

W. A. BERRY.

BOILER.

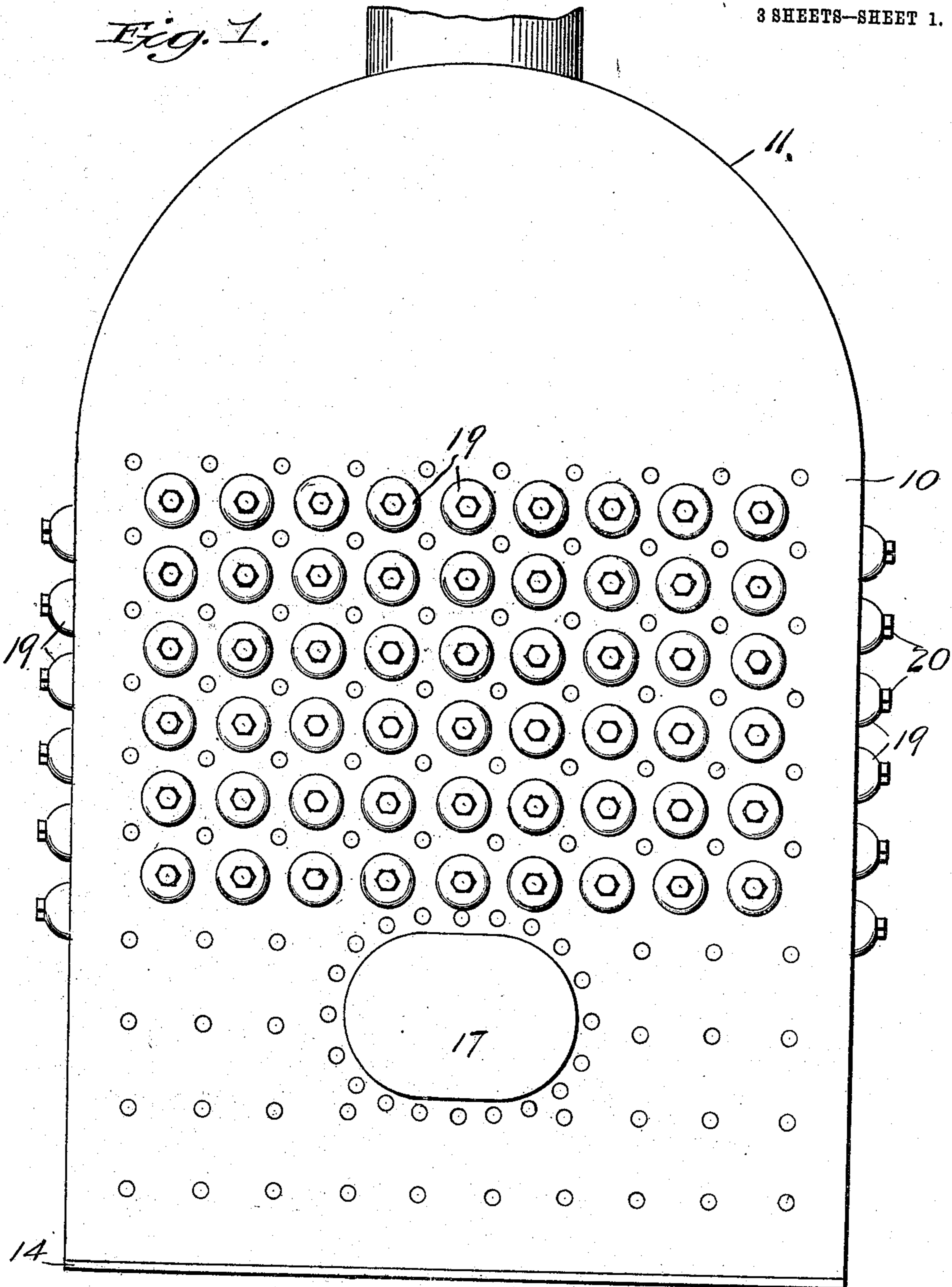
APPLICATION FILED MAY 11, 1908.

930,341.

Patented Aug. 10, 1909.

3 SHEETS—SHEET 1.

Fig. 1.



