

No. 613,813.

Patented Nov. 8, 1898.

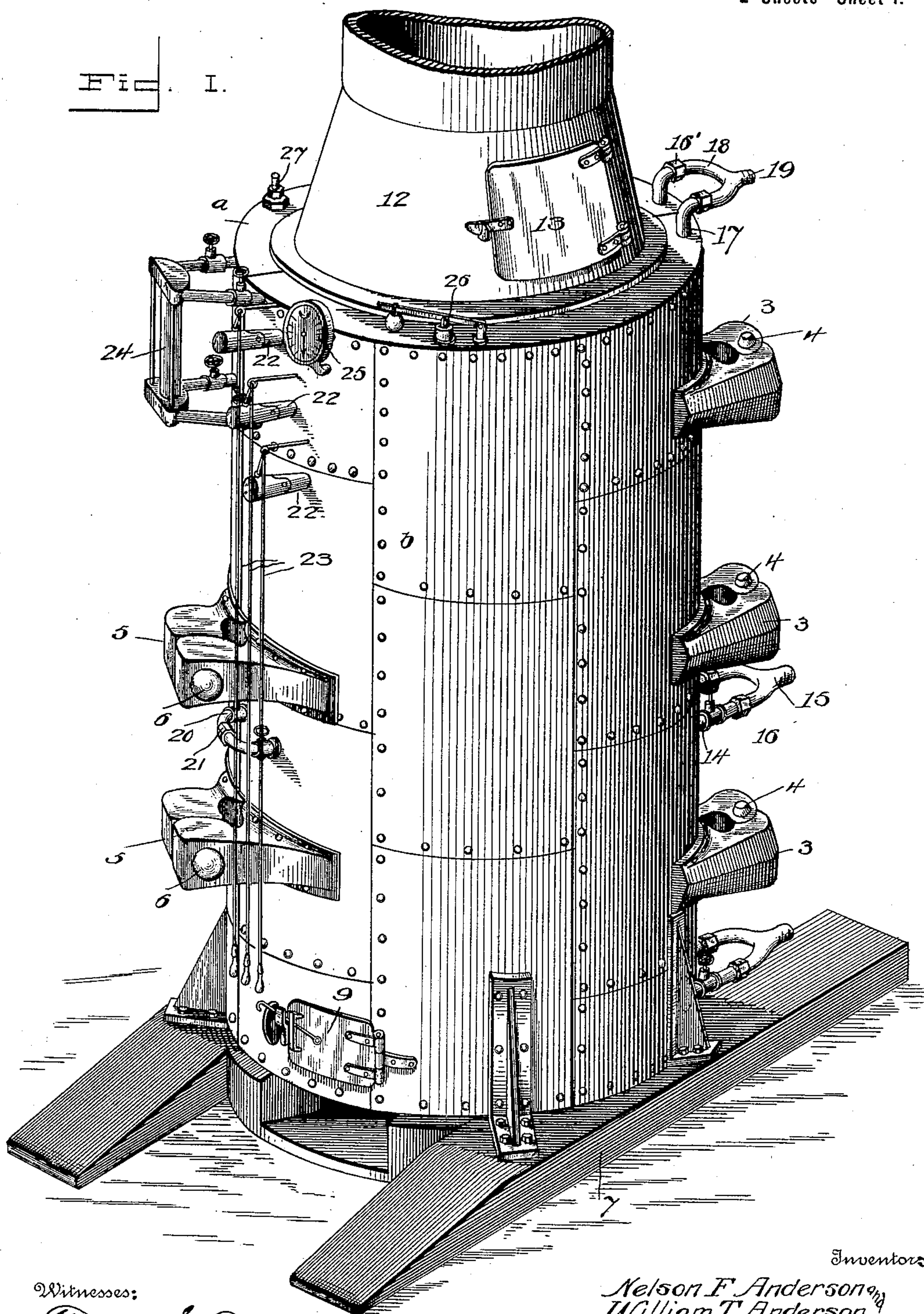
N. F. & W. T. ANDERSON.
STEAM BOILER.

(Application filed May 6, 1898.)

(No Model.)

2 Sheets—Sheet 1.

FIG. I.



