

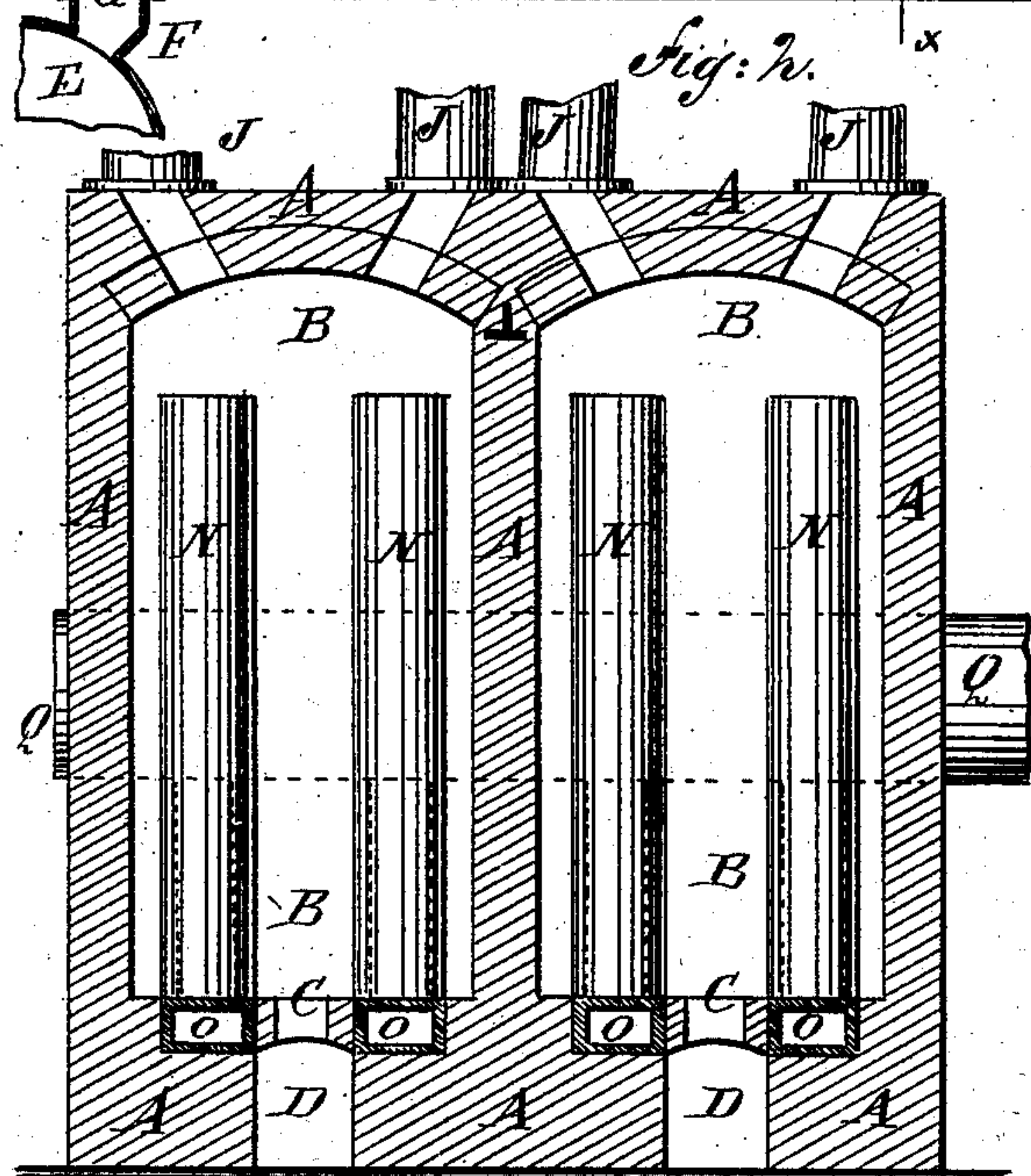