Inventor

Walter A. Berry

Witnesses

J. A. Ketchum
E. O. Crocker

By

Geo. S. Nashon

Attorney

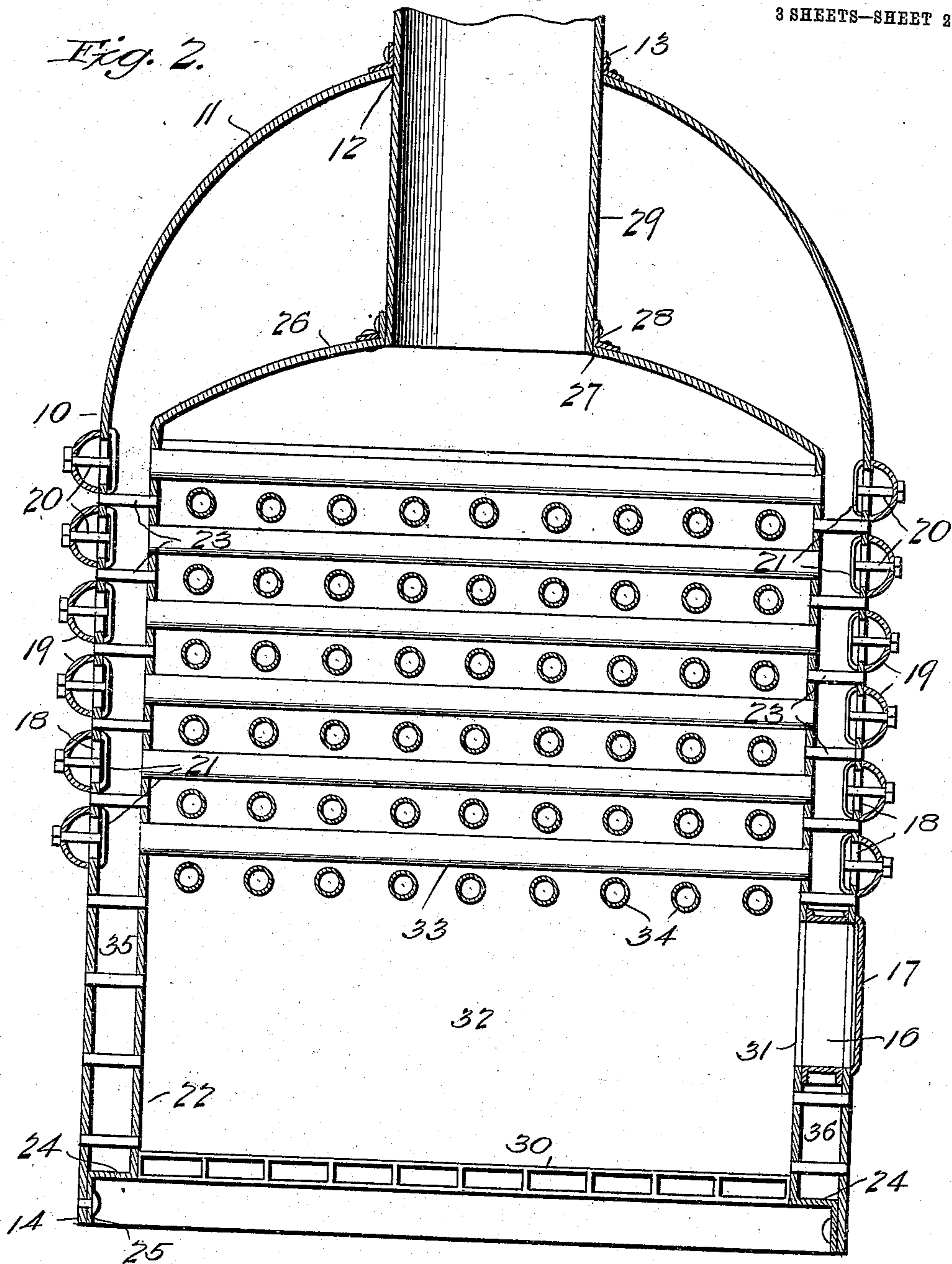
W. A. BERRY.
BOILER.

APPLICATION FILED MAY 11, 1908.

930,341.

Patented Aug. 10, 1909.

