

G. NIMMO.

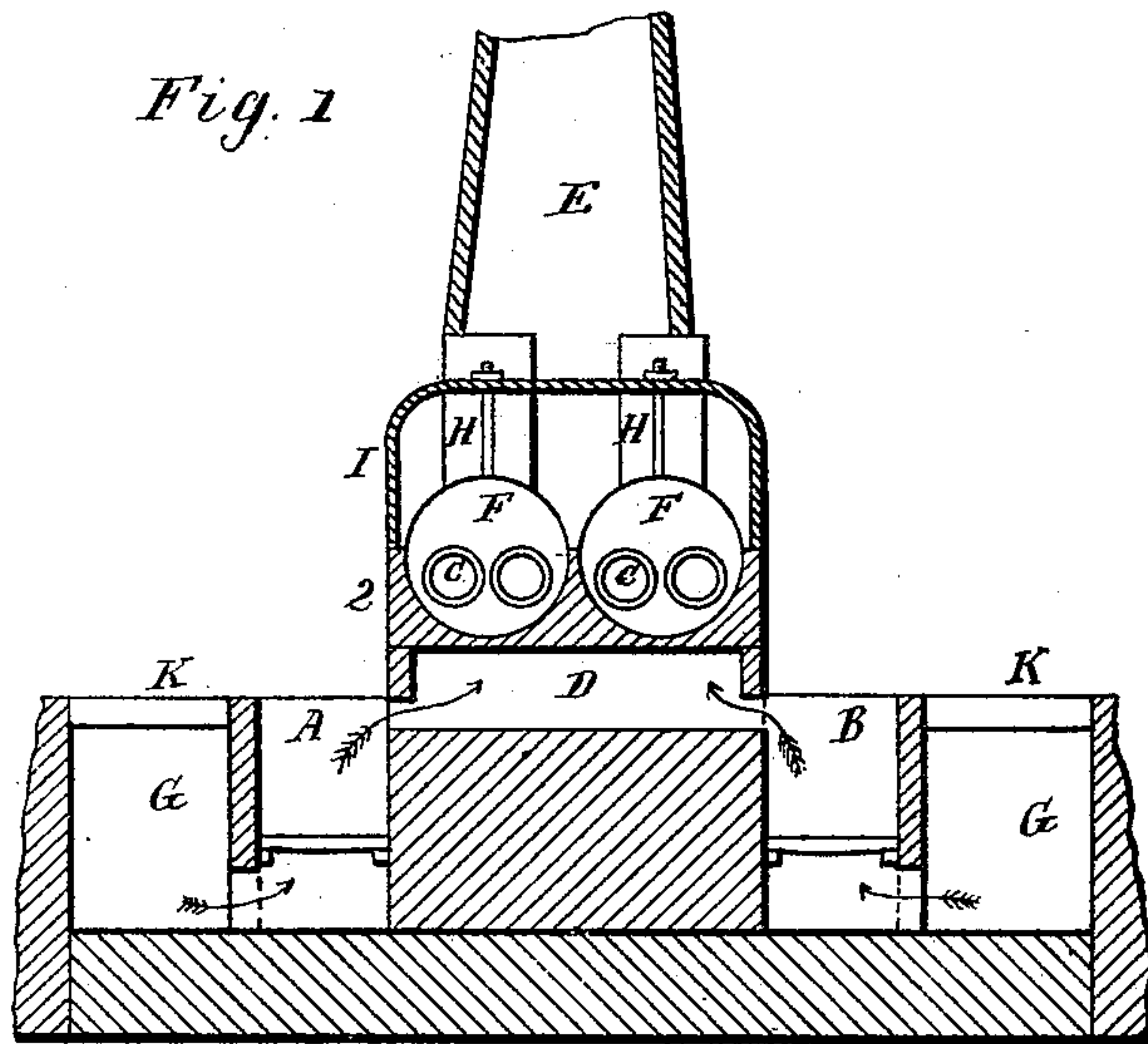
Improvement in Arrangement of Metallurgic Furnaces

So as to use the Waste Heat under Steam-Boilers.

