

No. 615,549.

Patented Dec. 6, 1898.

B. HASKELL.

MUD AND SCALE RECEPTACLE FOR STEAM BOILERS.

(Application filed June 1, 1898.)

(No Model.)

2 Sheets—Sheet 1.

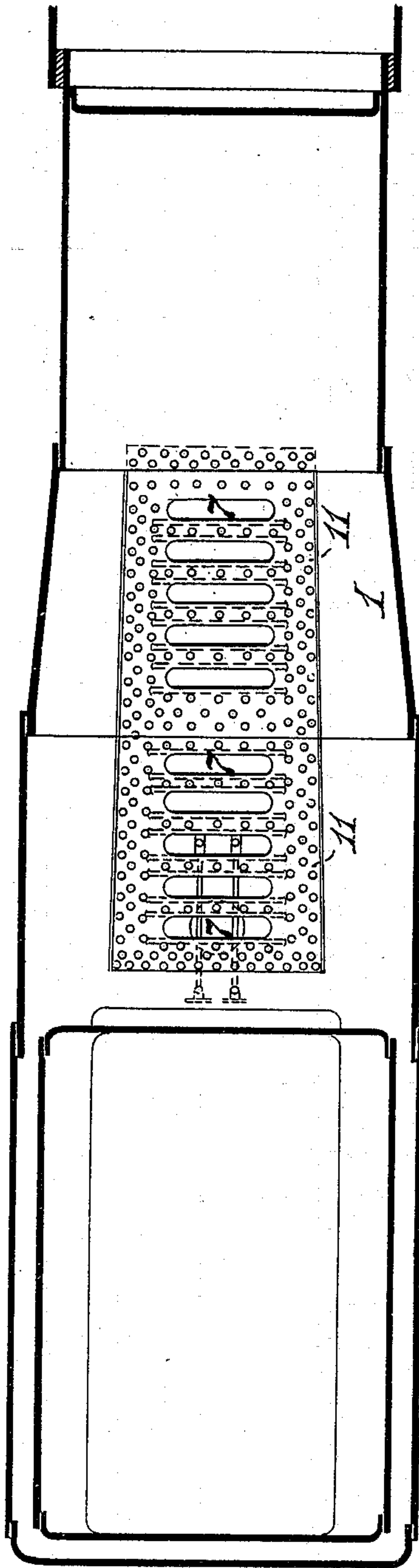


FIG. 2.