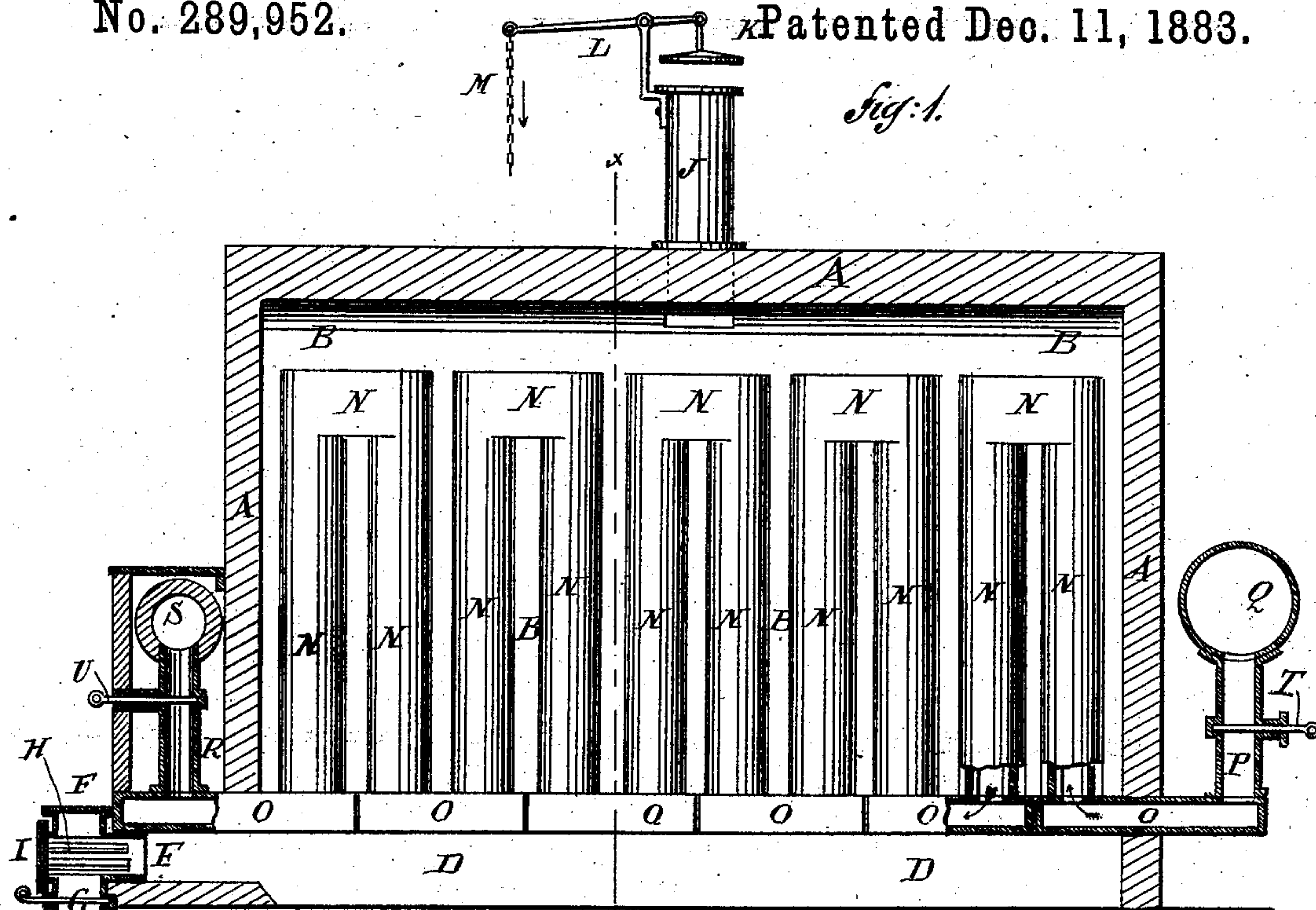
(No Model.)

