G. A. & C. C. FARRAR.

BOTTLE AND LIKE CLEANING BRUSH.

APPLICATION FILED APR. 10, 1909.

934,058. Patented Sept. 14, 1909.

Fig. 1.

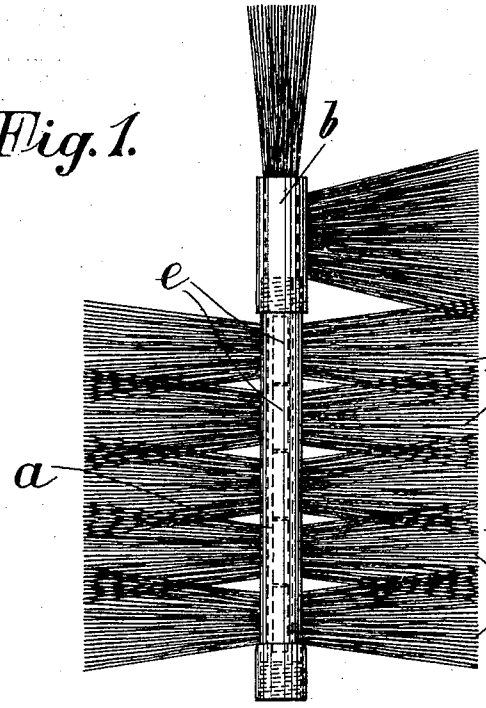


Fig. 2.


Fig. 3.


Fig. 4.

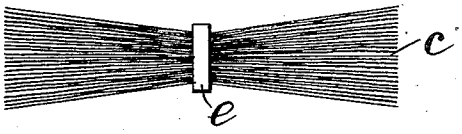


Fig. 5


Fig. 6.

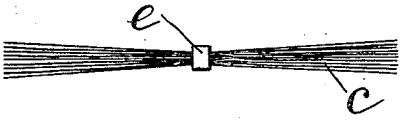


Fig. 7.

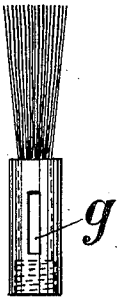


Fig. 8.


Witnesses:
Wm. F. Bates
S. E. Wade.

Inventors:
George A. Farrar
and Charles C. Farrar.
by Herbert W. Jenner.
Attorney.

# UNITED STATES PATENT OFFICE.

GEORGE A. FARRAR AND CHARLES C. FARRAR, OF HALIFAX, ENGLAND.

## BOTTLE AND LIKE CLEANING BRUSH.

934,058. Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed April 10, 1909. Serial No. 489,149.

*To all whom it may concern:*

Be it known that we, GEORGE ALBERT FARRAR and CHARLES CLEMENT FARRAR, residing at Halifax, in the county of York, England, have invented certain new and useful Improvements in Bottle and Like Cleaning Brushes; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to bottle and like cleaning brushes such, for instance, as those for cleaning boiler flues and tubes. Such brushes comprise a suitable stem, of which the upper part carrying the bristles is sometimes made detachable from the lower part, and usually also, in the case of bottle cleaning brushes, a detachable "tip". The bristles have usually been attached or secured to the stem and tip by forming such stem and tip of twisted wire gripping the center of each tuft or "knot" of bristles, though it has also been proposed to secure the tufts or knots in the stem of a bottle cleaning brush by riveting or wire-lacing each of such tufts or knots in a partially split stem.

The object of the present invention is to make such tufts or knots readily detachable and interchangeable. For this purpose we secure each tuft or knot of bristles preferably in a separate metal or other ring or holder, and form the stem or tip, or both, slotted or partially split so as to permit of the required number of such metal or other holders being inserted in the correct positions therein; and we also provide means by which the opposing edges or faces of the two members forming the split portion of the stem or tip may be approached to each other so as to grip the said holders or the bristles secured therein, or both. The stem and tip may be of any suitable form or construction adapted to receive and hold the tufts or knots of bristles; for instance they may be formed from a hollow tube or solid rod; but if solid and split the opposing faces of each member of the split portion will preferably be grooved longitudinally to form a recess for the rings or holders. In the case of the tip, the edges of a partial slot may be dilated by a suitable tool, and after the insertion of one or more tufts or knots of bristles be pressed back to their original position by pincers or the like; or, if the slot extends to the bottom of the tip, this part thereof may be contracted by the application of a screwed or other ferrule which may secure it to the stem. In the case of the stem, this is preferably split from the top to the lower limit of the bristled portion, and the screwing on of the tip then contracts the two members forming the split portion of the stem so as to retain the tufts.