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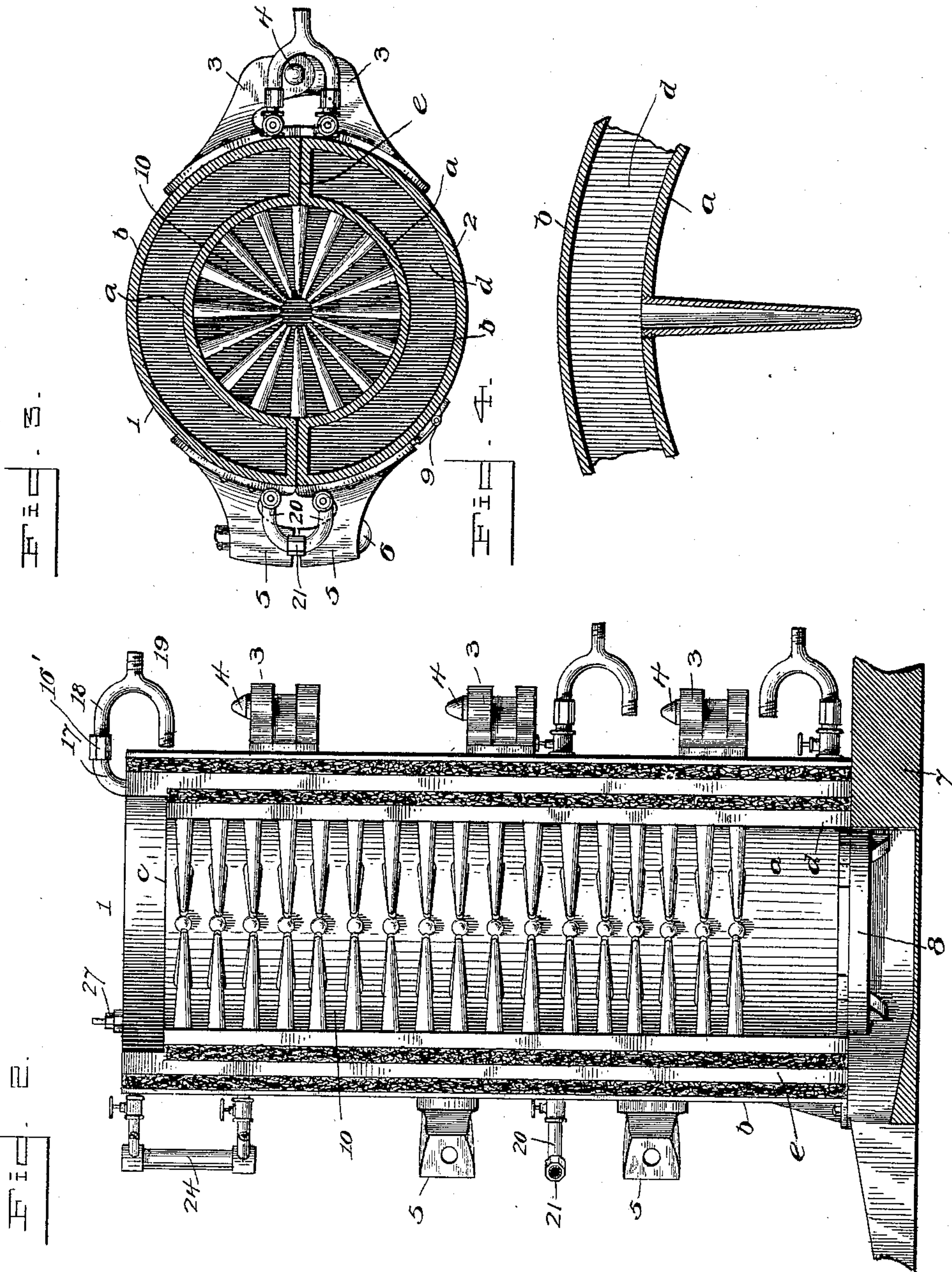
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UNITED STATES PATENT OFFICE.

NELSON F. ANDERSON AND WILLIAM THOMAS ANDERSON, OF HARDIN,
ILLINOIS.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 613,813, dated November 8, 1898.

Application filed May 6, 1898. Serial No. 679,914. (No model.)

To all whom it may concern:

Be it known that we, NELSON FILLMORE ANDERSON and WILLIAM THOMAS ANDERSON, citizens of the United States, residing at Hardin, in the county of Calhoun and State of Illinois, have invented certain new and useful Improvements in Steam-Boilers; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention has relation to steam-boilers of the water-tube type; and the object is to provide a boiler of this character by means of which the steam may be rapidly generated, the water-tubes easily and quickly cleaned, and, if damaged, easily removed.

