W. E. FRAZEE.

BOILER TUBE CLEANER.

APPLICATION FILED OCT. 26, 1908.

915,584.

Patented Mar. 16, 1909.

Fig. 1.

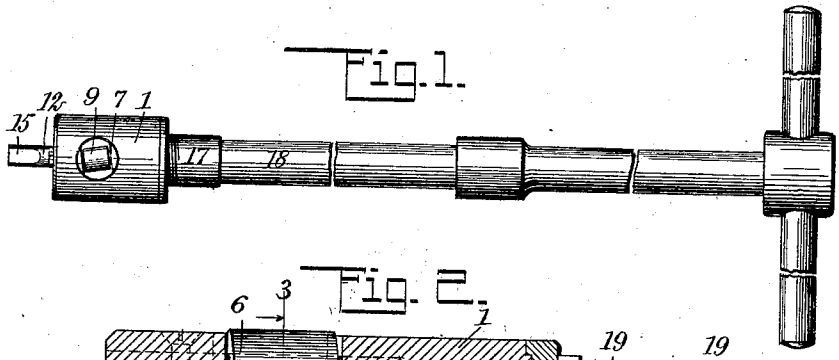


Fig. 2.

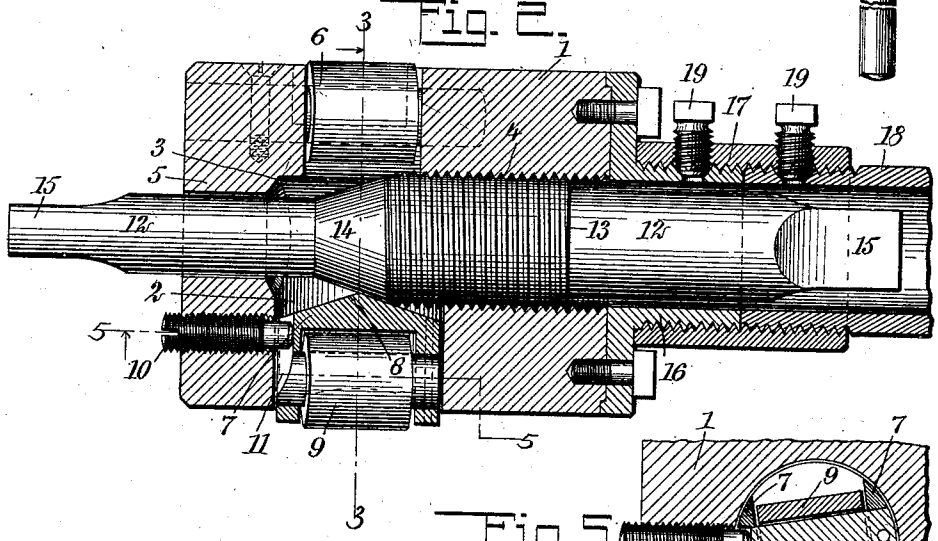


Fig. 5.

Fig. 3

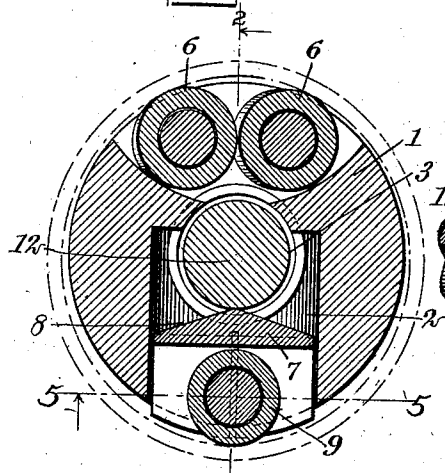
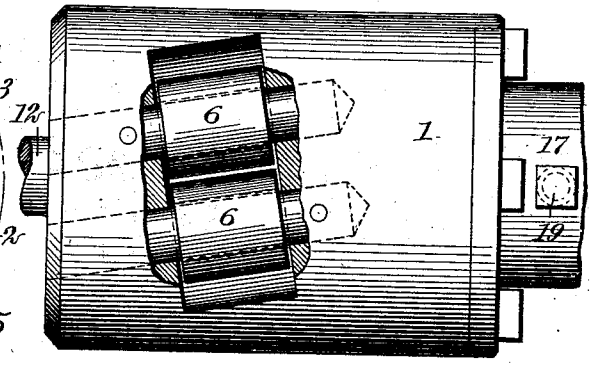


Fig. 4.



WITNESSES

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BOILER-TUBE CLEANER.

No. 915,584. Specification of Letters Patent. Patented March 16, 1909.

Application filed October 26, 1908. Serial No. 459,505.

To all whom it may concern:

Be it known that I, WILLIS EDGAR FRAZEE, a citizen of the United States, and a resident of Perham, in the county of Otter-tail and State of Minnesota, have invented a new and Improved Boiler-Tube Cleaner, of which the following is a full, clear, and exact description.