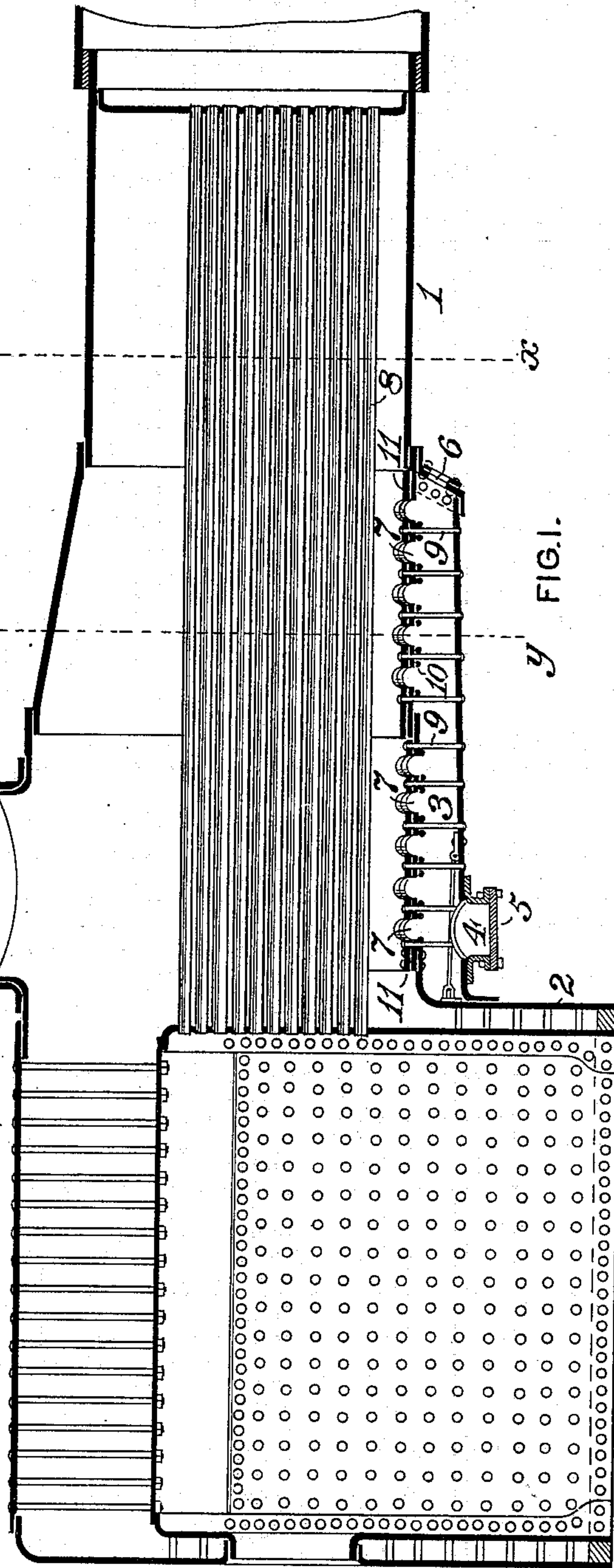


FIG. 1.

