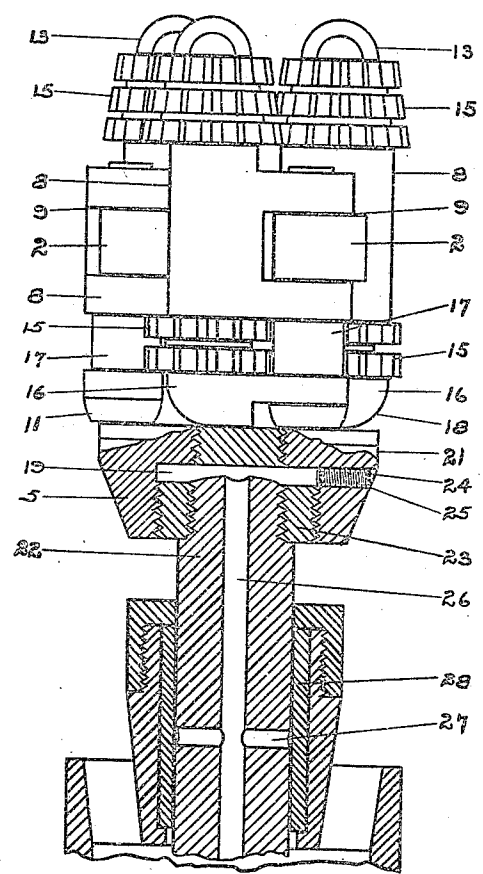


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BOILER TUBE CLEANER.
APPLICATION FILED AUG. 11, 1909.

958,202.

Patented May 17, 1910.
2 SHEETS—SHEET 1.

Fig. 1.



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FIG. 4.

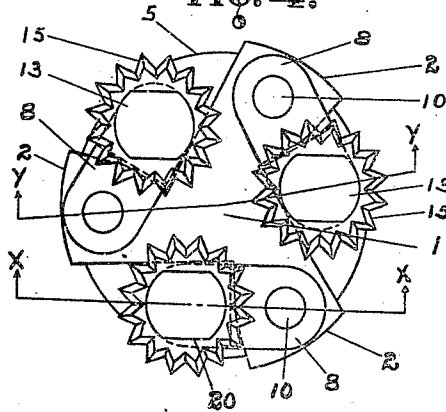


FIG. 2.

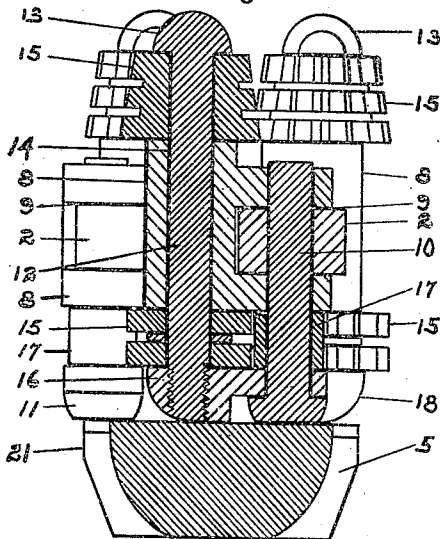
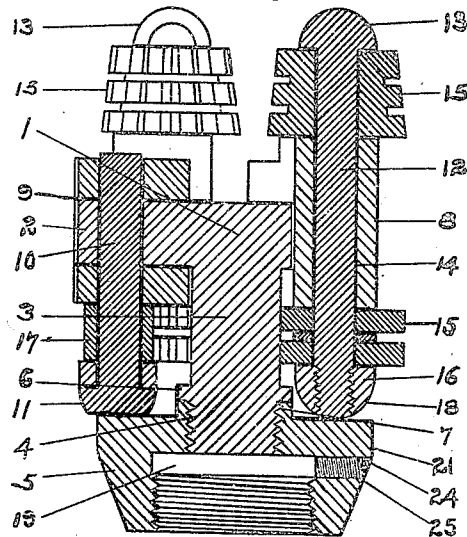


FIG. 3.



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UNITED STATES PATENT OFFICE.

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BOILER-TUBE CLEANER.

958,202.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed August 11, 1909. Serial No. 512,442.

To all whom it may concern:

Be it known that I, HENRY F. WEINLAND, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Boiler-Tube Cleaners, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to tube cleaners, and more particularly to the class of cleaners employed in the removal of scale from the interior of the tubes of water tube boilers. Cleaners of this class must be operated at a high speed, and when driven by a motor that travels through the tube with the cleaner, the power being limited, it is essential that the cleaner be as light as is consistent with strength and durability.

