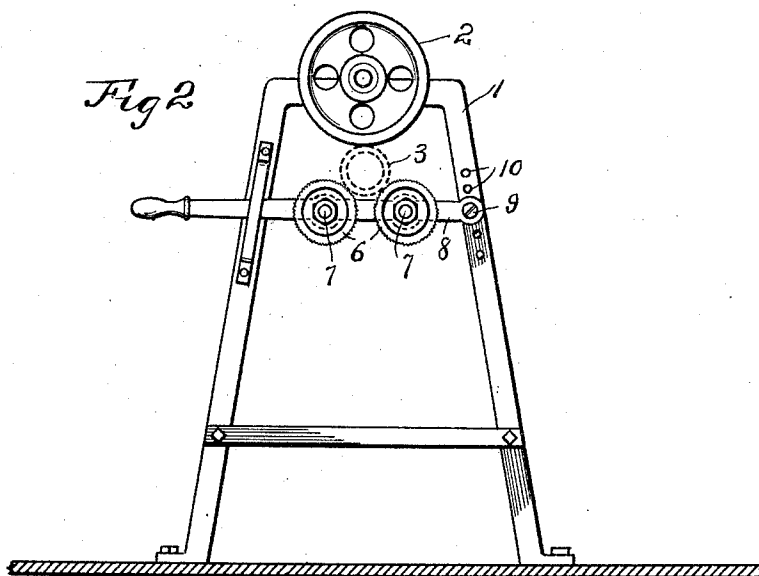
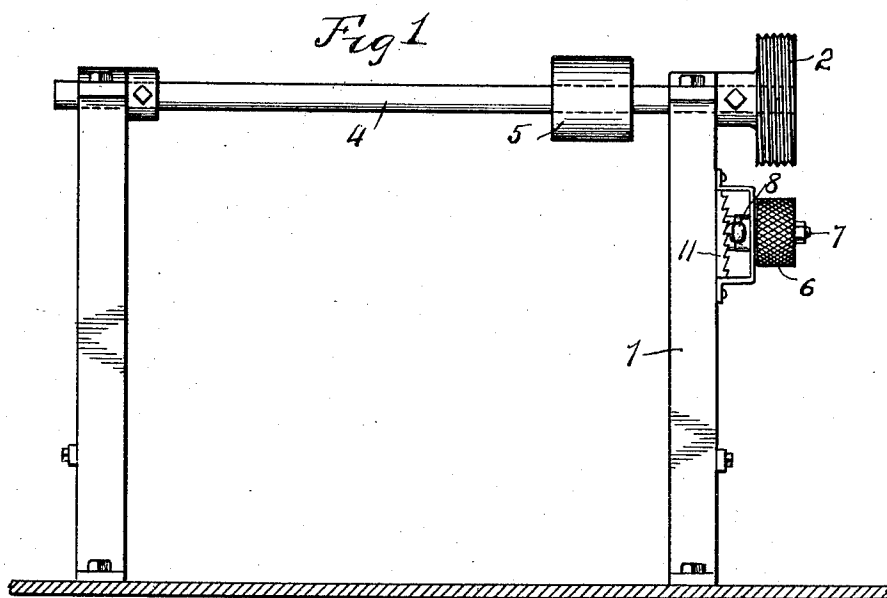


E. E. DARNOLD.
BOILER FLUE CLEANER.
APPLICATION FILED NOV. 21, 1910.

1,005,167.

Patented Oct. 10, 1911.



WITNESSES:

R. Hamilton.
E. B. House

INVENTOR.
Edgar E. Darnold
BY
Warren D. House
His ATTORNEY.

UNITED STATES PATENT OFFICE.

EDGAR E. DARNOLD, OF KANSAS CITY, MISSOURI.

BOILER-FLUE CLEANER.

1,005,167.

Specification of Letters Patent.

Patented Oct. 10, 1911.

Application filed November 21, 1910. Serial No. 593,483.

To all whom it may concern:

Be it known that I, EDGAR E. DARNOLD, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Boiler-Flue Cleaners, of which the following is a specification.

My invention relates to improvements in boiler flue cleaners.

The object of my invention is to provide a machine by which the scale upon the peripheries of tubes, such as boiler flues, may be quickly and thoroughly removed.

My invention provides a construction adapted to be adjusted to tubes of different diameters.

