546. Patented May 7, 1872.

Fig. 2.



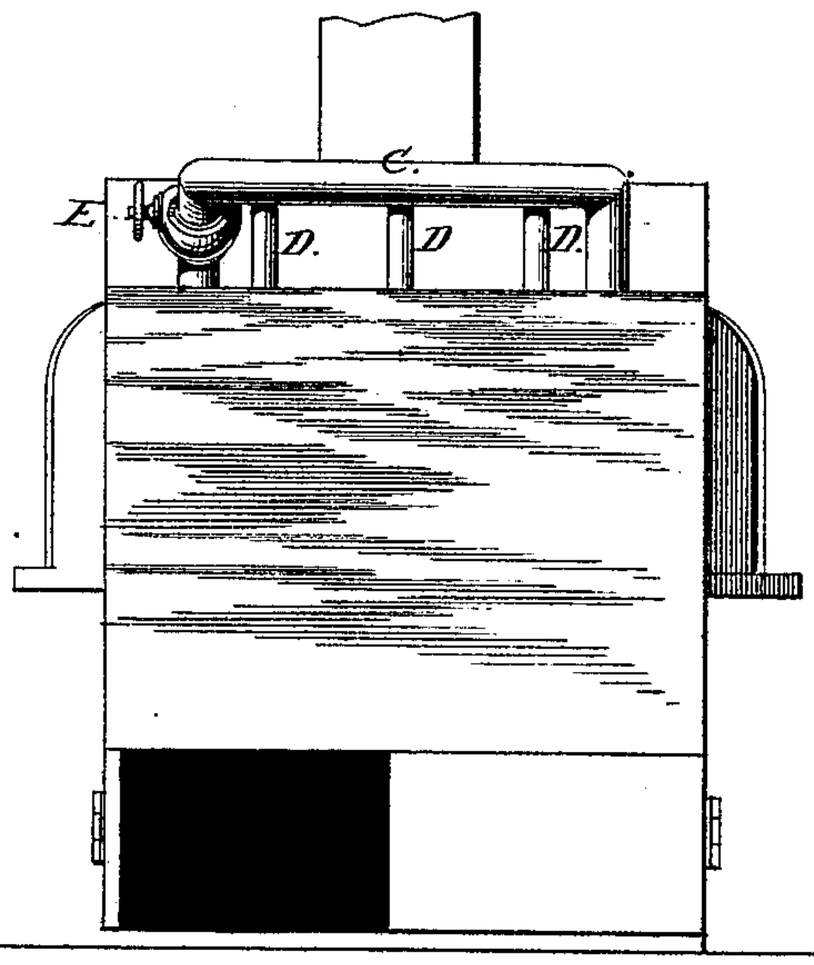


Fig. 1.

Attest:
Edw. W. Donn

Inventor;
Ira Hersey

UNITED STATES PATENT OFFICE.

IRA HERSEY, OF FORT EDWARD, NEW YORK.

IMPROVEMENT IN PUDDLING AND REVERBERATORY FURNACES FOR THE MANUFACTURE OF IRON AND STEEL.

Specification forming part of Letters Patent No. 126,546, dated May 7, 1872.

To whom it may concern:

Be it known that I, IRA HERSEY, of the town of Fort Edward, county of Washington, State of New York, have invented certain new and useful Improvements in Heating, Puddling, and Reverberatory Furnaces or Heating-Chambers by the use of steam, of which the following is a specification:

Object and Advantages.

My invention relates to the peculiar use of steam and its application to all classes of furnaces and heating-chambers, where the heat is carried to the same over a bridge-wall, at which point steam is introduced in such manner as to come in immediate contact with the flame or carbon from the grate-fire, thus greatly facilitating more perfect combustion and economy of the fuel used.

The drawing shows the form of application.

Figure 1 represents the front of the furnace where the fuel is placed upon the grate, also longitudinal view of steam-pipe on top of the furnace. Fig. 2 represents a longitudinal section of the same, also of the puddling or heating chamber.

A represents the grate, where the fuel is placed, and F the bridge-wall. C represents a steam-pipe with one or more jets, D, attached, and through which steam is conducted directly over the bridge-wall F, through openings on the top of the furnace, as shown. E represents a steam-valve, to regulate the quantity of steam that may be required, according to the desire of the operator.

Remarks.

It has been found from practical experience that a wrought-iron pipe of one inch diameter is of sufficient capacity to carry steam (under pressure of about sixty pounds) to the furnace from the boiler. The pipes or jets attached to the same need not exceed one-half of an inch in diameter, with openings in form of a gas-burner of about one-quarter of an inch in diameter. These jets should be projected from the flame by small crucibles, with perforated openings to allow the free passage of steam. The heat of steam may be largely increased by placing the main pipe between the inside and outside wall of the furnace.

It is well known that steam properly decomposed into oxygen and hydrogen gases is of great value when intense heat is required; but the proper place and mode of application of the same has not heretofore been discovered.

Steam will decompose into gases when brought in contact with a carbon flame at a heat of about 800° Fahrenheit, and at no point or place in the furnace can it be introduced except over the bridge-wall, as explained, where it can be fully utilized and a successful result obtained.

A vapor of oil or gas introduced with steam will be found of advantage when anthracite coal is used as a fuel, but with bituminous or semi-bituminous fuel it is not necessary.

Claim.

I claim, therefore—

The introduction of steam into puddling, heating, and reverberatory furnaces directly over the bridge-wall, or near the same, in the manner described, or in any equivalent manner.

IRA HERSEY.

Witnesses:

F. W. ALLEN,

E. PEIRSON.