No. 875,832. PATENTED JAN. 7, 1908.

C. E. MANN.

CLEANING ATTACHMENT FOR FEED WATER PIPES.

APPLICATION FILED FEB. 6, 1906.

Fig. 1.

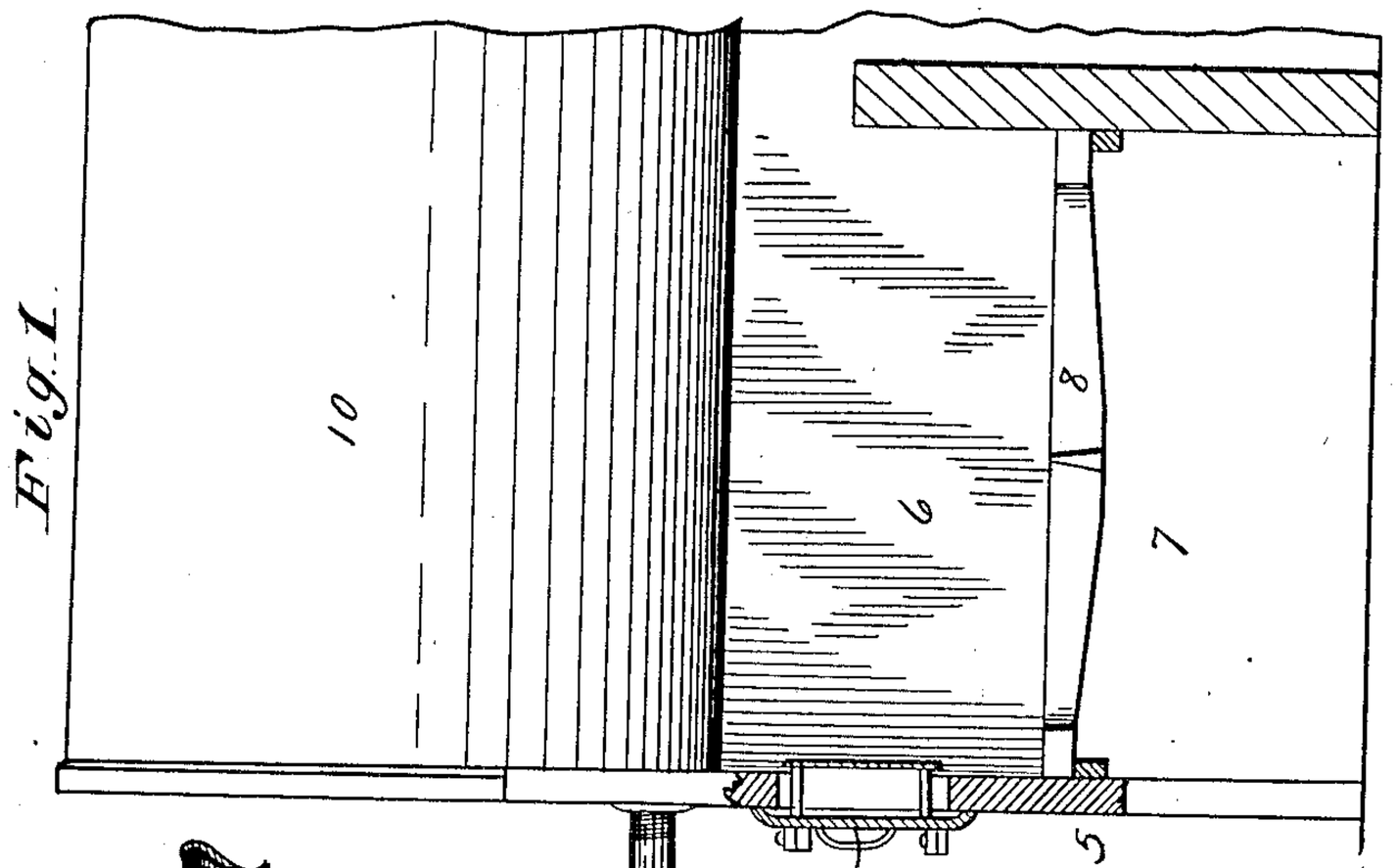


Fig. 2.

