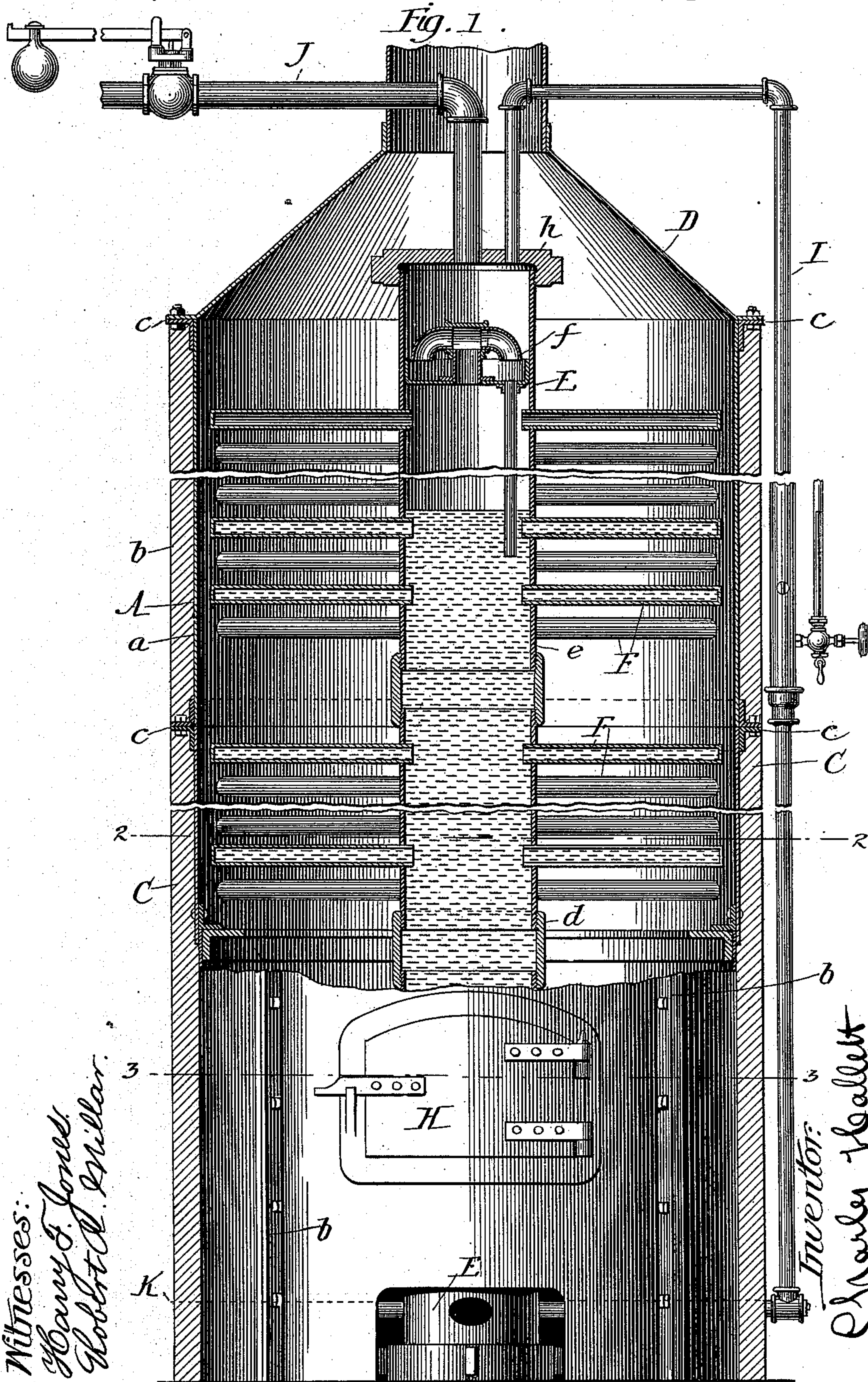


C. HALLETT.
BOILER.

No. 402,441.

Patented Apr. 30, 1889.



(No Model.)

3 Sheets—Sheet 2.

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Fig. 2.

