(No Model.)

E. L. DODGE.

SMOKE CONSUMING STOVE.

No. 285,397. Patented Sept. 25, 1883.

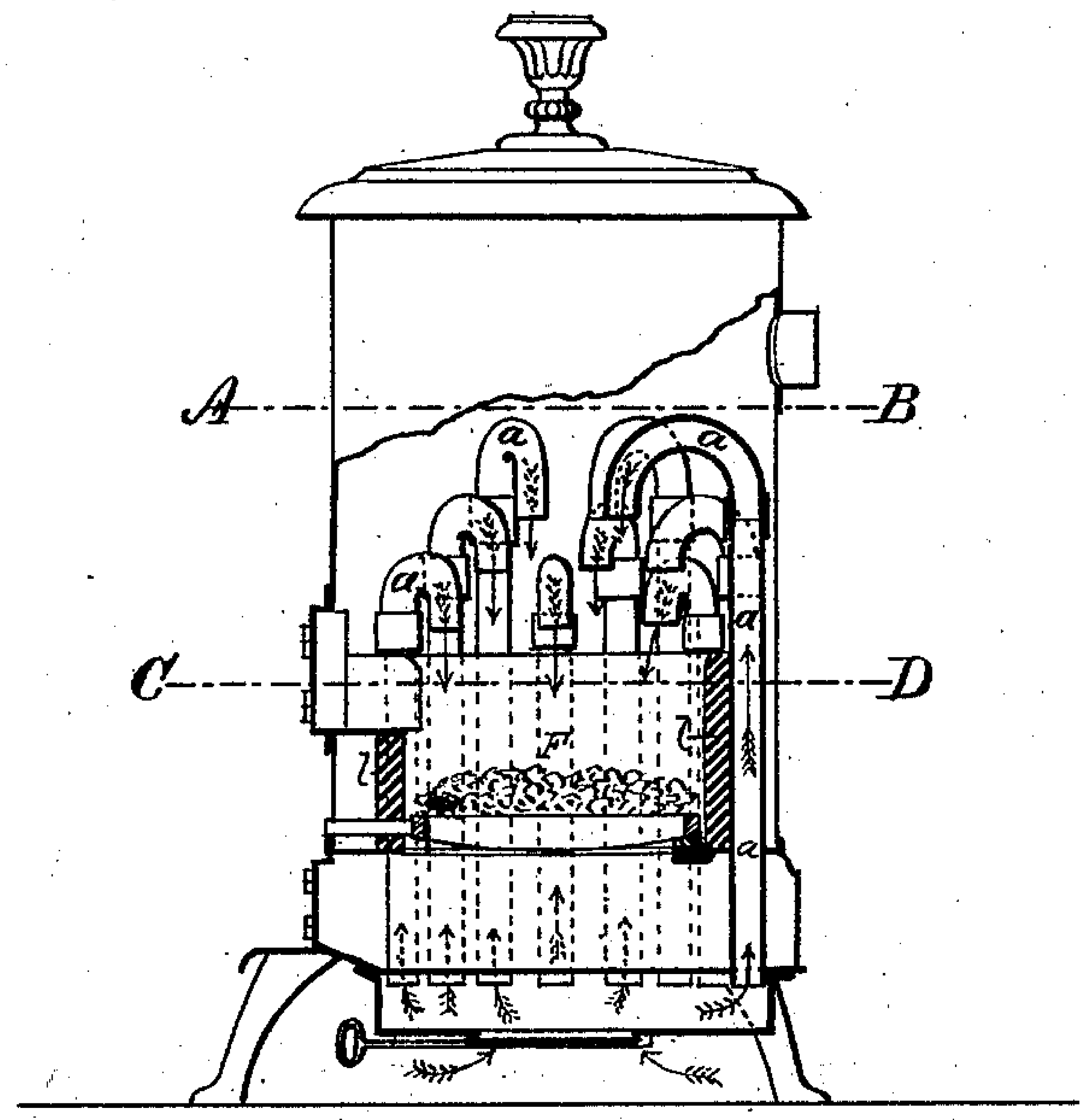

Fig. 1.

