May 29, 1928. 1,671,684

J. C. SCHMIDT

APPARATUS FOR REMOVING DEPOSITS AND THE LIKE FROM SURFACES

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Fig. 1.

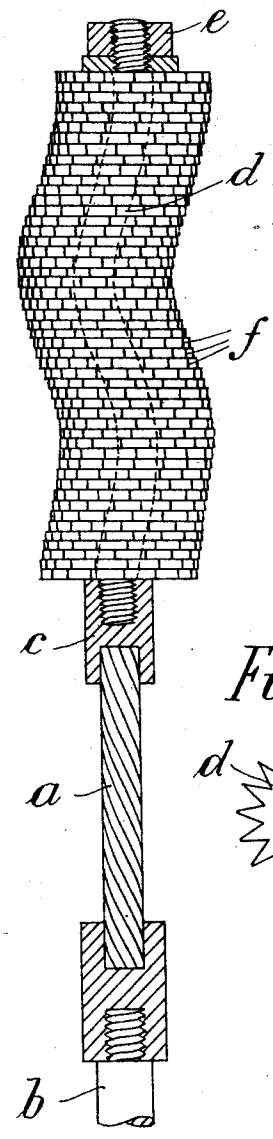


Fig. 2.

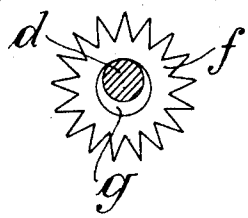


Fig. 3



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR REMOVING DEPOSITS AND THE LIKE FROM SURFACES.

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The present invention relates to an apparatus for removing deposits from surfaces, for example scale from boiler-tubes. The apparatus is of that kind in which in combination with a rapidly revolving shaft are provided toothed discs with hard and sharp teeth, which will be driven by the centrifugal force outwardly against the deposits to be removed. The characteristic feature of the present invention consists in this that the said discs are fitted beside each other on a pin bent to a helical line and coupled to a rapidly rotating flexible shaft.

In the accompanying drawing two constructional forms of the invention are shown by way of example, Fig. 1 being an apparatus which is specially intended for cleaning boiler pipes, in side elevation, Fig. 2 a cross sectional view of the said apparatus, and Fig. 3 a detail end elevation of the pin bent to a helical line.

A rotary cable, which is enclosed in a flexible tube or sheath, ends in a pin *b*. To this pin is attached a short cable *a*, to the other end of which is fitted a head *c*. Into the latter is screwed a pin *d* which is helical in form. On the outer end of this pin *d* is screwed a nut *e*.

On the said pin *d* are fitted a plurality of, say some fifty toothed discs *f*, the bore of which is somewhat greater than the diameter of the pin *d*. These discs are quite flat and are provided along their edge with hard sharp teeth.

When the apparatus is to be used, the pin *d* with its discs *f* is inserted into the boiler tube to be cleaned whereupon the motor which rotates the flexible shaft *a* is started. Thereby the pin *d* is revolved at a very high speed whereby the discs are flung outwards against the walls of the tube. The apparatus can now be pushed further into the tube or, if so desired be moved backward and forward in the same until all scale has been removed. The flexible shaft should not be pushed so far into the tubes that the pin *d* with its discs *f* passes out of the boiler tube, as then the flexible piece between the sheath *b* and the head *c* would be flung around and could not be drawn back into the tube but would be easily damaged.

I claim:

An apparatus for removing deposits or the like from surfaces, comprising scraping members each consisting of a flat toothed disc having hard and sharp teeth, a pin bent to a helical line and coupled to a rapidly rotating flexible shaft, the said discs being loosely revolubly mounted on said pin in superposed relation and disposed between two fixed stops on said pin and unable to move in an axial direction on said pin, but arranged to move within certain limits relatively to each other in a radial direction.

In witness whereof he affixes his signature.

JOHAN CHRISTIAN SCHMIDT.