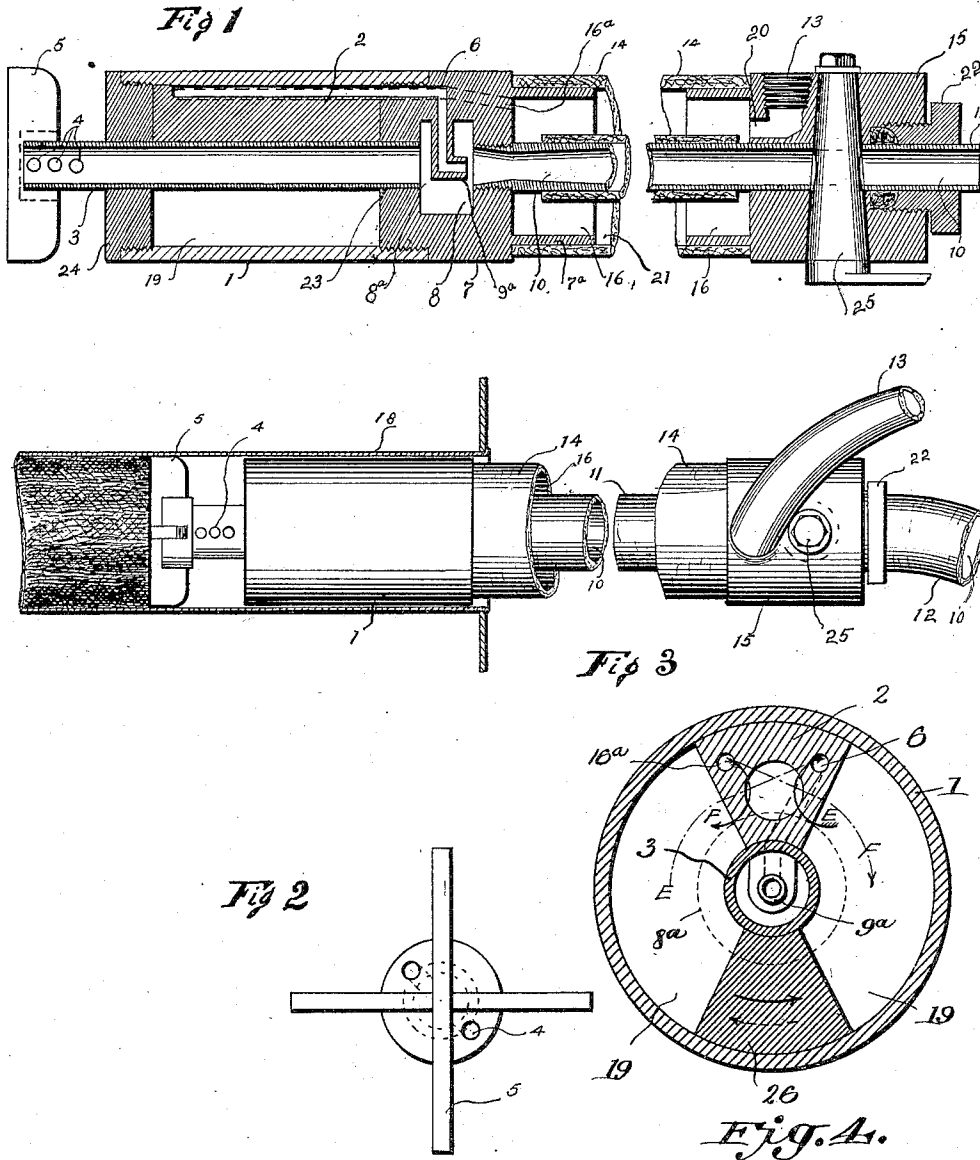


W. E. McELDOWNEY.
POWER FLUE CLEANER.
APPLICATION FILED JUNE 5, 1912.

1,182,187.

Patented May 9, 1916.



WITNESSES:

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WILBER E. McELDOWNEY, OF DENVER, COLORADO, ASSIGNOR OF ONE-HALF TO THE WALKER-MOORE ROCK DRILL MANUFACTURING AND SUPPLY COMPANY, OF PUEBLO COUNTY, COLORADO.

POWER FLUE-CLEANER.

1,182,187.

Specification of Letters Patent.

Patented May 9, 1916.

Application filed June 5, 1912. Serial No. 701,792.

To all whom it may concern:

Be it known that I, WILBER E. McELDOWNEY, a citizen of the United States, residing at Denver, Colorado, have invented certain new and useful Improvements in Power Flue-Cleaners, of which the following is a specification.