3 SHEETS—SHEET 2.



Inventor

Walter A. Berry

Witnesses

J. L. Meacham
E. C. Crocker

By

Geo. S. Vashon

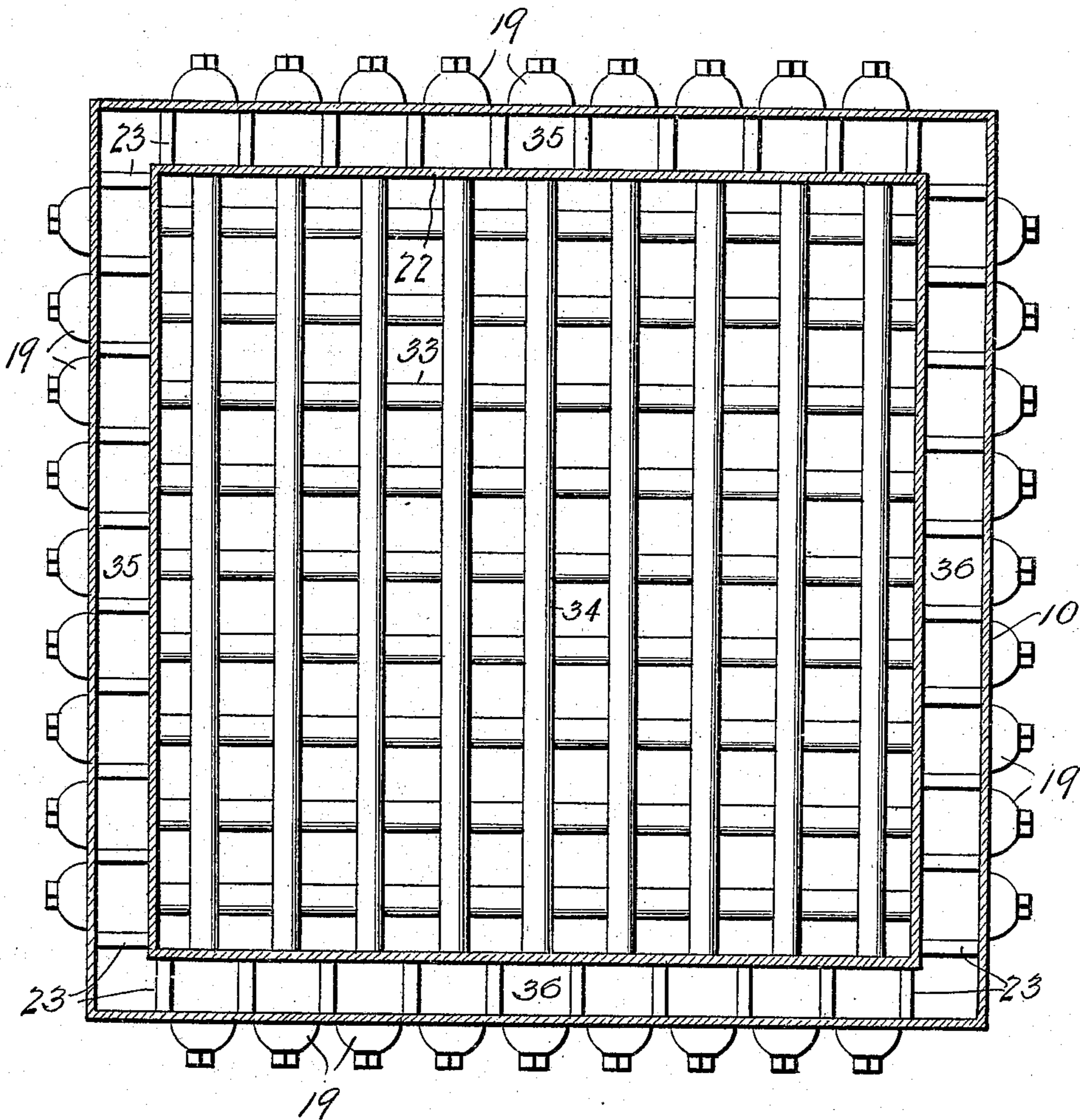
Attorney

BOILER.

930,341.

3 SHEETS-SHEET 3.

Fig. 3.



Natter A. Berry -

Witnesses

Witnesses
T. L. Moorme
E. O. Crocker.

இது

Geo. J. Washou

Attorney

UNITED STATES PATENT OFFICE.

WALTER AUTHER BERRY, OF CHATTANOOGA, TENNESSEE, ASSIGNOR OF ONE-HALF TO
RAYMOND W. FRAWLEY, OF CHATTANOOGA, TENNESSEE.

BOILER.

