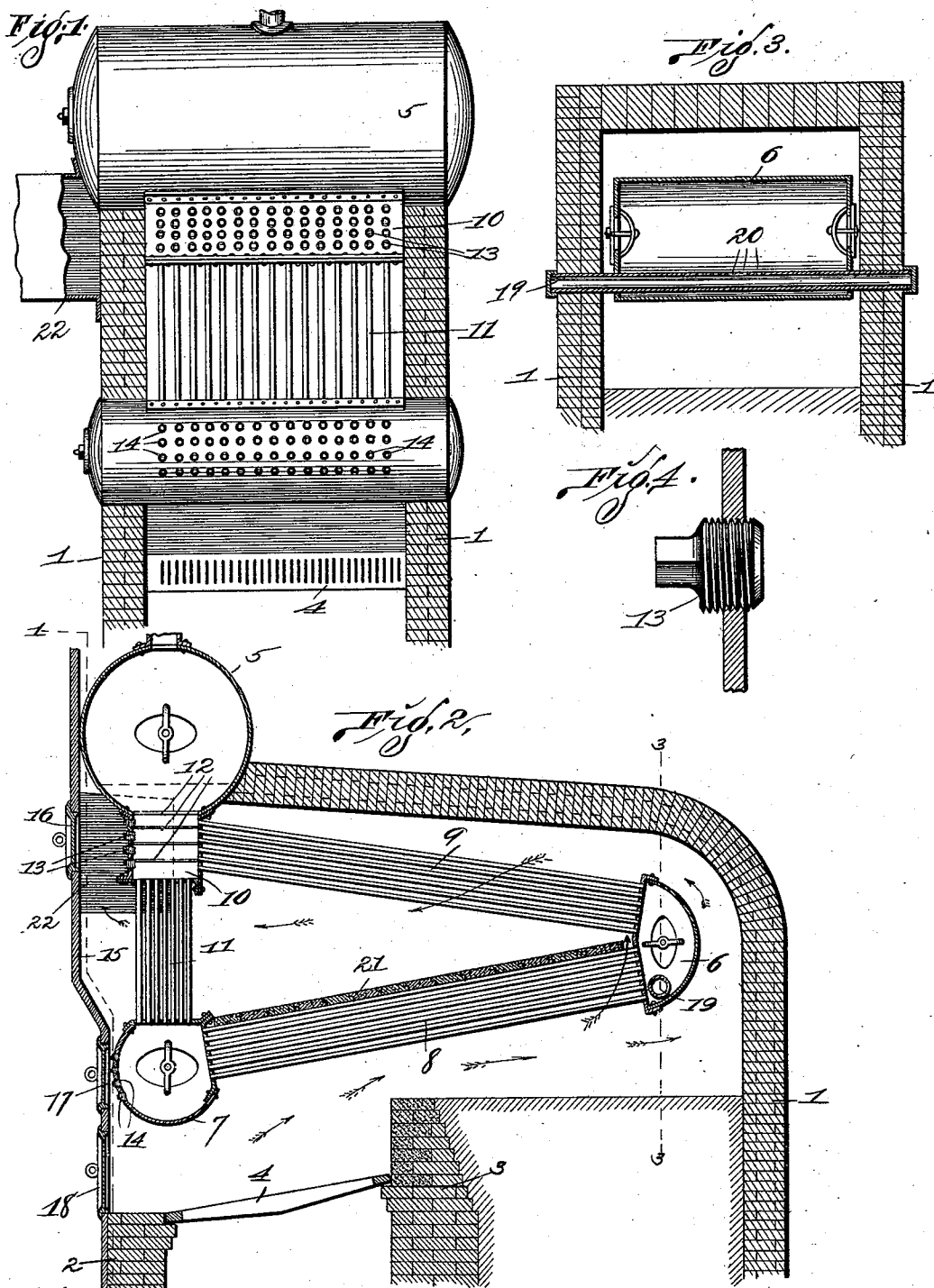


(No Model.)

D. H. McCARTY.
STEAM GENERATOR.

No. 564,023.

Patented July 14, 1896.



Attest
M. P. Smith
Notary Public

Inventor:
David H. McCarty:
By Higdon & Higdon Solicitors

UNITED STATES PATENT OFFICE.

DAVID H. McCARTY, OF ST. LOUIS, MISSOURI.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 564,023, dated July 14, 1896.

Application filed April 22, 1896. Serial No. 588,682. (No model.)

