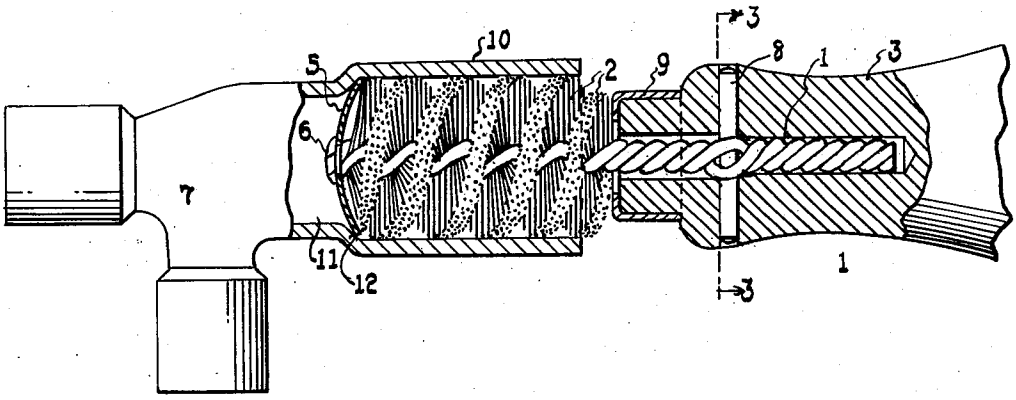
June 6, 1950 O. G. BURCH 2,510,376

CLEANING BRUSH WITH IMPROVED DISK FEATURE

Filed Aug. 3, 1948

Fig. 1.



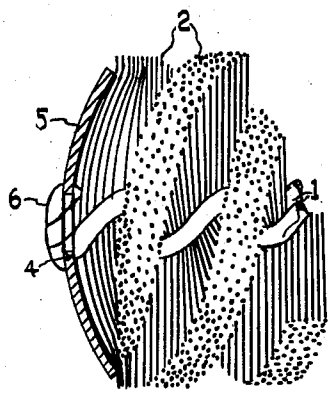




Fig. 2.

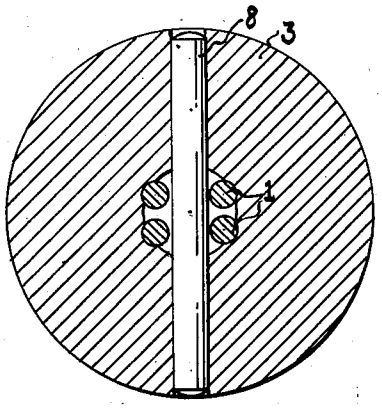



Fig. 3.

Inventor

Orson G. Burch

By

J. S. Murray

Attorney

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## CLEANING BRUSH WITH IMPROVED DISK FEATURE

Orson G. Burch, Detroit, Mich.

Application August 3, 1948, Serial No. 42,225

2 Claims. (Cl. 15—206)

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This invention relates to brushes and particularly rotary brushes equipped with wire bristles for cleaning pipe fittings and the like.

An object of the invention is to equip the core of a wire-bristled rotary brush with a disk at its front end, to serve as a stop, limiting insertion of the brush in a fitting, also centering the brush within the fitting, also forming a shield or guard for the bristles adjoining the front end of the brush, and further reinforcing the core and resisting untwisting of wires forming the core.

Another object is to use a disk of dished form for the aforementioned purposes, and to thus impose a rearward flexure on a considerable number of bristles engaging the disk, whereby there is increased the effective number of bristles at the front end of the brush.

Another object is to provide an improved and highly positive means for non-rotatively interconnecting the handle to the core of a rotary brush.

These and various other objects are attained by the construction hereinafter described and illustrated in the accompanying drawing, wherein:

Fig. 1 is an elevational view, in partial section, of my improved brush, shown in cleaning engagement with a pipe fitting.

Fig. 2 is an enlarged view of the front end portion of the brush, particularly showing the mounting of a disk on the core.

Fig. 3 is a cross sectional view of the brush, taken on the line 3—3 of Fig. 1.

