

P. H. Coyle.
Boiler-Flue Brush.

N^o 83607

Patented Nov 3, 1868

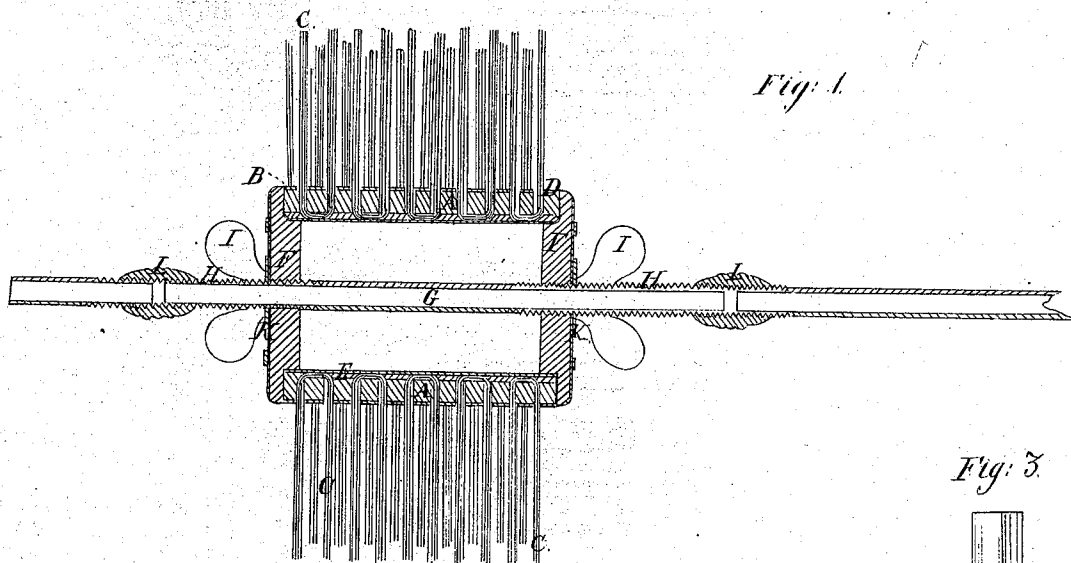


Fig. 1.

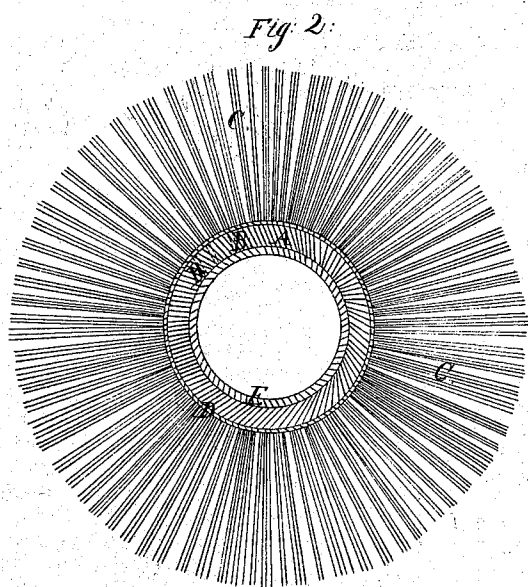


Fig. 2.

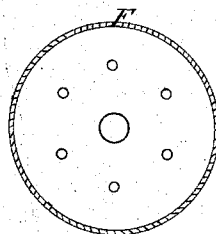


Fig. 4.

Fig. 3.



Witnesses { *Wm. H. Barnard.*
J. M. Bower. Patrick Coyle
 by Crosby, Halsey & Gould
 his Attorneys.

United States Patent Office.

PATRICK H. COYLE, OF NEWARK, NEW JERSEY.

Letters Patent No. 83,607, dated November 3, 1908.

IMPROVEMENT IN BOILER-FLUE BRUSHES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, PATRICK H. COYLE, of the city of Newark, county of Essex, and State of New Jersey, have invented certain Improvements in Boiler-Flue Brushes; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practise it.

The primary object of my invention is the construction of a brush, designed to be used for cleaning the tubes of boilers, of such material and in such manner that it is not liable to be damaged by the heat of the boiler.

Heretofore, brushes used for this purpose have been made of bristles, or kindred materials, which not only rapidly wear away, but receive still greater damage from the excessive heat to which they are exposed, and which burns away the bristles as well as the wooden hub to which the bristles are fastened, and as these brushes are quite expensive, and do not last long, there is a great need of a brush not liable to the above objections.

