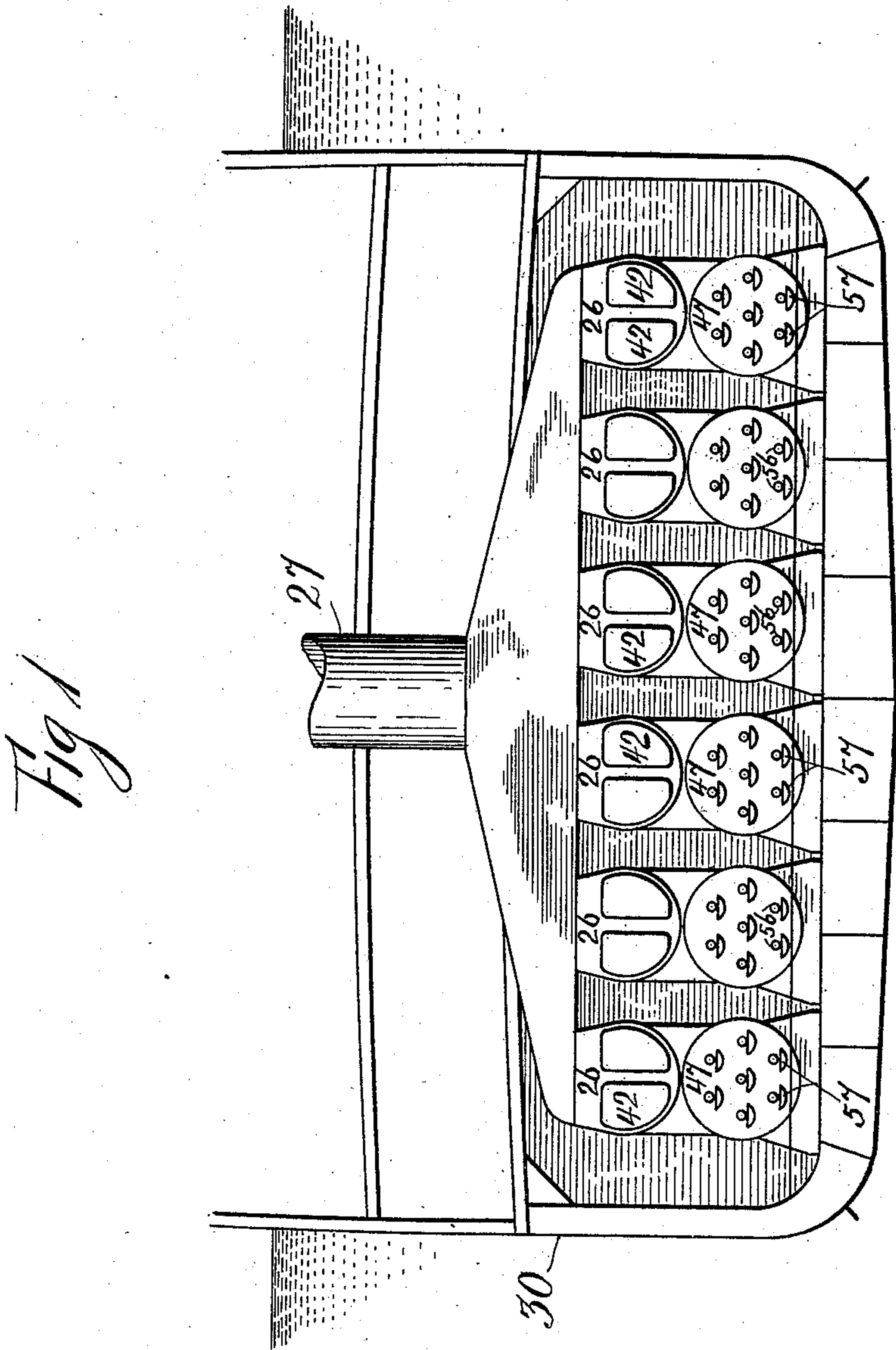


V. F. LÄSSOE.
FURNACE.

APPLICATION FILED JAN. 3, 1908.

915,682.

Patented Mar. 16, 1909.
4 SHEETS—SHEET 1.