C. ALGER.

HOT BLAST STOVE FOR BLAST FURNACES.

No. 289,952.

Patented Dec. 11, 1883.



WITNESSES

Chas. Vida.
C. Sedgwick

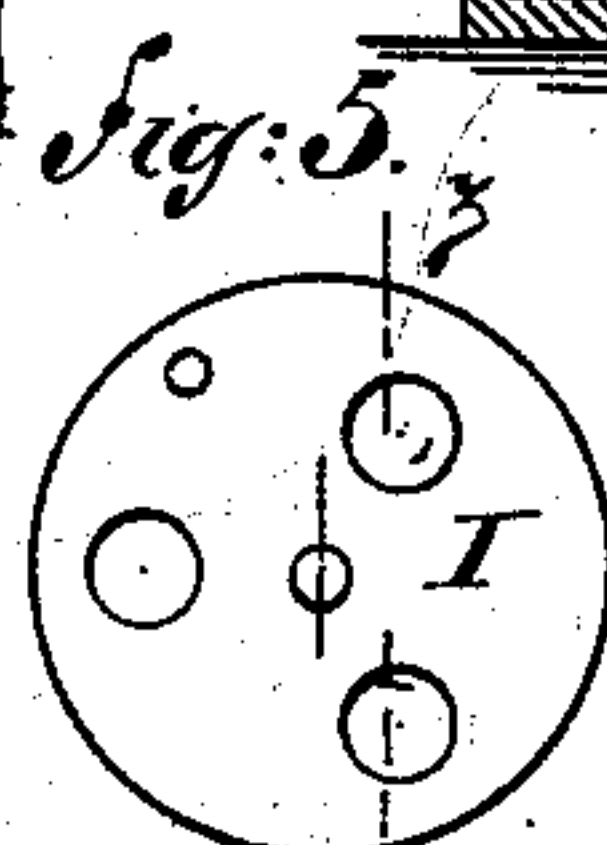
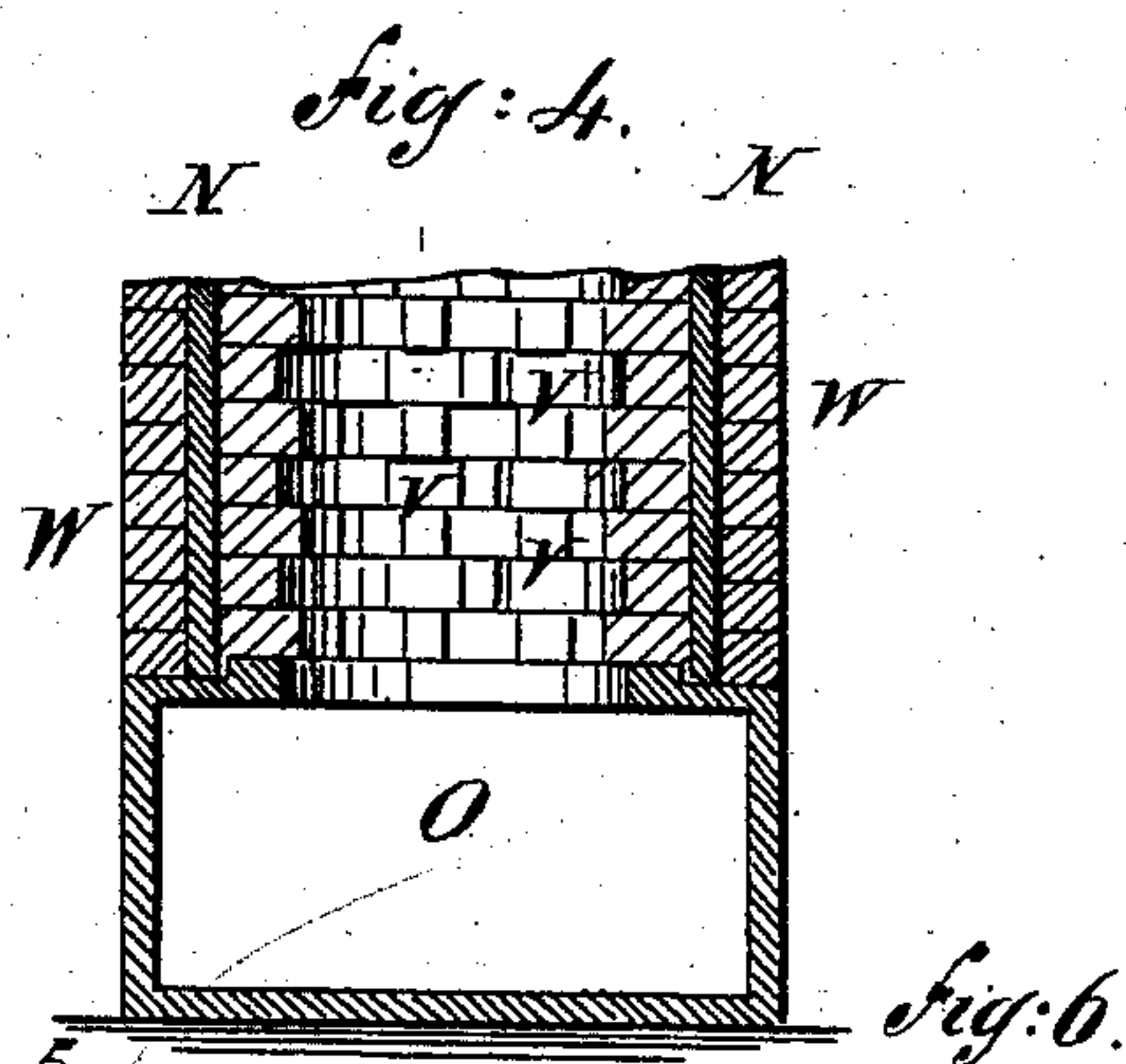
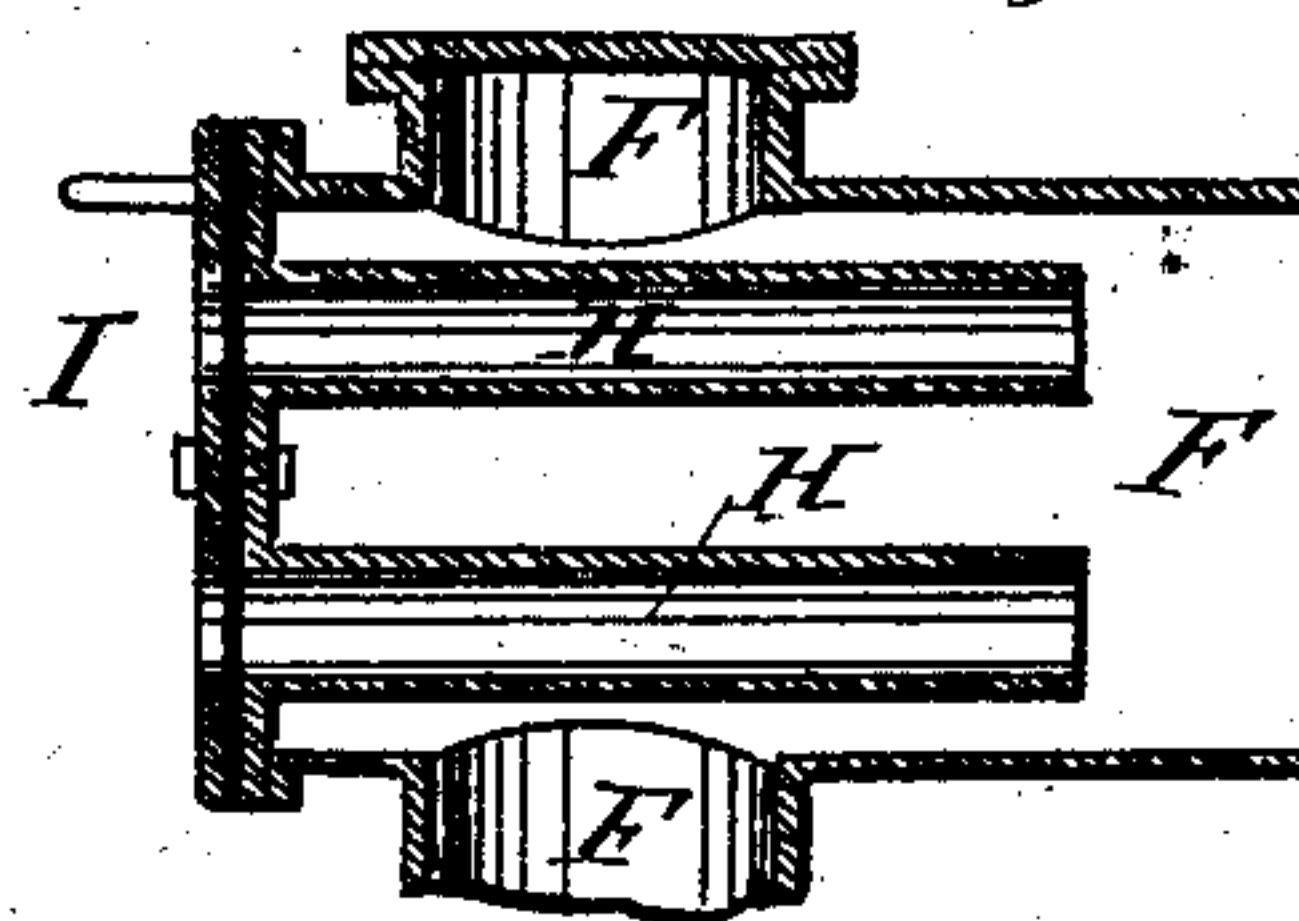


