HEPBURN & REINER.

Heating Drum.

No. 91,231. Patented June 15, 1869.

Fig. 1.

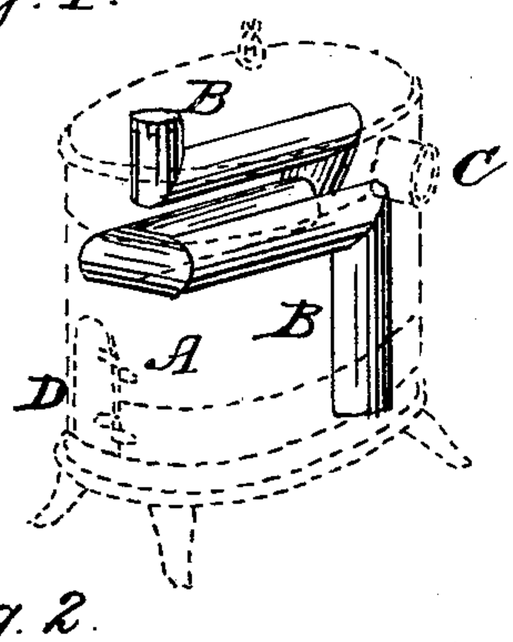
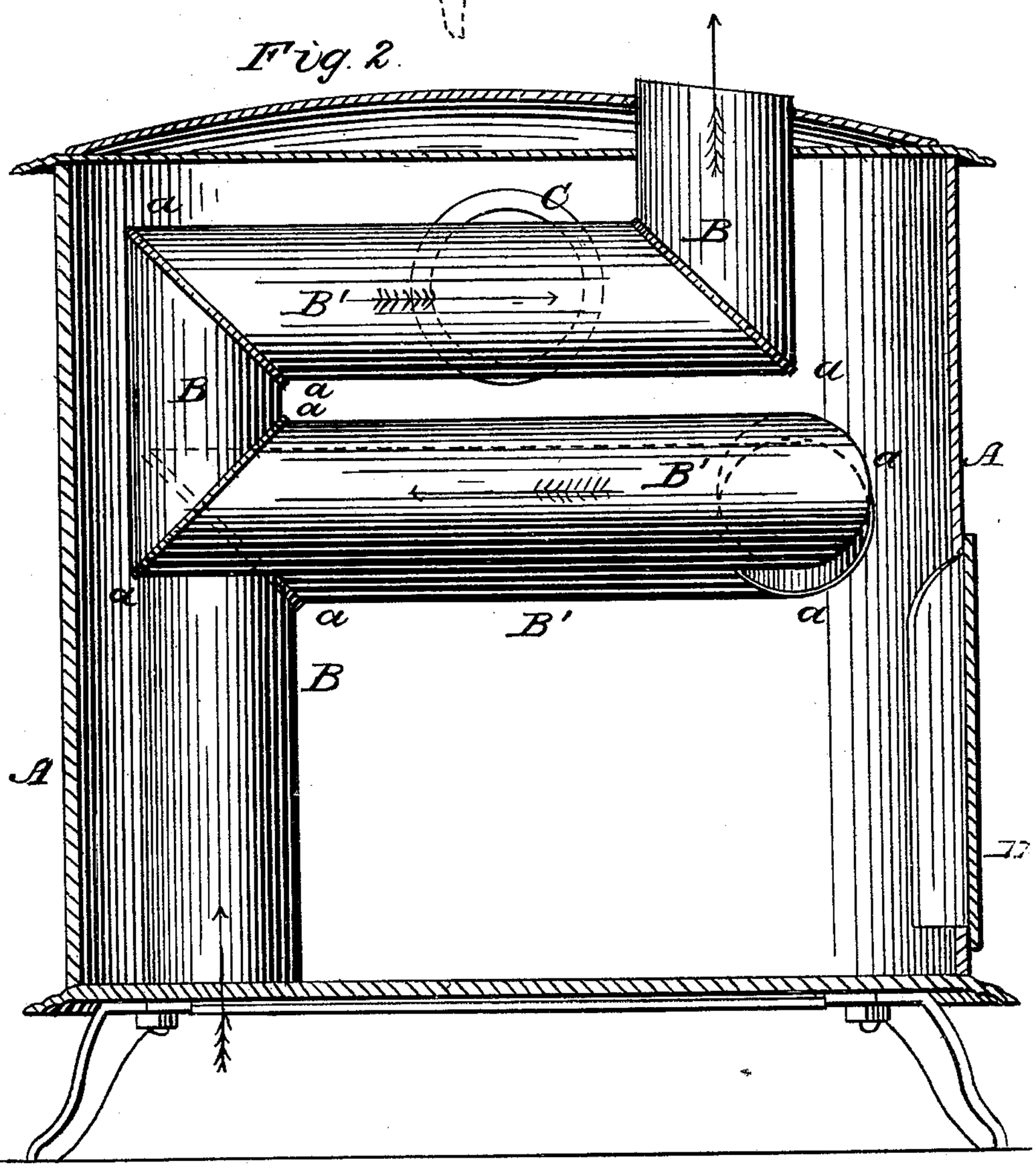


Fig. 2.