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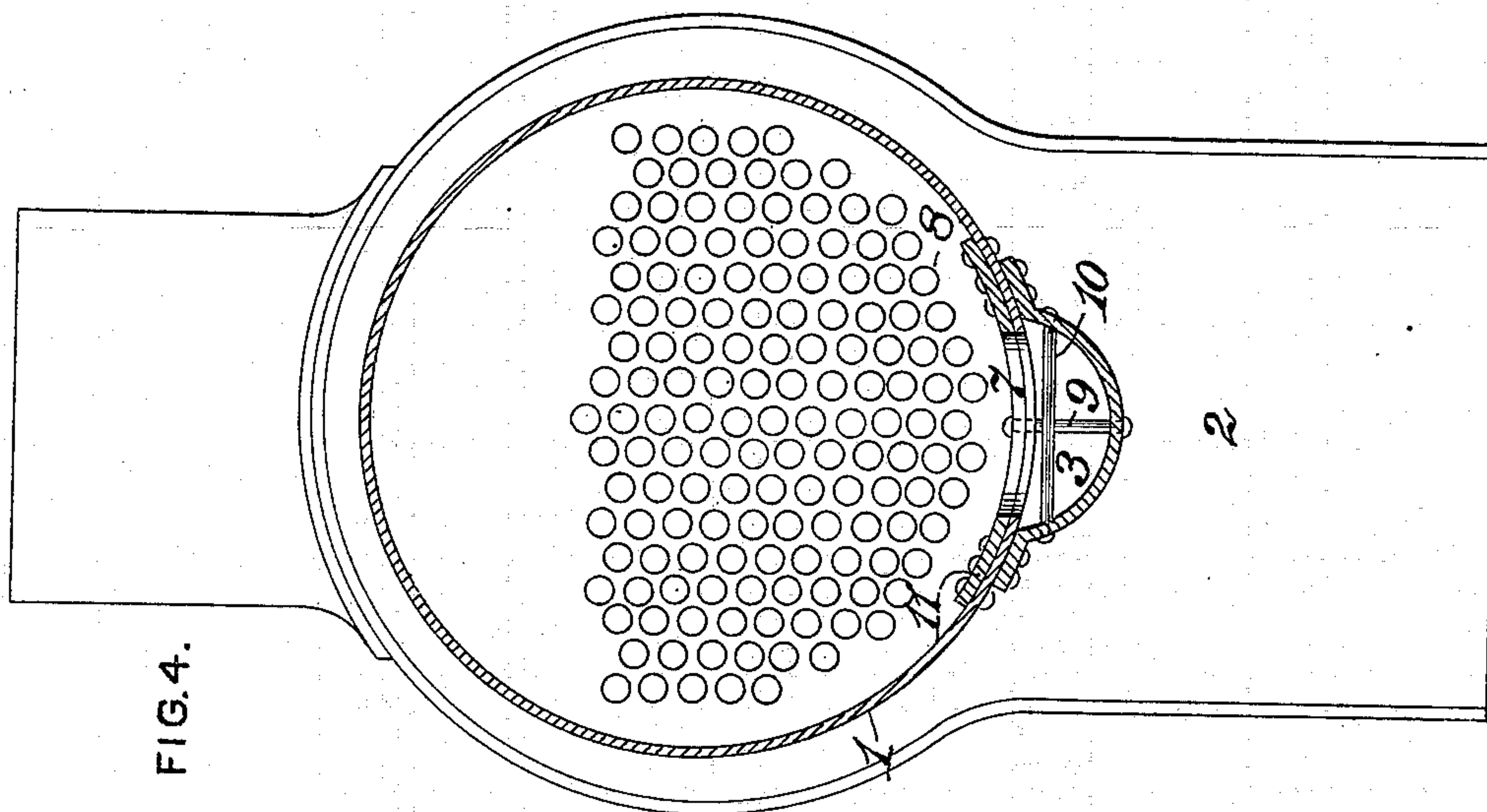


