No. 745,642. PATENTED DEC. 1, 1903.

H. C. MILLER.

BOILER SCRAPER AND CLEANER.

APPLICATION FILED DEC. 4, 1902.

NO MODEL.

Fig. 1.

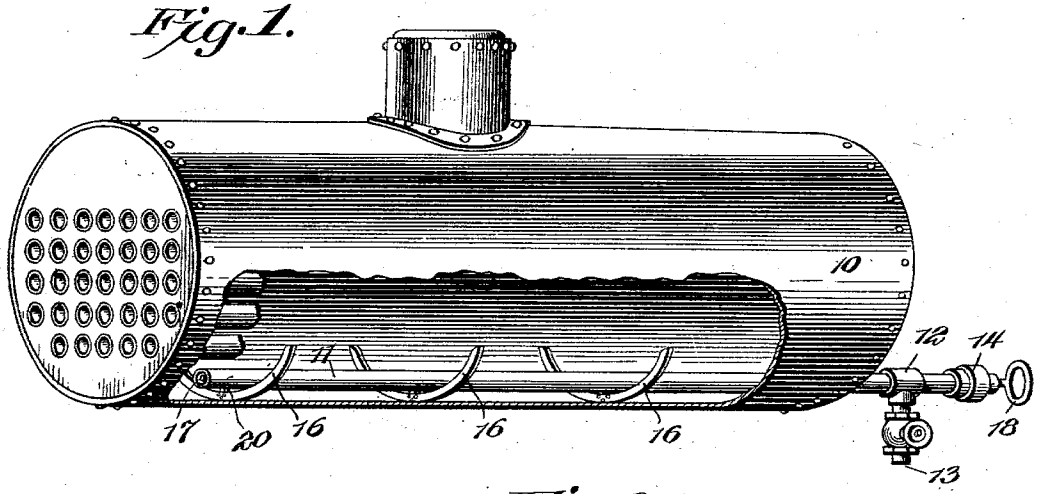


Fig. 2.

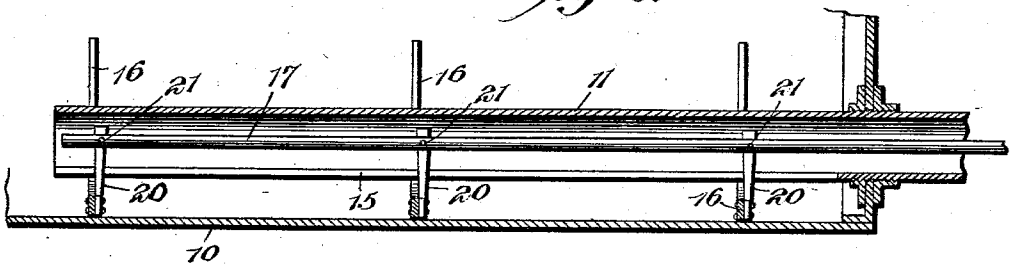


Fig. 3.

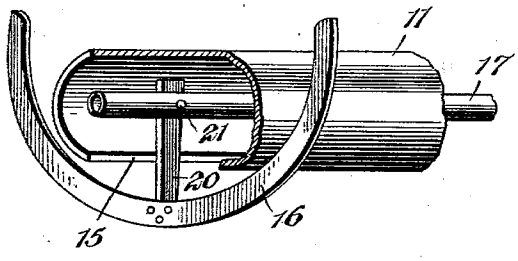
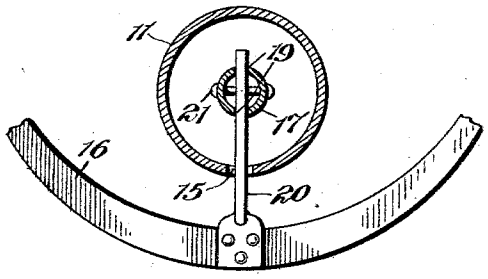


Fig. 4.



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THE MORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 745,642. Patented December 1, 1903.

UNITED STATES PATENT OFFICE.

HUGH C. MILLER, OF BRENHAM, TEXAS.

BOILER SCRAPER AND CLEANER.

SPECIFICATION forming part of Letters Patent No. 745,642, dated December 1, 1903.

Application filed December 4, 1902. Serial No. 133,932. (No model.)

To all whom it may concern:

Be it known that I, HUGH C. MILLER, a citizen of the United States, residing at Brenham, in the county of Washington and State of Texas, have invented a new and useful Boiler Scraper and Cleaner, of which the following is a specification.

This invention relates more particularly to means for removing incrustation and sediment that collects in the bottom of the boiler-shell.

The object is to provide a structure of a very simple character which will thoroughly remove the matter that may become attached to the interior of the bottom, will agitate the water therein to prevent this matter again settling, at the same time means being provided to permit the rapid discharge of the refuse-laden water.

The construction which at present is considered preferable and has proven entirely satisfactory is shown in the accompanying drawings and is described in the following specification. The right is reserved, however, to make changes and modifications from the embodiment set forth.