WITNESSES:

John J. Millin
Martin Zimansky

INVENTOR

Valdemar F. Lässoe

BY

Atde Borneville

ATTORNEY

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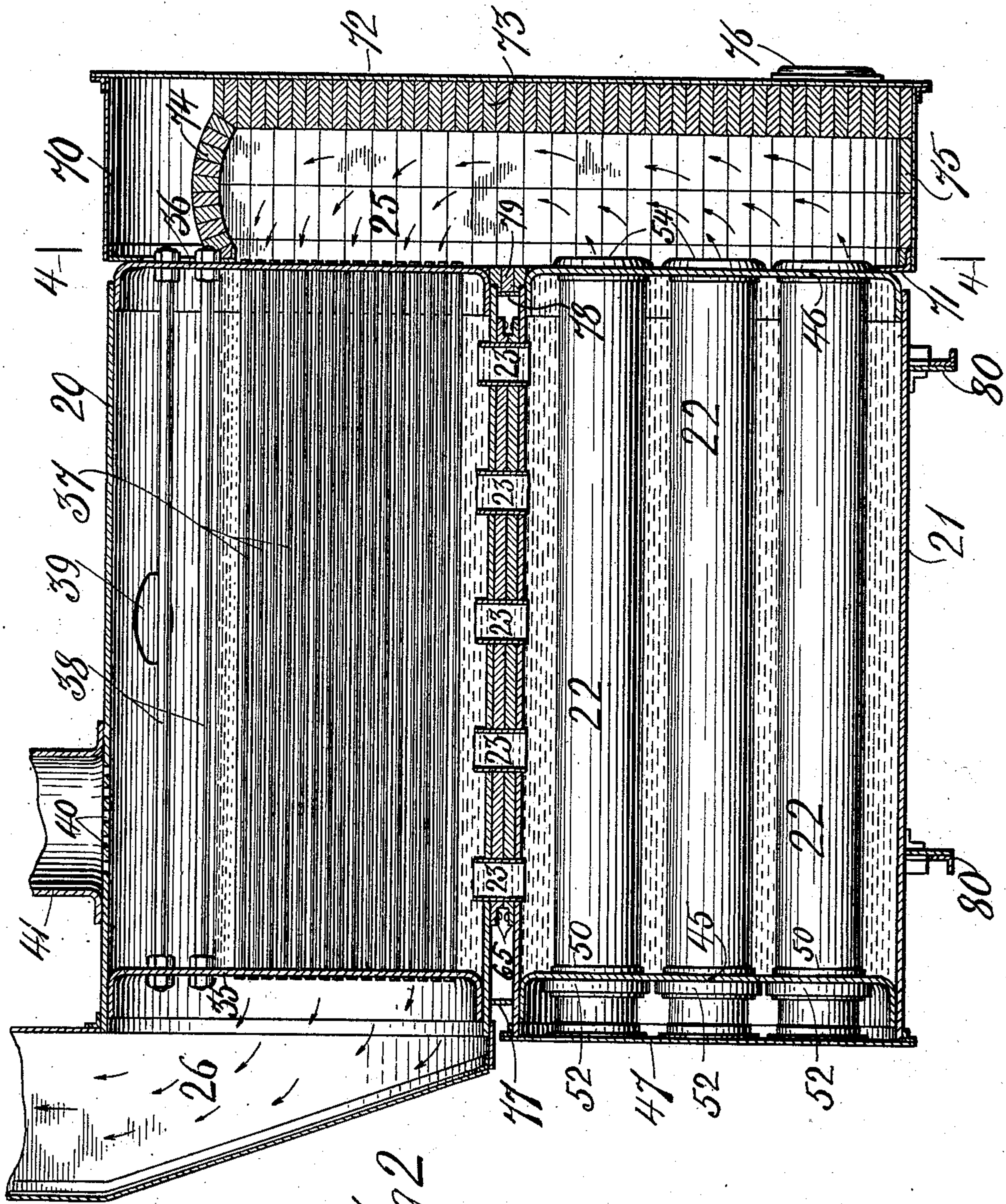


Fig 2

WITNESSES:

John J. Millin
Martin Zimansky.

