

(No Model.)

J. A. WATROUS.

HOT AIR FLUE FOR HEATING STOVES AND FURNACES.

No. 288,142.

Patented Nov. 6, 1883.

Fig. 1.

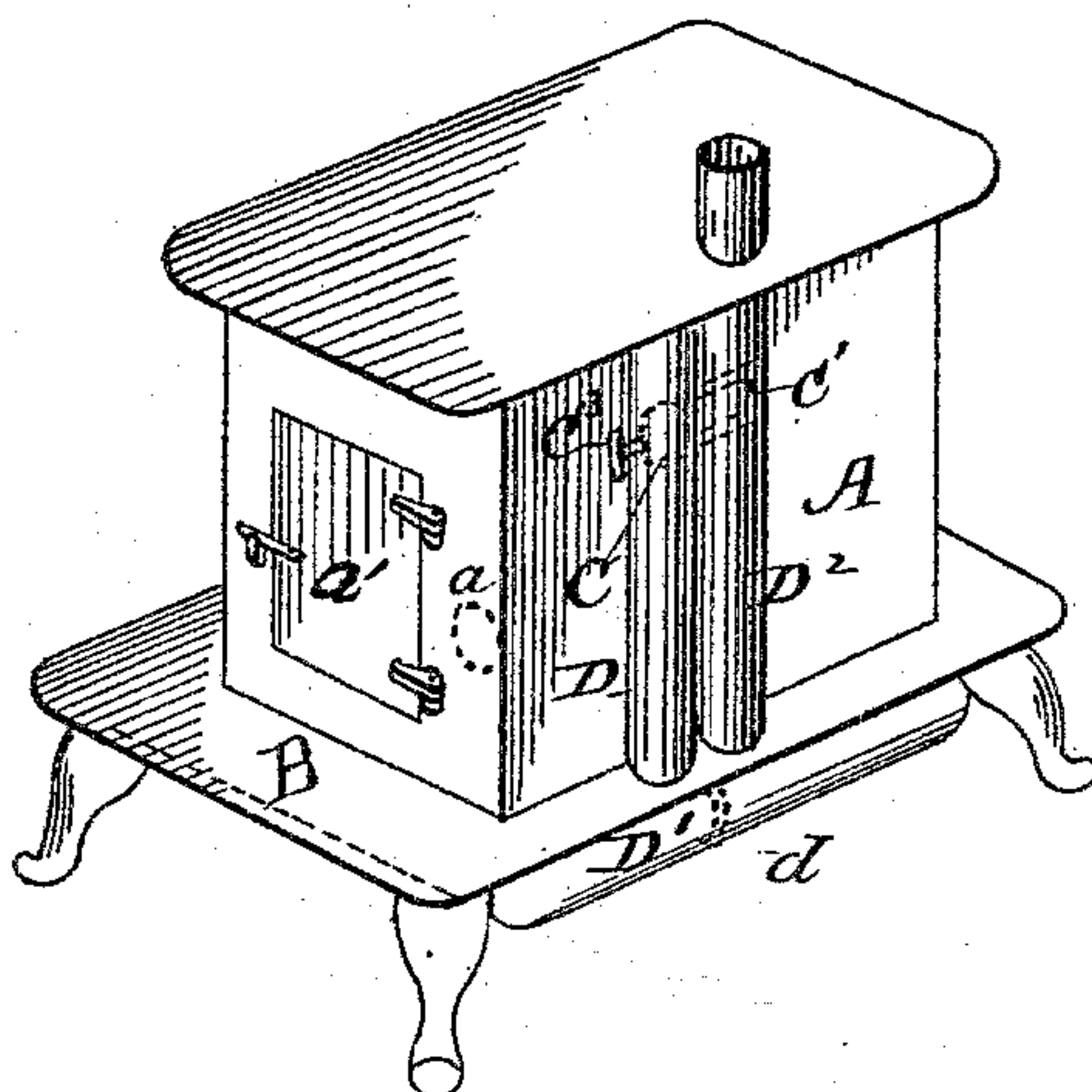


Fig. 2.