To all whom it may concern:

Be it known that I, DAVID H. McCARTY, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Steam-Generators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My present invention relates to steam-generators, and is an improvement over my invention shown in Letters Patent No. 366,496, dated July 12, 1887; and it consists in the novel construction, combination, and arrangement of parts hereinafter described and claimed.

In the drawings, Figure 1 is a sectional elevation of my improved steam-generator on the indicated line 1 1 of Fig. 2. Fig. 2 is a longitudinal sectional elevation. Fig. 3 is a transverse sectional view on the line 3 3 of Fig. 2. Fig. 4 is a sectional detail of the plug of which I make use.

Referring to the drawings by numerals, 1 and 2 represent the walls of the furnace and 3 the bridge-wall. Extending from the wall 2 to the bridge-wall 3 is the usual grate 4.

In the construction of my boiler I use three chambers, comprising the steam-dome 5, the semicircular chamber 6, and the mud-drum 7. The mud-drum 7 is situated directly above the front end of the grate 4, and its ends extend outwardly and rest in the walls of the furnace, as shown in Fig. 1.

The steam-dome 5 is located directly above the mud-drum 7, and rests upon the walls of the furnace. Water-tubes 8 connect the mud-drum 7 with the semicircular chamber 6, the latter chamber being located in the rear part of the furnace, and water-tubes 9 connect the semicircular chamber 6 with a rectangular chamber 10 located directly beneath the steam-dome and communicating therewith. Vertical pipes 11 connect the mud-drum 7 with the chamber 10.

The walls of the chamber 10 are connected by stay-bolts 12. In the front wall of the chamber 10 are plugs 13 in alinement with the apertures in the tubes 9, and in the front wall of the mud-drum 7 are plugs 14 in alinement with the apertures in the tubes 8. A detail of the plugs 13 and 14 is shown in Fig. 4.

In the boiler-front 15, which is located di-

rectly in front of the furnace, is located a door 16 directly in front of the plugs 13, and a door 17 directly in front of the plugs 14, and a door 18 directly in front of the fireplace.

The semicircular chamber 6 is supported by the pipe 19, extending through it and into the walls of the furnace. Apertures 20 in said pipe 19 provide communication between the water of the chamber 6 and the inner part of the pipe 19, and thus prevent the exposed parts of the pipe from being burned.

A layer of fire-brick 21 is placed on top of the series of water-tubes 8 and extends from the mud-drum 7 back nearly to the semicircular chamber 6.

In the practical operation of my improved steam-generator the water pipes and chambers are filled in the usual way. Fire is built upon the grate 4 and the heat passes upwardly and is deflected backward by the mud-drum 7 and the fire-brick 21 to and around the semicircular chamber 6, a part of the heat passing in front of said chamber and a part passing around behind said chamber, and then by the upper wall the heat is deflected forward and by the rear wall of the rectangular chamber 12 is deflected downward between the pipes 9 and between the pipes 11 and out through the pipe 22, located in the side of the furnace, said pipe 22 communicating with the smoke-stack.

By my arrangement of water chambers and pipes and the layer of fire-brick a good draft is secured and a large heating surface is provided in proportion to the amount of water used.

I claim—

1. In a steam-generator, a mud-drum located above the front of the fireplace, a steam-dome directly above said mud-drum, a rectangular chamber directly below and communicating with said steam-dome, a semicircular chamber in the back part of the furnace and on a level between said mud-drum and said rectangular chamber, inclined pipes connecting said mud-drum and said semicircular chamber, a layer of fire-brick on top of said inclined pipes, oppositely-inclined pipes connecting said semicircular chamber and said rectangular chamber, and vertical pipes connecting said mud-drum and said rectangular chamber, substantially as stated.

2. In a steam-generator, a mud-drum 7 located directly over the front end of the grate, a
semicircular chamber 6 located in the rear end
of the furnace, water-pipes connecting said
5 mud-drum and said semicircular chamber, a
layer of fire-clay 21 on top of said water-pipes,
the steam-dome 5 located directly over the
mud-drum 7, the rectangular chamber 10 lo-
cated beneath said steam-dome and connect-
10 ing therewith, water-pipes connecting the

semicircular chamber 6 with said rectangular
chamber 10, and water-pipes connecting the
mud-drum 7 with the bottom of the rectangu-
lar chamber 10, substantially as stated.

In testimony whereof I affix my signature 15
in presence of two witnesses.

DAVID H. McCARTY.

Witnesses:

E. E. LONGAN,
MAUD GRIFFIN.