INVENTOR

Valdemar F. Læssoe

BY

Julde Bonnevill

ATTORNEY

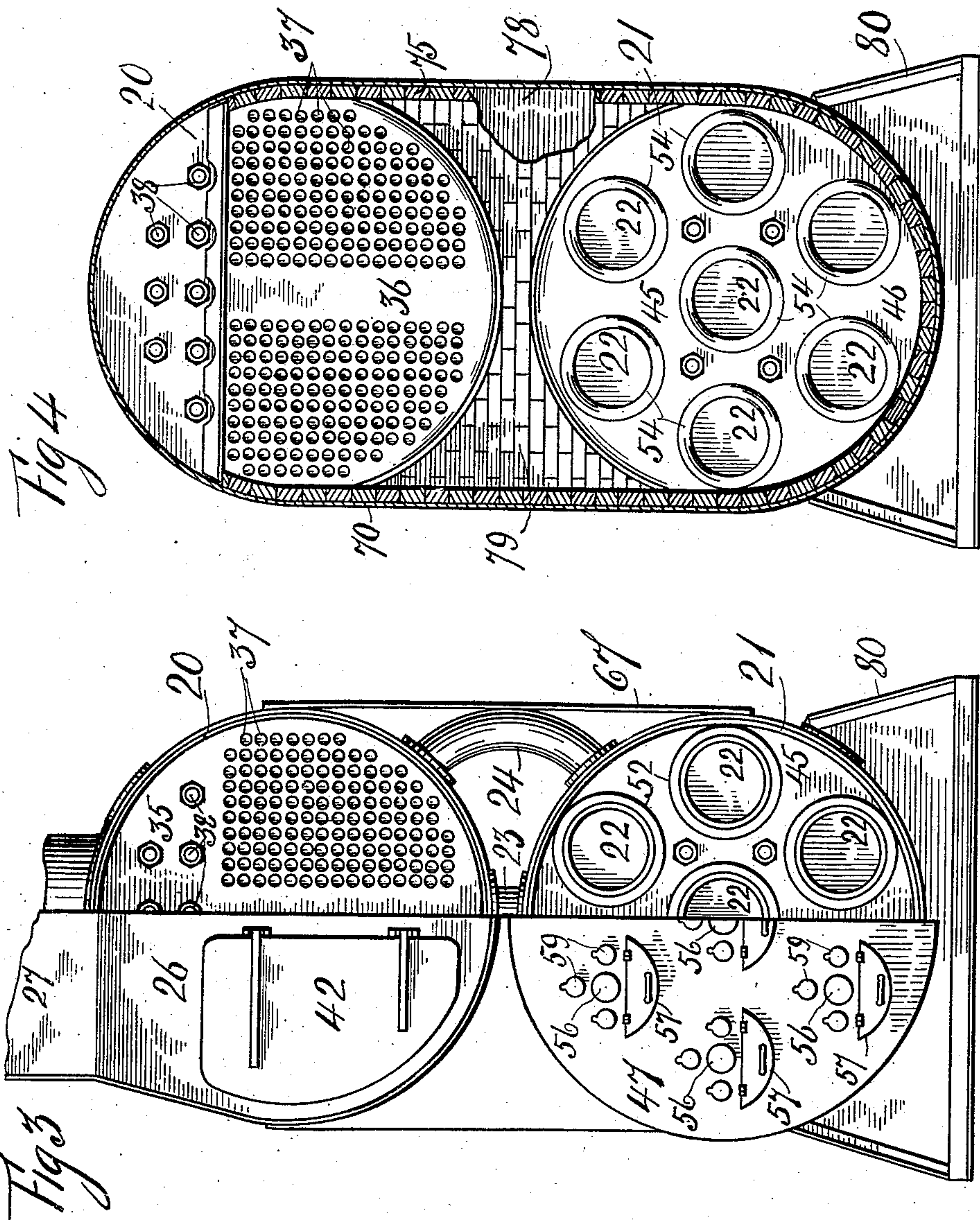
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WITNESSES:
John J. Millin
Martin Zimansky.