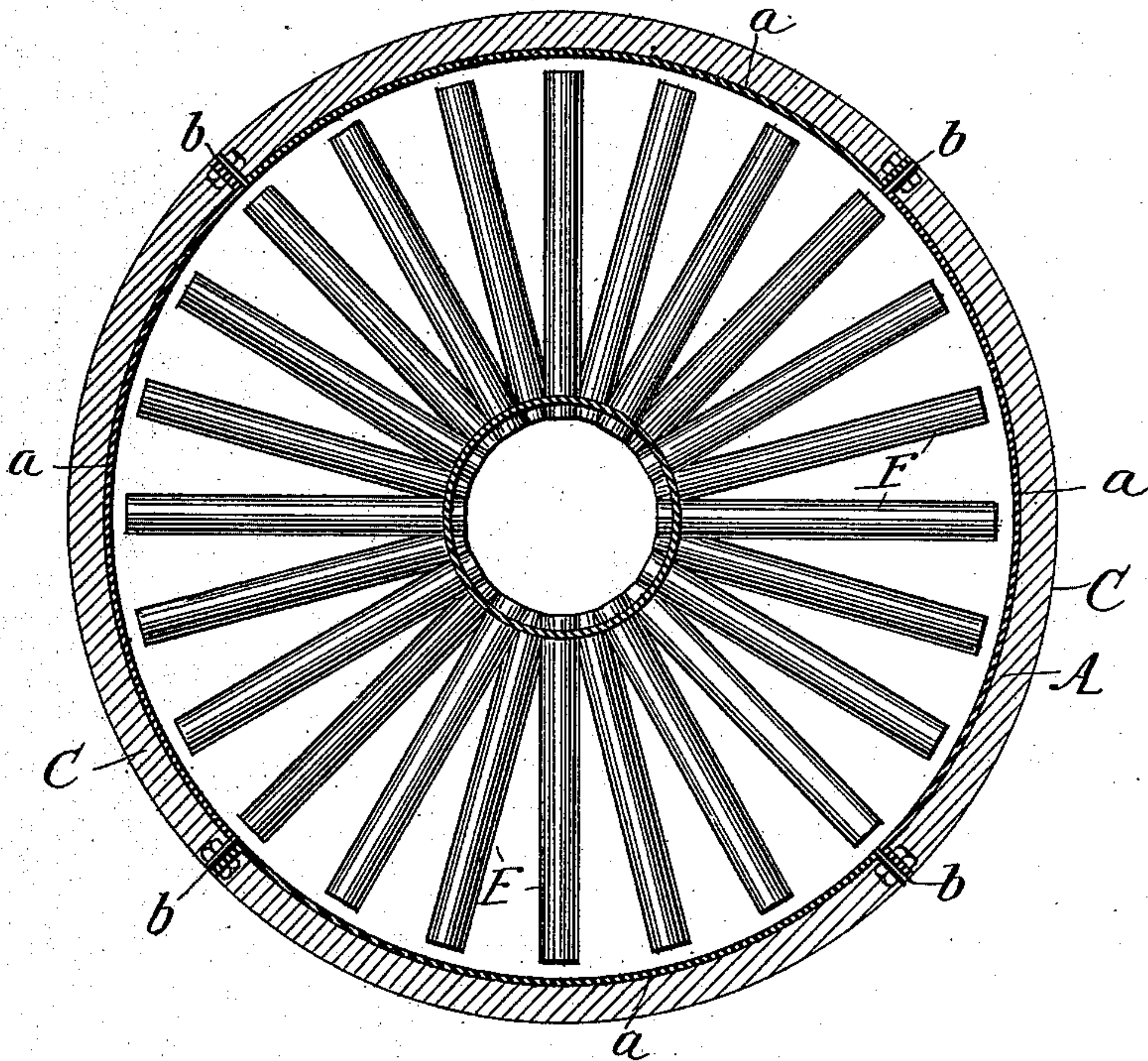
