

No. 672,425.

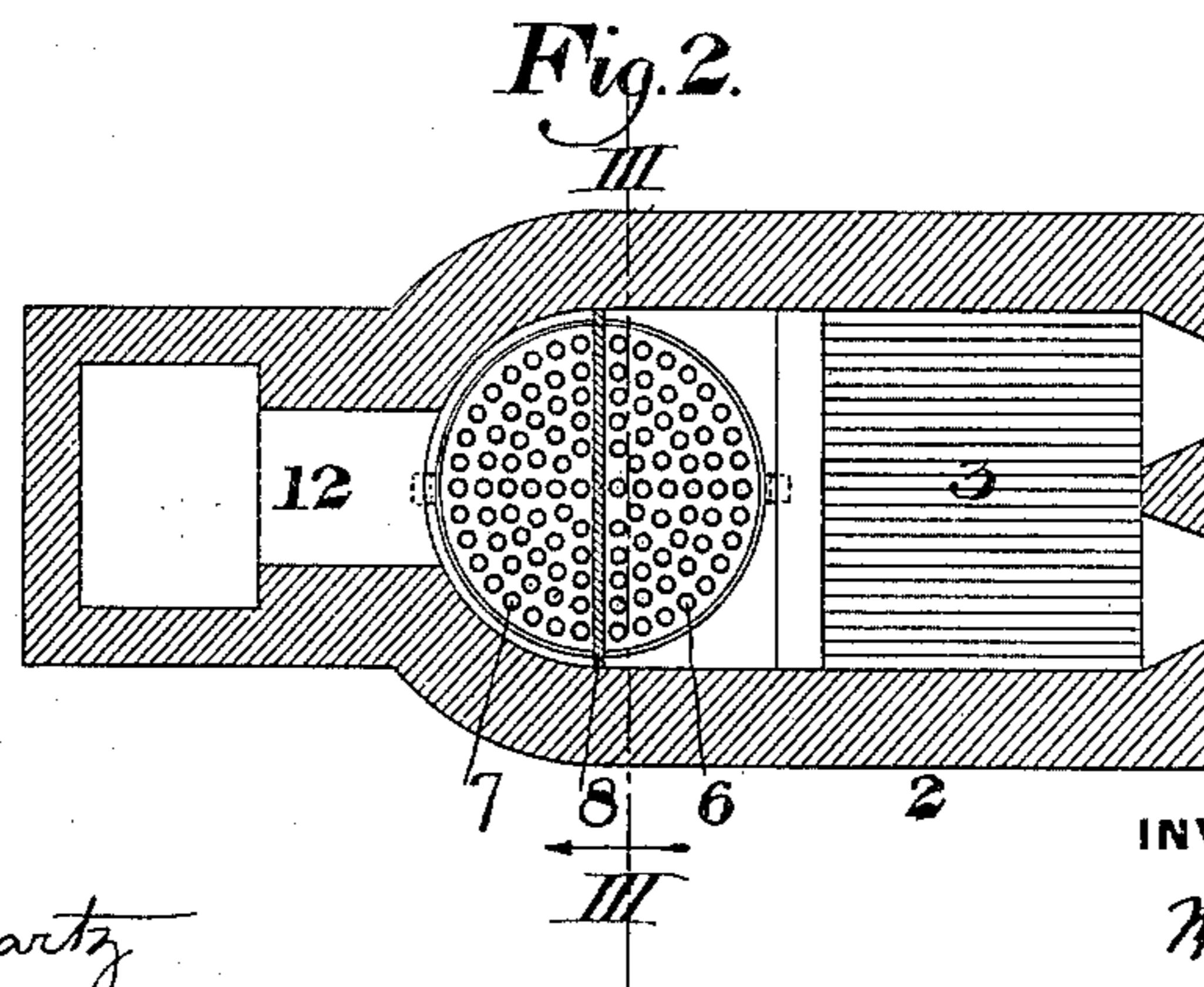
