

J. H. Sturdy.
Flue and Tubular Boiler.
N^o 61,278. Patented Jan. 15, 1867.

Fig. 1

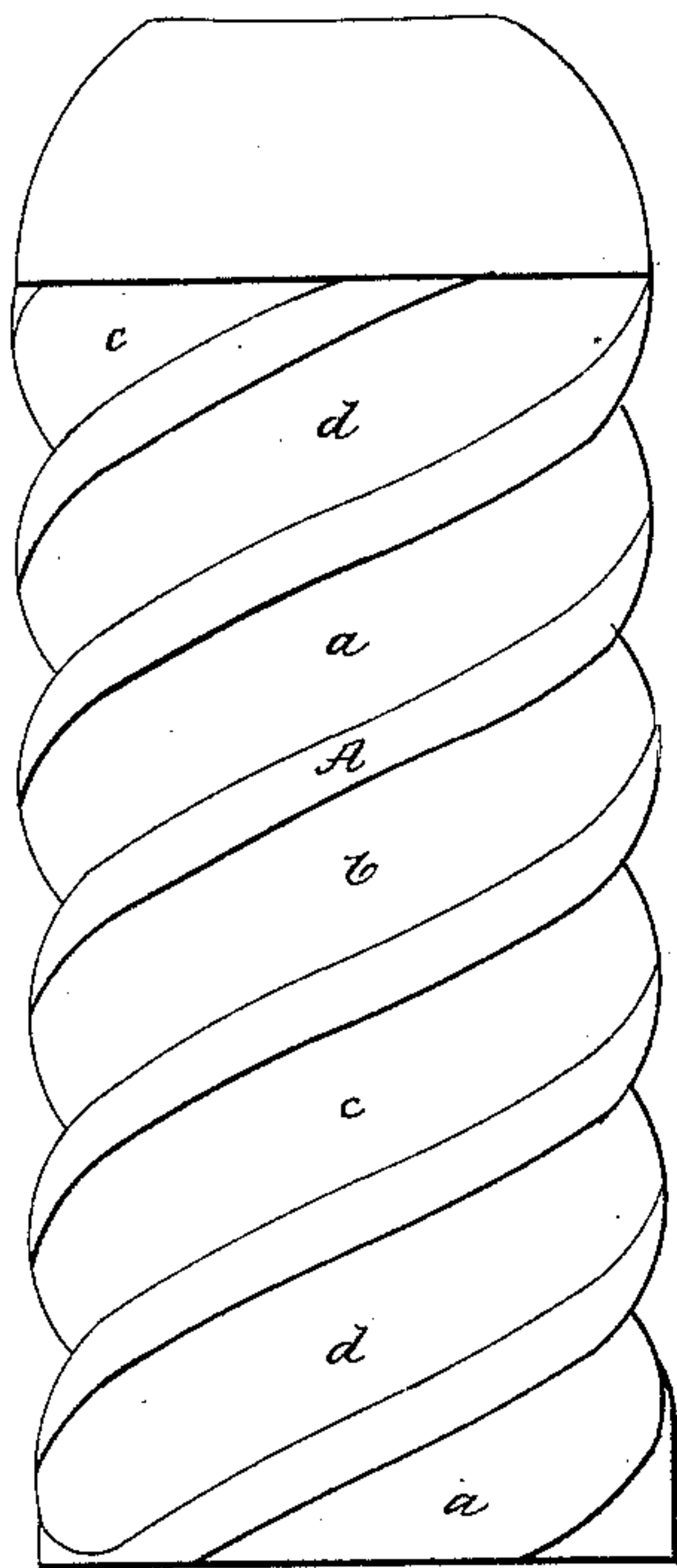


Fig. 4

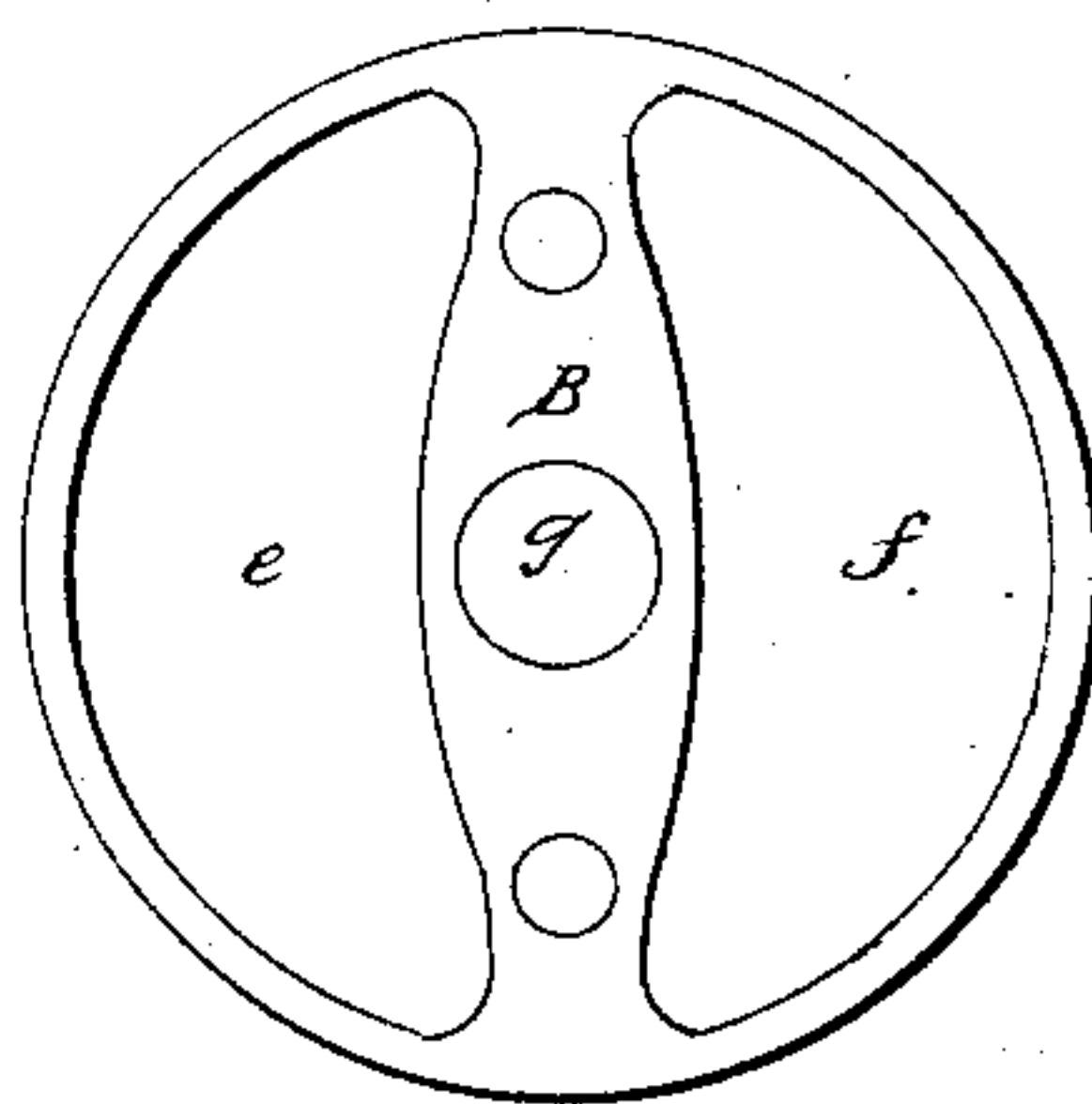