With this object in view the invention consists in certain features of construction and combination of parts, hereinafter more fully described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of our improved boiler. Fig. 2 is a side elevation of the interior of one of the sections composing the boiler. Fig. 3 is a cross-sectional view through both of the sections, and Fig. 4 is a detail sectional view through one of the water-tubes and the shell of the boiler.

In the drawings, 1 and 2 denote two sections of the boiler, each of which consists of an inner and outer concentric parti-cylindrical shell *a* and *b*, having closed upper and lower ends *c* and *d*, respectively, and closed sides *e*. These sections are provided with hinged lugs 3, that are connected by pintles 4, and on the opposite sides the sections are formed with lugs 5, which are adapted to be secured together by bolts 6. One of the sections is mounted on a suitable base 7, that contains the grate 8 of the fire-pot, and the other section has a swinging movement across this base and is provided with a door 9, leading into the fire-pot. Each section is provided with semicircular rows of tapering water-tubes that project inwardly from the sections to a central point. These tubes are arranged in horizontal rows to form horizontal spaces 10 and in vertical rows to form vertical spaces 11, whereby they may be more readily cleaned or scraped.

The tubes are preferably connected with the inner shells of the boiler by screw-threads, whereby they may be easily removed and replaced by new ones should they become burned or otherwise damaged.

12 denotes the smoke-stack, which is preferably provided with a manhole 13, through which a person may enter and by means of a suitably-constructed device clean the flues without the necessity of swinging the sections of the boiler apart. Should the tubes become damaged, however, it will be necessary in order to repair them to separate the sections.

14 denotes inlet-pipes, which are connected to a T-union 15 by sleeves 16. The T-union is connected to the ordinary feed-water injector. (Not shown.)

17 denotes the outlet-pipes, which are connected to a T 18 by sleeves 16'. The branch 19 of the T may be connected to the conducting-pipe, which is led to the point of consumption of the steam.

In order to insure a uniform water-level to both sections of the boiler should, through any fault of the steam-injector, both sections of the boiler not be equally supplied with water, we provide pipes 20, one having its free end provided with the right-hand thread and the other with a left-hand thread to receive the interiorly right and left hand screw-threaded sleeve 21. It is therefore evident that should more water be pumped in one section than in the other by this provision the water in one section will be conducted to the other section, thus maintaining a uniform water-level in both sections, and consequently uniform steam-spaces.

22 denotes the pet-cocks, having operating-cords 23. 24 denotes the water-gage; 25, the steam-gage; 26, the safety-valve, and 27 the blow-off cock. These parts may be of the usual or well-known construction, and as they form no part of our invention a further description of the same is not deemed necessary.

In operation the fuel being ignited in the fire-pot the heat and products of combustion will pass up between and around the radial water-tubes, thoroughly heating the same and quickly generating steam.

The boiler is simple of construction, may

be manufactured at small cost, and will be found to be very desirable, inasmuch as it may be easily and quickly cleaned and very easily repaired.

5 Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

10 Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a boiler of the character described, the combination of parti-cylindrical hollow
15 sections hinged together and provided with clusters of inwardly-projecting water-tubes, and means for securing the sections together, substantially as set forth.

2. In a boiler of the character described,
20 the combination of parti-cylindrical hollow sections hinged together and provided with inwardly-projecting water-tubes arranged in parallel horizontal rows and parallel vertical rows, and means for securing the sections to-
25 gether, substantially as described.

3. In a boiler of the character described, the combination with the parti-cylindrical hollow sections hinged together and provided

with inwardly-projecting water-tubes, and a tubular connection between the sections of
30 said boiler, whereby a uniform water-level is obtained in both sections, substantially as set forth for the purpose described.

4. In a boiler of the character described, the combination with the parti-cylindrical
35 hollow sections hinged together, water-tubes projecting inwardly from said sections and having screw-threaded engagement therewith, said tubes arranged in horizontal rows and in vertical rows, and means for securing
40 the sections together, substantially as set forth.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

NELSON F. ANDERSON.

WILLIAM THOMAS ANDERSON.

Witnesses to the signature of N. F. Anderson:

DAISY TAYLOR,
BENJ. E. COWL.

Witnesses to the signature of Wm. T. Anderson:

THOS. T. BARE,
WILLIAM J. NOLTE.