WITNESSES
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W. P. HEPBURN AND WILLIAM REINER, OF CLARINDA, IOWA.

Letters Patent No. 91,231, *dated June* 15, 1869.

STOVE-DRUM.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, W. P. HEPBURN and WILLIAM REINER, of Clarinda, in the county of Page, and State of Iowa, have invented a new and improved Stove; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of a wood-burning stove, in red lines, showing the air-heating pipe arranged within it.

Figure 2 is a vertical section taken centrally through a wood-burning stove, showing the air-heating pipe arranged in it.

Similar letters of reference indicate corresponding parts in the two figures.

The object of this invention is to increase the heating-capacity of a stove of any given size, by so arranging an air-conduit, which is open at both ends to the external air, within the fire-chamber of a direct-draught stove, that such conduit shall interrupt the direct passage of the heated products of combustion on their way to the escape-pipe, and at the same time interrupt the passage of the air through it, thereby adapting the stove to serve as a radiator of heat, as well as a means for warming rooms by air, which is heated in its passage through the said conduit, as will be hereinafter explained.

To enable others skilled in the art to understand our invention, we will describe its construction and operation.

In the accompanying drawings, we have represented our invention, applied within the fire-chamber of a direct-draught sheet-iron stove—

A being the body of such a stove, which may be made of cylindrical, elliptical, rectangular, or of any other suitable shape, and which is provided near its base with a door, D, to which a register may be applied for regulating the introduction of air in the fire-chamber for supplying combustion.

Near the upper end of this stove is a pipe, C, for allowing the products of combustion to escape into the chimney.

Within this stove we have arranged a pipe of air-conduit, B B′, which may be made of any suitable diameter, and which conducts cool air from the room at the base or bottom of the stove, heats the air, and discharges it from the top of the stove, as indicated by the course of the arrows in fig. 2. The peculiarity of our stove consists in the arrangement of the sections B B′, of the air-heating conduit between the escape-pipe C, for the products of combustion, and the fire-bed, so as to leave between such sections, narrow spaces through which the heated products are allowed to rise slowly on their way to the pipe C. The sections B′ may be arranged in horizontal planes, or they may be more or less inclined, and they are so arranged as to be exposed to the direct action of the flame, and heated products, so that in circulating beneath, between, and above the pipes, the air passing through them will absorb and carry off a very large amount of heat which would, without such arrangement, be carried off into the chimney.

The said horizontal sections B′ are connected at their ends by angles or elbows *a a*, and they communicate with the external air at the base and top of the stove, by means of vertical sections of pipe B B, as clearly shown in figs. 1 and 2 of the drawings.

The elbows may be made of cast-iron, united to sheet-iron sections, or if desirable, all the sections composing the conduit may be made of cast-iron. These elbows or angles will retard the passage of air through the several sections, by deflecting the currents from a straight course, and by these interruptions the air will be retained within the body of the stove long enough to become thoroughly heated before it is allowed to escape from the last section B at the top of the stove.

We do not confine ourselves to the arrangement of the sections of pipe collectively in a horizontal plane, as they may be otherwise arranged, and if desirable, two or more tiers of pipes may be so arranged between the bed of the fire and the escape-pipe C, as to be exposed to, and retard the products of combustion on their way to said pipe.

We are aware that flue-stoves and other forms of stoves have been provided with air-heating chambers, and pipes, arranged in a variety of ways within, and exterior to the fire-chamber of the stoves, but we are not aware, that previous to the date of our invention, there has ever been constructed or invented, a stove having an air-heating conduit composed of sections of pipes arranged so as to interrupt the escape of the products of combustion, by contracting the upper portion of the fire-chamber below the escape-pipe, which sections are also so constructed as to interrupt the passage of air through them long enough for it to become considerably heated.

What we claim as new, and desire to secure by Letters Patent, is—

A stove having arranged within its fire-chamber, and between the fire-bed and the escape-pipe for the products of combustion, a number of hollow angular sections B′, united to vertical sections B B, and adapted to operate substantially as described.

W. P. HEPBURN.
WM. REINER.

Witnesses:
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