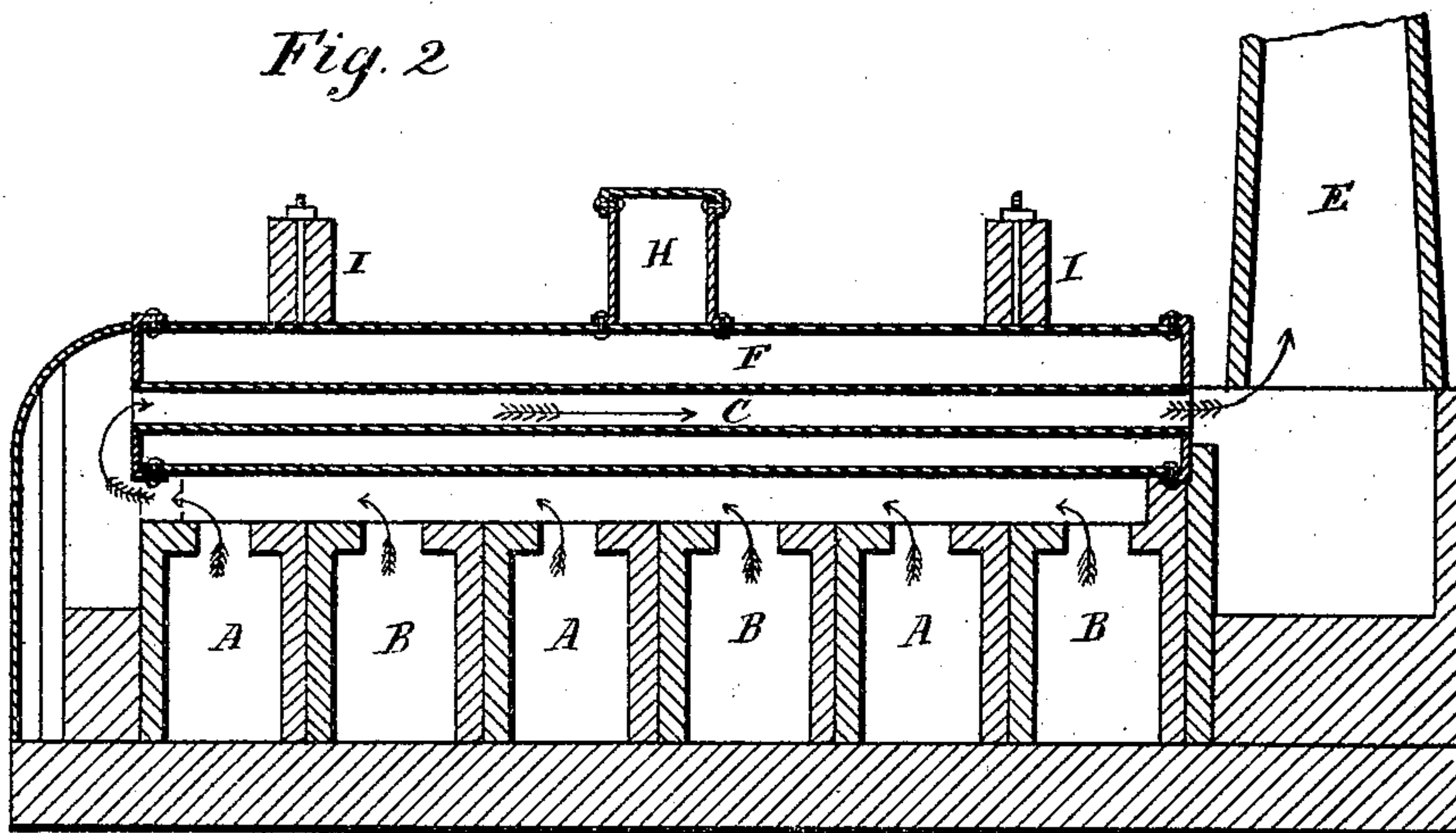
No. 133,114.

Patented Nov. 19, 1872.

*Fig. 1*



*Fig. 2*



Witnesses

Wm. Davis  
A. B. Bunting

Inventor

George Nimmo

# UNITED STATES PATENT OFFICE.

GEORGE NIMMO, OF JERSEY CITY, NEW JERSEY.

## IMPROVEMENT IN THE ARRANGEMENT OF METALLURGIC FURNACES SO AS TO USE THE WASTE HEAT UNDER STEAM-BOILERS.

Specification forming part of Letters Patent No. **133,114**, dated November 19, 1872; antedated November 13, 1872.

### *To all whom it may concern:*

Be it known that I, GEORGE NIMMO, of Jersey City, in the county of Hudson and State of New Jersey, have invented and applied to use certain new and useful improvements to economically use the escape heat and gases from furnaces constructed for melting cast-steel and apply the same to generate steam, of which the following is a specification:

### *Nature and Object of the Invention.*

The nature of my invention relates to improvements in arranging boilers and furnaces in steel-works so as to utilize the escape heat from the various furnaces wherein the steel is being melted, and using the said heat to make steam to drive suitable machinery to work the metal so made into merchantable shapes. To accomplish this, I arrange a number of furnaces side by side and in a line with the boiler, say twelve in number, (more or less,) and having a boiler elevated so that the heat escaping from the furnaces shall pass underneath the boiler and along the bottom to the end, thence through the flues into the chimney. This arrangement may be carried out by having one row of furnaces on each side of the boiler or boilers, or a single row, as the case may be. I prefer twelve furnaces in a row, so that I can use six alternately—that is to say, six one day and six the next, thus giving time for repairs.

### *Description of the Accompanying Drawing.*

Figure 1 is a vertical sectional side view of the boilers, furnaces, and chimney. Fig. 2 is a vertical sectional end view.

Similar letters indicate corresponding parts.

### *General Description.*

A A A and B B B, Fig. 1, represent the furnaces. The arrows indicate the direction taken by the escape heated air and gases from the steel-furnaces. C, the boiler flue; E, the chimney; I I are cast-iron supports for the boilers; F, the boiler; H, the dome; J, supports to boiler resting on wall 2 2; E, the chimney.

Four pair of boilers may be connected with one chimney, thus radiating from the center of the chimney north, south, east, and west, each boiler or pair of boilers having twenty-four furnaces, in all ninety-six. The furnaces being used alternately—that is to say, every other one—the heat would be distributed along the whole length of the boilers, returning through the flues to the chimney. In case too much steam is being made, suitable dampers may be arranged so that the heated air and gases will not pass through the flues but will escape into the chimney direct. This configuration of boilers and furnaces will remove all necessity for extra boilers and fuel in steel-works, as more steam will thus be made than can be used by all the machinery, hammers, rolls, &c., and without extra cost of fuel aside from that used in melting the steel.

I claim as my invention—

The configuration of boilers and furnaces, arranged to operate substantially as described.

GEORGE NIMMO.

Witnesses:

A. B. BUNTING,  
R. V. A. GUINON.