No. 848,786.

PATENTED APR. 2, 1907.

E. A. VOIGHT.

STEAM BOILER.

APPLICATION FILED DEC. 6, 1906.

2 SHEETS—SHEET 1.

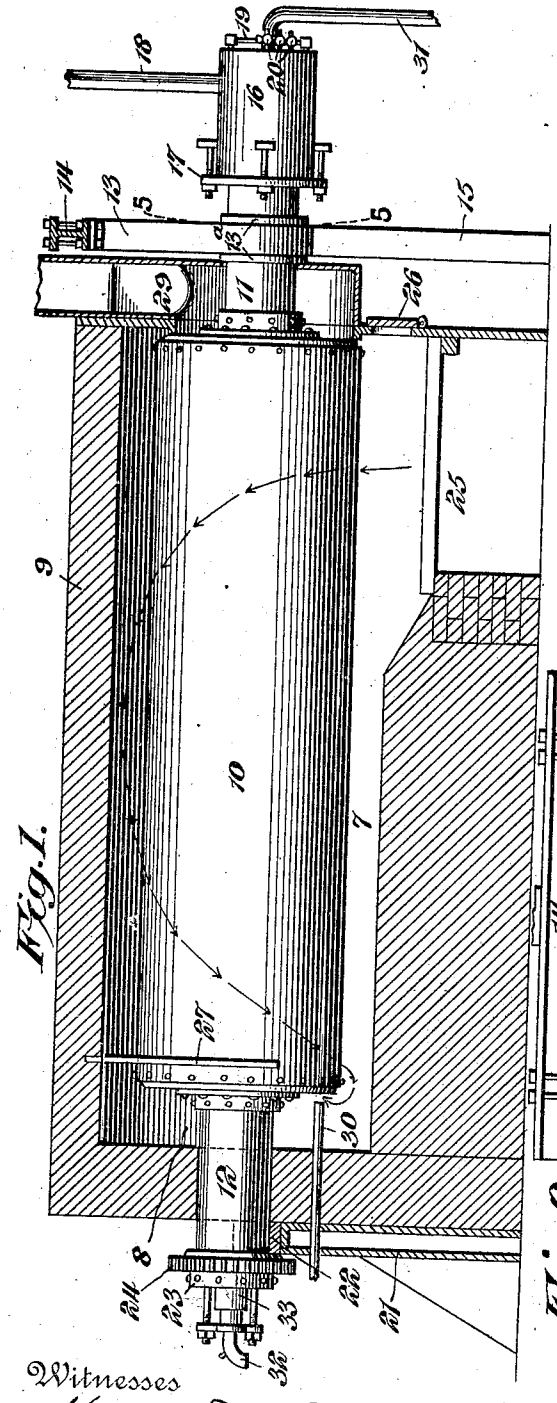

Fig. 1.

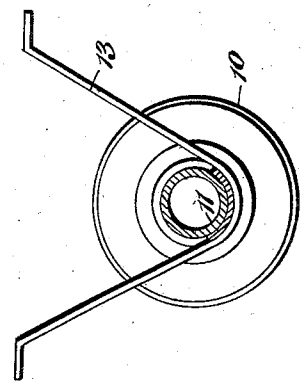

Fig. 3.

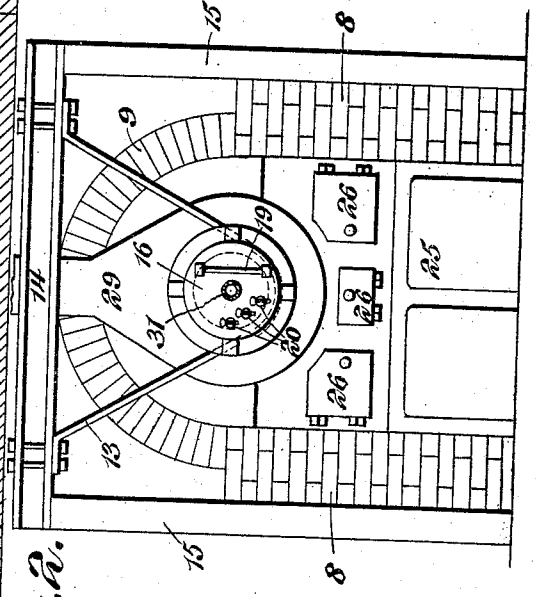

Fig. 2.

