Feb. 7, 1933. T. E. PURCELL 1,896,593

BOILER CLEANER

Filed May 27, 1929

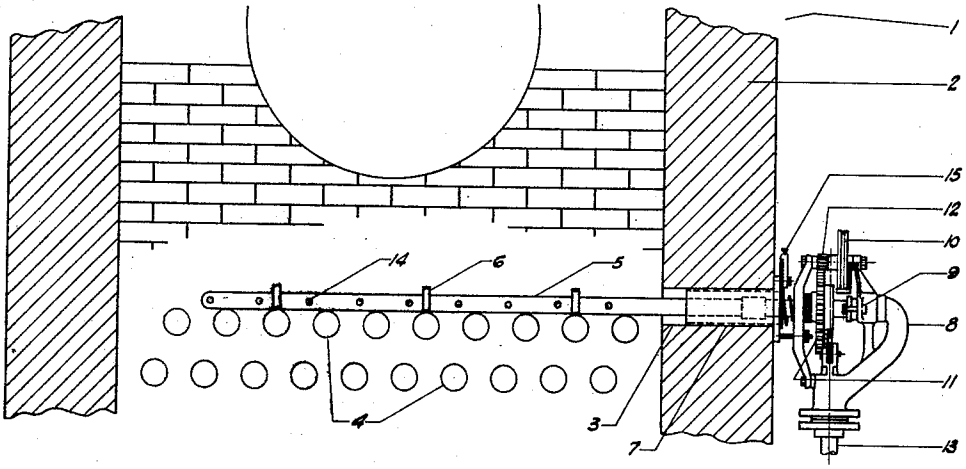


Fig. 1

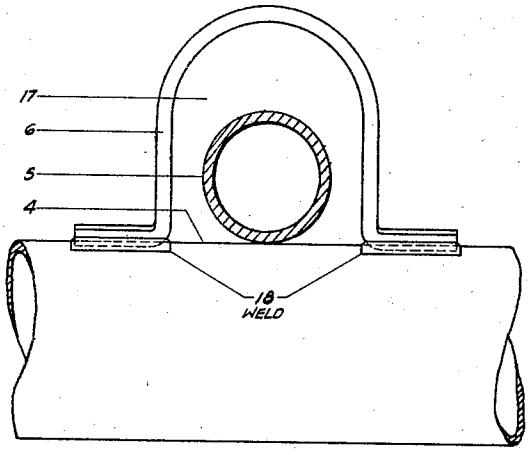


Fig. 2

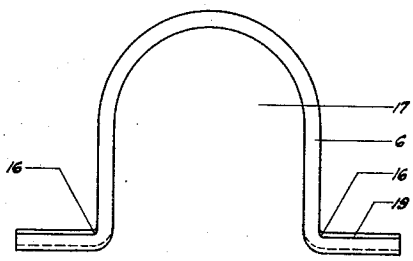


Fig. 3

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UNITED STATES PATENT OFFICE

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BOILER CLEANER

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The invention is directed to an improvement in boiler cleaners and has for its object the provision of improved means for supporting the blower element or nozzle tube from a boiler tube or other portion of the heating surface.

The invention will best be understood by reference to the drawing, wherein;

Figure 1 is a side section of a boiler showing a boiler cleaner embodying my invention applied thereto,

Figure 2 is a view showing on a larger scale the method of applying the bearing or supporting means to a boiler tube,

Figure 3 is a detail of the bearing.

With reference now to Figure 1. 1 represents generally a boiler of the usual water tube construction. In the side wall 2 of the boiler is provided an opening 3 through which passes the nozzle tube or element of the boiler cleaner designated at 5. This nozzle tube is mounted in the present case transversely of the boiler tubes from which it is supported by bearing 6 mounted directly on the boiler tubes. It is this bearing support to which the present invention is in particular directed.

The nozzle tube 5 is provided with the usual nozzle 14 for discharging jets of cleaning fluid adjacent the boiler tubes for removing therefrom deposits formed from the burning fuel.

The element 5 extending through the opening in the boiler wall is journalled in an operating head 8 outside of the boiler, in a packing gland 9 of conventional construction. To the element 5 is affixed the gear wheel 11 which in turn engages a pinion 12 rotatable with a sheave wheel 10.

In the opening 3 of the boiler wall is provided the wall box 7 to which is affixed the member 15 for supporting the element where it passes through the wall box opening. The cleaning fluid supply pipe to the operating head and element is shown at 13.

The problem of providing suitable support for soot blower element from boiler tube or other portion of the heating surface has been a most difficult one. Numerous constructions have been used which are intended to clamp in some manner to the boiler tube. These have possesed various disadvantages in that they involve the use of bolts, studs or the like to fasten the various co-operating members together, which bolts were liable to stretch under the high temperature conditions to which they were subjected, particularly in the hottest parts of the boiler setting.

The present invention contemplates the use of a bearing member formed as in Figure 3 from a flat bar of material suitable to the particular location where it is to be applied. The bar is bent as at 16 to provide portions for contacting with the boiler tube. These contacting portions may be curved as indicated at 19 to correspond to the contour of the boiler tube whose radius will vary according to the boiler design. The open or U portion of the bearing designated at 17 is made of a suitable size to receive the soot blower element or nozzle tube 5.

The bearing member may be made of plain steel for the cooler locations, or calorized steel or other suitable metal for hot locations of intermediate severity and, for the very hottest locations, an iron chromium alloy containing chromium in sufficient amount to impart to the alloy the property of resisting the destructive agencies set into action by the operation of the boiler.

The bearing member is applied to the boiler tube by welding as indicated at 18 in Figure 2. This may be done by any of the well known electric or gas processes, the use of the electric arc being preferable. The welding rod used to complete the joint is preferably of the same composition as the bearing itself. It will be evident that by the use of my invention a very simple construction has been provided for the support of a soot blower cleaner tube. The construction of the bearing member is such that it may be readily and easily made and the method of affixing it to the boiler tubes can also be, in general, readily carried out. An absolutely rigid support is thus provided for the nozzle tube which is not and cannot be subjected to any of the usual defects of bearings of the usual type constructed as they generally are of co-

operating clamp members fixed together with bolts or studs.

A further feature of my improved bearing construction is that it permits the nozzle tube 5 to rest in direct contact throughout its length with the boiler tubes 4. It will be noted that the bearing is essentially an inverted U, welded to the boiler tube or other part of the boiler heating surface, at its two ends. The boiler tube itself thus functions as a support for the nozzle tube.

It is evident that modifications may be made without departing from the spirit of my invention, which I wish to limit only as may fall within the purview of the appended claims.

What I claim as my invention is:

1. The combination with a boiler part and a blower tube adjacent the same, of a loop member partially surrounding said blower tube, said loop member being provided with spaced leg portions terminating in laterally extending flanges which engage and are welded to said boiler part.

2. The combination with a boiler tube and a blower tube adjacent the same, of a loop member partially surrounding said blower tube, said loop member being provided with spaced leg portions terminating in laterally extending flanges, said flanges being curved to engage the outer periphery of said boiler tube and being welded thereto.

3. The combination with a boiler tube and a blower tube adjacent the same, of a loop member having spaced end portions supported by said boiler tube and welded to fix said portions against movement in respect to said boiler tube, said loop member and its supporting boiler tube cooperating to completely surround the blower tube.

In testimony whereof I affix my signature.

THOMAS E. PURCELL.