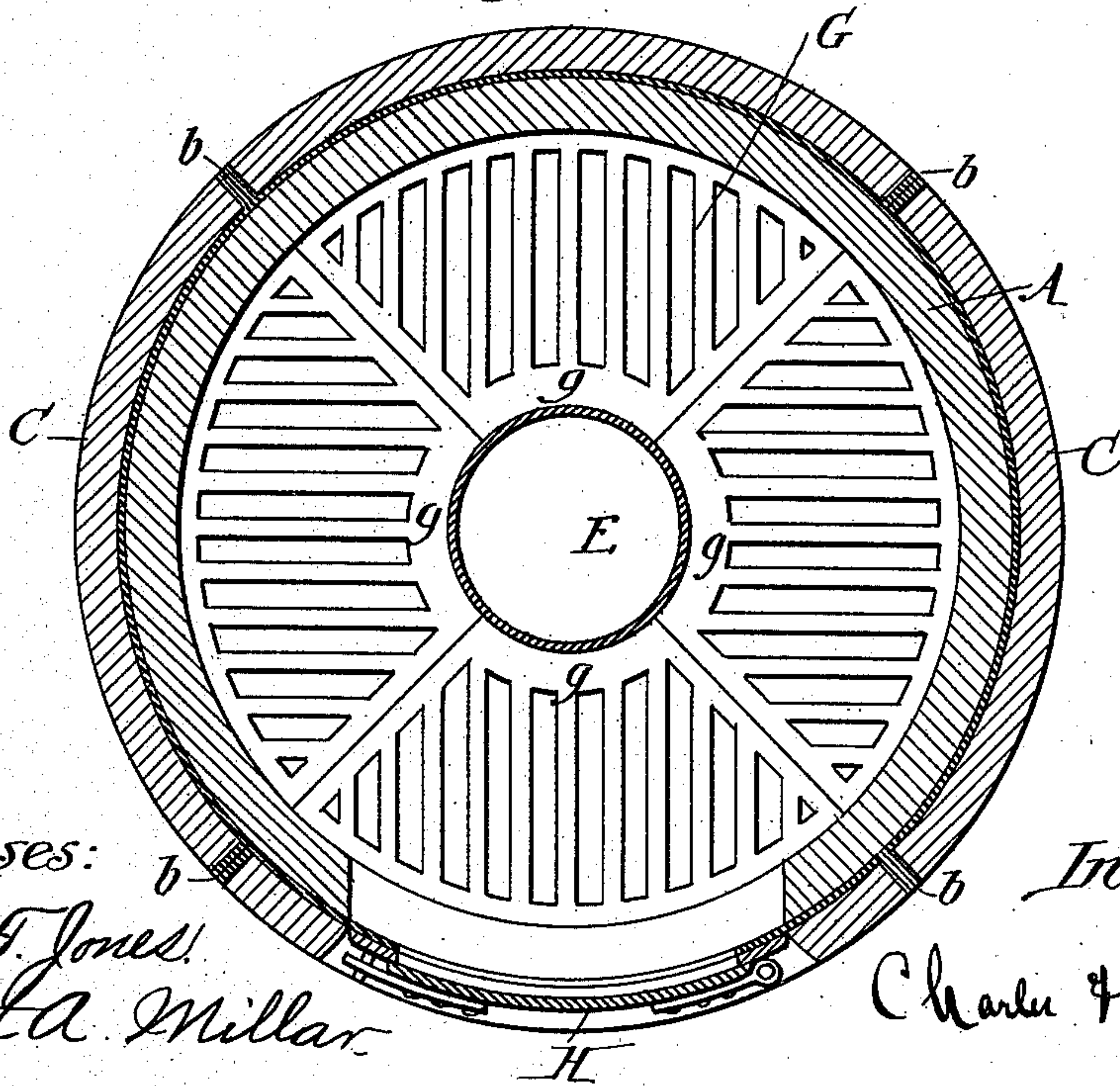