By the use of this invention, should one or two of the tufts become worn before the remainder of the brush, these tufts can very easily be removed and replaced by new tufts. The insertion and removal of the tufts is, of course, also facilitated generally.

Such being the nature and object of our said invention, we will now proceed to describe, by way of example, means by which the same may be carried into practice, reference being had to the accompanying drawings wherein:—

Figure 1 is an elevation of the upper part of a bottle cleaning brush to which our invention is applied. Fig. 2 is a side view of Fig. 1 with the tip and two of the detachable and interchangeable tufts or knots of bristles removed from the upper part of the stem. Fig. 3 is an elevation of a modified construction of the part of the stem illustrated in Figs. 1 and 2. Fig. 4 is an elevation of one of the tufts or knots shown in Figs. 1 and 2. Fig. 5 is an end view of Fig. 4. Fig. 6 is a plan view of Fig. 4. Fig. 7 is an elevation of a tip adapted to receive one of the tufts or knots; and Fig. 8 illustrates a modified construction of tip and means for attaching same to the stem.

Referring to the drawings, and firstly to Figs. 1 to 6, letter *a* denotes the upper part of the stem of a bottle cleaning brush, *b* the tip screwed on to the upper end of the said part *a*, and *c* the tufts or knots of bristles. The tip *b* shown in Fig. 1 is of a well-known construction and the part *a* of the stem of the brush is of the detachable type, being provided with a socket *d* which is screwed on to the upper end of the main part of the stem (not shown). Each of the tufts or knots of bristles *c* is secured in a flat or other suitably shaped ring or holder *e* of metal or other suitable material which grips the bristles in the center; and the part *a* of the stem of the brush, which in this case is in the form of a hollow tube, is split vertically at *f* from the top to the socket *d*. In building up the head of the brush a suitable number of the tufts or knots *c* are

slipped into the part *a* as shown in Figs. 1 and 2, and the two halves of the part *a* then caused to approach each other by screwing on the tip *b*. The rings or holders *e* or the bristles secured therein or both are thus gripped between the two halves of the part *a*, and the tufts held firmly in position.

If desired, the part *a* may be split spirally as shown in Fig. 3, so that the tufts or knots of bristles will project from the stem in various directions; or, again, in addition to being split as shown in Figs. 1 and 2 the stem might be split in a plane at right angles to the slots *f*, or in other suitable manner.

Fig. 7 illustrates a tip adapted to receive one of the detachable and interchangeable tufts or knots. The said tip has two slots *g* formed therein opposite to each other, the edges of which slots are dilated by a suitable tool to allow of the insertion of the tuft or knot; after the tuft or knot has been inserted they are pressed back to their original positions by pincers or the like.

In Fig. 8 the slot *g* extends to the bottom of the tip and the part in which the slots are formed is contracted, after the insertion of the tuft or tufts, by a screwed ferrule *h* which also screws on to the part *a* of the stem and thus also contracts the two members of the part *a* and connects the tip to the stem.

The stem of the bottle brush illustrated in the drawings is of the hollow type, water being allowed to run up the main part of the stem and into the part *a* whence it escapes through the slots into the bottle being cleaned, and the tips may also be similarly constructed as to allow of the passage of water therethrough; but the invention is equally applicable to bottle and like brushes the stems and tips of which are solid instead of hollow.

It will be understood that, if desired, two or more tufts or knots of bristles might be secured in a single ring or holder, though we prefer to secure each tuft or knot in a separate ring or holder.

We claim as our invention:—

1. In a brush, the combination, with a stem provided with a slot, of a series of tufts of bristles having holders secured around their middle portions and arranged in the said slot so that the end portions of the tufts project on opposite sides of the stem.

2. In a brush, the combination, with a stem provided with a spiral slot, of a series of tufts of bristles having holders secured around their middle portions and arranged in the said slot so that the end portions of the tufts project in various directions and upon opposite sides of the stem.

3. In a brush, the combination, with a stem provided with a slot, and a tip for the stem also provided with a slot; of a series of tufts of bristles having holders secured around their middle portions and arranged in the said slots so that the end portions of the tufts project on opposite sides of the stem, and a ferrule which connects the said stem and tip and secures the said holders in the slots.

In testimony whereof we affix our signatures, in presence of two witnesses.

GEO. A. FARRAR.
CHARLES C. FARRAR.

Witnesses:
ERNEST PRIESTLEY NEWTON,
LEONARD H. CROSSLEY.