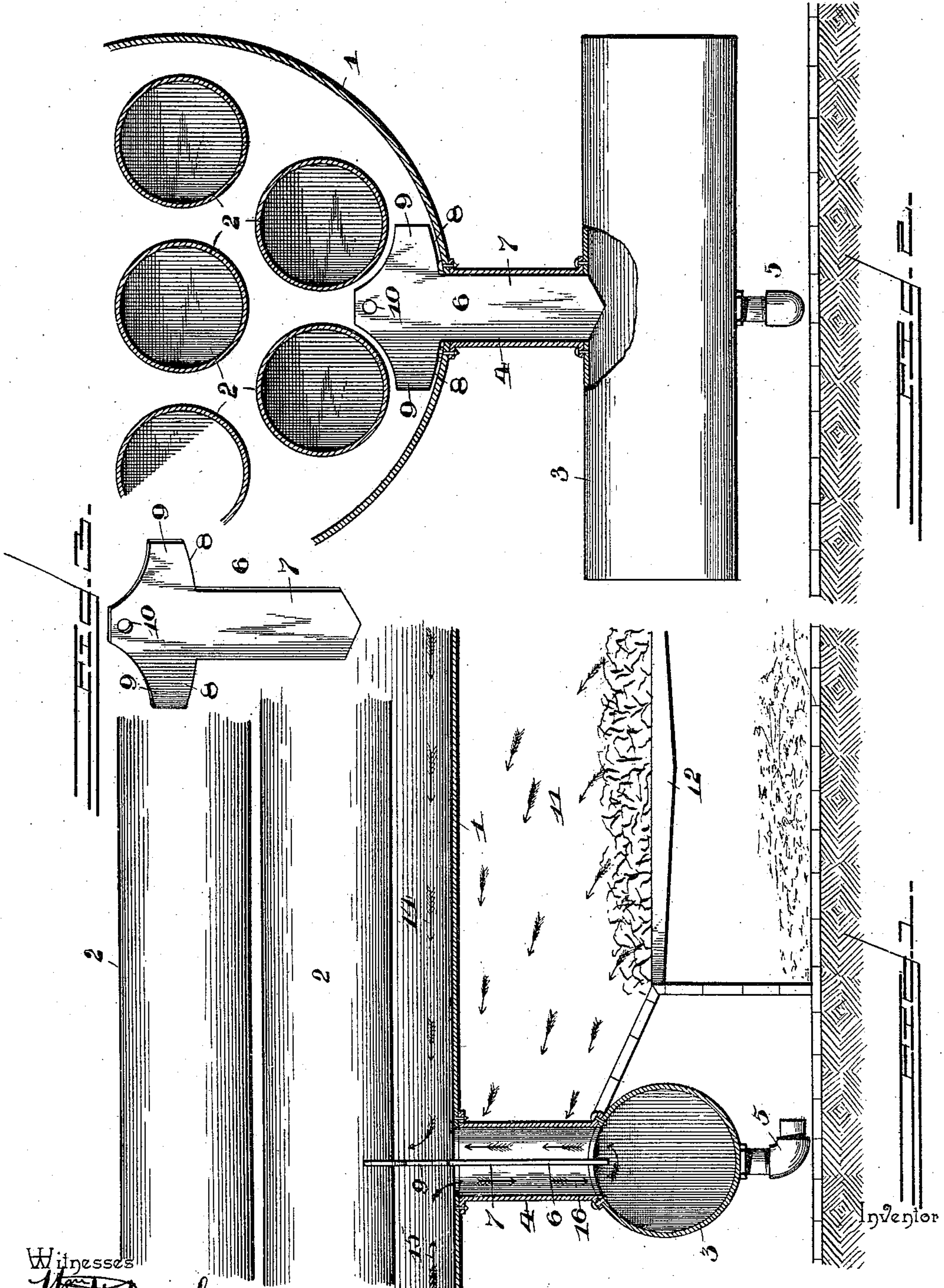


(No Model.)

M. W. GRANT.
BOILER CLEANER.

No. 574,989.

Patented Jan. 12, 1897.



Witnesses

W. T. Doyle

R. E. Doyle

By *his* Attorneys, *Mitchell W. Grant,*

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UNITED STATES PATENT OFFICE.

MITCHELL W. GRANT, OF OSAGE CITY, MISSOURI, ASSIGNOR OF TWO-THIRDS
TO CHARLES MILLIGAN AND WM. H. RAHNER, OF NEW ALBANY, INDIANA.

BOILER-CLEANER.

SPECIFICATION forming part of Letters Patent No. 574,989, dated January 12, 1897.

Application filed April 30, 1896. Serial No. 589,717. (No model.)