Witnesses

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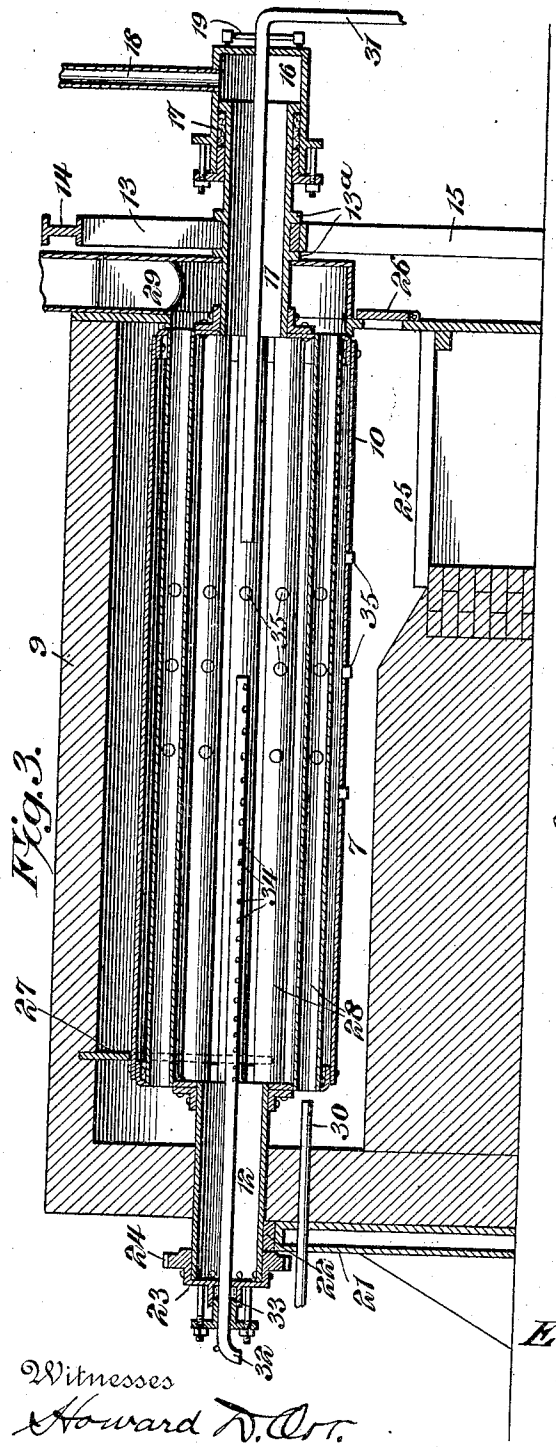

Fig. 3.

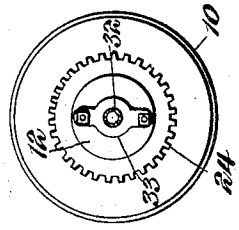

Fig. 6.

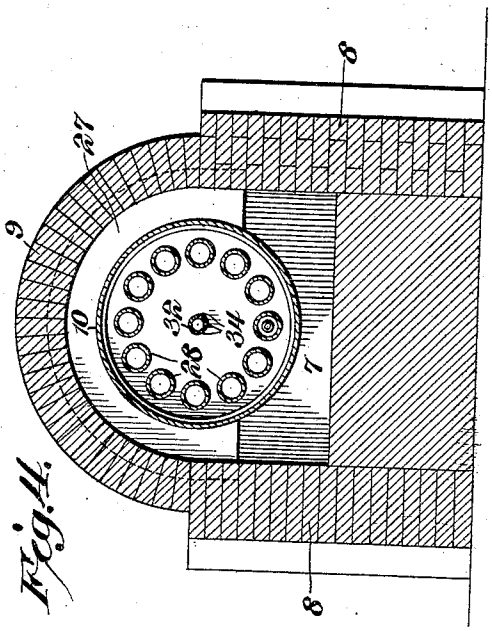

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

EMERY ANTONEY VOIGHT, OF PADUCAH, KENTUCKY

STEAM-BOILER.