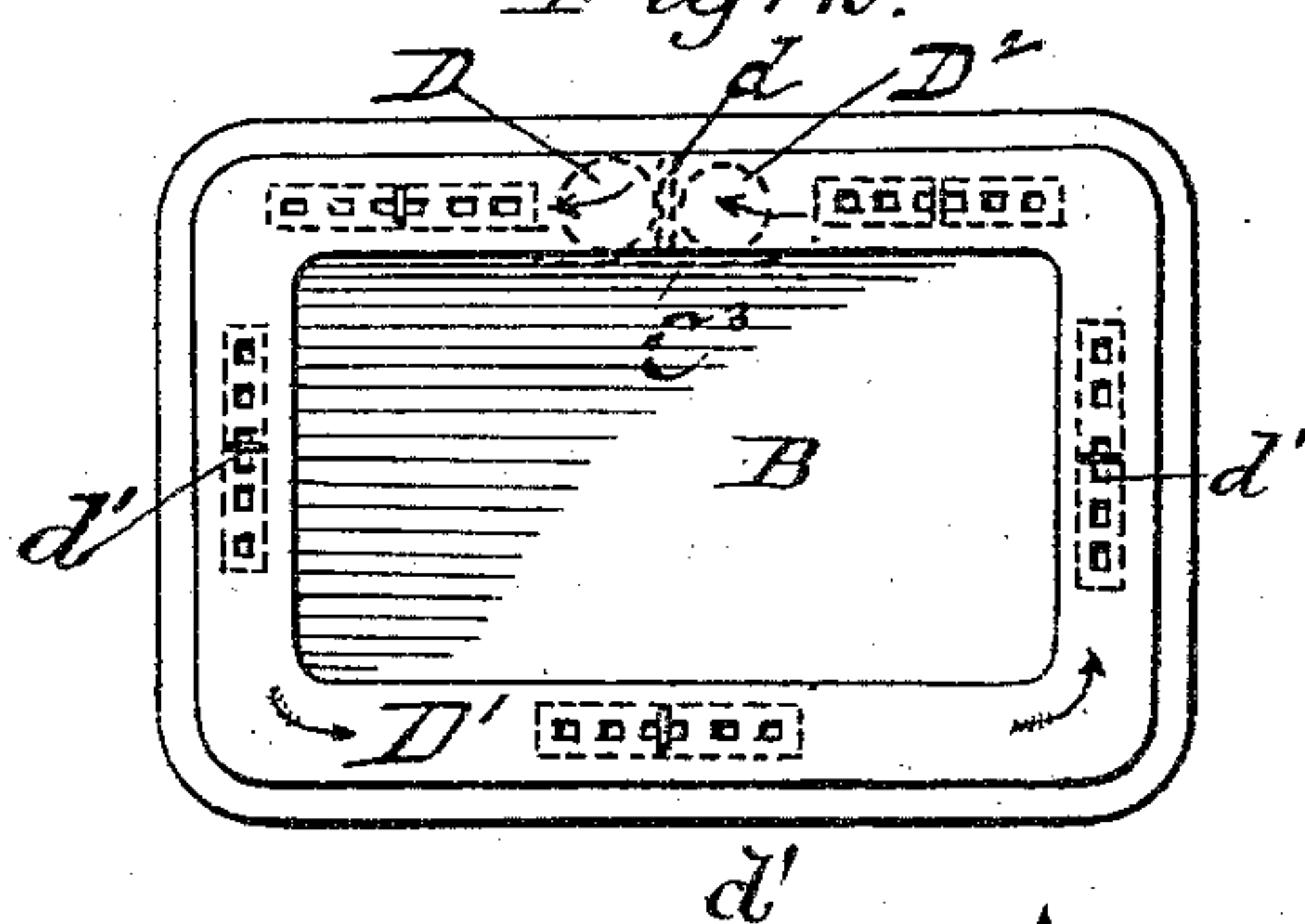
