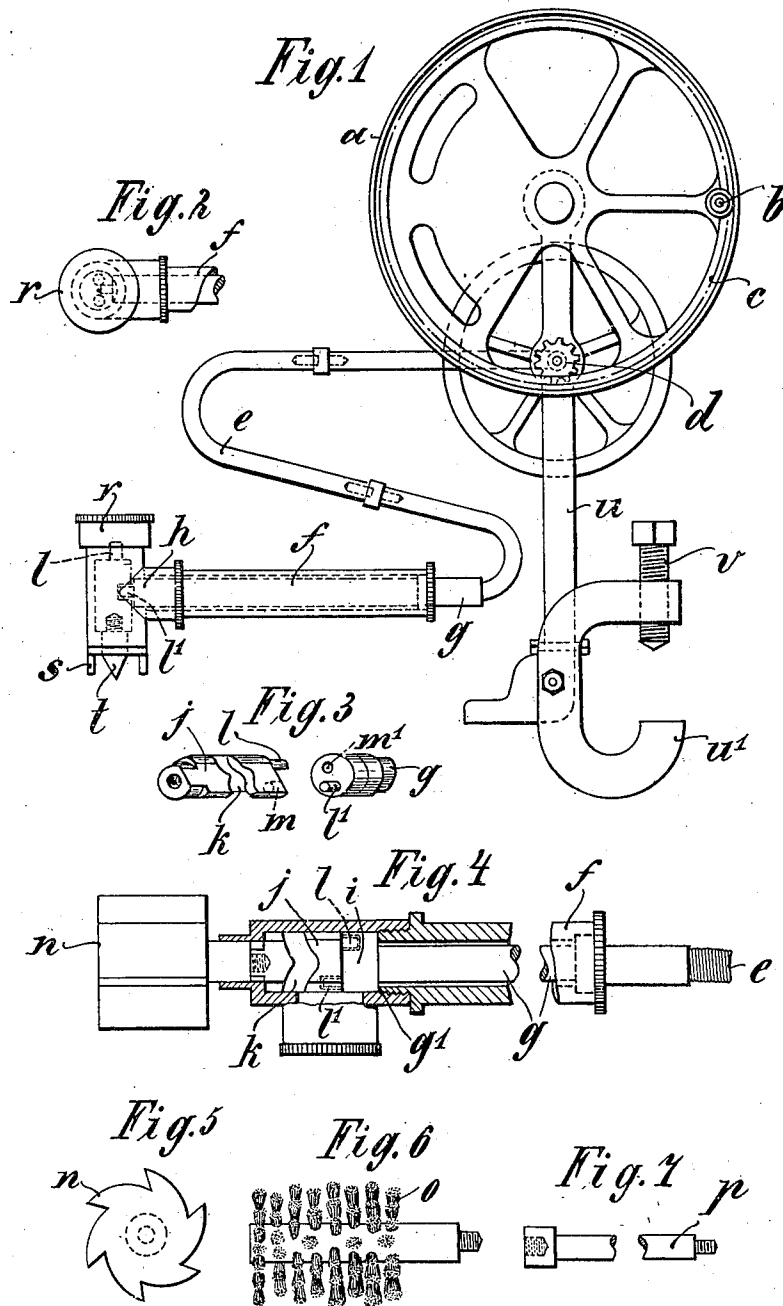


No. 824,947.

PATENTED JULY 3, 1906.

W. O. NORDSTRÖM.
APPARATUS FOR CLEANING BOILERS.
APPLICATION FILED JULY 26, 1905.



Witnesses:

Super-Making
Max Finkel

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UNITED STATES PATENT OFFICE.

WILHELM OLAF NORDSTRÖM, OF KOLDING, DENMARK.

APPARATUS FOR CLEANING BOILERS.

No. 824,947.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILHELM OLAF NORDSTRÖM, a subject of the King of Denmark, and a resident of Kolding, Denmark, have invented a new and Improved Apparatus for Cleaning Boilers, of which the following is a description.

The present invention consists of an improved device for removing the scale from boilers and of the details of construction hereinafter set forth, and particularly pointed out in the claims.

In order to render the present specification easily intelligible, reference is had to the accompanying drawings, in which similar letters of reference denote similar parts throughout the several views.

Figure 1 is an elevation of the complete apparatus; Fig. 2, a part plan view of the hammer; Fig. 3, a perspective view of the piston and coupling for the same; Fig. 4, a sectional view of the device, showing the piston coupled for rotation and a scraper attached thereto. Fig. 5 is an end view of the scraper; Fig. 6, a view showing a wire brush for use in connection with the device, and Fig. 7 a detail view of a lengthening piece.

The object of the invention is to provide a piston which can either be worked up and down by means of a flexible rotary shaft or if coupled in a different manner can be rotated from the same shaft.