Fig. 5

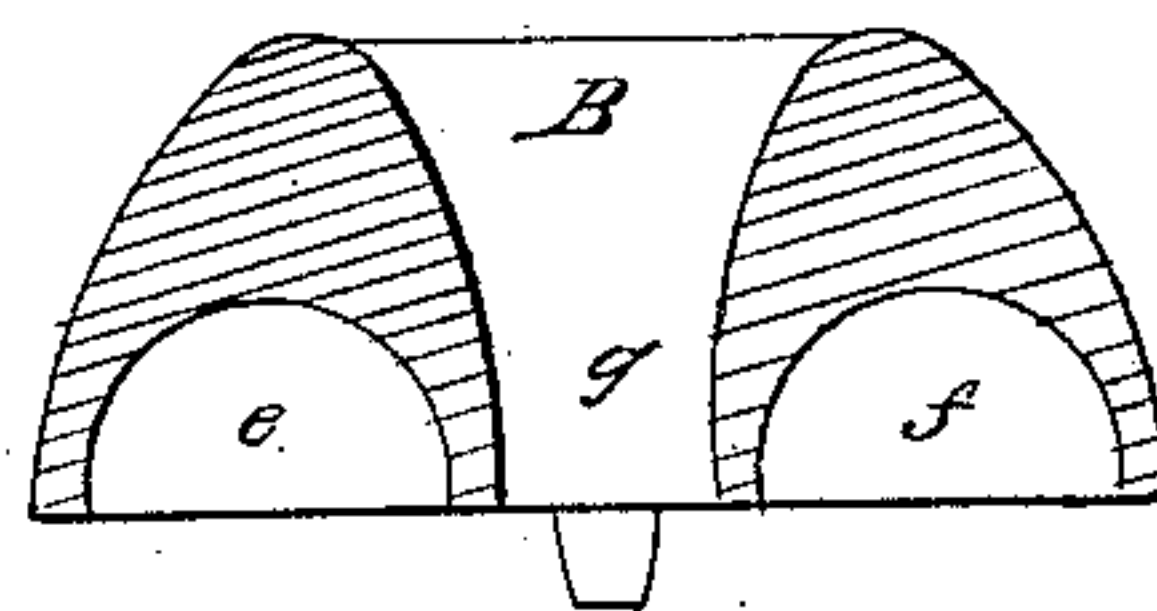


Fig. 3

