(No Model.)

H. JEROME.

SMOKE CONSUMING FURNACE.

No. 262,428. Patented Aug. 8, 1882.

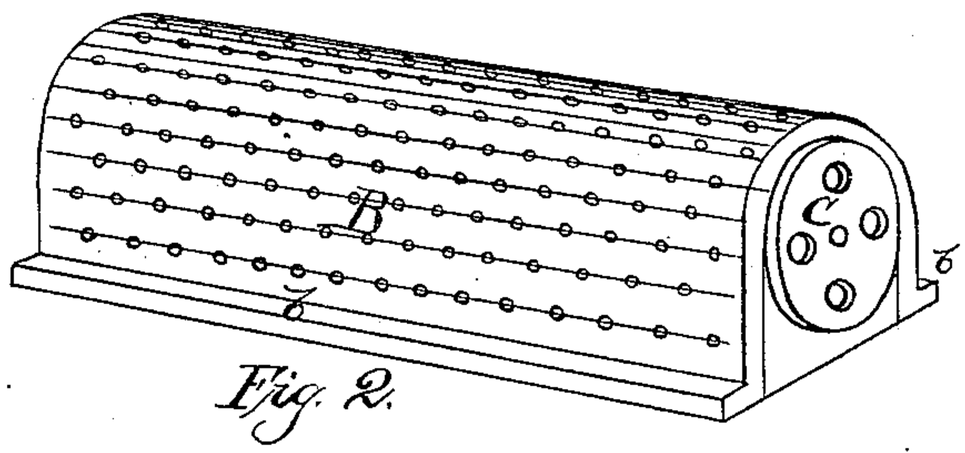

Fig. 2.

