July 7, 1925. 1,544,635

J. DE GRAFF

FURNACE BRUSH

Filed Dec. 9, 1918

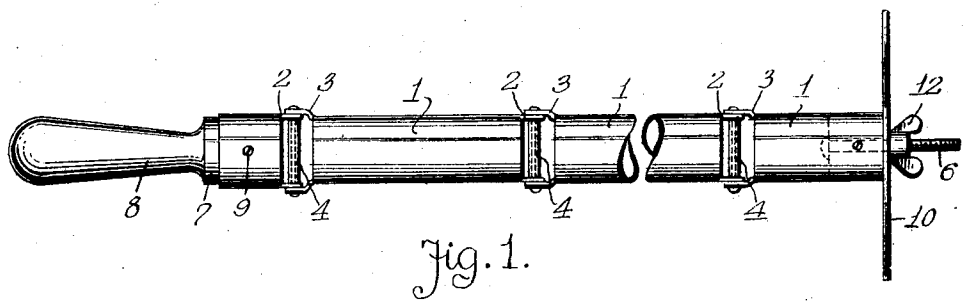


Fig. 1.

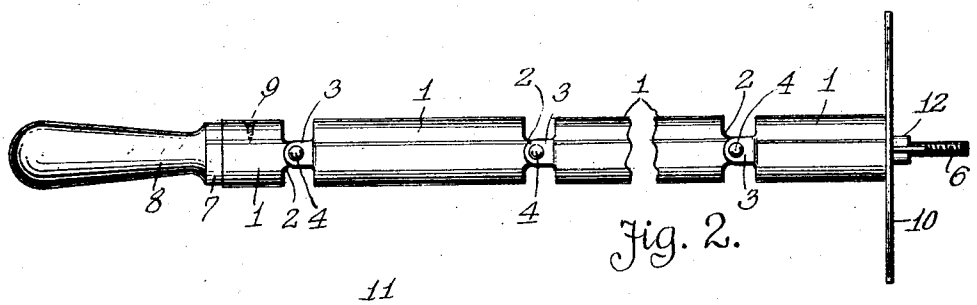


Fig. 2.

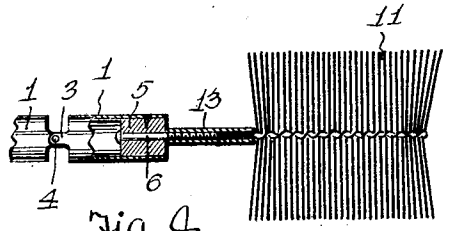


Fig. 4.

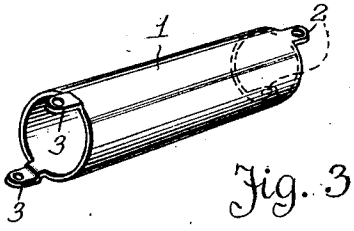


Fig. 3.

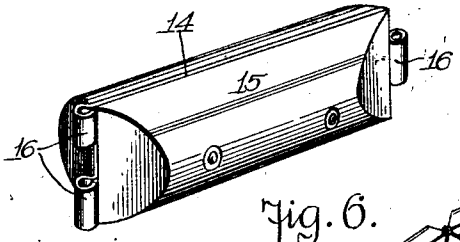


Fig. 6.

Fig. 5.

Witness

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UNITED STATES PATENT OFFICE.

JAN DE GRAFF, OF DETROIT, MICHIGAN.

FURNACE BRUSH.

Application filed December 9, 1918. Serial No. 265,850.

To all whom it may concern:

Be it known that I, JAN DE GRAFF, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Furnace Brushes, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention aims to provide a furnace brush or scraping device that may be advantageously used for cleaning flues and other inaccessible parts of a furnace, and the construction entering into the furnace brush may be readily embodied in a device for brushing, scraping and removing the contents of conduits, chimneys, cavities or sinuous channels or passages, particularly such matter as soot, dust, incrustations or filth that adheres to the walls of chambers.

My invention further aims to provide a flexible device composed of a plurality of articulated members forming a handle that may be forcibly shifted into and through parts of the structure, the device including a brush, scraper, or cleansing member that may be manipulated by the device for removing matter.