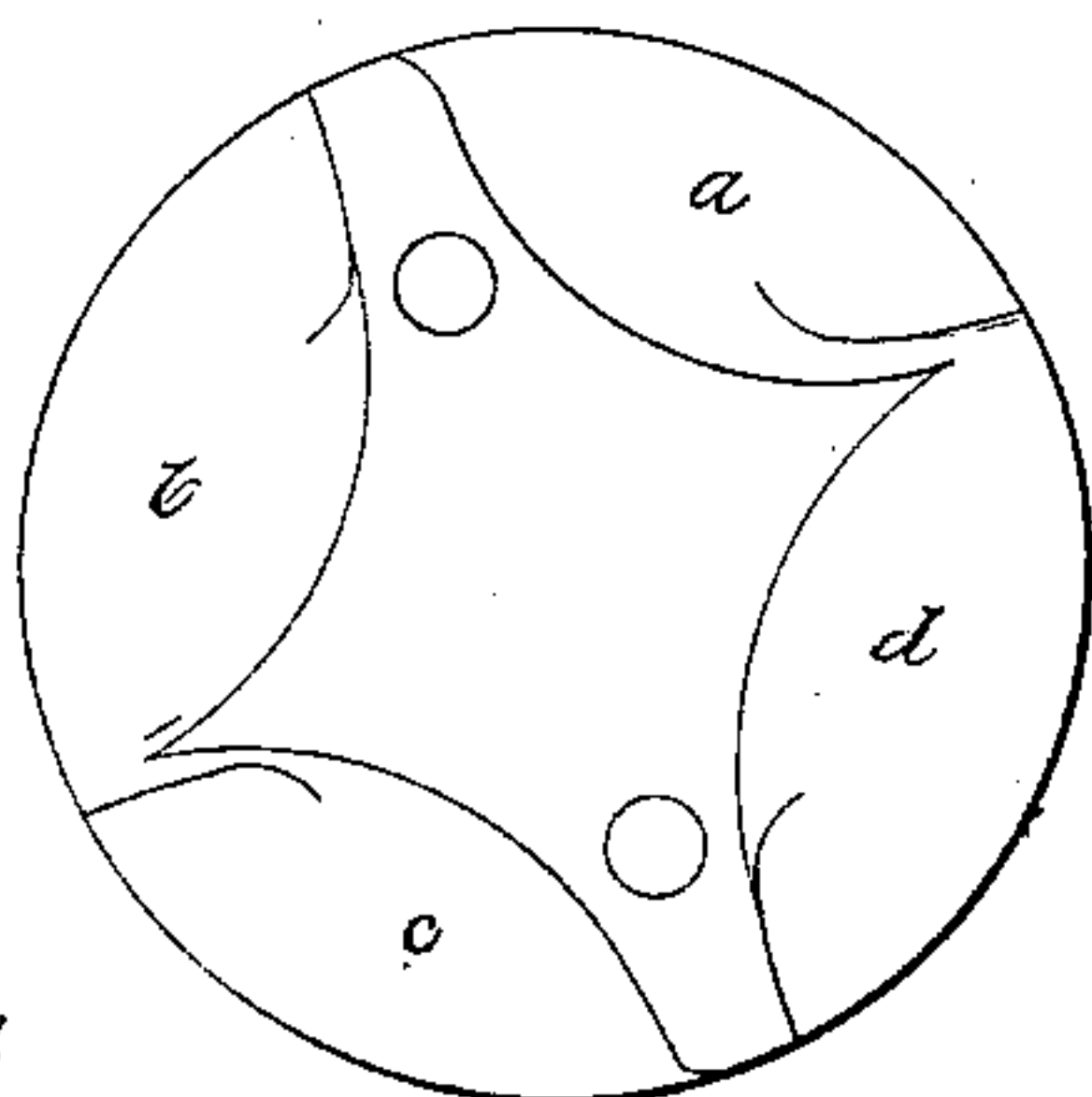
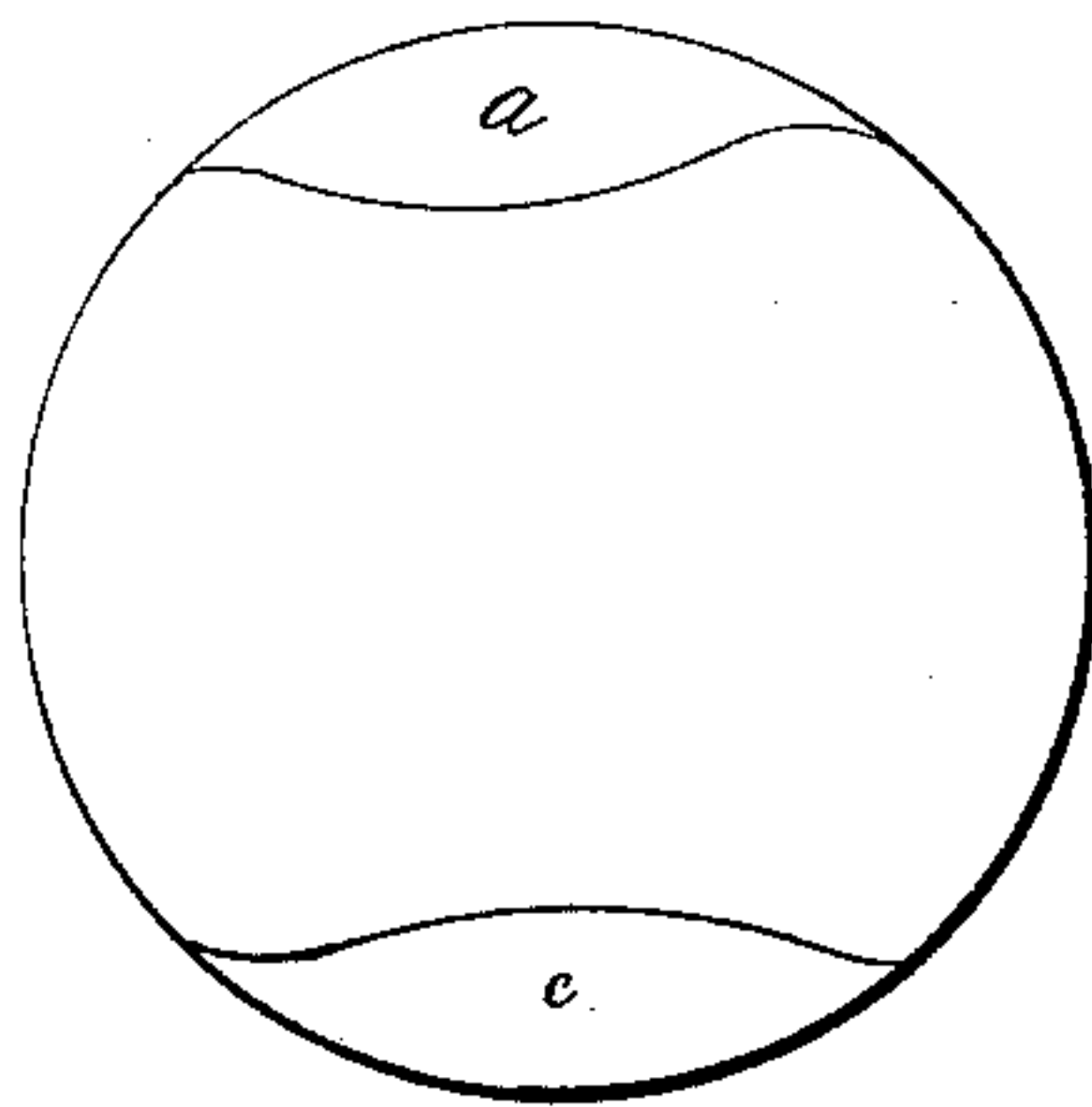