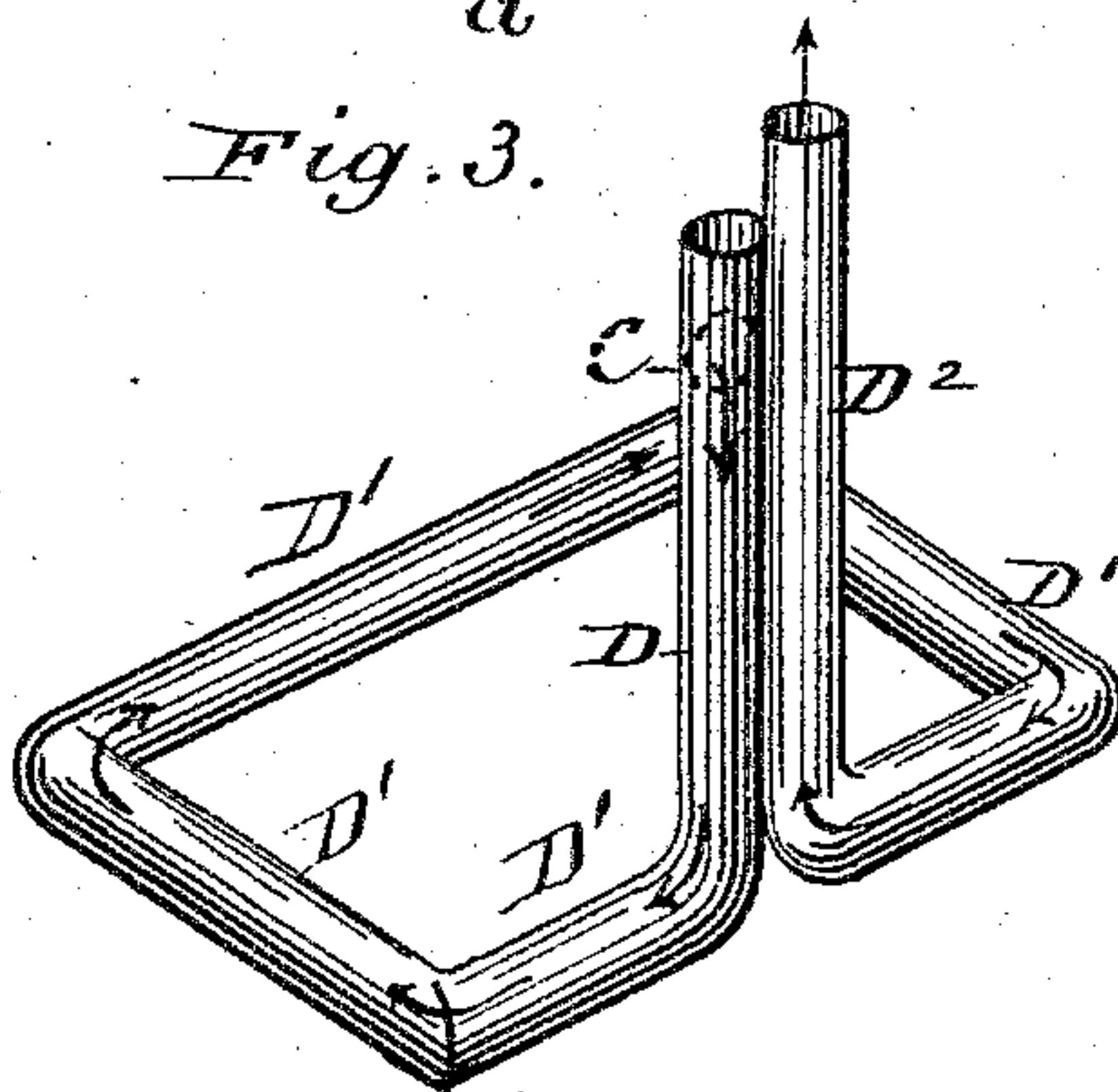