My invention may be hereinafter described and then claimed, and reference will now be had to the drawings, wherein

Figure 1 is a plan of the preferred form of device, partly broken away;

Fig. 2 is a side elevation of the same;

Fig. 3 is a perspective view of one of the members of the device;

Fig. 4 is a side elevation of a portion of the device, partly broken away and partly in section; showing the device equipped with a brush;

Fig. 5 is a side elevation of a modified form of device;

Fig. 6 is a perspective view of one of the modified members of the device.

The device including a handle formed of a plurality of hollow or tubular members 1 having the ends thereof provided with opposed apertured ears 2 and 3, the set of ears 2 being at one end of each member and in a plane with the side walls of the members, while the set of apertured ears 3 is at the opposite end of the member and said ears bent outwardly to planes outside of the walls of the members. This arrangement of the apertured ears permits of the members being arranged end to end with the ears 2 and 3 coinciding and the apertures thereof alining, thus permitting of the apertured ears 2 and 3 being pivotally connected by transverse pins, rivets or other connecting members 4 provided with spacing sleeves 4^a.

The number of members constituting the device depends entirely upon the length of device required, and in the outermost member is mounted a plug 5 having a central stem 6 with the outer end of said stem screwthreaded and protruding some distance from the plug 5.

The innermost member of the device receives the end 7 of a suitable hand grip 8 which may be retained in its member by a screw 9 or other fastening means.

The screwthreaded stem 6 is capable of holding various kinds of cleaning instrumentalities, for instance, a scraper 10 or a brush 11. The scraper 10 may be retained on the stem 6 by a winged thumb nut 12 and the brush 11 may have an interiorly screwthreaded socket 13 that may be screwed on the stem, as clearly shown in Fig. 4. Either of these devices will permit of walls being brushed, scraped and material removed from in proximity thereto.

Considering Figs. 5 and 6 of the drawings showing a modified form of construction, each member is composed of a center plate 14 the sides of which are suitably connected to semi-cylindrical members 15, thus providing a cylindrical member somewhat similar to the hollow or tubular members 1. The center plates 14 have the ends thereof formed of barrels or apertured lugs 16, so that the members may be pivotally connected or articulated, as shown in Fig. 5, to form a flexible device. One of the members may be in the form of a hand grip 17 having a center plate in the end thereof and the other member 18 may be solid with a center plate in one end thereof and a screwthreaded stem mounted in the opposite end thereof. In this form of device it is also preferable to bevel the confronting ends of the members so as to lend a greater degree of flexibility to the entire device.

As will be seen, the sections are generally of similar cross-sectional contour, and that in each section this contour is substantially uniform throughout the length of the section, not only as to shape of the contour but also as to the length dimension of the con-

tour lines of spaced-apart cross-sections of the members or sections 1 or 15, excepting, of course, the ends of the sections where the configuration is changed.

The manner of articulating the members of either form of device permits of pressure being brought to bear at the inner end of the device to bodily shift the device is sinuous or winding ways, and it is possible to reciprocate or even rotate the entire device so that the scraper or brush will agitate the surfaces and remove incrustations or other matter from such surfaces. This is brought about by having the hinges or pivotal connection in a common plane, when considering said members in alinement, consequently pressure can be transmitted from one member to another when pushing the device in a passage.

As a flue or furnace cleaning device the invention has the merit of aiding a furnace in being maintained in working order, and when made of metal the articulated members may freely expand and contract without any danger of the device buckling or being rendered useless for the purpose for which it is intended.

While in the drawings there are illustrated the preferred embodiments of my invention, it is to be understood that the structural elements are susceptible to such variations and modifications as fall within the scope of the appended claim.

What I claim is:—

In a furnace cleaner, the combination with a cleaning element, of a handle therefor made in a plurality of tubular sections pivotally connected end to end, and having uniform cross-sectional contour and area, with the axes of pivotal connection extending in the same direction, the length of each section being greater than the length of a diameter thereof, the ends of the several sections having ears projecting in the direction of length of the section, the length of ear projection being sufficient to provide a considerable space between sections when assembled, the ears of adjacent sections being connected by a pin carrying a spacing member operative to maintain the ears properly spaced and thereby prevent cramping of the support when in use, and a hand grip carried by one of the end sections, the opposite end section having means for attachment to the cleaning element.

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

JAN DE GRAFF.

Witnesses:
O. F. Barthel,
K. H. Butler.