

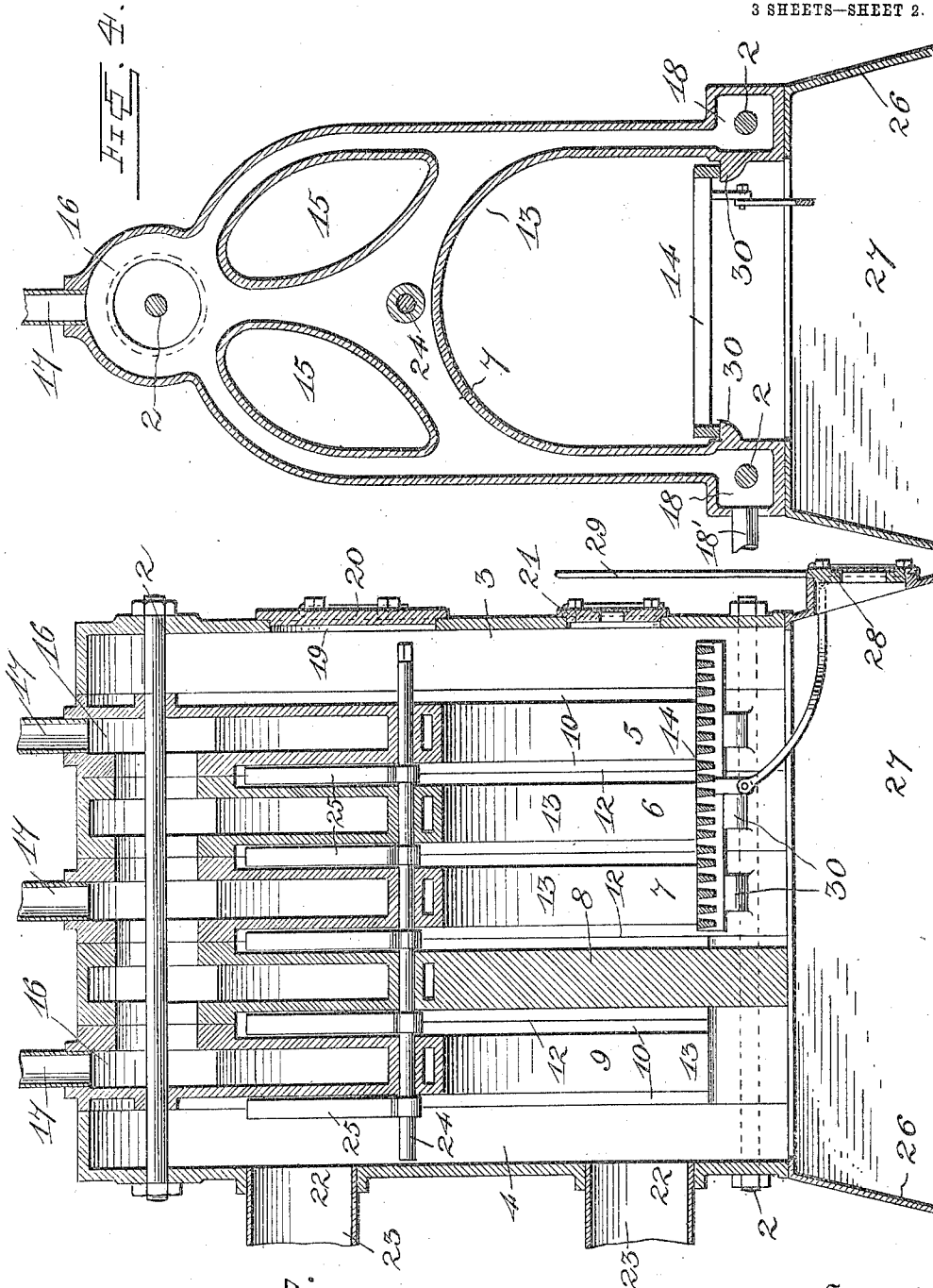
No. 811,388.