To all whom it may concern:

Be it known that I, MITCHELL W. GRANT, a citizen of the United States, residing at Osage City, in the county of Cole and State of Missouri, have invented a new and useful Boiler-Cleaner, of which the following is a specification.

My invention relates to a device for controlling the circulation of water in a boiler, whereby the scales and sediment are carried to and deposited in the mud-receiver.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a longitudinal section of a portion of a boiler and the contiguous portions of the fire-box, the partition or deflecting plate embodying my invention being shown in operative position in the leg or connection between the boiler and the mud-receiver. Fig. 2 is a vertical transverse section of the same. Fig. 3 is a detail view of the partition or deflecting plate detached.

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

1 designates the shell of a boiler, in which are arranged the flues 2, and 3 represents a mud-receiver of the ordinary or any preferred construction, which is connected to the boiler by a depending leg or connection 4, also of the ordinary construction and arrangement, said mud-receiver being provided with the usual blow-off 5.

Arranged vertically in the leg or connection 4, in order to divide the interior thereof into compartments, is a deflector or partition plate 6, having a parallel-sided shank 7, which corresponds, approximately, in width with the diameter of the leg or connection 4 and extends to the lower end thereof or its point of connection with the mud-receiver. This deflector or partition plate is removably seated in the leg or connection 4 and is held in place by means of shoulders 8, formed at the upper end of the shank by means of lateral wings 9, said shoulders being arranged to bear upon the bottom of the shell 1, contiguous to the sides of the leg or connection 4. In order to facilitate the removal and inser-

tion of the deflector, it is provided at its upper end with a perforation or opening 10.

In Fig. 1 I have shown at 11 a portion of a fire-box with a grate 12, and the arrows in the fire-box indicate the direction of movement of the air-currents produced by the fire. Said air-currents rising and moving toward the rear come in contact with the leg or connection 4 and by heating the water contiguous thereto cause an upward current through the portion or chamber of the leg or connection in front of the transverse deflector or partition plate 6. This upward current in the front compartment of the leg or connection, as shown by the arrows 13, causes a rearward current, or a current toward the leg or connection, in the front portion of the boiler, as shown by the arrows 14, and a forward current in rear of the connection or leg, as shown by the arrows 15. Hence a downward current is caused through the rear chamber or the portion in rear of the deflector or partition plate, as shown by the arrows 16. Thus the contents of the boiler move toward the leg or connection from opposite ends of the boiler, and a downward current in the rear chamber of the leg or connection supplies the upward current in the front chamber, and hence the liquid is carried to the rear, as shown by the arrows 14, up over the upper end of the deflector or partition plate, and merges into the current shown by the arrows 15. The result of this action by the contents of the boiler is that sediment, scales, and other obstructions are conveyed by the currents to the mud-receiver, where they are deposited by reason of the comparative quietness of the liquid in said receiver. The scales brought rearwardly by the current indicated by the arrows 14 will drop into the mud-receiver as said current passes over the upper end of the deflector, whereas the mud and lighter materials forming the sediment will be carried over said plate and will reach the mud-receiver by means of the current indicated by the arrows 15.

The mud-receiver is provided with the usual blow-off, whereby the mud or sediment may be removed, and whereas the scales cannot be discharged through the blow-off they are caused to accumulate in the mud-receiver, from which they may be removed in a suit-

able manner when necessary. While in the mud-receiver the scales are not in position to cause injury to the boiler, and by accumulating them in said receiver they may be removed at the proper time with greater facility.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. The combination with a boiler having a mud-receiver and an interposed leg or connection, of a removable deflector or partition plate having a shank arranged diametrically in the leg or connection with its side edges in contact with the walls of the leg or connection, the upper end of the shank projecting above the contiguous end of the leg or connection and enlarged to bear upon the bottom of the boiler and thereby support the shank in operative position, substantially as specified.

2. As a new article of manufacture, a de-

flector or partition plate for arrangement in the leg or connection between a boiler and its communicating mud-receiver, said deflector or partition plate having a shank to fit in the leg or connection, and lateral projections to bear upon the contiguous portions of the bottom of the boiler, substantially as specified.

3. As a new article of manufacture, a deflector or partition plate for arrangement in the leg or connection between a boiler and its communicating mud-receiver, said deflector or partition plate having a parallel-sided shank to fit in the leg or connection, lateral shoulders to bear upon the contiguous portions of the bottom of the boiler, said shoulders being formed by lateral ears, and an opening or perforation in its upper extremity to facilitate the introduction and removal of the deflector, substantially as specified.

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

MITCHELL W. GRANT.

Witnesses:

CHAS. MILLIGAN,
H. W. RAHNER.