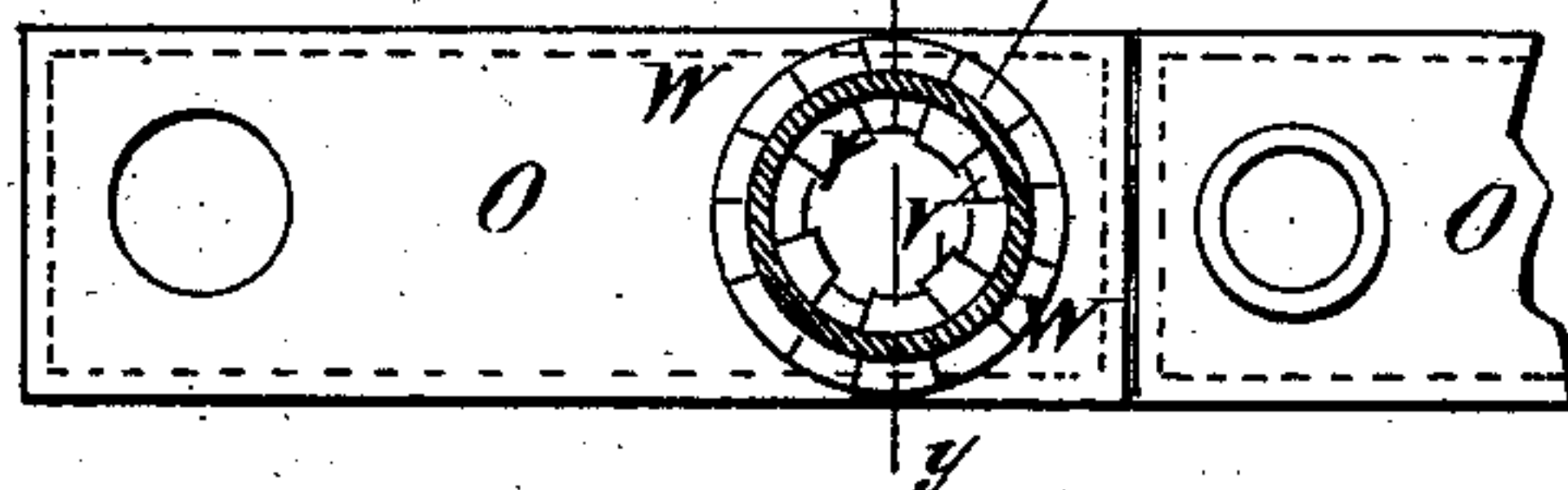
Fig: 3.