My invention relates to boiler tube cleaners, and it has for its object to provide a cleaner which will spring and expand the flue, thereby cracking all scale, which will fall of its own weight to the bottom of the boiler; my invention being more especially devised for cleaning the exterior surfaces of the flues of a tubular boiler.

Another object of my invention is to journal a roller in a block which fits in a recess in the head, the block having its inner surfaces tapered to contact with the tapered surfaces on the central needle which screws in the head.

Still other objects of the invention will appear in the following complete description.

In this specification I will describe the preferred form of my invention, but it will be understood that I do not limit myself thereto as I consider myself entitled to all forms and embodiments of the invention which may be held to fall within the scope of the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, in which—

Figure 1 is a view showing the cleaner connected with the operating rod; Fig. 2 is a sectional elevation on the line 2—2 of Fig. 3; Fig. 3 is a sectional view on the line 3—3 of Fig. 2; Fig. 4 is a plan view of the cleaner, portions of the head being broken away to show the manner in which two of the rollers are journaled in the head; and Fig. 5 is a sectional view on the line 5—5 of Fig. 2.

By referring to the drawings, it will be seen that a head 1 has a recess 2 therein, the recess 2 extending to a longitudinal orifice 3, this orifice 3 being threaded at 4, the sides of the head extending at 5 to decrease the diameter of the orifice. In the head 1 are journaled two or more rollers 6, two being shown in Figs. 3 and 4 of the drawings, these rollers being preferably disposed at an angle to the axis of the head. In the recess 2 is disposed a block 7, the inner face 8 of which is tapered, this inner face being preferably cone-shaped. In the block 7 is journaled a roller 9, the recess 2 and the block 7 being preferably annular in shape. The rollers 6 project beyond the periphery of the head and are disposed close together and the roller 9 which also normally projects beyond the periphery of the head is oppositely disposed so that it will with the rollers 6 spring the flue transversely in a plurality of directions as the head is revolved relatively thereto. A screw 10 meshes with a screw thread in the head, the screw being adapted to engage the block 7 to hold it in position relatively to the head, there being preferably a groove 11 in the block, in which the point of the screw 10 may be inserted. In the orifice 3 is disposed a needle 12, the needle 12 having a screw thread 13 which meshes with the thread at 4, in the head 1. The needle 12 also has a frusto-conical portion 14 which engages the tapered surface 8 of the block 7. The terminals 15 of the needle 12 are preferably reduced to permit of the rotation of the needle by means of a wrench. To the end of the head, opposite its portion 5, is secured a collar 16, which has a screw thread on its outer surface. A coupling 17 is provided having a screw thread on its inner surface, the screw thread on the coupling 17 meshing with the screw thread on the collar 16, and also meshing with a screw thread on an operating rod 18. By means of screws 19, the coupling 17 is firmly secured to the operating rod 18 and to the collar 16.

In using my invention, the head is inserted in the flue just beyond the flue sheet, after which the needle 12 is turned by means of a monkey wrench, thereby moving the frusto-conical surface 14 of the needle 12, which throws out the block 7 in which the roller 9 is journaled, the point of the screw 10 traveling in the groove 11 to prevent any rotary movement of the block relatively to the head. By this means the flue is sprung and as the head is revolved by means of the operating rod 18, the flue is expanded in different directions, thereby cracking the scale, which falls to the bottom of the boiler. The roller 6 and also the roller 9 are disposed at any desired angle with reference to the axis of the head, to permit more readily of the movement of the head through the boiler flue, as the head is rotated.

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

1. A boiler tube cleaner consisting of a head having a threaded orifice, there being a recess in the head which extends to the orifice, a block having a tapered inner surface disposed in the recess, a roller journaled in the block, a threaded needle which meshes with the thread in the orifice, the needle having a tapered surface which engages the tapered surface on the block, the head having a neck at one of its ends, there being an outer thread on the neck, a hollow operating rod with a screw thread with the same mesh as that of the collar, and a sleeve having an inner thread which is adapted for meshing with the screw threads of the neck and the rod to hold them together.

2. A boiler tube cleaner consisting of a head having a threaded orifice, there being a recess in the head which extends to the said orifice, a block having a tapered inner surface disposed in the recess, means for preventing the rotation of the block relatively to the head, a roller journaled in the block, a threaded needle which meshes with the thread in the orifice, the needle having a frusto-conical surface which is adapted for engaging the tapered surface of the block, and a second roller journaled in a recess in the head substantially opposite the first named roller, the axes of the rollers being disposed at an angle to the axis of the head.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIS EDGAR FRAZEE.

Witnesses:
ALBERT C. JEROME,
JOHN FOYER.