The object of my invention is to meet these conditions and provide a cleaner of few parts, light, simple, strong and efficient, that can be easily assembled and readily taken apart for repairs.

With these and other objects in view, my invention consists of the constructions and combinations hereinafter described and set forth in the claims.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of a cleaner embodying my invention, the same also showing in section the front head of a motor, with a conduit through the driving shaft to a bearing therefor in said head. Fig. 2 is a longitudinal section on the line $x-x$ of Fig. 4. Fig. 3 is a longitudinal section on the line $y-y$ of Fig. 4; and Fig. 4 is an end view of the cleaner.

Like numerals represent the same parts in the several views.

In the drawings, a body 1, having transverse projections 2, is provided with a rearwardly extending central portion 3, screw-threaded into an opening 4 in a support 5. A collar 6, which I have shown formed integrally with the portion 3, abuts on a raised portion 7 of the support when the portion 3 is screwed in place. Arms 8, having recesses 9, into which the projections 2 extend, are mounted on spindles 10, which extend through perforations in said arms and projections, the heads 11 of said spindles resting against the front face of the support 5.

Bolts 12, having heads 13 in their front ends, extend rearwardly through openings

14 in said arms and have cutters 15 mounted thereon on opposite sides of said arms. Said bolts are screw-threaded at their rear ends into plates 16, which are pivoted to swing on the spindles 10. Sleeves 17, on the spindles 10, between the plates 16 and the arms 8, space the inner ends of said plates a proper distance from said arms. Said plates are enlarged at their free ends to take the wear in withdrawing the cleaner after having passed through a tube, and said enlarged portions of the plates are curved as shown at 18 so that they will more easily ride into the tube when the cleaner is being withdrawn. I have found that when the bolts 12 are screw-threaded directly into the arms they will jar loose; but by screw-threading them into the plates 16 they will hold.

The support 5 is formed with a recess in its rear face extending forwardly, with screw-threads for a portion of its length as shown, to which a motor shaft 22 is secured, an adapter 23 being used, thus forming, when the cleaner is assembled and attached to the shaft, an oil chamber 19 in said support; and said chamber is provided with an inlet 24 with a screw-plug closure 25.

Any suitable motor having a shaft with a conduit from its front end to the bearings therefor may be employed. I have shown the front head of a motor having a longitudinal conduit 26 in the shaft, with radial openings 27 to a bearing 28 in said head.

The bolt heads 13 have flat portions 20, and the support 5 has flat portions 21, so that a wrench can be used in assembling the parts in place.

It will be seen that by unscrewing the support from the body, the spindles 10 are released and the arms can be removed, and that by unscrewing the bolts 12 from the plates 16 the cutters are released and can be removed.

Having thus described my invention, I claim:

1. The combination with a body having spindles with arms pivoted thereon to swing in planes transverse to the axis of the body, bolts with cutters thereon mounted in said arms and means adapted to swing on said spindles to secure said bolts in place, substantially as described.

2. The combination of a body having transverse projections and a rearwardly ex-

tending central portion with a removable support secured thereto, arms with cutters thereon, spindles extending forwardly through perforations in said projections and arms on which said arms are adapted to swing, said spindles having heads against which said support abuts to hold the same in place, substantially as described.

3. The combination of a body with arms pivoted thereto to swing in planes transverse to the axis of the body, bolts with cutters thereon mounted in said arms, and swinging plates to which said bolts are secured to hold said bolts in place, substantially as described.

4. The combination of a body with arms pivoted thereto to swing transversely to the axis of the body, bolts with cutters thereon mounted in said arms, and swinging plates having enlarged curved portions to which said bolts are secured, substantially as described.

5. The combination of a body having transverse projections and a rearwardly extending central portion with a removable support secured thereto, arms, spindles extending forwardly through perforations in said projections and arms on which said arms are adapted to swing, said spindles having heads against which said support

abuts, bolts with cutters thereon mounted in said arms, and plates adapted to swing on said spindles and to which said bolts are secured, substantially as described.

6. The combination of a body having transverse projections and a rearwardly extending central portion with a removable support secured thereto, arms having recesses therein into which said projections extend, spindles extending forwardly through perforations in said projections and arms on which said arms are adapted to swing, said spindles having heads against which said support abuts, bolts extending through openings in said arms with cutters mounted thereon on opposite sides of said arms, plates adapted to swing on said spindles to which said bolts are secured, sleeves on said spindles between the plates and arms, said plates resting against the spindle heads and having an enlarged curved portion at their free ends, substantially as described.

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

HENRY F. WEINLAND.

Witnesses:

GROVER ILGEN,
CARL CASKEY.