PATENTED JAN. 30, 1906.

J. W. DENMEAD.
WATER HEATER.

APPLICATION FILED APR. 20, 1905.

3 SHEETS—SHEET 2.



Witnesses
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Fig. 3.

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3 SHEETS—SHEET 3.

FIG. 6.

FIG. 7.

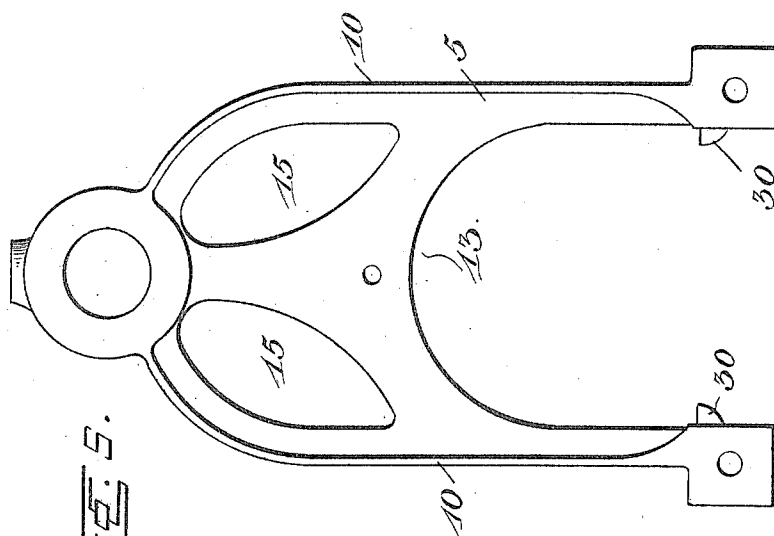
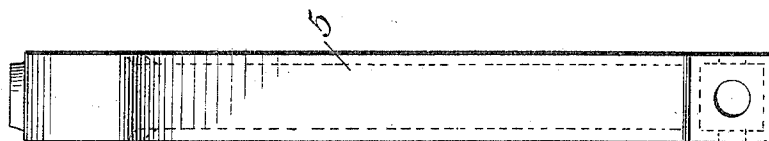
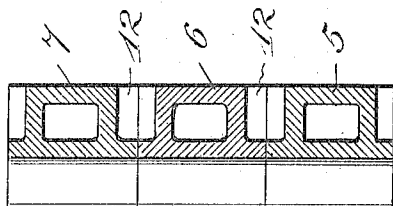


FIG. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

JOHN WILLIAM DENMEAD, OF AKRON, OHIO, ASSIGNOR TO ERNEST C. PRINCE AND CHARLES C. PATTERSON, OF BARBERTON, OHIO.

WATER-HEATER.

No. 811,388.

Specification of Letters Patent.

Patented Jan. 30, 1906.

Application filed April 20, 1905. Serial No. 256,560.

To all whom it may concern:

Be it known that I, JOHN WILLIAM DENMEAD, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Hot-Water Heaters; and I 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.

This invention relates to improvements in multiple-section boilers or hot-water heaters.

The object of the invention is to provide a hot-water heater of this character consisting of a series of independent sections folded or otherwise clamped together to form a heater, each of said sections being formed to provide the greatest amount of heating-space.

A further object is to provide means whereby the smoke-flue between each section may be quickly and easily cleaned.

With the above and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side view of the heater constructed in accordance with the invention. Fig. 2 is a front end view of the same. Fig. 3 is a vertical longitudinal sectional view through the heater. Fig. 4 is a transverse vertical sectional view through the same. Fig. 5 is a side view of one of the sections of the heater, and Fig. 6 is an edge view of the same. Fig. 7 is a detail longitudinal sectional view taken on a plane intersecting one side of the sections 5, 6, and 7 and near the bases thereof.