Fig. 3.



Witnesses:
Harry F. Jones.
Robert A. Millar.

Inventor:
Charles Hallett

(No Model.)

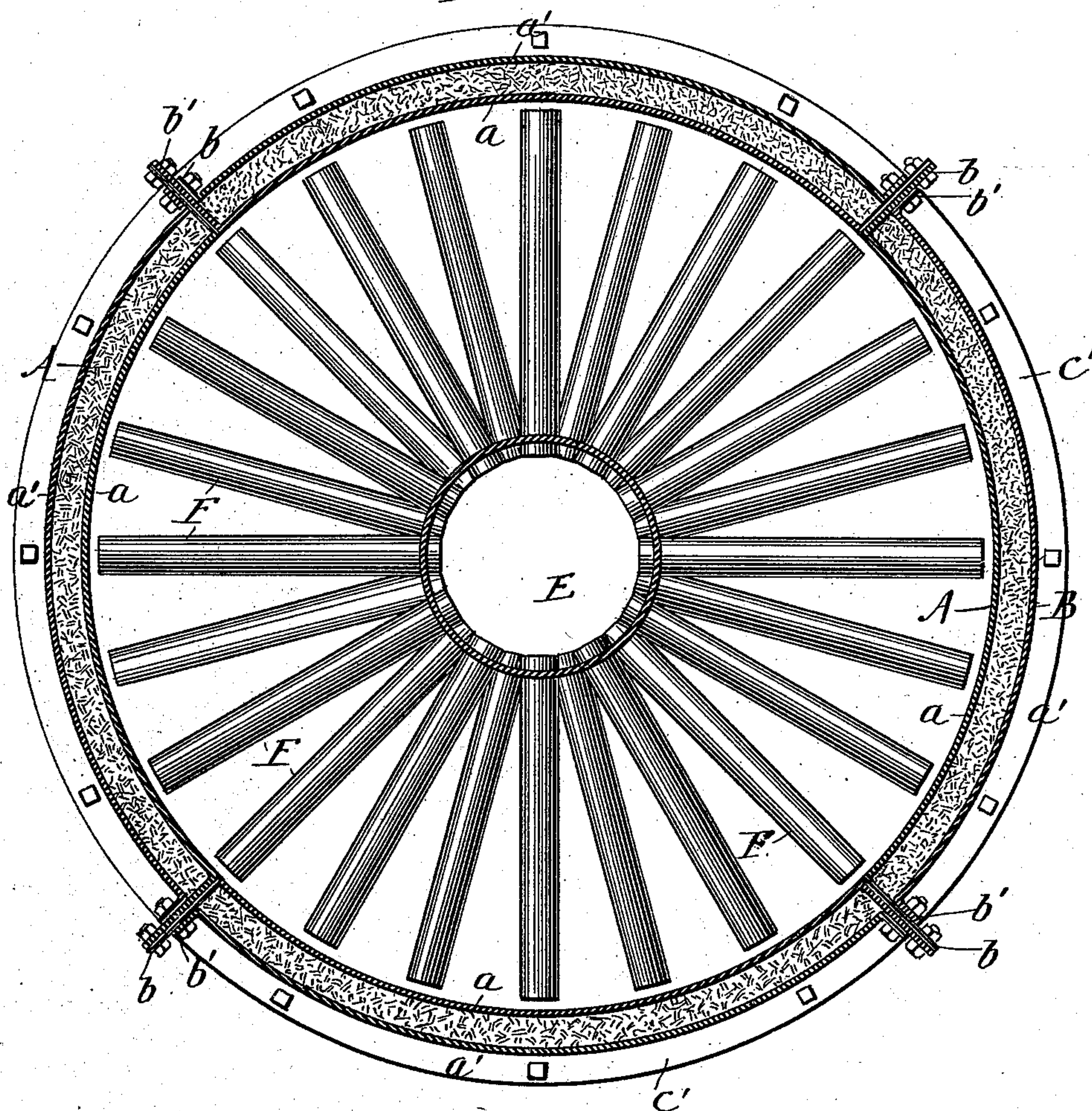
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Fig. 4.



Witnesses:

Harry F. Jones.

Robert A. Millar.

Inventor:

C. Hallett

UNITED STATES PATENT OFFICE.

CHARLES HALLETT, OF RIVERHEAD, NEW YORK, ASSIGNOR TO FRANCIS CARLL HALLETT, OF SAME PLACE.

BOILER.

SPECIFICATION forming part of Letters Patent No. 402,441, dated April 30, 1889.