INVENTOR
Valdemar F. Lässoe
BY *Adde Borneville*
ATTORNEY

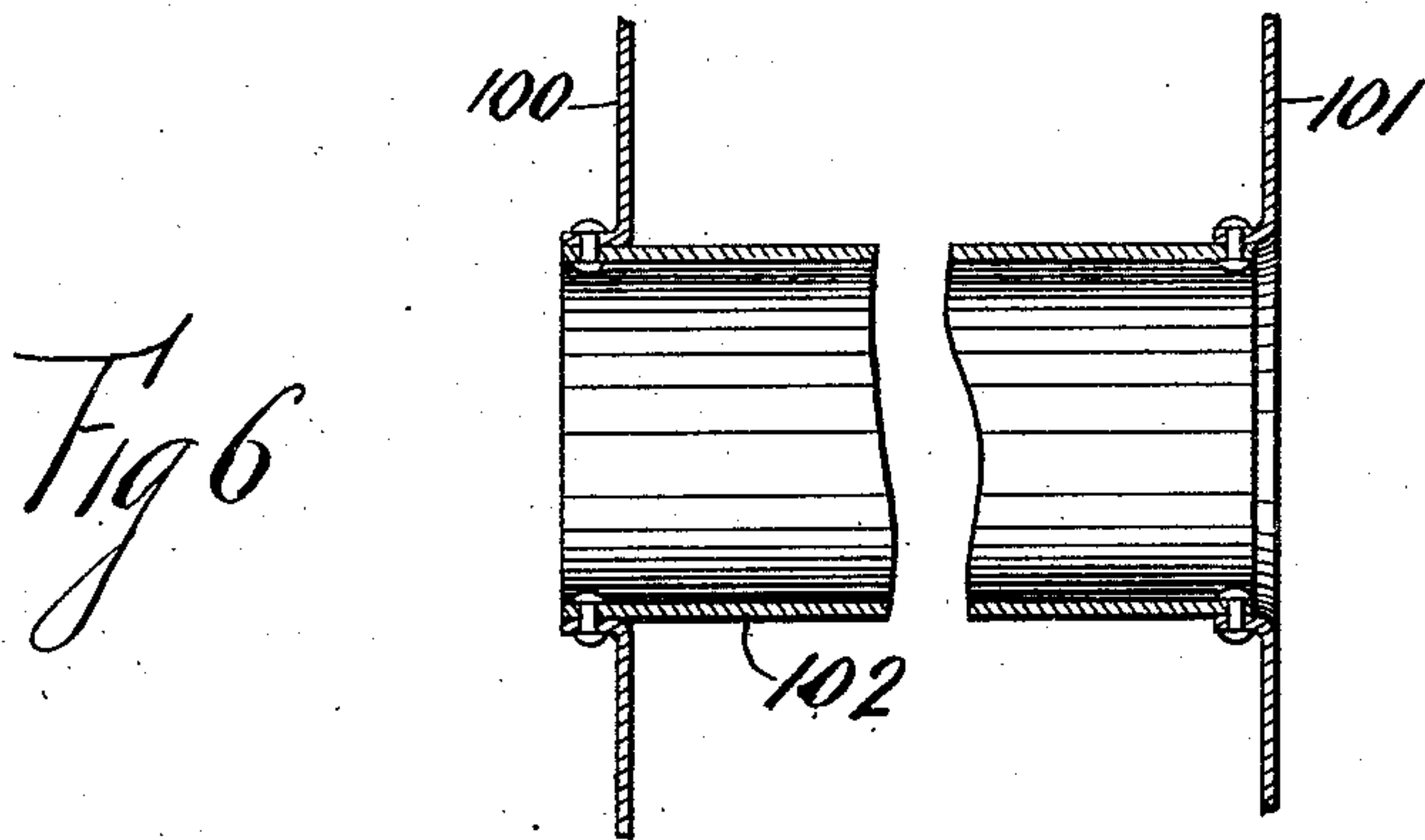