Fig. 2



Witnesses:
Geo. M. Andrews.
Samuel N. Piper.

Inventor:
Jas. H. Sturdy.
by his attorney
R. W. Sturdy.

United States Patent Office.

JAMES H. STURDY, OF ATTLEBORO', MASSACHUSETTS.

Letters Patent No. 61,278, dated January 15, 1867.

IMPROVEMENT IN STEAM GENERATORS.

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

TO ALL PERSONS TO WHOM THESE PRESENTS SHALL COME:

Be it known that I, JAMES H. STURDY, of Attleboro', in the county of Bristol, and State of Massachusetts, have invented a new and useful Improvement in Steam Boilers; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a side elevation of a steam generator, constructed in accordance with my invention.

Figure 2 is a lower end view of it.

Figure 3 is a top view of it, as it appears without its cap.

Figure 4 is an underside view; and

Figure 5 is a transverse section of the cap.

The external surface of the body A of this boiler, as represented in the drawings, has the form of four helical grooves, *a, b, c, d*, formed in a cylinder. One groove of each pair is open, and the other is closed at its bottom; each groove at its top being open. The cap B, which rests on the top of the boiler, is formed with two separate conduits or chambers, *e, f*, each of which extends over the upper ends of two of two of the helical grooves, so as to open communication between such grooves. Besides these chambers, there is a hole or passage, *g*, made down through the cap, and to the top *h* of the boiler. This boiler is intended to be made of cast iron or other proper metal or material, and to be formed as a hollow vessel. It is to be erected directly over a fire-place or furnace, and is to be encased within a cylindrical drum, to fit closely to it, the whole being so that helically ascending and descending flues may be formed by the grooves and case, each of the ascending flues being made to communicate at its top, through the cap, with one of the descending flues. This descending flue should open at bottom into an escape flue or chimney, which, if desirable, may surround the case of the boiler, either in part or in whole. The smoke and gases from the fuel, when in combustion in the fire-place, will pass up the ascending helical grooves or flues *a c*, and into and down the descending ones *b d*; and in their passage through such flues, such smoke and gases will impart heat to the outer surface of the boiler. The steam from the boiler may be taken from its top by a pipe leading down the passage *g* in the cap. The water may also be supplied to the boiler by a pipe entering it at its top, or in any other proper part of it.

I do not confine my invention to the precise number of helical grooves, as above stated, nor to the form of boiler, as set forth, as the said form and number of grooves may be varied and still preserve the principle of my invention.

What I claim as of my said invention is as follows:

I claim a boiler constructed with helical ascending and descending grooves or flues, arranged to extend around it, and made to communicate at or near their upper extremities, substantially as set forth.

I also claim the cap B, as made with the central passage *g*, and one or more chambers, *e, f*, the same being arranged in it, substantially in manner and for the purpose as specified.

I also claim the combination of the cap B, or its equivalent, with the boiler formed with two or any other greater number of helical flues, arranged in it substantially as described.

JAMES H. STURDY.

Witnesses:

R. H. EDDY,

SAMUEL N. PIPER.