Application filed August 24, 1888. Serial No. 283,666. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HALLETT, residing at Riverhead, in the county of Suffolk and State of New York, and a citizen of the United States, have invented a new and useful Improvement in Boilers, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical central section, partly in elevation, of the boiler without the jacket. Fig. 2 is a horizontal section at line 2 2 of Fig. 1. Fig. 3 is a horizontal section at line 3 3 of Fig. 1. Fig. 4 is a horizontal section similar to Fig. 2, showing the jacket applied to the boiler-shell.

This invention relates to that class of vertical boilers which have tubes radiating from a central column, or the so-called "porcupine" boiler.

Heretofore it has been necessary to complete the boiler at the place of manufacture, and to transport the complete boiler to the place where it is to be used, or to employ skilled mechanics to rivet the parts together at the place where it is to be used.

In many cases, and especially where the boiler is to be used in mining regions, either of the above methods is either impracticable or very expensive.

The object of this invention is to construct a boiler made up of sections which can be readily transported to mining regions, and which can be put together easily and quickly by unskilled mechanics, and to construct a jacket for the boiler and furnace-shell which can be readily attached to the shell, which I accomplish as illustrated in the drawings and hereinafter described.

That which I claim as new will be pointed out in the claims.

In the drawings, A represents the shell of the boiler, made of sections *a*, of boiler-iron, which are bolted together by bolts passing through vertical flanges *b* and horizontal flanges *c*. The sections *a* are made of such size that they can be readily carried and handled.

B is the shell of the jacket of the boiler, composed of sections *a'*, made of boiler-iron, which are joined together by bolts passing

through vertical flanges *b'* and horizontal flanges *c'*. The sections *a'* of the shell B are made of such size that the bolts which join them together also join the sections *a* of the shell A, as shown in Fig. 4.

D is the top and chimney for the boiler.

E is the boiler-cylinder, which is made up of sections *e*, joined together by screw-threaded couplings *d*. The upper end of the cylinder E is closed by a cap, *h*, and the lower end is closed and supported in a base, *i*.

F are radial tubes, made as usual, which are screwed into the cylinder E.

f is a steam-trap.

G is the grate of the furnace, made of sections *g*, which are supported at their inner ends on a flange (not shown) on the boiler-cylinder, and at their outer ends on a flange (not shown) on the shell A.

H is the door to the furnace.

I is a pipe to which the water-level is attached.

J is the steam-pipe.

K is the water-supply pipe.

The boiler is set up at the place where it is to be used as follows: The sections *e* of the cylinder E are joined by the couplings *d*, the steam-trap *f* placed in position. The cap *h* is screwed on and the cylinder screwed into the base-plate *i*, which is set at the desired location for the boiler. The tubes F are then screwed into the cylinder E. The shell A is then placed around the cylinder E and tubes F by bolting together the sections *a* by means of the flanges *b* and *c*. The steam and water pipes are then connected as usual. The jacket B is put around the shell A by joining together the sections *a'* by their flanges *b'* and *c'*, as shown in Fig. 4, the asbestos or other non-conducting material being filled in as the sections are joined to the sections of the shell A. It will thus be seen that the boiler is made up of sections which can be easily transported to mining regions, and which can be easily put together at the place where it is to be used by unskilled mechanics, no riveting being required, as heretofore.

It will be understood that in cases where a large horse-power is required two or more boilers may be joined together, and the ca-

capacity of a single boiler can be increased by adding more sections to the cylinder E and the shells A and B.

5 In case it is not desired to use the jacket B it may be taken off.

What I claim as new, and desire to secure by Letters Patent, is as follows:

10 1. A vertical boiler consisting of a central cylinder composed of separable sections provided with radial tubes F and connected by couplings d, in combination with a shell or casing composed of separable sections connected by flanges and bolts, substantially as described.

2. A vertical boiler consisting of a central 15 cylinder composed of separable sections, and having screwed therein radial tubes, in combination with a casing and jacket divided horizontally and vertically into separable sections, and a packing of asbestos interposed 20 between said casing and jacket, substantially as described.

CHARLES HALLETT.

Witnesses:

HARRY T. JONES,

ROBERT A. MILLAR.