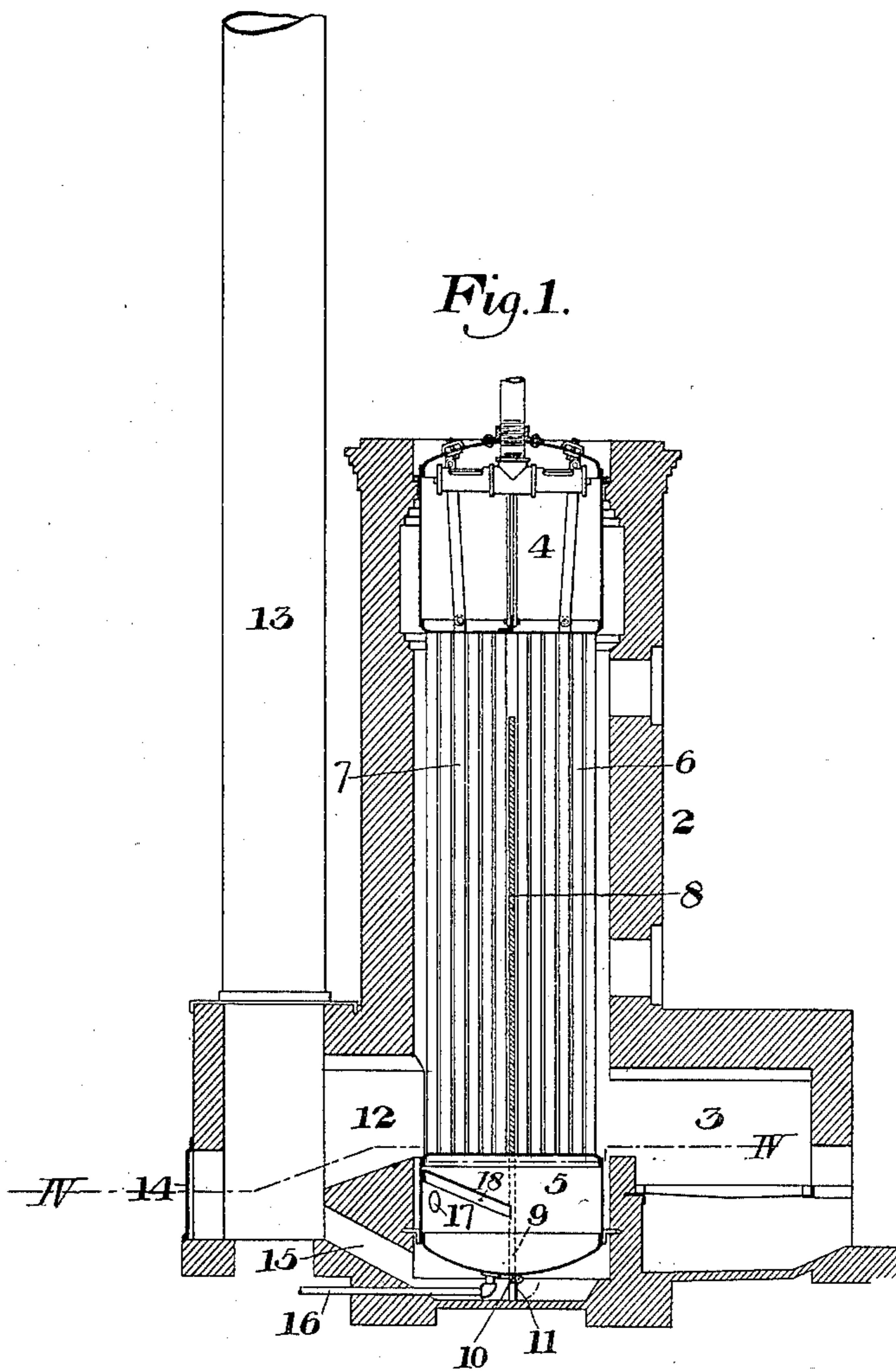
Patented Apr. 16, 1901.