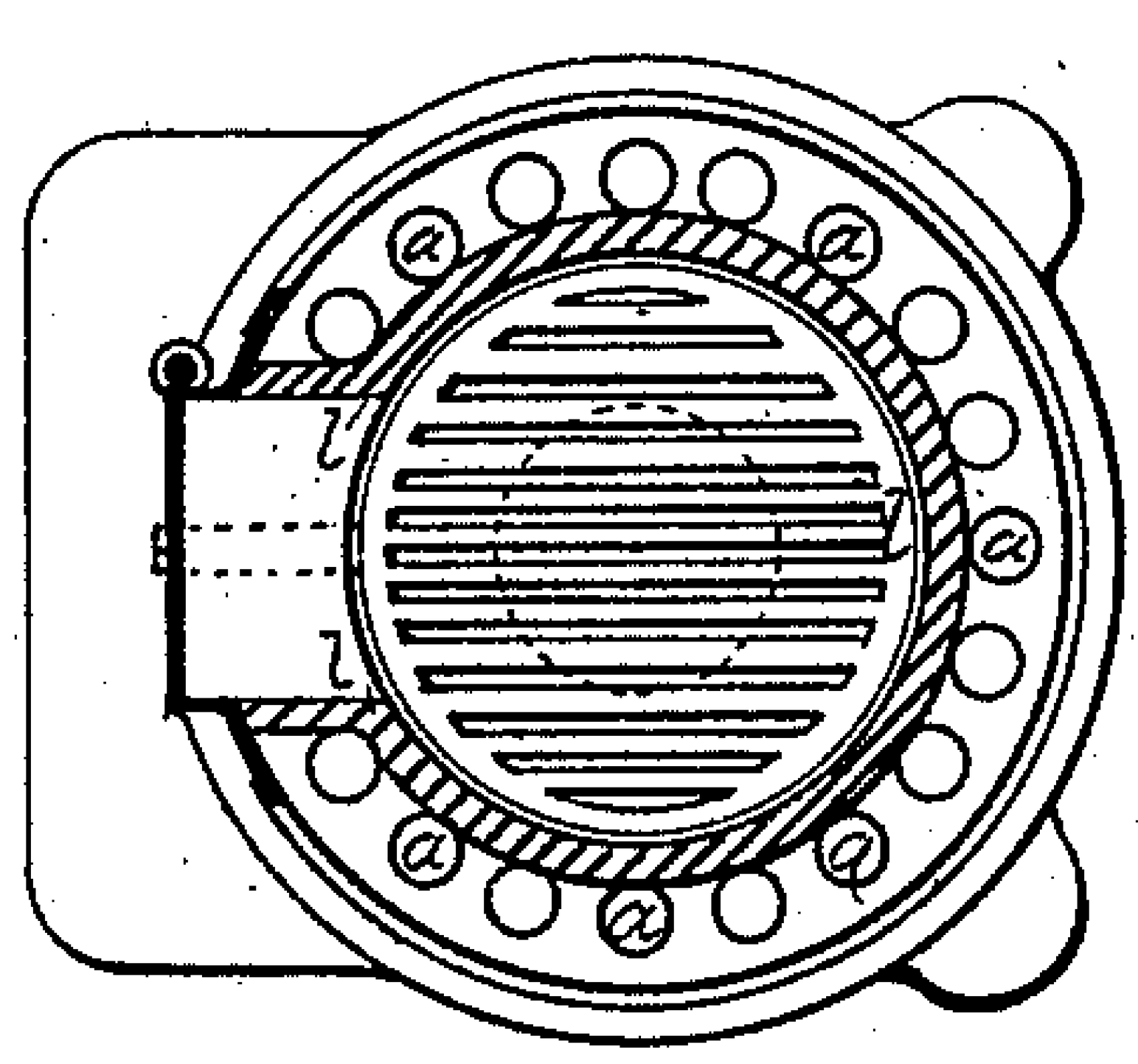

Fig. 2.