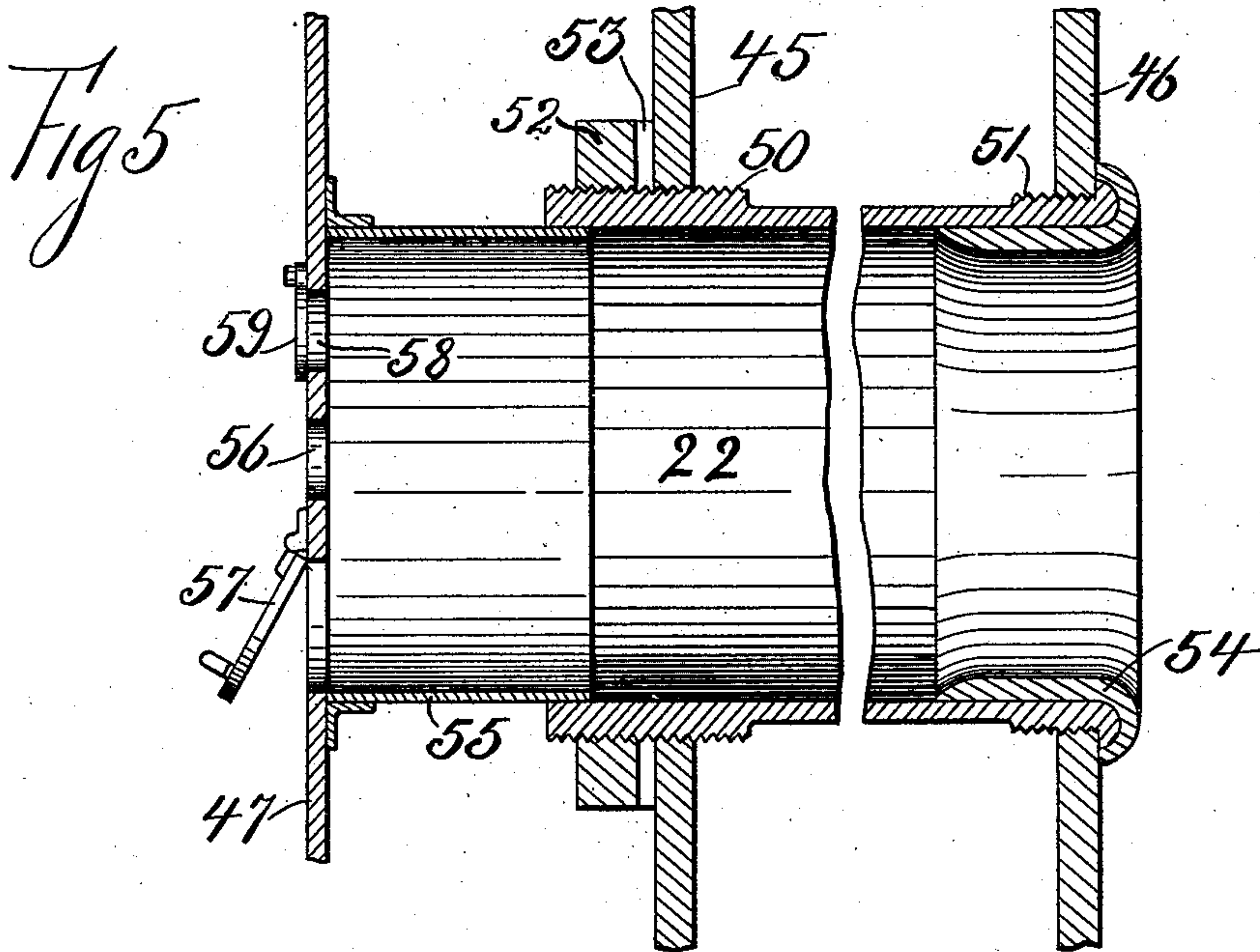
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4 SHEETS—SHEET 4.