W. C. TEMPLE.  
STEAM BOILER.

(Application filed July 10, 1900.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES

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2 Sheets—Sheet 2.

Fig. 3.

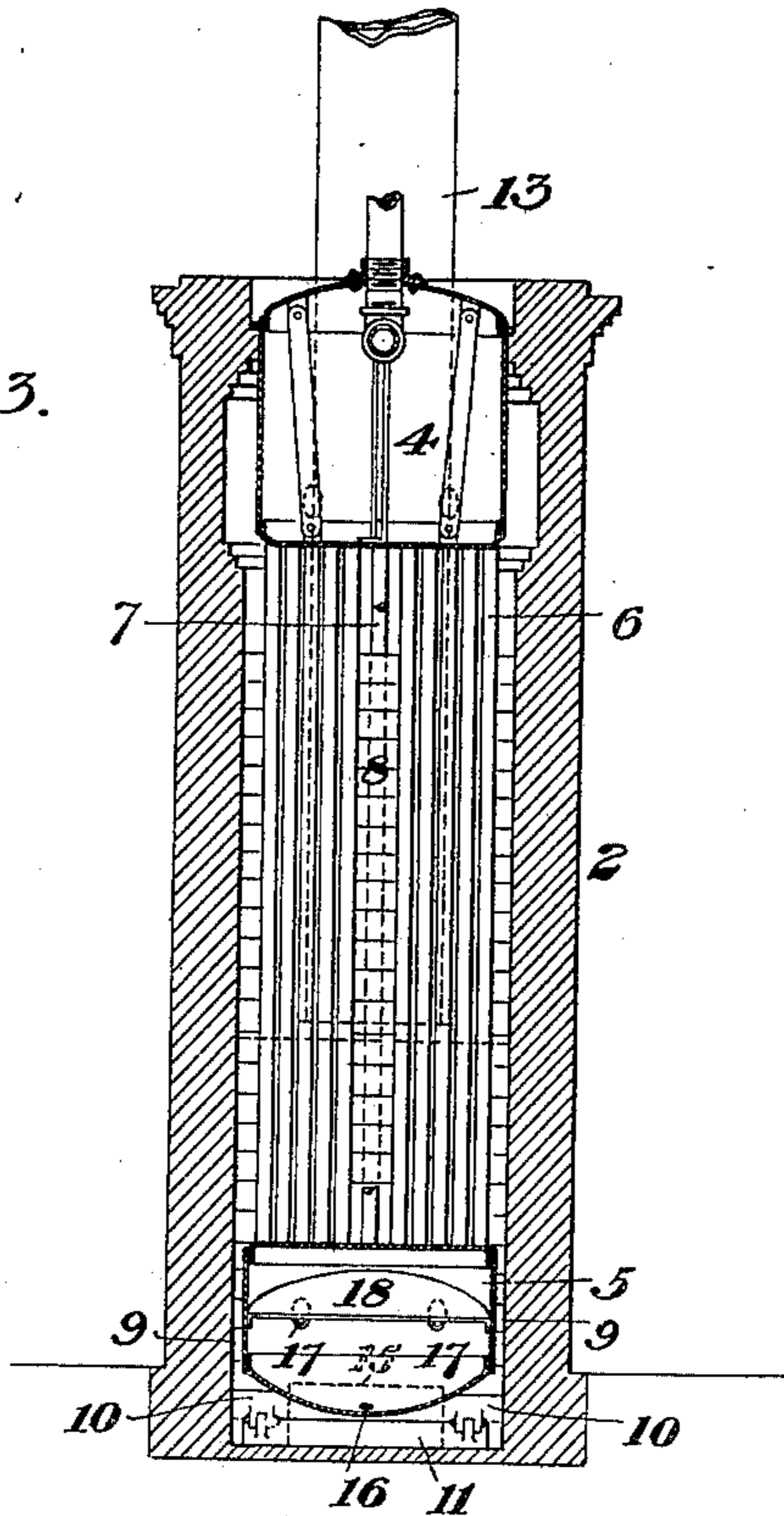
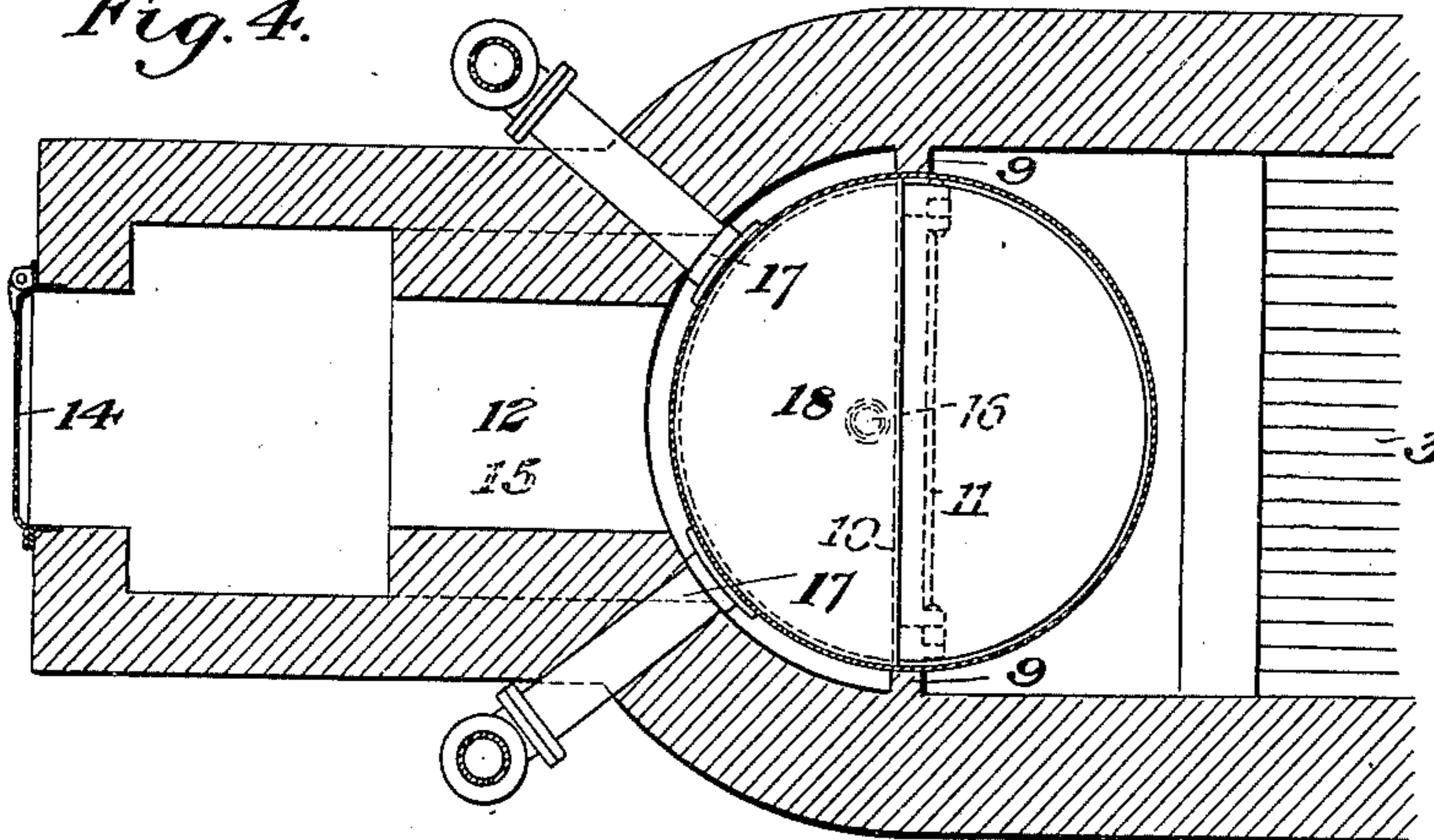