The novel features of my invention are hereinafter fully described and claimed.

In the accompanying drawings illustrative of the preferred form of my invention, Figure 1 is a side elevation of the machine. Fig. 2 is an end elevation of the machine, a tube which is being cleaned being represented in dotted lines.

Similar characters of reference denote similar parts.

1 designates a support comprising a frame of any desired form and dimensions.

2 designates a rotary driving member which is provided with means for engaging the periphery of a tube to be cleaned so as to rotate the tube and at the same time longitudinally advance the tube. This driving member preferably comprises a cylindrical body having a screw threaded periphery which engaging the periphery of the tube, designated by 3, causes the tube to be rotated and at the same time moved longitudinally through the machine. The driving member 2 may be mounted on and rotatable with a horizontal shaft 4 which is rotatively mounted in the frame or support 1. A pulley 5 may be secured to the shaft 4 for rotating the shaft, the pulley being driven by any suitable means, such as a belt, not shown.

To remove the scale from the periphery of the tube that is being cleaned I provide preferably two other rotary members 6 preferably comprising cylindrical rollers, one or both of which have roughened peripheries. These two rollers are mounted side by side upon studs 7 secured horizontally to a lever 8 pivoted to a horizontal bolt 9 which is adapted to be mounted in any one of a series

of transverse holes 10 provided in the support 1 at different distances from the shaft 4. To releasably lock the lever 8 in any desired position, any suitable means may be provided, as for instance a ratchet toothed rack 11 secured in the proper position on the support or frame 1.

In operating my invention the shaft 4 having been started to rotate, the tube to be cleaned, denoted by 3, is passed between the member 2 and the members 6, the tube being disposed parallel with the axes of the members 2 and 6, as shown in Fig. 2. The lever 8 is then swung upwardly until the tube 3 bears against the members 2 and 6 with considerable pressure. Rotation and lengthwise movement will at once be imparted to the tube 3 by the threads of the member 2. Rotation of the members 6 will at the same time be transmitted from the tube 3, and the tube at the same time being moved lengthwise against the members 6 will have the scale cut from its periphery by said members. The lever 8 may be held by hand in operative position, or after being placed in operative position it may be swung laterally into engagement with the rack 11 by which it will be held until the tube has been cleaned.

I do not confine my invention to the structure shown and described as various modifications, within the scope of the appended claims, may be made without departing from the spirit of my invention.

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

1. In a boiler flue cleaner, a rotary cylindrical driving member having a screw threaded periphery, two other rotary members one having a roughened periphery, and means for forcing said rotary members against the periphery of a tube.

2. In a boiler flue cleaner, a rotary driving member having means for engaging the periphery of a tube so as to rotate and at the same time longitudinally advance the tube, a second rotary member having a roughened periphery, a support, and a lever carrying said second rotary member for forcing the tube into contact with the peripheries of both of said rotary members, the lever having means by which its pivotal point on said support may be moved toward or from the driving member.

3. In a boiler flue cleaner, a rotary cylin-

drical driving member having a screw threaded periphery, a lever, and two other rotary members mounted on said lever one having a roughened periphery, the rotary members being adapted to be forced against the peripheries of a tube when the lever is swung in the proper direction.

4. In a boiler flue cleaner, a rotary driving cylindrical member having a screw threaded periphery, a lever, two rotary members carried by the lever and movable thereby toward and from the driving member, one of the members carried by the lever having a roughened periphery, and releasable means for locking the lever in a position to which it may be swung.

5. In a boiler flue cleaner, a suitable support, a shaft rotatively mounted in said support, a driving member mounted on and rotatable with the shaft and having a screw threaded periphery, a lever pivoted to said support, and two members rotatively mounted on said lever and movable thereby

toward and from the threaded member, one of said lever carried members having a roughened periphery. 25

6. In a boiler flue cleaner, a suitable support, a driving shaft rotatively mounted thereon, a driving member mounted on and rotatable with said shaft and having a screw threaded periphery, a lever pivoted to said support and having means by which the distance from the pivotal point of the lever to the shaft may be varied, and two rotary members carried by the lever for supporting a tube to be cleaned, one of said lever carried members having a roughened periphery. 30 35

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses. 40

EDGAR E. DARNOLD.

Witnesses:

E. B. HOUSE,

CHESTER THOMAS.

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