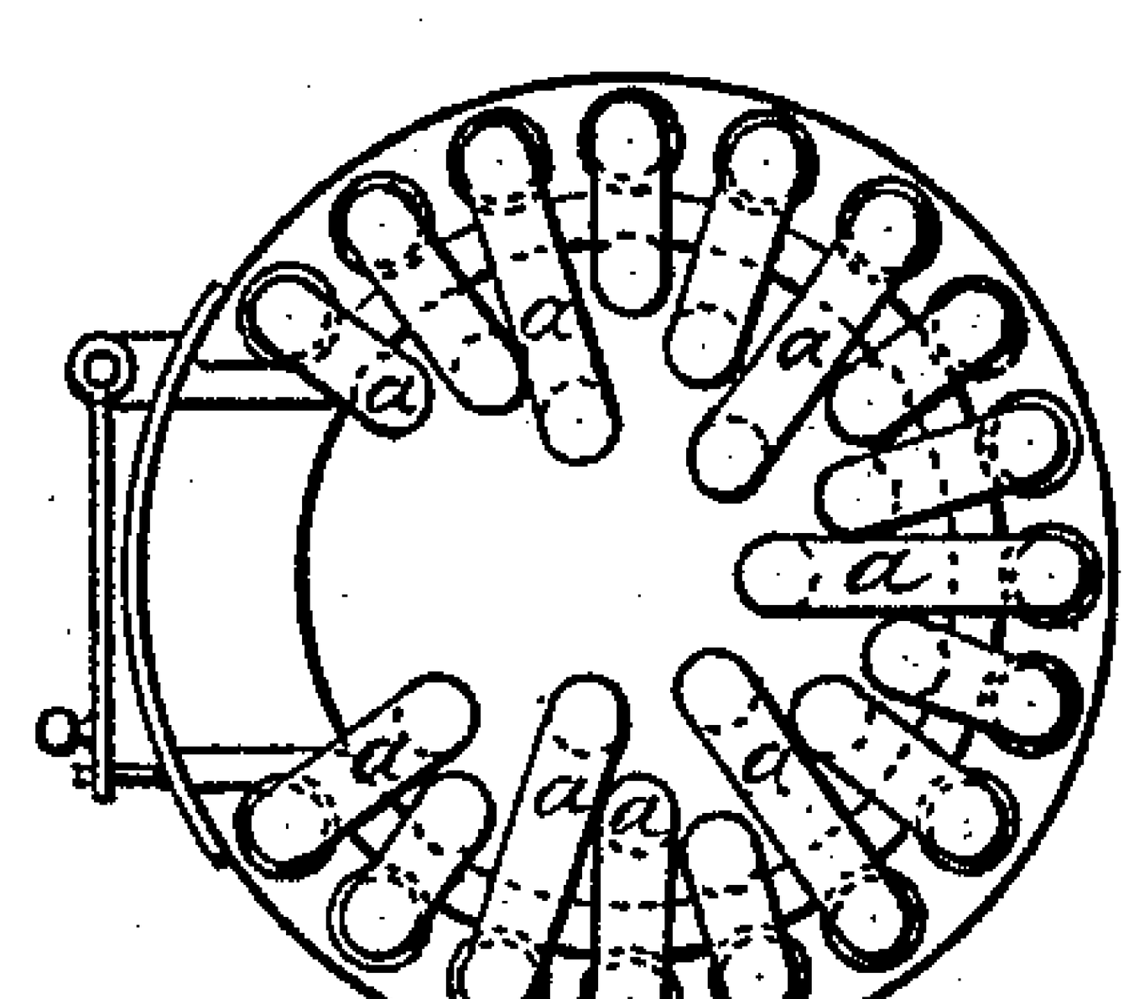

Fig. 3.

Witnesses.

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EDWIN L. DODGE, OF SOMERVILLE, MASSACHUSETTS.

SMOKE-CONSUMING STOVE.

SPECIFICATION forming part of Letters Patent No. 285,397, dated September 25, 1883.

Application filed December 14, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDWIN L. DODGE, a citizen of the United States, residing at Somerville, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Stoves and Furnaces, of which the following is a full, clear, and exact description.

My invention relates to the means of introducing a supply of heated air into a stove or furnace above the fire therein to promote combustion of the gases arising from the imperfect combustion of the fuel. It affords a means of directing, conducting, and discharging currents of intensely-heated air with great velocity downward through and among said gases as they rise, and toward and upon the surface of the fire, by means of which the oxygen of the air is enabled to rapidly and thoroughly combine with said gases while both are in the condition of greatest heat.

It consists in using as conduits for the air a series of tubes which are exposed to the direct action of the fire, being separated from it only, if at all, by the ordinary fire-brick lining by making them a part of the fire-pot. The tubes are siphon-like in form, being bent inward at their upper ends over the fire and downward toward it. The air enters these tubes from the outside of and through the base of the stove, and is intensely heated by the direct action of the fire on the several tubes, and, being confined by the tube on all sides, is forced to ascend with great velocity through the tubes, and is led through the bend of the tube and its downward-projecting arm and forced through the open end thereof with its velocity little diminished, among and through the said gases, and upon the surface of the fire without having parted with any of its heat.

In the accompanying drawings, Figure 1 shows a vertical section of a stove which contains my described apparatus. *a a* are the siphon-shaped air-tubes, which are shown making the greater portion of the fire-pot, and held in place and connected by the remaining metal of said pot, of which *l* is the fire-brick or other lining. The arrows indicate the currents of air entering the tubes from the outside at the base of the stove, and passing upward by the fire and over and downward through and out of the short arm of the siphon toward and upon the surface of the fire F. Fig. 2 shows a horizontal section of said stove on the line C D, Fig. 1, and shows said tubes constituting a portion of the fire-pot, and having a portion of the surface of each tube in contact with the lining *l*. Fig. 3 is a horizontal section of said stove at the line A B, Fig. 1, and shows a top plan view of the said tubes *a a*.

I am aware that stoves have been made with a chamber over the fire to receive and hold heated air, with perforations in the bottom of said chamber to permit the air it contains to escape downward toward the fire; but such device is an imperfect means of supplying oxygen for combustion of the gases arising from the fire, because the air in said chamber loses a considerable part of its heat before it leaves said chamber, and has little or no tendency to descend with velocity toward the fire through the gases, and it provides no means for conducting and directing the air in the desired direction. All these defects are remedied by my described invention.

I claim—

1. The continuous air-conduits *a a*, arranged around the fire, their lower portion forming a portion of the fire-pot, and adapted to receive and heat and lead upward and over and discharge downward with velocity currents of air toward the surface of the fire in the fire-pot, in the manner and for the purpose set forth.

2. The series of continuous tubes *a a*, forming a portion of the fire-pot, and extended above the fire-pot and bent over and downward, and adapted to secure heat and lead and discharge at various elevations currents of air, and constructed as described and shown, and for the purpose set forth.

EDWIN L. DODGE.

Witnesses:
SAMUEL SNOW,
ROBT. K. SNOW.