The flexible shaft *e* is driven from the pinion *d*, mounted in the standard *u*, having a clamp *u'* at its lower end, by means of which the same may be clamped to the edge of the manhole or in any other suitable manner by means of the screw *v*. The pinion *d* meshes with a ring of internally-directed teeth *c*, formed on the driving-wheel *a*, which may be turned by hand by means of the handle *b* or in any other suitable manner. The other end of the flexible shaft is suitably coupled to a rigid shaft *g*, which is mounted to rotate in the handle *f* of the device. The end of this shaft bears against a shoulder formed in the handle, as at *g*, Fig. 4, and is provided with a coupling-disk *i*, keyed or otherwise attached to the end of the shaft and lying in the cylinder *r* or the arm *h* of the same, as hereinafter set forth. The cylinder is provided with a piston *j*, having one side advantageously flattened and provided with a cam-groove *k*, while the inner end of the piston is provided with a pin *l* and a recess *m*, adapted

to engage with a corresponding pin and recess *l' m'* on the coupling-disk *i*, as will be readily understood on reference to Figs. 3 and 4. The outer end of the piston is provided with a screw-threaded recess, into which a hammer or cutter *t*, Fig. 1, or a scraper *n*, or a brush *o*, or any other desired tool may be screwed. The lower end of the cylinder is provided with short legs *s s*, which support the cylinder a suitable distance from the boiler-plate.

The device is manipulated in the following manner: The standard *u* is suitably clamped to the edge of the manhole, and a workman may turn the wheel *a* to rotate the flexible shaft *e*, or this shaft may be rotated by power, if desired. The operator then enters the boiler and holds the handle *f* of the tool. The end of the handle is screw-threaded to the arm *h* of the cylinder *h r*, and in this position of the parts the pin *l'* of the coupling-disk lies in the cam-groove *k* of the piston *j*, as shown in dotted lines in Fig. 1, and the piston will be reciprocated. When the scale has been hammered off and it is desired to clean and dress the plates, the cylinder *r h* is taken off the handle *f* and the threaded end of the latter is screwed into the end of the cylinder part *r*, as shown at Fig. 4. In this position of the parts the pin and recess *l' m'* of the coupling-disk *i* engage with the pin and recess *l m* of the piston *j*, and a rotary movement will be imparted to said piston, whereby the scraper *n* or the brush *o* may be rotated.

I claim as my invention—

1. An apparatus for cleaning boilers and similar purposes, consisting of a piston mounted in a cylinder having a hollow lateral extension, a coupling-disk rotated by a flexible shaft and means in connection with the said cylinder for rotating the same when the said disk is fitted coaxially to the said cylinder and for reciprocating the piston when the said disk is fitted to the lateral extension of the cylinder substantially as described.

2. An apparatus for cleaning boilers and similar purposes consisting of a cylinder having a lateral hollow extension, a coupling-disk to fit into the said cylinder and also into the said lateral extension, a piston having a cam in the side of the same, a pin on the said coupling-disk to engage said cam, and means for also coupling the said disk to the end of the said piston to rotate the same and

means for imparting a rotary movement to the said coupling-disk substantially as described.

3. An apparatus for cleaning boilers and similar purposes, consisting of a cylinder having a hollow lateral extension, a coupling-disk to fit into the said cylinder and into the extension, a pin extending from the said disk, and a corresponding recess therein, a piston to fit in the said cylinder and having a cam-groove in the side thereof, and a pin and recess at the end of the said piston to fit the pin and recess of the coupling-disk when the latter is in alinement with the piston substantially as described.

4. An apparatus for cleaning boilers and similar purposes, consisting of a cylinder having a lateral hollow extension, a rotary coupling-disk to fit both the cylinder and the extension, a piston within the said cylinder and means for rotating the said piston when the coupling is fitted to the end of the cylinder and for reciprocating the said piston when the coupling is fitted in the lateral extension of the said cylinder.

5. An apparatus for cleaning boilers or

similar purposes, consisting of a cylinder *r* having a lateral extension *h* a handle *f* having a rotary shaft mounted therein, a coupling-disk mounted at the end of the said shaft, a piston mounted in the cylinder *r*, a pin and recess at the end of the coupling-disk and a corresponding pin and recess at the end of the piston, a cam-groove in the side of the piston, with which the coupling-pin of the coupling-disk engages when the handle is fitted to the lateral extension and a flexible shaft and means for rotating the same substantially as described.

6. An apparatus for cleaning boilers and similar purposes consisting of a cylinder having a piston therein, a cam-groove in the side of the said piston and a coupling-pin and recess at the end and means for coupling a flexible shaft to the said piston end or with the said cam substantially as described.

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

WILHELM OLAF NORDSTRÖM.

Witnesses:

AUGUSTA W. FRAZIER,
ALBERT L. MICHELSON.