No. 930,341.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed May 11, 1908. Serial No. 432,193.

To all whom it may concern:

Be it known that I, WALTER AUTHER BERRY, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented new and useful Improvements in Boilers, of which the following is a specification.

My invention has relation to boilers or water heaters for use in connection with heating plants of buildings, and it consists in the construction and arrangement of parts, as will be hereinafter described and pointed out in the claim.

Figure 1 is an end view of the improved water heater or boiler showing the arrangement of the front and side cleanout openings in the outer casing. Fig. 2 is a central, vertical sectional view of the same. Fig. 3 is a horizontal sectional view, showing the arrangement of water tubes in the inner casing.

Like characters of reference designate corresponding parts.

In the preferred embodiment of the invention shown in the accompanying drawings, the same has been associated with the type of boilers or heaters known as the "upright" and preferably the same is made in a substantially square shape, and is composed of an outer shell or casing 10, having an arched top 11, through which a central opening 12 is formed, the edge of which has riveted thereto a fastening or holding flange 13. The lower portion of the said shell or casing is provided with a rest flange 14, and the front of the casing is provided with the usual fuel feeding opening 16, access to which is controlled through a door 17. The four sides of the said casing or shell 10 have formed through them a plurality of horizontally arranged tiers or rows of clean-out openings 18, which are tightly sealed by exterior arched caps 19 carrying locking bolts 20 the inner ends of which extend through said caps and said openings and have secured thereon locking spiders 21 which may be turned to locking engagement with the interior of the casing through manipulations of said bolts. The said clean-out openings in the front and the rear of the casing are arranged in the same plane to cause them to aline with each other, and the side openings are also relatively arranged to cause them to aline with one another, which said relative arrangement of openings provide the casing 10 with alternating end and side openings, the spe-

cific utility of which will be set forth hereinafter.

An inner casing or shell 22 which is of substantially the same shape as the outer shell or casing 10 and in which it is held in spaced relation through stay bolts 23, has its bottom portion turned outwardly to form a bottom 24 for the water space between the walls of the casing, and thence abruptly downwardly to form a rest flange 25, which is riveted to the rest flange 14 of the outer casing 10. The upper portion of the said inner casing or shell 22 is provided with an arched top 26 provided with a central opening 27 which is in alinement with the central opening 12 in the arched top of the outer casing or shell 10 and has riveted to its edge a fastening or holding flange 28 which in turn is riveted, or otherwise suitably secured to a smoke pipe 29 which extends upwardly therefrom and through the said central opening in the arched top of the outer casing and to which it is supported through a riveted engagement with the holding flange carried thereby.

The lower portion of the inner casing or shell has a fire grate 30 mounted therein and above the same the front of the casing has an opening 31 formed therethrough which is in alinement with the fuel opening in the outer casing, and through which fuel is fed to said grate. Said grate is supported at the lower edge of said casing and preferably at a point in the same plane with the bottom of the space between the outer and inner casings, so that in the practical use of the heater or boiler the fire will keep the inner walls of the space between the two casings in a highly heated condition, especially at the lower portion thereof. The usual space above the grate for a fire chamber 32 is left, and above the same the inner casing is equipped with a plurality of alternately arranged horizontal tiers or rows of crossing water tubes 33—34, which communicate with the water spaces 35, 36 formed by the spaced apart arrangement of the inner and outer casings or shells. Said water tubes are so arranged that their ends which communicate with the water spaces will be in a position where access thereto for cleaning or other purposes may be had through the clean-out openings formed through the outer casing.

What I claim is:

A boiler or water heater comprising vertical inner and outer rectangular shells united

at their bottoms by means of a double right
angled flange, arched tops covering both the
inner and outer shells, a smoke flue passing
through both arched tops, horizontal water
5 tubes crossing each other secured to the inner
shell and uniting water spaces between the
inner and outer shells, clean out openings
provided with covers located in the outer
shells opposite each water tube opening, the
10 upper clean out openings being so located as
to afford access to the space between the
arched tops covering the shells, for removing

accumulations therebetween, and stay-bolts
arranged in horizontal and vertical rows con-
necting the inner and outer shells and located 15
between the clean out openings so as not to
interfere therewith.

In testimony whereof, I affix my signature
in presence of two witnesses.

WALTER AUTHER BERRY.

Witnesses:

ANNA L. HALEY,
J. H. McLEAN.