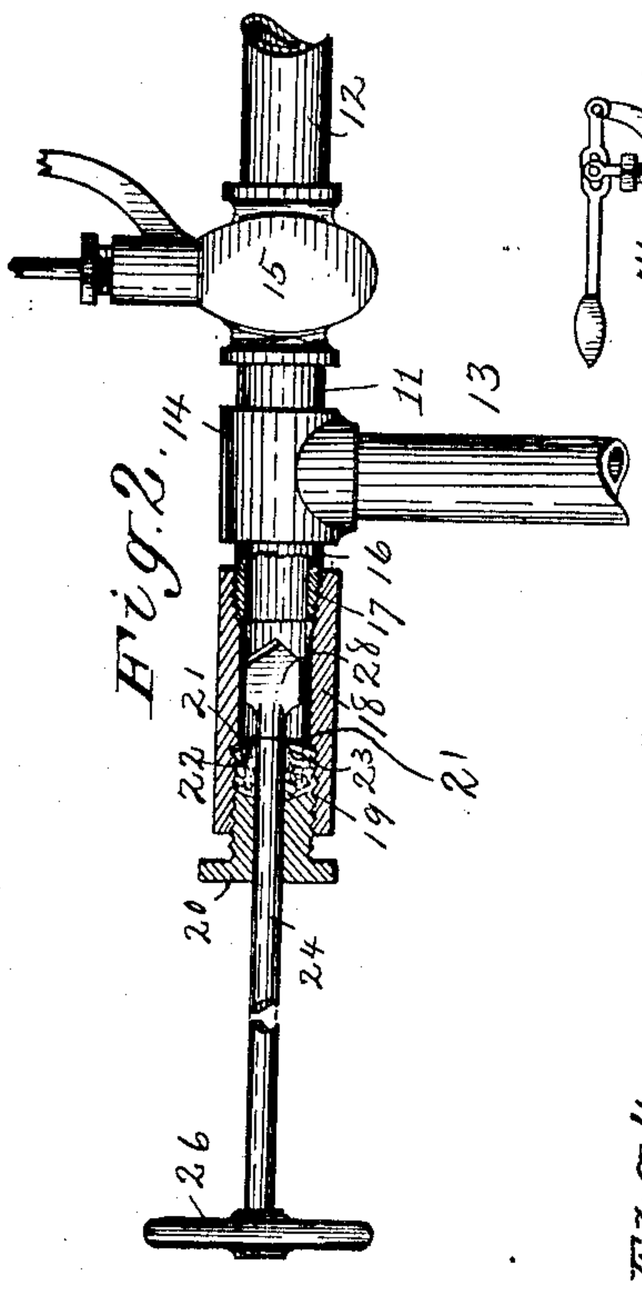
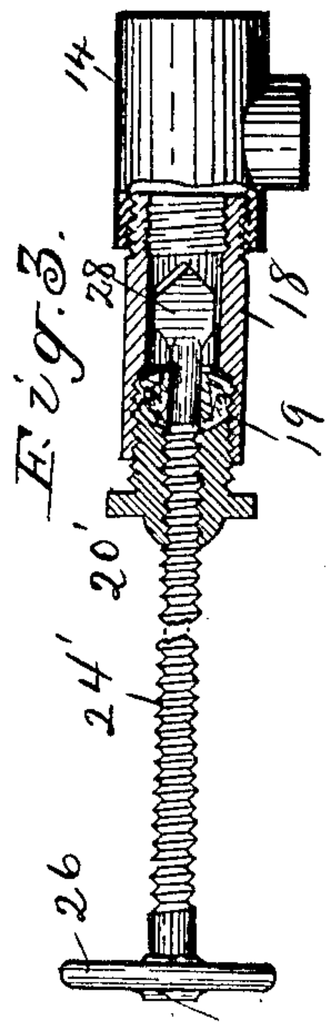


Fig. 4.

Fig. 3.



WITNESSES

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CLEANING ATTACHMENT FOR FEED-WATER PIPES.

No. 875,832. Specification of Letters Patent. Patented Jan. 7, 1908.

Application filed February 6, 1906. Serial No. 299,794.

To all whom it may concern:

Be it known that I, CHARLES E. MANN, a citizen of the United States, residing at Hoopeston, in the county of Vermilion and State of Illinois, have invented certain new and useful Improvements in Cleaning Attachments for Feed-Water Pipes, of which the following is a specification.