Referring more particularly to the drawings, 1 denotes the heater formed of a series of sections, which are preferably clamped or bolted together by means of tie-rods or bolts 2, extending through the same, as shown. The outer projecting ends of the tie-rods are adapted to receive clamping-nuts, which are screwed thereon and into engagement with the outer sections of the heater, thereby clamping said sections together. There may be any number of sections used in constructing the heater, seven of said sections being shown in the present instance. The opposite end sections 3 and 4 form, respectively, the front and rear of the heater. The intermediate sections 5, 6, 7, 8, and 9 are each provided around their

edges with oppositely-projecting flanges 10, which when the sections are assembled will engage each other, thereby forming between the sections smoke spaces or flues 12. The sections 5, 6, 7, and 9 have formed in their lower portions centrally-disposed arch-shaped spaces 13. The space in the sections 5, 6, and 7 forms a fire-box, in which is arranged the grate 14. The section 8 is formed solid at its lower portion, thus providing a bridge-wall or back for the fire-box. In each of the intermediate sections above the arch-shaped spaces 13 is formed elliptical-shaped smoke-passages 15, said passages being arranged on such side of the center of the sections, as shown. Above the smoke-spaces 15, in an upwardly-extending portion of the sections, are formed manifold passages 16, with which in one or more of the sections is connected a flow-pipe 17.

The side portions of the sections forming the sides of the spaces 13 communicate at their lower ends with lower manifolds 18, arranged at each side of the lower end of the section, as shown. Return-pipes 18' are connected with two or more of said manifolds.

The front end section 3 is formed solid to close the front end of the fire-box, and in the upper portion of said section is formed a clean-out hole 19, closed by a hinged door 20. In the lower portion of the section 3 opposite the fire-box is formed a fire-door 21. The rear section 4 is also formed solid and in the same may be formed one or more smoke-outlet passages 22, in which are adapted to be connected smoke-pipes 23.

Passing through the sections is arranged a horizontal centrally-disposed shaft 24, the forward end of which extends through the clean-out hole 19, and is squared to receive a wrench or crank-handle, whereby the same may be turned. On the shaft 24, within each smoke space or flue between the sections of boiler, is fixedly mounted a radially-projecting brush-arm 25, which when the shaft is turned is adapted to engage the opposite sides of the sections to wipe or clean the dirt from the same. The top of the smoke-flues are adapted to be cleaned through the clean-out hole by means of any suitable cleaning-tool.

The sections of the boiler when connected together are adapted to rest upon a suitable base 26, which forms an ash-pit 27. Said base is provided on its front end with a door 28 to

permit the removal of ashes from the pit 27. The grate 14 may be of any suitable construction, but is preferably arranged within the fire-box to permit the same to be shaken by means of a shaking-lever 29, hinged or pivotally connected to the front side of the section 3. The grate-bars are preferably supported upon inwardly-projecting flanges 30, formed on the inner side of the arch-shaped space 13, forming the fire-box of the heater.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various 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.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A hot-water heater comprising a plurality of hollow separable sections having transverse flues formed between them, and revoluble means to clean said flues.

2. A hot-water heater comprising a plurality of hollow separable sections having transverse flues formed between them, and revoluble means to simultaneously clean said flues.

3. A hot-water heater consisting of a front section having arranged therein a feed-opening and a clean-out opening, a rear section having arranged therein a smoke-outlet passage, intermediate sections having smoke-passages arranged to form a fire-box, smoke-flues formed between said sections, a longitudinally-disposed shaft, mounted in said sections, brush-arms secured to said shaft in each of said smoke-flues, means whereby said shaft may be turned to actuate said brush-arms and clean said smoke-flues, manifolds arranged at the upper and lower ends of said sections, flow-pipes connected with said upper manifolds and return-pipes connected with the lower manifolds, substantially as described.

4. A hot-water heater comprising a plurality of hollow separable sections having transverse flues formed between them, and a revoluble shaft having its bearings in said separable sections, and arms on said shaft to operate in and clean the flues when said shaft is rotated.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN WILLIAM DENMEAD.

Witnesses:

B. C. Ross,
J. M. Root.