In the drawings, Figure 1 is a perspective view of a boiler, a portion of the shell thereof being broken away to more clearly show the arrangement of the improved cleaning means. Fig. 2 is a sectional view, on an enlarged scale, through the lower portion of the boiler and the cleaning means. Fig. 3 is a detail perspective view, on an enlarged scale, of said means. Fig. 4 is a vertical cross-sectional view through the same.

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

In the present embodiment the boiler-shell is designated as a whole by the reference-numeral 10 and may be of any form desired or well known to the art, in itself forming no part of the present invention, the tubes not being shown in the lower portion of said boiler in order that the invention may be fully illustrated. Arranged longitudinally within the lower portion of the shell, and spaced a slight distance above the bottom thereof, is an outlet conduit or pipe 11, that extends through the end wall to any distance desired and has a T-coupling 12 at its outer end, to one nipple of which is attached a valved outlet 13, the other being connected to a head 14, which is in the form of a stuffing-box. The pipe or conduit 11 has its inner end open and terminating short of the adjacent end of the boiler, being, furthermore, provided in its under wall with a longitudinally-disposed slot 15.

Arranged within the boiler-shell, and conforming to the shape thereof, is a plurality of cleaning devices, which may be of any well-known form, but preferably consist of steel or metallic scraper-blades 16, that rest against the inner face of the boiler-shell. Located longitudinally within the pipe 11 is an actuating-stem 17, that extends through the stuffing-box 14 and has an exteriorly-arranged handle 18. This stem, as shown in Figs. 3 and 4, is preferably tubular in form, being provided with transversely-disposed openings 19. The scraper-blades are connected with the stem by means of shanks 20, riveted or otherwise secured to said blades and passing through the slot 15 of the pipe, the upper ends of the shanks also passing through the openings 19 of the stem and being secured therein by rivets or bolts 21. It will be evident that when the stem is reciprocated the scraper-blades will be moved back and forth over the interior face of the boiler-shell, thereby dislodging any accumulation thereon. At the same time the water will be thoroughly agitated to prevent the sediment again settling. Upon opening the valve 13 the pressure within the boiler will cause the refuse-laden water to pass through the slot 15 in the pipe, so that it will rapidly discharge. At the same time the shanks 20, moving longitudinally in said slot, will prevent the same being clogged and will also assist in keeping the outlet-pipe clear. Thus a simple and effective cleaning device is provided, which will not only scrape loose any sediment, but will thoroughly remove the same from the boiler. The cleaning operation can, furthermore, be easily effected without materially interfering with the use of the boiler for its usual purposes.

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 under-

stood 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—for instance, the invention can be and is intended to be operated from either end of the boiler, and in high-pressure boilers the piston or stem can be extended through both heads, so as to balance.

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

1. In a boiler, the combination with the boiler-shell, of a blow-off pipe arranged longitudinally within the shell, an agitator located in the shell exteriorly of the pipe, and means located within the pipe for actuating the agitator.

2. In a boiler, the combination with the boiler-shell, of a blow-off pipe arranged longitudinally within the shell, a scraper arranged within the shell exteriorly of the pipe, and actuating means arranged within the pipe and connected with the scraper for moving the same between the pipe and shell.

3. In a boiler, the combination with the boiler-shell, of a blow-off pipe arranged inside the shell and having an opening in its wall, a cleaning device arranged within the boiler exteriorly of the pipe, actuating means movably mounted within the pipe, and a connection between the cleaning device and the actuating means, said connection passing through the opening.

4. In a boiler, the combination with the boiler, of a blow-off pipe located within the boiler and having a longitudinal slot in its wall, a cleaning device arranged within the boiler exteriorly of the pipe and coacting with the boiler-wall, actuating means movably mounted within the pipe, and a connection between the cleaning device and the actuating means, said connection passing through and being longitudinally movable in the slot.

5. In a boiler, the combination with the boiler, of a blow-off pipe arranged longitudinally within the boiler, a plurality of spaced cleaning devices located in the boiler exteriorly of the pipe, an actuating-stem located and longitudinally movable within the pipe, and means connecting the stem and the cleaning devices.

6. In a boiler, the combination with an outlet-pipe having a longitudinal slot, of a plurality of cleaning devices arranged transversely and exteriorly of the pipe, an actuating-stem arranged longitudinally within the pipe, and connections between the stem and cleaning devices.

7. In a boiler, the combination with an outlet-pipe having a longitudinal slot in its under wall, of a plurality of curved cleaning-blades arranged transversely and exteriorly of the pipe, an actuating-stem arranged longitudinally within the pipe, and a plurality of shanks connecting the stem and blades and passing through the slot in the pipe.

8. In a boiler, the combination with a hollow actuating-stem having alined openings in its opposite walls, of a cleaning device having a shank that passes through and snugly fits in the openings, being held thereby against movement with respect to the stem, and means for securing the shank to the stem.

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

HUGH C. MILLER.

Witnesses:
J. D. CAMPBELL,
I. D. AFFLECK.