My invention relates to a cleaning attachment for feed water pipes and has for its object the provision of a device of this character constructed in such manner that the length of pipe in a feed water line, immediately adjacent the boiler, may be cleaned of accumulations of magnesia while the boiler is under a full head of steam.

Further objects and advantages of the invention will be set forth in the detailed description which now follows:

In the accompanying drawing: Figure 1 is a side elevation of a portion of a steam boiler and the feed water line leading thereto, said feed water line having my improved attachment located therein. Fig. 2 is a side elevation of the attachment with certain of the parts in section. Fig. 3 is a vertical sectional view of a modified form of the device, and, Fig. 4 is a detail sectional view of the drill, hereinafter described.

Like numerals of reference designate corresponding parts in all of the figures of the drawing.

Referring to the drawing the numeral 5 designates a boiler setting having the usual fire-box 6, ash pit 7, grate 8, and furnace door 9. Mounted in this setting is a boiler 10, to which water is supplied through a feed line 11. This feed line comprises a horizontal pipe 12 and a vertical pipe 13. These pipes are connected by a three-way coupling or tee 14. Located in pipe 12 is a gate valve 15 which may be of any desired construction. Extending forwardly from the coupling 14 is a coupling 16 threaded at 17 for the reception of a nipple 18. The bore of this nipple is internally threaded as at 19 for the reception of a gland 20. The nipple 18 is provided with shoulders 21, against which a plate 22 is pressed by a packing 23 when the gland 20 is screwed into the nipple 18. Passing through the gland 20 and plate 21 is a drill stem 24 provided with a hand wheel or other handle 26. The inner end of this drill stem is reduced and threaded as at 27, for the reception of a drill 28.

It has been found that magnesia forms so hard a crust in the section of pipe nearest the boiler in a feed water line as to prevent the flow of water to the boiler. It is impossible to blow this crust out of the pipe and it has ordinarily been the practice to use a drill to clean out this section of the pipe, it being necessary to draw the fire from the boiler and to shut down the plant while this was being done.

It is to obviate the foregoing difficulties that the present invention is particularly designed.

The operation of the device is as follows: Normally the parts are in the position illustrated in Fig. 2, at which time the gate valve 15 is open and the water from the feed line is free to flow through pipes 12 and 13 to the boiler. If it be desired to clean the section 12 of the pipe it is but necessary to press in upon the hand wheel 26 and at the same time turn said wheel. This will impart a rotating and cutting movement to the drill 28 to thereby remove the crust or scale from the pipe 12. At the beginning of this operation a small drill will be used, the size of the drill being gradually increased until a drill the full diameter of the interior of the pipe is employed. When it is desired to change these drills, the drill is first drawn to the position shown in Fig. 2, after which the gate valve is closed, the gland 20 may then be unscrewed and the packing and drill removed from nipple 18. A suitable drill having been screwed upon stem 24, the gland 20 and the packing are returned to their former position, after which the gate valve 15 is opened and the operation of the drill or bore at the section 12 is resumed.

From the foregoing description it will be seen that simple and efficient means are herein provided which will enable engineers and firemen to clean the interior of the feed water line while the boiler is under a full head of steam, but while the elements shown and described are well adapted to serve the purposes for which they are intended, it is to be understood that my invention is not limited to the precise construction set forth but includes within its purview such changes as may be made within the scope of the appended claims.

In the form of the device shown in Fig. 3, the drill stem 24′ is threaded into the gland 20′, by virtue of which construction a positive inward movement will be imparted to the drill as the hand wheel is turned. In

said figure the nipple 18 is threaded into the coupling 14 which construction may be adopted if desired.

Having thus described my invention what I claim, is:

In a device of the character described for operation with a boiler under pressure, the combination with a feed line comprising vertical and horizontal pipes, a T-coupling connecting said vertical and horizontal pipes which are threaded to engage within, and extend from two of the legs of said coupling, and a gate valve arranged within said horizontal pipe between said boiler and said coupling, of a nipple extending from the other leg of said T-coupling away from said boiler and provided with an internally threaded outer end, a gland engaging therein, a stem arranged through said gland and provided with a handle on its outer end and having a reduced threaded inner end, and a tool detachably carried on said reduced end for engaging within said nipple and said horizontal feed pipe alined therewith, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES E. MANN.

Witnesses:
JAMES W. WARD,
GEORGE DAVIS.