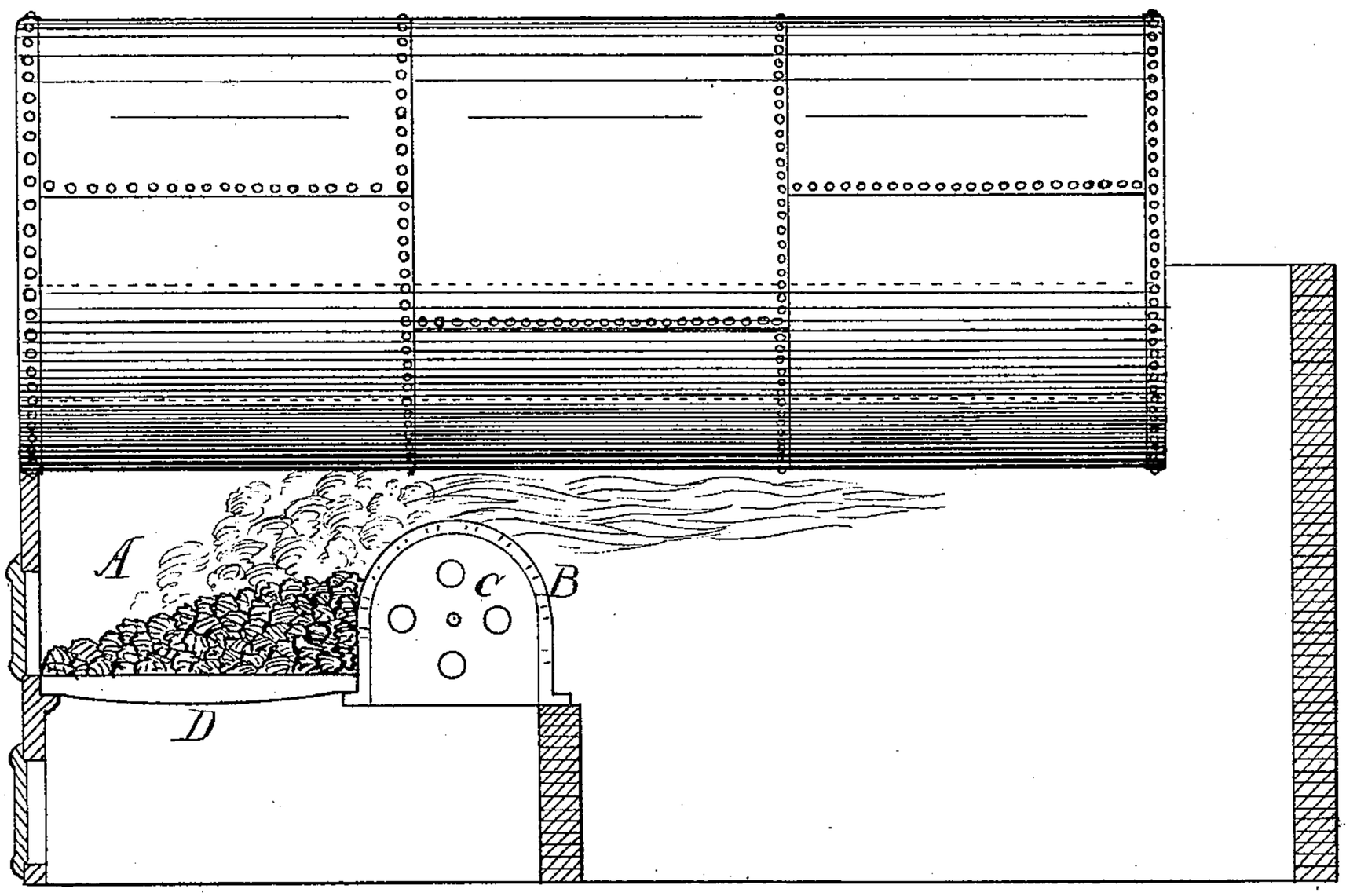

Fig. 1

Witness;

F. W. Tibbitts.

A. B. Jones

Inventor;

Henry Jerome.

By Geo. W. Tibbitts Atty.

UNITED STATES PATENT OFFICE.

HENRY JEROME, OF CLEVELAND, OHIO.

SMOKE-CONSUMING FURNACE.

SPECIFICATION forming part of Letters Patent No. 262,428, dated August 8, 1882.

Application filed March 3, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY JEROME, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Smoke-Consuming Furnaces, of which the following is a specification.

The nature and objects of this invention will fully appear from the subjoined description when considered in connection with the accompanying drawings, in which—

Figure 1 is a longitudinal section of a furnace and boiler having my improvement attached. Fig. 2 is a detached view of an arched bridge-wall, perforated and provided with end walls having dampers attached.

A is a furnace, of the usual construction, designed for burning coal for heating boilers, having an ash-pit and front wall, with doors and the usual furnace-fittings. The back wall of the ash-pit I make low, or about the height of the grate-bars.

B, which constitutes my invention, is a perforated arch, which is preferably made of iron. It lies across the furnace-space, with its rear side resting on the back wall of the ash-pit and its ends resting in the side walls flush with the outside. The ends of the arch are provided with walls with openings closed by a damper, C, by which air may be admitted when desired. The lower edges of the arch are provided with flanges *b b*.

The grate-bars D, I make shorter than usual and support their rear ends on the flange *b* of the arch, as represented.

The objects of the perforated arch are to provide a means of admitting air at a point in the furnace which will mingle with the smoke and gases caused by the burning coals on the grate, thus supplying the requisite quantity of oxygen for the complete combustion of the smoke and gases. The smoke and gases which are generated by the burning fuel are carried back under the boiler by the draft of the chimney, and are thus carried beyond the reach of the fire and escape to the chimney. By admitting air in the manner described and at the point shown a second combustion takes place, and thus the products of the first combustion are utilized and made to do service in producing heat. The quantity of air supplied is regulated by the dampers C at the outer ends of the arch. The usual supply of air is admitted underneath the arch from the ash-pit.

Should the arch become burned out or worn on the side next to the fire, it may be turned about and present an unworn side to the fire, thus extending time of its use.

I am aware that air has been supplied to furnaces by means of a perforated air-chamber placed in front of the bridge-wall. My device differs from that form in that I provide an arch having flanges on each side, so that when one side of the arch has become burned the unburned side can be turned toward the fire. The flanges, as heretofore stated, serve as a seat for one end of the grate-bars.

I am also aware that an air-supplying box has been placed upon the top of the bridge-wall; but that device differs from mine in that the arch of my box is perforated nearly to the base, so that the back of the fire will receive a sufficient quantity of air to insure thorough combustion, whereas in the device above referred to the air is only supplied at the point where the flame crosses the bridge.

What I claim as new is—

In a boiler-furnace, the combination, with the fire-box, of a reversible perforated arched air-supplying chamber or box, which serves as the top of the bridge-wall and rear of the fire-box, and is provided with longitudinal flanges, which are alternately used to support the grate-bars, and an air-supplying register, substantially as described.

HENRY JEROME.

Witnesses:
GEO. W. TIBBITTS,
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