In these views, the reference character 1 designates a core formed by a plurality of suitably stiff wires, spirally twisted to form a substantially rigid elongated unit, whereof the front portion forms a carrier for flexible wire bristles 2, and the rear portion forms a shank inserted axially in a handle 3. The mid portions of the bristles are clamped firmly between the core-forming wires due to the twisted interrelation of said wires, and form two substantially coextensive spiral flights. It is preferred to employ four wires to form the core 1, achieving a strength and rigidity not available from any lesser number of wires. The front end of the core is machined to a slightly reduced diameter, whereby a substantially annular shoulder 4 is formed, and said end portion receives a sheet metal disk 5, preferably of steel, seating against the shoulder 4. Said disk is held rigidly in place by riveting over the core extremity against the front face of the disk, as indicated at 6. The diameter of said disk is sufficiently less than the brush diameter to allow the disk to freely enter a fitting, as exemplified at 7, in which the

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bristles fit tightly. It is preferred to dish the disk 5 rearwardly, so that it will impose a rearward flexure on a considerable number of the bristles producing a greater concentration of bristles at the front end of the brush, and increasing the useful life of such end. This is desirable because the front end of the bristle set usually engages work in close proximity to an annular shoulder, sometimes engaging such shoulder, and receiving more wear than the remainder of the bristles. The dished form, moreover, reinforces the disk. The bristles and disk are preferably formed of a hard wear-resistant and rust-resistant steel. To assure against any relative rotation of the core and handle, a pin 8, diametrically inserted in the handle, passes snugly through an opening transversely formed in the core shank for that purpose. The front end of the handle preferably receives a reinforcing ferrule 9.

A primary purpose of the disk 5 is to form a stop such as will prevent damage to the bristles by forcing the brush into an opening smaller than it is suited to enter. Thus for example, the illustrated fitting 7 has an outer portion 10, within which the brush may operate efficiently and without detriment and has an inner portion 11 of too reduced a diameter to permit proper entry of the bristles. The disk 5, by encountering the shoulder 12 formed at the juncture of said portions 10 and 11, will resist any effort to force the brush into the undersized opening 11. The centering effect of the disk 5 is also important. The brush is of course to be rotated within the fitting whose interior surface requires cleaning, and if the operator applies an inadvertent lateral pressure in rotating the brush, there may be a failure to fully clean the interior face, provided the brush is free to yield to such pressure. The disk 5 so minimizes response of the brush to lateral pressure, that brush rotation necessarily entails a full interior cleaning effect. Under rough usage, the front ends of the core wires might be more or less untwisted, with resulting escape of bristles, if a provision were lacking to maintain tight interengagement of such ends. The disk 5 serves as such a provision in addition to its other functions. Said disk, finally provides a guard for the front ends of the two flights of bristles, preventing excessive deformation thereof in use, in a tool box, or under any other conditions.

Brushes of the described character are particularly useful in thoroughly cleaning the interior of fittings wherein a soldered connection is to be formed with inserted pipes (not shown).

With wire-bristled brushes of the intertwisted

wire core type, it has heretofore been necessary to always rotate such brushes in one direction within a piece of work, since reverse rotation would tend to untwist the core wires. The brush now disclosed may be rotated in either direction since the disk **5** quite positively resists untwisting of the core. This is of importance since the bristle ends become dull, through rotation in one direction, at certain work-engaging points, while they remain as sharp and effective as ever at their points taking effect when rotation is reversed.

What I claim is:

1. A brush comprising a core having a forward portion serving as a bristle carrier and a rear portion forming a shank, a set of bristles fixed on and projecting substantially radially from said carrier in substantially cylindrical form, and a disk centrally mounted on the carrier in front of and contacting the end bristles of said carrier and dished rearwardly from its center to its periphery, the periphery of said disk compacting and deflecting said end bristles from their normally radial positions.



2. A brush as set forth in claim 1, said disk having a radius so predeterminedly less than that of the bristles as to prevent insertion of the brush in an unduly small opening, and as to adapt the disk to form a guard against undue flexure of bristles adjoining the disk.

ORSON G. BURCH.


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