In the accompanying drawings—

Figure 1 represents a longitudinal section of a brush made in accordance with my invention;

Figure 2 is an end view of the same, with the handle and end-pieces removed;

Figure 3 represents a portion of the handle, and the means for lengthening the same; and

Figure 4 is an end view of one of the caps of the tubular hub.

A is a tube which may be made of wood. This tube is drilled radially with rows of small holes, B, of uniform size, for the reception of the strips or pieces of steel wire, C, which I employ to form the brush, instead of bristles.

The kind of wire I have found to serve well my purpose is flat, similar to that employed in the manufacture of hoop-strips, but not made too brittle in the process of hardening, being capable of considerable bending without breaking, and so that it may also be first passed through one of the holes B, and then turned back and passed in the reverse direction through the next adjacent hole in the same line, as shown, thus leaving the bight or bend of each piece within the tube or hub of the brush, and its two free ends outside the same. All the rows of holes are thus supplied with wires or metallic strips, but prior to thus introducing these strips into the holes, the hub should be lined on its exterior, as shown, with sheet-iron or other metal, D, this metal being drilled, as above stated, with holes for the metal strips. The holes being all supplied with the wires, the inner or tubular portion of the bed or hub is now lined with sheet-iron, or other appropriate metal, E, and the rims or edges of both the outer and inner linings may project sufficiently (if desired) beyond the

wood, to admit of their being swaged down to cover the end of the wooden hub, so as not to expose any of the wood to the direct action of the heat.

End-pieces or caps, F, are made as shown, so as to fit snugly in and upon the ends of the tubular hub, and each of these has a central opening, and has its outer side faced with metal. Through these central openings I pass a metallic rod, G, having screw-threads at both ends, as shown at H, to receive thumb-nuts I, which I employ in order firmly to clamp the heads to the hub, and to hold the whole apparatus together. Washers K are preferably placed between the heads and the thumb-nuts.

In order to lengthen out the handle to any length required, so as to adapt it for use with different boilers whose tubes may vary in length, I employ sleeves L, screw-threaded within, and other sections of rods screw-threaded at the end, similarly to the centre-rod above described, the sleeve being applied to two ends of two sections, and turned around until both are held together firmly by it.

That end of the central rod to which the long handle is not attached is also allowed to project beyond the brush a sufficient distance to allow its extreme end to come in contact with the end wall of the boiler, and arrest the further advance of the brush, before the brush shall have been pushed entirely out of the tube which is being cleansed, thus avoiding the annoyance and delay, as well as the strain upon the handle and liability of damage to the brush, which would be incident to the dropping down of the brush-part if permitted to pass entirely out of that end of the flue or tube.

I have shown the central rod or handle tubular, and prefer to make it so, though this is not absolutely necessary.

To adapt my brush to flues of different sizes, I have but to make the hub of a different size, employing the same size of wire to insure a proper degree of stiffness, or I can use the same-sized hub, and use wire of a different size and thickness.

By my mode of construction, it is evident that, if the brush should wear irregularly, it can readily be reversed upon its handle to correct such wear and insure its continued efficiency; and, also, that if, by carelessness or rough usage, any of the wires should be broken or otherwise damaged, they may be readily replaced by new ones, by simply taking out, for that purpose, the inner lining E, and replacing it again, this lining serving as a supporting-base or bed to hold all the wires in place.

It is also evident that I may omit the outer lining of metal upon the periphery and end-pieces of the hub, but I prefer to use them as a protection of the wood from liability to be burned and charred by the heat.

With my approved brush, I am enabled to cleanse the flues whilst the fire is up, and at periods when a brush of bristles could not be used at all without cer-

tainty of its destruction from the high degree of temperature.

I claim a boiler-flue brush, the flexible or brush-portion of which is composed of strips or pieces of steel, or other metal, inserted in the hub, substantially as set forth.

I also claim the combination of a metallic-lined tubu-

lar hub or base, with a steel or metallic brush, substantially as set forth.

I also claim the combination, with a boiler-flue brush, of removable end pieces or heads, and a removable centre-rod or handle, substantially as set forth.

Witnesses:

SAMUEL HALSEY,
GEO. A. HALSEY.

PATRICK H. COYLE.