FIG. 4.

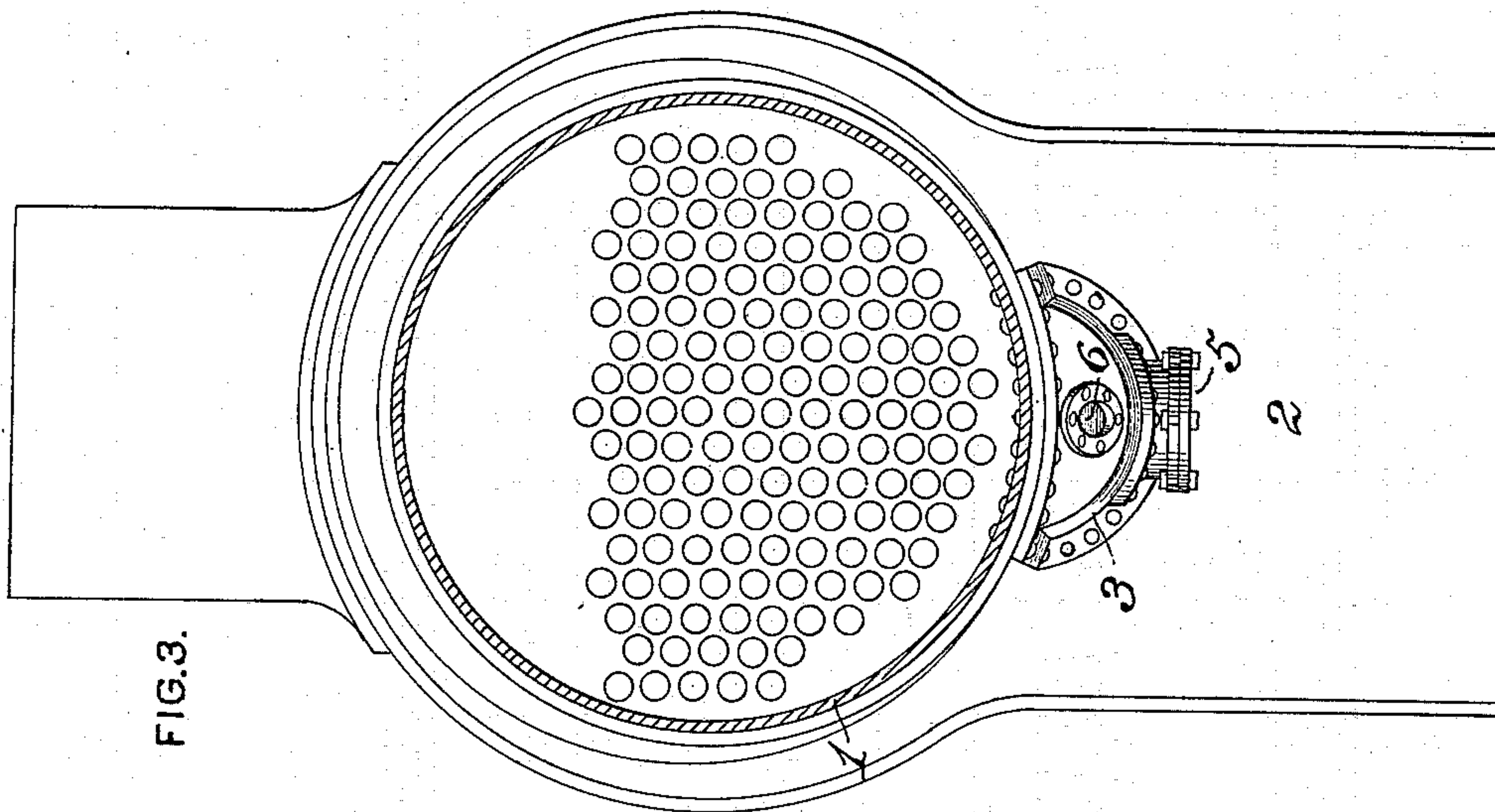


FIG. 3.

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UNITED STATES PATENT OFFICE.

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MUD AND SCALE RECEPTACLE FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 615,549, dated December 6, 1898.

Application filed June 1, 1898. Serial No. 682,284. (No model.)

To all whom it may concern:

Be it known that I, BRODERICK HASKELL, of Grand Rapids, in the county of Kent and State of Michigan, have invented a certain new and useful Improvement in Mud and Scale Receptacles for Steam-Boilers, of which improvement the following is a specification.

My invention relates to means for collecting and discharging mud, scale, and other solid matter deposited from water evaporated in steam-boilers; and its object is to provide a device of such general class which shall be simple, inexpensive, and readily attachable to the shell of a steam-boiler, particularly one of the locomotive type, without substantial projection therefrom or interference with adjacent mechanism, and by which the deposited matter may be collected at a point where it will not be affected by heat from the tubes or fire-box and be stored until it can be conveniently and expeditiously washed out.

The improvement claimed is hereinafter fully set forth.

The leading and essential feature of my invention consists in a chamber or receptacle of lune or crescent shaped transverse section which is connected to the lower portion of the shell or waist of a steam-boiler, extending from the throat-sheet or front of the fire-box for a greater or less distance along the bottom of the boiler. The receptacle communicates with the interior of the boiler by a number of transverse openings or passages in the shell and is provided at or near its front and rear ends with openings closed by removable caps or plugs, through which the interior of the boiler and receptacle may be examined and thoroughly washed out whenever necessary or desirable. The receptacle may be stayed to resist outward pressure and a reinforcing-sheet connected to the sheet or sheets of the boiler in which the communicating passages are formed in order to insure ample strength and safety.

In the accompanying drawings, Figure 1 is a vertical longitudinal central section through a locomotive-boiler, illustrating an application of my invention; Fig. 2, a horizontal section with the tubes removed; and Figs. 3 and 4, transverse sections, on an enlarged scale, at the lines *x x* and *y y*, respectively, of Fig. 1.

In the practice of my invention, which is

herein exemplified as applied to a locomotive-boiler of one of the present standard types, I connect to the lower portion of the shell or waist 1 of the boiler and to the throat-sheet 2 a mud and scale chamber or receptacle 3, which is formed of a sheet of steel or other metal bent into the form of a trough or channel with side flanges, substantially as shown in transverse section in Fig. 4, and connected to the boiler-sheets by riveting in the ordinary manner. The chamber being bounded at top by portions of the waist-sheets, its internal transverse section at all points has the figure of a lune or crescent, and it will be seen that considerable capacity is afforded in it without material projection below the bottom of the boiler and that it is conveniently accessible and not in position to interfere with the ordinary disposition of working parts. An opening 4 is formed in the receptacle near its connection with the throat-sheet and is closed by a removable cap or cover 5, and an opening 6 is formed in its front end which may be closed either by a cap or by a screw-plug, as preferred.