Witnesses
John Millin
Martin Zimansky.

Inventor
Valdemar F. Læssoe
By his Attorney, H. de Bonville

UNITED STATES PATENT OFFICE.

VALDEMAR F. LÄSÖE, OF BROOKLYN, NEW YORK.

FURNACE.

No. 915,682.

Specification of Letters Patent.

Patented March 16, 1909.

Application filed January 3, 1908. Serial No. 409,208.

To all whom it may concern:

Be it known that I, VALDEMAR F. LÄSÖE, a citizen of the United States, and a resident of the borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Furnaces, of which the following is a specification.

This invention relates to furnaces.

The object of the invention is the production of a tubular furnace which can be easily connected to the heads of the drum of a boiler, and which is specially accessible for repairs. Its organization is characterized by a tubular furnace that is in threaded engagement with said heads, and which has a throat connection between it and a bonnet.

In the drawings Figure 1 represents a diagrammatic cross-section of a vessel with a battery of boilers therein exemplifying the invention, Fig. 2 shows a longitudinal section of a boiler with the invention, Fig. 3 is a partial left hand end view of Fig. 2 with a portion thereof having the front and breeching removed, Fig. 4 shows a section of Fig. 2 on the line 4, 4, Fig. 5 is a partial enlarged longitudinal section of one of the tubular furnaces of the boiler with its immediate appurtenances, and Fig. 6 represents a modified tubular furnace.

The boiler with which the invention is shown is represented to essentially comprise the upper or steam and water drum 20, the lower or water drum 21 with the tubular furnaces 22, the central circulating connecting pipes 23, curved side circulating connecting pipes 24, combustion chamber 25, breeching 26 and stack 27. In Fig. 1 the invention is shown with a battery of boilers in a vessel 30.

The steam and water drum 20 has connected with its cylindrical shell respectively the front and rear tube sheets 35, 36, to which latter are connected the fire tubes 37, and the stay bolts 38. A hand hole 39 with cover is formed in the upper drum, as well as perforations 40 for the steam dome 41. The breeching 26 is represented with the doors 42 covering openings therein.

The lower drum 21 has connected with its cylindrical shell respectively the front and rear heads 45, 46. The front head 45 is somewhat distant from its accompanying end of the said shell, and a bonnet or boiler front 47 is secured to the said front end of the shell inclosing said front head. The fur-

naces 22 are represented with the threaded shoulders 50, 51 that respectively engage threaded openings in the heads 45, 46, the former opening with its accompanying shoulder being somewhat larger in diameter than the latter, so that the tubular furnace can be easily secured in place. A nut 52 also engages the shoulder 50 and packing 53 is located between the accompanying faces of said nut and the head 45. The nut when secured up against the packing and the latter bearing between it and the head 45, holds the front end of the furnace flue 22 tightly in place. At the connection between the rear end of each furnace 22 and the head 46, is inserted in said furnace and calked over the end thereof the ferrule 54. Throat connections 55 extend from the bonnet 47 and enter each of the said furnaces 22.

The furnaces shown in the drawings are designed for burning oil, and the bonnet 47 has openings 56 with the damper doors 57 for oil burning apparatus. Peep holes 58 with the hinged doors 59 are also provided for said furnaces.

To each of the drums 20, 21 are fastened the accompanying manifolds 65, each of which are tapped for the central circulating pipes 23. The curved side circulating pipes 24 also connect the said drums 20 and 21, while the side cover plates 67 inclose the said circulating pipes 23, 24 with the drums of the boiler.

To the rear of the drums 20 and 21 is located the central shell 70 with the front end 71 and rear end 72 and within said shell are located the linings 73, 74, 75 that constitute the combustion chamber 25. A cover 76 over a manhole leads into said combustion chamber. Front and rear cross plates 77, 78 extend between the cover plates 67 and the accompanying faces of the drums 20, 21, and brick lining 79 bears against the latter plate. Cradles 80 support the said lower drum 21.

The operation of the boiler is evident from the drawings and foregoing description.

In Fig. 6 are represented the front and rear tube heads 100, 101 of a lower drum of the invention, which are flanged for the tubular furnace 102.

The tubular furnaces may contain grates for burning fuel, instead of having oil burners located therein.

Having described my invention I claim:

1. The combination of a drum, front and

rear heads for the drum, a tubular furnace connecting the heads, the front head somewhat distant from its accompanying end of the drum, a bonnet secured to the front end 5 of the drum inclosing the front head, a throat connection extending from the bonnet into the furnace, threaded shoulders on the furnace in engagement with threaded openings in the front and rear heads, and a 10 nut on one of said shoulders to bear against packing located between it and the accompanying head of the drum.

2. The combination of a cylindrical drum, front and rear heads connected to the drum 15 and having a threaded opening in each, tubular furnaces having threaded shoulders and in engagement with the threaded open-

ings in said heads, a nut on the shoulder of each furnace adjacent to the outer surface of the front head and bearing against a 20 packing adjacent to said front head, a bonnet with peep holes extending from the front ends of the drum and inclosing the front heads, damper door over openings in said bonnet for said furnaces, a throat connection 25 for each furnace extending from the bonnet to each of said furnaces.

Signed at the borough of Manhattan in the county of New York and State of New York this 30th day of December A. D. 1907. 30

VALDEMAR F. LÄSSOE.

Witnesses:

W. E. WARNER,
WM. P. FRANCL.