Fig. 4.



WITNESSES

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# UNITED STATES PATENT OFFICE.

WILLIAM C. TEMPLE, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE  
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## STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 672,425, dated April 16, 1901.

Application filed July 10, 1900. Serial No. 23,127. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM C. TEMPLE, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Steam-Boilers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical central section of my improved boiler. Fig. 2 is a horizontal cross-section of the same. Fig. 3 is a vertical section on the line III III of Fig. 2, and Fig. 4 is a horizontal section on the line IV IV of Fig. 1.

My invention relates to that class of vertical water-tube boilers wherein an upper and a lower drum are connected by sets of tubes with partitions between the sets to direct the flame and gases in upward and downward passes; and its object is to prevent accumulation of dust upon the top of the mud-drum and also to stop short-circuiting of the gases beneath the partition and around the mud-drum.

Heretofore in this type of boilers the gases frequently creep between the lower end of the baffle-wall partition and the mud-drum and around the sides of the drum and pass directly to the stack without contacting with the tubes. This decreases the economy of the boiler and bakes the sediment in the mud-drum. Moreover, where the mud-drum is tightly inclosed in attempting to prevent this action the dust accumulates on the top of the mud-drum and piles up around the tubes, thus decreasing the heating-surface and the economy of the boiler. My invention overcomes these difficulties; and it consists in providing dust-flues around the mud-drum for the descent of the dust and also in placing partition-walls at the sides of the drum to prevent short-circuiting of the gases to the outlet-flue.

In the drawings, 2 represents the external shell of the boiler, and 3 the furnace. The boiler is composed of an upper drum 4 and a lower or mud drum 5, connected by two sets of tubes 6 and 7. The mud-drum is supported upon separated brackets, as shown, and is spaced apart from its inclosing walls,

so that the dust may fall through the vertical flues formed between the supporting-brackets, the walls of the mud-drum chamber, and the mud-drum itself into the space below it.

Between the sets of tubes 6 and 7 is placed a vertical partition 8, which extends from the top of the mud-drum to a point some distance below the upper drum, and this partition is provided with downward side extensions 9, which are joined to a lower partition 10, extending across the lower head of the mud-drum. This lower partition 10 is provided with an opening having a hinged door 11, which closes, so as to prevent any gases passing through the opening when it is in normal position. 12 is a stack-flue leading from the base of the tubes 7 to the stack 13. The base portion of the stack is provided with a door 14 and with a rake-hole 15, which extends downwardly at an angle into the space below the mud-drum, and by inserting a rake through the door 14 and rake-hole the door 11 may be pushed back and the ashes and residues raked out. 16 is the usual blow-off pipe in the mud-drum, and 17 the inlet-pipe of the water-supply.

When the boiler is in operation, the flame and gases from the furnace 3 pass in among the lower ends of the tubes 6, and, rising above the partition, descend through the tubes 7 and pass out from among their lower ends to the stack. The partitions or shields surrounding the mud-drum prevent the gases from cutting across directly to the stack-flue, while the collecting dust falls around the mud-drum into the chamber below it, and the full heating effect of the gases is thus obtained.

The advantages of my invention result from the use of the dust-passages around the mud-drum and from the partition for the mud-drum chamber which divides it into two separate chambers, thus preventing short-circuiting of gases and baking of sediment in the drum and the collection of dust among the tubes.

Many changes may be made in the form and arrangement of the boiler without departing from my invention.

I claim—

1. A vertical water-tube boiler having an upper drum and a lower drum connected by

sets of tubes, a partition between the sets having a downward extension constructed to pass on either side of the mud-drum and under the same, and a source of heat communicating with the heating-space on one side of the partition; substantially as described.

2. A water-tube boiler having a mud-drum chamber provided with a partition surrounding the mud-drum, and a door in the partition; substantially as described.

3. A vertical water-tube boiler having an upper and a lower drum connected by sets of tubes, a partition between the sets, a source

of heat communicating with the heating-space on one side of the partition, an outlet for the gases on the other side of the partition, and a raking-hole leading into the space below the mud-drum; substantially as described.

In testimony whereof I have hereunto set my hand.

WILLIAM C. TEMPLE.

Witnesses:

W. W. DARLEY,

G. I. HOLDSHIP.