My invention relates to improvements in power driven flue cleaners and it is designed, primarily, to clean the interior of fire flues in boilers, and may be used to clean any tubes in which there is a scale or other deposit, by power means applied directly to the cleaning device as well as the application of forced draft to remove the loosened scale, carbon or other substances.

Rapidity of cleaning a boiler is greatly desired so as to keep it out of use as short a time as possible. My device meets these requirements by a power driven drill or cleaner and by the application of fluid under pressure to draw and drive away the removed incrustation. I attain these objects by the mechanisms illustrated in the accompanying drawings, in which,—

Figure 1 is a longitudinal cross sectional view with a portion of the hose and the connecting pipe broken away; Fig. 2 is a front end view of the cutting blades or cutter; Fig. 3 is a view in broken section, showing the cross section of a tube in process of being cleaned; and Fig. 4 is a cross-sectional view of Fig. 1, through the casing and motor.

Similar numerals refer to similar parts throughout the several drawings.

In the cylinder 1 is provided the chamber 19, in which a hollow shaft 3 is centrally disposed, rotatable in the head 24 and in the bearing 23, and disposed therein is the alternating or rotating engine 2. Any power means may be used, whether fluid under pressure or electric current, and while an alternating movement is preferable, full rotation may be used. The engine or power means is not a part of my invention, but is applied thereto. On the exterior end of the rotatable or semi-rotatable shaft 3 is attached the cutter consisting of the blades 5. The orifices 4, adjacent to the end of the hollow shaft 3 and in the end of the shaft 3, are provided for the passage of the loosened material.

Attached to one end of the cylinder 1 is

the exhaust head 7, having therein a chamber 8 that connects with a reduced chamber 8^a which connects with the interior of the hollow shaft 3. A portion of the exhaust head extends downwardly into the chamber 8 forming the nozzle 9^a, which is so disposed as to discharge into the center of the opening 10 in the inner tube 11. The port 6 connects with the chamber 19 and nozzle 9^a and is adapted to receive the exhaust from the engine 2. An outer tube 14, preferably of semi-flexible material, is attached to the nipple 7^a on the head 7 and the chamber 16 is provided to receive the fluid under pressure. The tube 11, preferably of semi-flexible material, is attached by screw means to the exhaust head 7. In the end of the tube 14 opposite the engine construction the head 15 is fixed and is provided with a port 13 connected with the supply of fluid under pressure, which is transmitted through port 20 into the interior of the chamber 21, surrounding the inner tube 11, thence into the chamber 16, thence through the port 16^a into the engine for use therein, and from the engine the exhaust passes into the port 6 and thence through the nozzle 9^a into and along the cavity 10 in the inner tube 11, thus creating a suction, drawing the loosened material through the orifices 4. A screw threaded gland 22 is provided for the purpose of making an air tight joint where the inner tube 11 enters the head 15. A waste pipe 12 may be attached to the inner tube 11 to carry off the waste material.

Fig. 4 is a cross-section of Fig. 1, looking from left to the right of said Fig. 1, through the motor, showing the valve piece 26 attached to the casing 1 and the wing piston 26, attached to the hollow shaft 3, which said wing piston is alternately driven by fluid under pressure escaping from said valve piece, first from one side then from the other, so that the exhaust passes through the duct 6 and fluid under pressure is constantly supplied to the valve piece through the port 16^a.

The device is inserted in a flue 18 and by the rotation or alternation of the shaft 3 any scale, carbon, or other foreign attached substance, on the interior, is cut and ground up by the blades 5 and drawn back through the orifices 4 by the forced draft through

the nozzle 9^a, thence through the inner tube 11 and discharged through the hose connection 12. I also provide a throttle valve 25, in the head 15. If the orifices become
5 clogged, or the special conditions are such as to require the loosened material to be driven before the cutter, then by use of the throttle valve the exhaust from the engine
10 would pass through the orifices 4 and drive the loosened material ahead of the cutter, either to be driven out or so as to be ground finer.

While I have provided blades 5, any other form may be attached to said shaft 3 that
15 will rim out the interior of the tubes without departing from the principle of my invention, the object of the blades being to furnish means to rim the interior of the tubes.

I claim:—

A device of the character described consisting of a cylindrical casing with heads, a
20 hollow shaft rotatably mounted in said heads, and open at its outer end, a motor connected with said shaft within said casing, one of said heads having an exhaust
25 chamber therein for said motor, a fluid pressure chamber connected with the interior of said casing and by tubing with said exhaust chamber head, a pipe leading from said exhaust chamber through said fluid pressure
30 chamber, and a scraping tool on said shaft.

Witness my signature.

WILBER E. McELDOWNEY.

Witnesses:

W. C. METZGER,

MARY C. LOWRY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."