

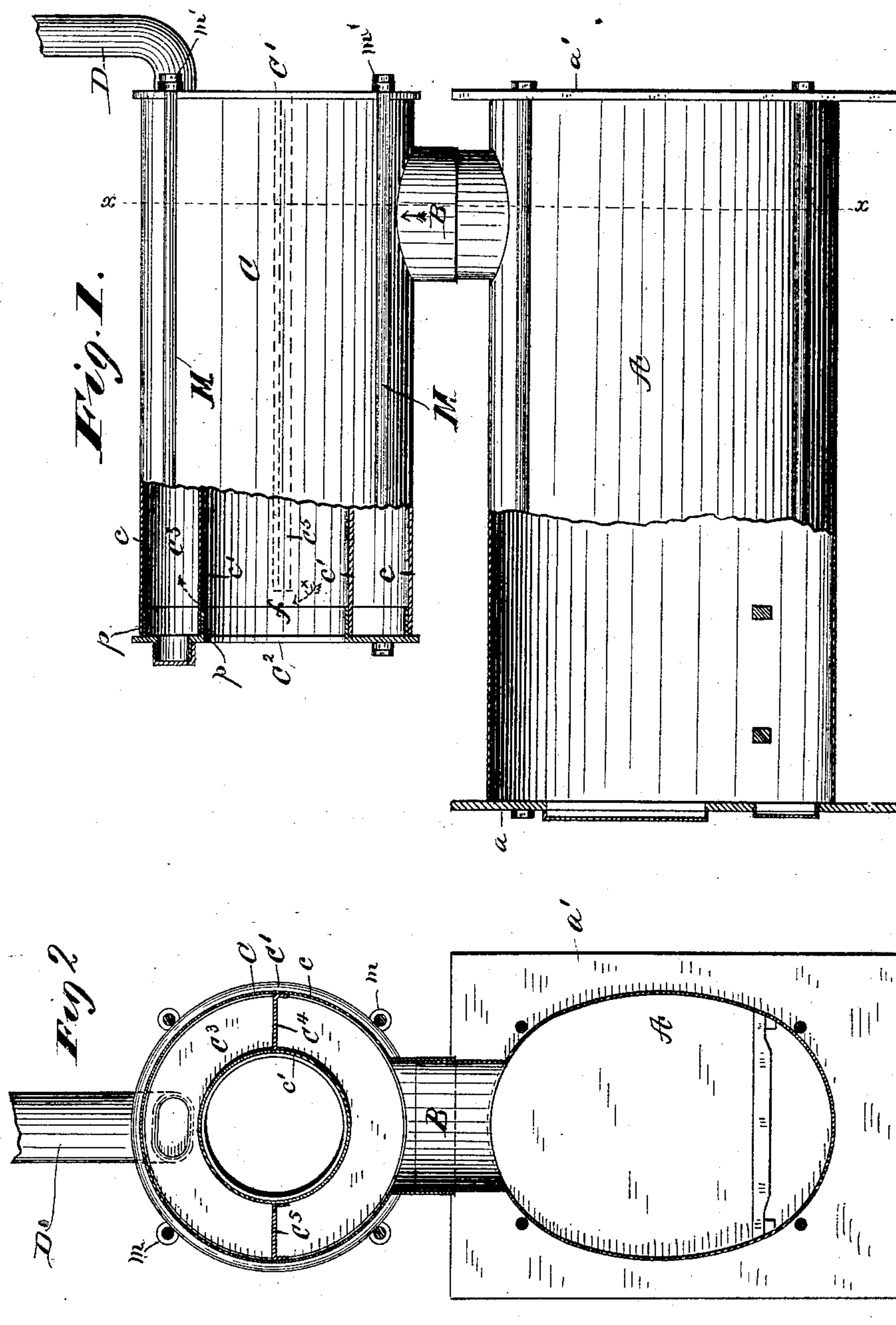
(No Model.)

S. A. FIELD.

HEATING DRUM FOR FURNACES AND STOVES.

No. 360,575.

Patented Apr. 5, 1887.