The mud and scale receptacle communicates at different points throughout its length with the interior of the boiler by transverse openings or passages 7, which are formed in the sheets of the waist of the boiler, and are preferably, as shown, of oblong form and extend nearly or entirely across the top of the chamber. The same result might be attained, though less perfectly, by transverse rows of perforations or openings, two or more in each row. The communicating passages 7 are located at such intervals as may be deemed desirable and as closely as may be in order to afford ample avenues of discharge for solid matter from the space below the boiler-tubes 8 into the receptacle 3.

In order to insure the sufficient and safe resistance of the receptacle 3 to the internal pressure to which it is subjected when the boiler is under steam, it may be connected on its longitudinal center line to the shell of the boiler by a row of vertical stays 9, passing through the boiler-sheets between the passages 7, the ends of which stays may be secured to the boiler-sheets and to the receptacle by being screwed in and riveted over in the manner of fire-box stay-bolts. The recep-

tacle may be further strengthened by transverse stays 10, secured at their ends to the receptacle below the uncut portions of the boiler-sheets, so as to be clear of the passages 7.

5 To compensate for the reduction of strength of the boiler-sheets due to the cutting out of metal to form the communicating passages 7, a reinforcing-sheet 11 may be riveted to each sheet of the shell containing said passages.

10 In the operation of the device the solid matter which is separated from the water passes freely through the passages in the shell and collects in the receptacle, where it can be allowed to remain without detriment until it is
15 found convenient to remove it, as it is not exposed to heat and is not, therefore, hardened so as to adhere to the receptacle. The necessity of frequent washing out of the boiler is thus avoided. Upon removing the caps
20 from the openings 4 and 6 and introducing a hose into one of them the collected mud and scale can be readily and quickly removed by the application of a stream of water. The inside of the boiler and the tubes can also be
25 examined by holding a light at one of the openings of the receptacle and making an observation at the other, and the interior of the boiler can be washed, when desired, by a stream of water directed into one of the passages 7.

30 I claim as my invention and desire to secure by Letters Patent—

1. The combination, with a steam-boiler, of a curved sheet secured to the outer side of the lower portion of the boiler-shell and forming
35 therewith a mud and scale receptacle of substantially lune or crescent shaped transverse section, said receptacle having openings near its ends closed by removable caps, and communicating with the interior of the
40 boiler by a plurality of transverse passages in the shell thereof.

2. The combination, with a locomotive-boiler, having a plurality of transverse pas-

sages in the lower portion of its shell, of a curved sheet secured at its sides to the shell
45 below said transverse passages and at one end to the throat-sheet, and openings in said curved sheet adjacent to its ends, each closed by a removable cap or plug.

3. The combination, with a steam-boiler, of a curved sheet secured to the outer side of the lower portion of the boiler-shell and forming therewith a mud and scale receptacle of substantially lune or crescent shaped transverse
55 section, said receptacle having openings near its ends closed by removable caps, and communicating with the interior of the boiler by a plurality of transverse passages, and vertical stays connected to the shell between said
60 passages and to the outer curved sheet.

4. The combination, with a steam-boiler, of a curved sheet secured to the outer side of the lower portion of the boiler-shell and forming therewith a mud and scale receptacle of substantially lune or crescent shaped transverse
65 section, said receptacle having openings near its ends closed by removable caps, and communicating with the interior of the boiler by a plurality of transverse passages, and transverse stays connected at their ends to the outer
70 curved sheet below the spaces between the passages of the shell.

5. The combination, with a steam-boiler having a plurality of transverse passages in the lower portion of its shell, of a curved sheet
75 secured to the shell below said transverse passages, openings in said curved sheet adjacent to its ends, each closed by a removable cap or plug, and a reinforcing-sheet secured to the shell and having transverse passages
80 registering with those of the shell.

BRODERICK HASKELL.

Witnesses:

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