Fig. 3.



Witnesses:
L. B. Hills.
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Att'y.

UNITED STATES PATENT OFFICE.

JAMES A. WATROUS, OF GREEN SPRING, OHIO, ASSIGNOR OF ONE-HALF TO
AUGUSTUS BACKUS, OF SAME PLACE.

HOT-AIR FLUE FOR HEATING-STOVES AND FURNACES.

SPECIFICATION forming part of Letters Patent No. 288,142, dated November 6, 1883.

Application filed July 16, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES ALLEN WATROUS, a citizen of the United States, residing at Green Spring, in the county of Seneca and State of Ohio, have invented certain new and useful Improvements in Hot-Air Flues for Heating-Stoves and Furnaces, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a perspective of a stove provided with my improved hot-air flue; Fig. 2, a bottom view of the same, and Fig. 3 a perspective of the flue detached.

Like letters refer to like parts in all the figures.

A represents the body of the stove, and B the base or bottom plate thereof, and these may be of any desired pattern, shape, or configuration.

From the outlet C, usually formed in the rear plate of the stove-body, as shown by dotted lines, Fig. 1, I extend the hot-air flue D down said back plate and on the outside thereof to the base-plate B. In this instance the flue D joins a pipe, D', arranged against the under side of the base-plate, and extending all around, as shown, to the place of beginning. A partition, d, is formed or located in the pipe D', and the exit branch D² is extended upwardly alongside of the portion D. These three portions D D' D² constitute what I have herein designated as the "hot-air flue," and it may be formed of suitably-jointed sections of sheet metal, or it may be cast in one or more pieces.

At different points along the section D' are placed dampers d', and at C³, I may place a damper, which will serve to close the exit C and open a similar exit, C', as shown by dotted lines in Figs. 1 and 2. The dampers employed are of the well-known and usual form—simple plates sliding in guides—and of any form necessary to close the openings when moved over the same.

At a is a draft-opening in the front plate of the stove, and at a' is a door for the introduction of fuel.

This being the construction, the operation is as follows: The products of combustion may, when starting a fire, be directed through the exit C' by drawing the damper C³ over the exit C, and in such case said products escape directly to the chimney and a direct strong draft is secured. For heating purposes, the

damper (when used) is placed over the exit C', leaving the exit C open, so that the products of combustion pass, as shown by the arrows in Fig. 3, down the section D into the section D' and on one side of the partition d, and thence around the said section D' to the opposite side of the partition d, and thence up the section D² to the chimney. The dampers d' serve a twofold purpose—viz., the removal of ashes, soot, and dust and the reduction or regulation of the draft.

It will be seen that by this construction, which is simple and readily applicable to existing forms of stoves, the heat of the products of combustion is thrown off principally at the base of the stove, and by diffusion rises and produces upward currents in the atmosphere of a room, and the colder air rushes in to take the place of the rising heated air, and is in turn heated and caused to rise also, and thus an even temperature is maintained at a less expense of fuel than if the products of combustion were conducted directly to the chimney.

If desired, the section D' may be merged at each end, as shown in Fig. 3, into the sections D and D², in which case the partition d would not be required; and, furthermore, the damper C³ may be dispensed with, in which case the exit C' also would be omitted, as shown in Fig. 3.

I do not claim, broadly, return and circuitous flues, as these are well known, and usually formed in or as a part of the stove.

Having described my invention and its operation, what I claim is—

1. The combination, with the stove A, of the hot-air flue, comprising the sections D, D', and D², arranged as described, the latter having the dampers d', substantially as shown and described.

2. The combination of the back plate having the damper C³ and exits C C', the sections D and D², having the exit-openings communicating with the exit C C', and the section D', having the dampers d', substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES ALLEN WATROUS.

Witnesses:

C. S. BURTON,
IRA E. SPECK.