Witnesses
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UNITED STATES PATENT OFFICE.

SAMUEL ALBERT FIELD, OF PUTNAM, CONNECTICUT.

HEATING-DRUM FOR FURNACES AND STOVES.

SPECIFICATION forming part of Letters Patent No. 360,575, dated April 5, 1887.

Application filed June 19, 1886. Serial No. 205,612. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL ALBERT FIELD, a citizen of the United States, and a resident of Putnam, in the county of Windham and State of Connecticut, have invented a new and useful Improvement in Heating-Drums for Furnaces and Stoves; and I hereby declare the following to be a full and clear description thereof, reference being had to the accompanying drawings, which form part of this specification.

The object of this invention is to increase the radiating-surface of the drum or heater, and at the same time increase the utilization of the hot gases and other products of combustion.

The invention will be readily understood by reference to the accompanying drawings, of which—

Figure 1 is a longitudinal elevation, partly in section, of one of my improved wood-burning furnaces with the said improved heating-drum attached. Fig. 2 is a transverse sectional elevation of the said improved apparatus through line *xx* of Fig. 1.

The tubular sides of the heater or furnace A are made of suitable wrought or rolled metal plates, and the ends *a* and *a'* of the said furnace are made of cast metal suitably attached to the sheet-metal sides. At the front end of this furnace is placed a suitable fuel-door, and near its rear end and rising from its top side is an exhaust or smoke pipe, B, to the upper end of which is attached a horizontal cylindrical drum, C, which is duplex in construction, as shown best in the transverse sectional view, Fig. 2. The said duplex drum is made in annular form, as shown in said Fig. 2, the inner and outer tubular plates, *c* and *c'*, of which are made of sheet metal, preferably rolled steel plates, and the ends of these tubes are coterminous, and are respectively secured to the end plates, C' and C'', which are made of cast metal.

The heads C' and C'' of the heating-drum are provided at their peripheries with perforated lugs or ears *m*, located a suitable distance apart, through which tie-rods or bolts M extend. The bolts M are threaded at one or both ends, and provided with nuts *m'*, which serve to draw the heads into snug contact with the ends of the tubes, thereby locking them in the desired position, and at the same time rendering the ends readily removable for the purposes of cleaning out the soot or ashes or for

repairs. The inner faces of the ends C' and C'' are provided with circular flanges *p* and *p'*, which form seats for the ends of the tubes, and serve to break the joints between the ends C' C'' and the tubes and prevent the escape of smoke and gas. The ends of the furnace A are also secured in position by bolts in a manner quite similar to that above described with respect to the ends C' C''.

At each side of the annular heating-chamber C³, which is formed between the tubular plates *c* and *c'*, there is a diaphragm-plate. These diaphragms are marked in the drawings C⁴ and C⁵, and they are placed about diametrically opposite each other in the said annular chamber C³. They are made to fill up the entire width of the chamber C³ and to extend to its rear end, but do not quite reach its front end, a short space being formed at *f* between the said front ends of them and the contiguous end plate of the drum, so as to allow the smoke and other products of combustion to escape through the said spaces *f* from the lower to the upper section of the said annular heating-chamber, as shown by the dotted lines in Fig. 1.

The smoke and other products of combustion pass through the lower and upper sections of the heater in the direction of the arrows *x*, and finally escape from the said chamber C³ by the outlet-pipe D, the outer end of which is connected with the chimney.

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

The herein-described heating-drum, consisting, essentially, of the inner and outer horizontally-disposed sheet-metal tubes, the annular cast-metal end caps provided with the perforated lugs and with the circular flanges for seating the ends of the tubes, the diaphragms extending from one of the end caps along the opposite sides of the central tube to points near the opposite end cap, and the tie-rods or bolts connecting the end caps through the said perforated lugs, the whole constructed in the manner and for the purpose substantially as set forth.

In witness whereof I hereunto set my hand in presence of two witnesses.

SAMUEL ALBERT FIELD.

Witnesses:

ALBERT A. NASEN,
DAVID STONE.