No. 848,786. Specification of Letters Patent. Patented April 2, 1907.

Application filed December 6, 1906. Serial No. 346,593.

To all whom it may concern:

Be it known that I, EMERY ANTONEY VOIGHT, a citizen of the United States, residing at Paducah, in the county of McCracken and State of Kentucky, have invented a new and useful Steam-Boiler, of which the following is a specification.

This invention relates to rotary steam-boilers; and the primary object is to provide a novel and entirely practicable structure of this character wherein the full effects of the heat are secured, proper draft is insured, and at the same time the flues are kept clean, the region around the furnace-doors is entirely free from obstructions, the usual and necessary water-level-gaging mechanism can be employed, and simple means are provided for blowing off the scum and refuse from the interior of the boiler.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a sectional view through the boiler, showing the boiler-body in elevation. Fig. 2 is a front end elevation of the boiler. Fig. 3 is a longitudinal sectional view through the same. Fig. 4 is a cross-sectional view. Fig. 5 is a sectional view on the line 5 5 of Fig. 1. Fig. 6 is a rear elevation of the boiler-body.

Similar reference-numerals designate corresponding parts in all the figures of the drawings.

In the embodiment illustrated an inclosed chamber 7 is employed having side walls 8 and an arched top 9. Within this inclosed chamber is rotatably mounted a cylindrical boiler-body 10, having a front tubular gudgeon 11 and a rear tubular gudgeon 12, that project, respectively, through the front and rear walls of the chamber. The front gudgeon 11 is rotatably mounted in a hanger 13, suspended from the cross-beam 14 of a supporting-frame that has spaced standards 15, located at the front ends of the side walls 8. Collars 13^a are located on the gudgeon on opposite sides of the hanger and prevent longitudinal movement or vibration of the boiler. The gudgeon 11 extends in front of the hanger 13, and its front open end is closed by a head or hood 16 extending over said front end and suitably held against rotation. The joint between the rotatable gudgeon 11 and the non-rotatable hood is sealed by a suitable packing-gland 17. A steam-supply pipe 18 extends from the upper side of the hood. A gage-glass 19 is mounted on the front wall of said hood, and try-cocks 20 are also mounted on said front wall. The rear gudgeon 12 is supported by any suitable means—as, for instance, a standard 21, located in rear of the rear wall of the chamber and having a bearing 22, on which said gudgeon rests. The rear end of the gudgeon 12 is closed by a cap 23, which includes a gear-wheel 24, through the medium of which the boiler can be rotated, as will be apparent.

A furnace 25 is located beneath the front portion of the boiler-body 10, and communication therewith is secured through suitable doors 26. This furnace communicates directly with the inclosed chamber 7, and inasmuch as the boiler-body is spaced from the side walls and top of the same it will be apparent that said chamber constitutes, in effect, a combustion-chamber entirely around the boiler-body. A baffle-plate 27 is located around the upper rear portion of the boiler-body and bridges the space between the same and side walls and top of the chamber. The boiler-body is provided with a circular series of longitudinal flues 28, their rear ends communicating with the rear end of the inclosed chamber 7 in rear of the baffle-plate 27, their front ends communicating with the lower end of a suitable stack 29. It will thus be apparent, particularly by reference to Fig. 1, that the products of combustion will travel around the boiler-body, but before reaching the flues are deflected downwardly by the baffle-plate. In order to secure a proper draft through the flues and at the same time keep the same clean, a steam-directing nozzle 30 extends through the rear wall of the chamber longitudinally of the flues in a position to aline successively with said flues when they reach their lowermost positions.

A water-supply pipe 31 extends through the front hood 16 and centrally through the front gudgeon 11, terminating centrally within the front portion of the boiler-body. A blow-off pipe 32 has its inlet end located horizontally and centrally within the boiler-body, said blow-off pipe extending centrally through the rear gudgeon 12 and through a packing-gland 33 on the cap 23 of said gudgeon. This blow-off pipe terminates short of

the inner end of the feed-pipe 31, and its inner portion is provided on the under side with perforations 34.