INVENTOR:

C. Alger

ATTORNEYS.



BY

UNITED STATES PATENT OFFICE.

CHARLES ALGER, OF HUDSON, NEW YORK.

HOT-BLAST STOVE FOR BLAST-FURNACES.

SPECIFICATION forming part of Letters Patent No. 289,952, dated December 11, 1883.

Application filed May 3, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ALGER, of Hudson, in the county of Columbia and State of New York, have invented a new and useful Improvement in Hot-Blast Stoves for Blast-Furnaces, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of my improvement, parts being broken away. Fig. 2 is a sectional end view of the same, taken through the line *x x*, Fig. 1. Fig. 3 is a sectional plan view of an arm of one of the pipes, and showing a portion of the base-connections. Fig. 4 is a sectional elevation of the same, taken through the line *y y*, Fig. 3. Fig. 5 is a front elevation of the gas and air inlet-pipe. Fig. 6 is a sectional elevation of the same, taken through the line *z z*, Fig. 5.

The object of this invention is to facilitate the heating of the air-blasts for blast-furnaces; and it consists in the peculiar construction of the air-heating pipes, as hereinafter more fully set forth, and pointed out in the claims.

A represents the walls of the heating-chamber B, in the bottom of which are openings C, leading into the combustion-chamber D, placed beneath the said heating-chamber B. Gas from a gas-culvert, E, or from a furnace is introduced into the combustion-chamber D through an elbow-pipe, F, in the lower arm of which is a valve, G, for regulating the admission of gas. Air to support combustion is introduced into the combustion-chamber D through three (more or less) small pipes H, leading in through the upper arm of the pipe F, and the amount of air admitted is regulated by a damper or valve, I, pivoted to the pipe F, so that it can be turned to partly or wholly cover the ends of the said pipes H. The incombustible products of combustion escape from the heating-chamber B through the chimneys J, placed at the side parts of the top of the said chamber B, and which are provided with valves K, operated by levers L, and chains M, so that the said chimneys can be opened and closed as required.

Within the heating-chamber B, at the opposite sides of the row of apertures C, are placed two rows of inverted U-pipes N, the adjacent ends of which are connected by short return-

connections O, so that the blast will pass successively through all the pipes of each row. The first connection O of each row of pipes N is connected by a pipe, P, with the pipe Q, leading from a blast-blowing engine or engines. The last connection O of each row of pipes, N, is connected by a pipe, R, with the pipe S, leading to the blast-furnace. The entrance of the cold blast into the stove is regulated by a valve, T, placed in the pipe P, and the passage of the heated blast to the furnace is regulated by a valve, U, placed in the pipe R. The U-pipes N are lined with fire-bricks V, which are made of different widths, so as to form a rough inner surface, as shown in Figs. 3 and 4, and thus cause a thorough intermingling and even heating of the air passing through the said pipes. The outer surfaces of the pipes N are faced with fire-bricks W, so as to thoroughly protect the said pipes from the heat.

Two or more heating-chambers, B, and combustion-chambers D, and their pipes and other appliances can be connected with the same inlet and outlet blast-pipes Q S, as may be desired. With this construction the blast can be heated to and kept at any desired temperature with a comparatively small amount of waste furnace-gases or fuel, and without any injury to the various parts of the stove.

The U-pipes N can be made of wrought-iron, if desired, to allow them to be made lighter than would otherwise be possible, and to prevent them from being cracked and broken by the heat.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a hot-blast stove for blast-furnaces, the metallic air-heating U-pipes N, faced inside and outside with fire-bricks, substantially as herein shown and described, to prevent the said pipes from being injured by the heat, as set forth.

2. In a hot-blast stove for blast-furnaces, the metallic air-heating U-pipes N, faced outside with fire-bricks W, and faced inside with fire-bricks V, made of different widths, so as to form a rough inner surface, substantially as described, and for the purpose set forth.

CHAS. ALGER.

Witnesses:

ABRAHAM S. PEET,
GRANVILL HILLS.