In the operation of the structure the boiler-body 10 is revolved by any suitable means coupled to the gear-wheel 24, and it will thus be evident that as the body rotates the flues are successively brought into alinement with the steam-nozzle 30. If, therefore, steam is projected from said nozzle, it will pass successively through the different flues, creating a draft toward the stack and maintaining the flues in clean condition. The body at the same time is thoroughly heated on all sides from the furnace, the baffle-plate assisting in the distribution of the products of combustion entirely around the boiler-body and insuring a more thorough combustion. The front portion of the boiler being suspended, as shown, the space about the furnace-doors is entirely unobstructed, and the front head or hood 16 being non-rotatable permits the employment of the usual and necessary level-gage mechanism. The supply and blow-off pipe shown insure, respectively, the proper supply of water to the boiler and the collection and discharge of the scum and refuse that rises to the surface of the water within the boiler. If desired, fusible plugs 35 may be placed in the boiler-body and flues to prevent explosions of the boiler in case the water then becomes lowered to a dangerous point.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In a boiler of the character described, the combination with a furnace having doors, of a rotatable boiler-body located over the furnace and having a gudgeon extending above and in front of the doors, a suspended bearing engaging an intermediate portion of the gudgeon, a non-rotatable head located on the outer end of the gudgeon outside the bearing, and water-gage mechanism located on the head and disposed above the space in front of the doors of the furnace.

2. In a boiler of the character described, the combination with a furnace having doors, of a rotatable body located over the furnace and having a tubular gudgeon, and a suspended hanger located over the furnace-doors, said gudgeon being journaled in the hanger.

3. In a boiler of the character described, the combination with a furnace having doors, of a rotatable boiler located over the furnace and having a tubular gudgeon projecting in front of the same, a supporting-frame, and a hanger suspended from the supporting-frame and surrounding the gudgeon, said gudgeon being journaled in the hanger.

4. In a boiler of the character described, the combination with a rotatable body having a series of flues therethrough, of means for projecting a steam-jet longitudinally through the flues, said flues successively alining with the jet upon the rotation of the body.

5. In a boiler of the character described, the combination with a rotatable body having a series of flues therethrough, of a furnace located at the front end of the body and having communication with the rear ends of the flues, a stack communicating with the flues at the front end of the body, and a steam-directing nozzle projecting toward the rear end of the body longitudinally of the flues, said flues being successively movable into alinement with the nozzle upon the rotation of the body.

6. In a boiler of the character described, the combination with an inclosed chamber having side walls, and a top, of a rotatable boiler located in the chamber in spaced relation to the side walls and top, said boiler having longitudinal flues therethrough, a furnace located beneath the front portion of the boiler, a stack communicating with the front ends of the flues, and a baffle-plate extending partially around the rear portion of the boiler and bridging the space between the same and the top and side walls.

7. In a boiler of the character described, the combination with a rotatable boiler having tubular gudgeons, of means engaging the gudgeons for supporting the boiler, a feed-pipe extending through one of the gudgeons and terminating short of the other gudgeon, and a blow-off pipe extending through the other gudgeon and disposed longitudinally in the central portion of the boiler, said pipes being in substantial alinement and having their inner ends spaced apart, and said blow-off pipe being perforated within the boiler.

8. In a boiler of the character described, the combination with an inclosed chamber having side walls and a top, of a boiler-body located within the chamber and having tubular gudgeons projecting through the ends of the chamber, a stationary hood mounted on the front gudgeon and having water-level-indicating means, a suspended hanger engaging the front gudgeon for supporting the same, flues extending longitudinally through the boiler-body, the rear ends of said flues communicating with the chamber, a stack communicating with the front ends of the flues, a furnace located in the front portion of the chamber, a baffle-plate surrounding

the upper rear portion of the boiler-body, and a forwardly-extending steam-directing nozzle projecting through the rear end of the chamber and longitudinally of the flues, the rear ends of said flues being successively movable into alinement with the nozzle.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EMERY ANTONEY VOIGHT.

Witnesses:
HENRY BAKER,
L. P. HOLLAND.