

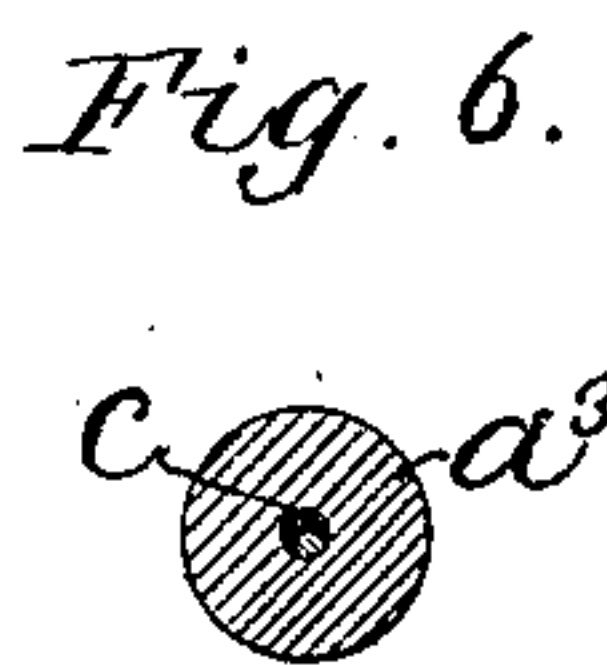
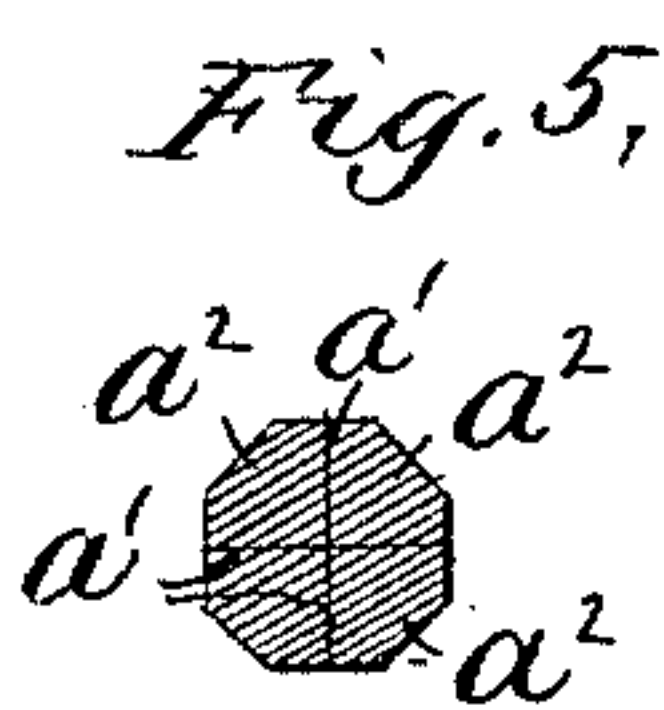
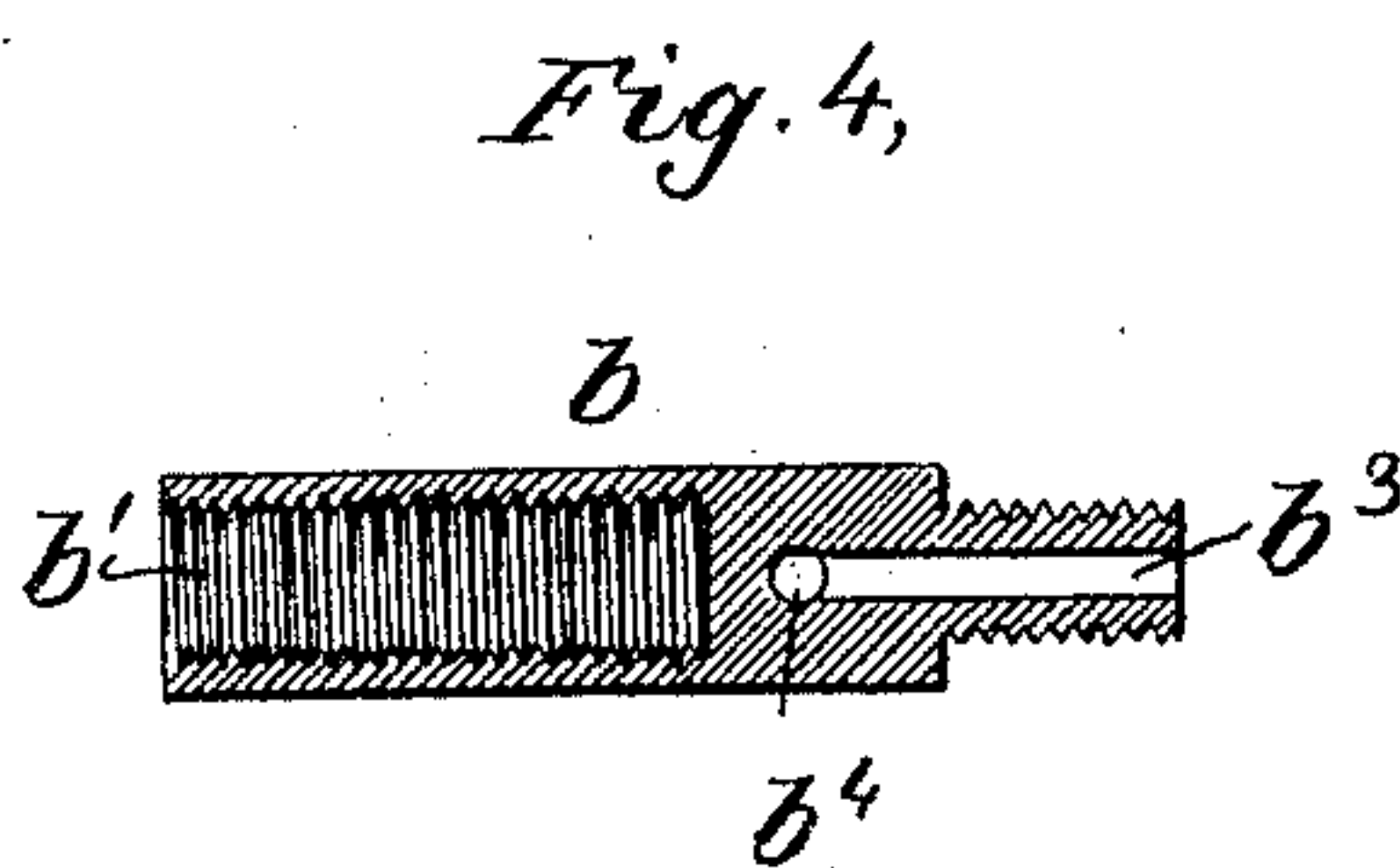
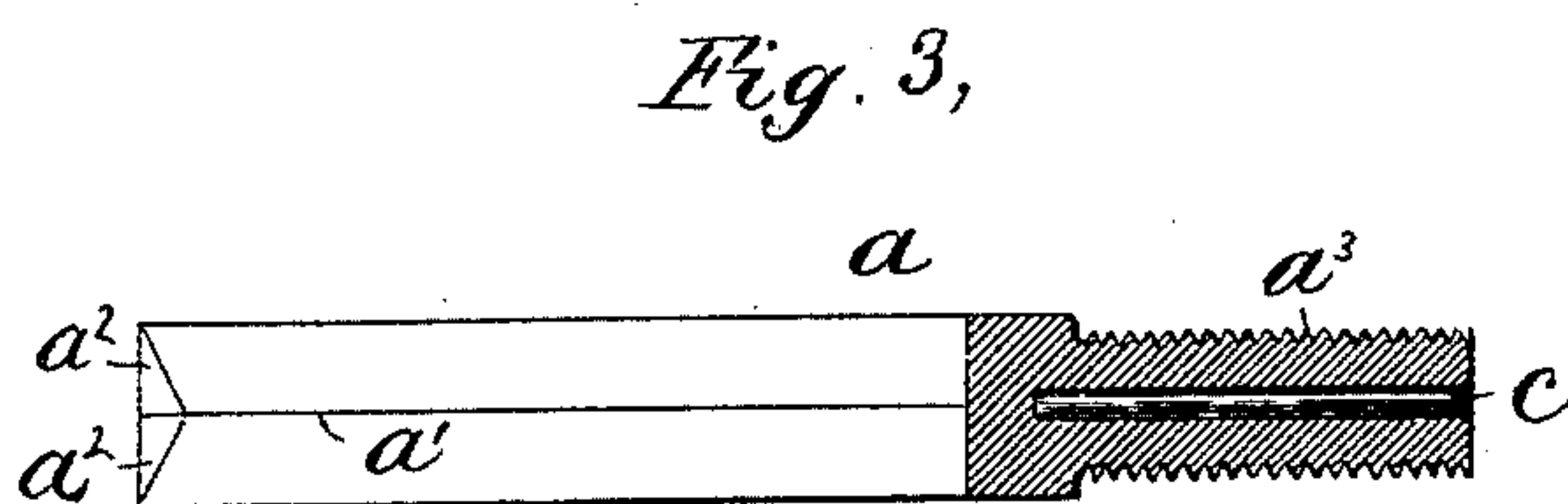
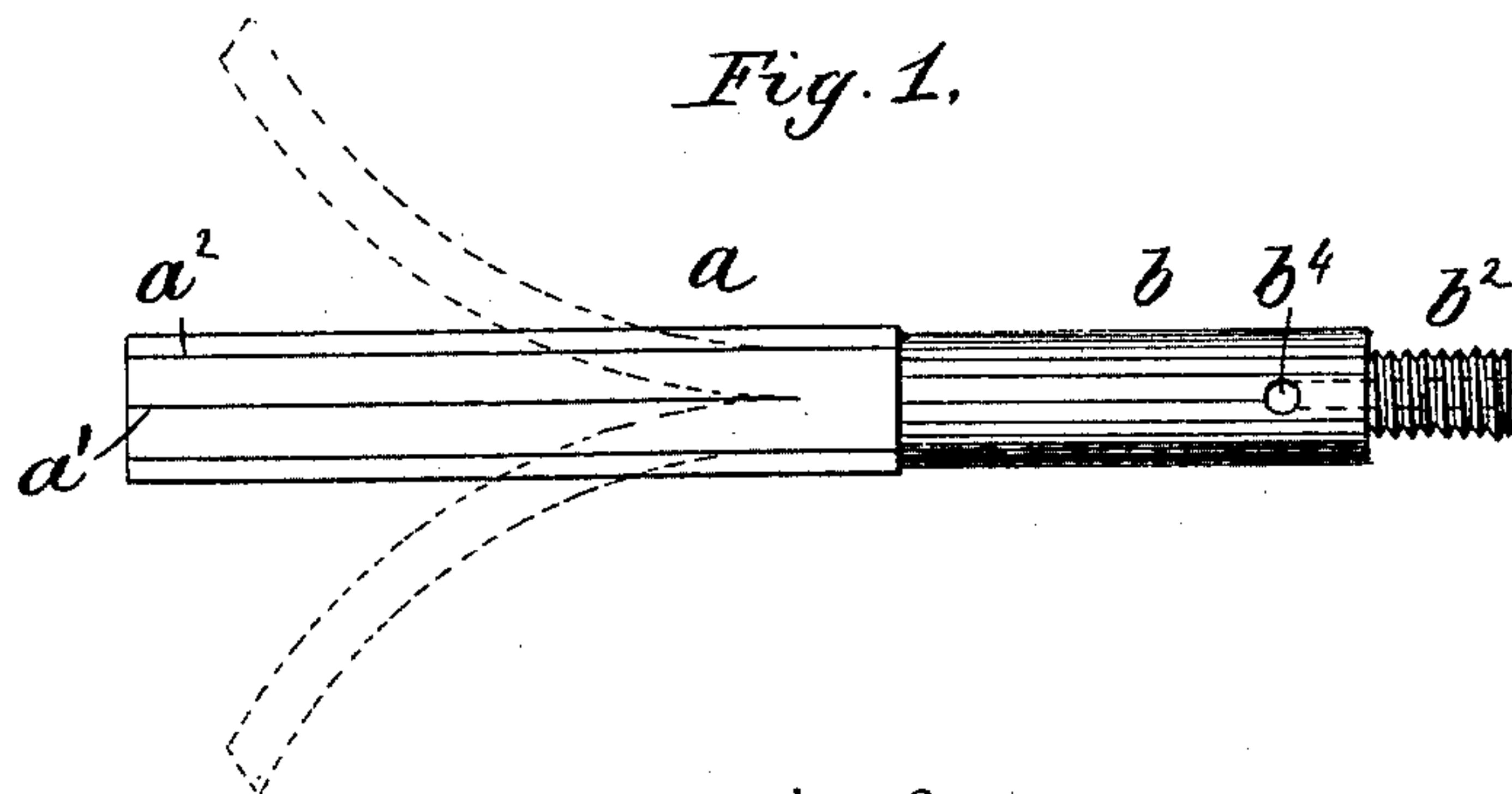
(No Model.)

J. M. HOYT.

BRUSH OR CLEANER FOR BOTTLE WASHING MACHINES.

No. 450,824.

Patented Apr. 21, 1891.



Witnesses.

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UNITED STATES PATENT OFFICE.

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BRUSH OR CLEANER FOR BOTTLE-WASHING MACHINES.

SPECIFICATION forming part of Letters Patent No. 450,824, dated April 21, 1891.

Application filed January 3, 1888. Serial No. 259,667. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. HOYT, of Salem, county of Essex, State of Massachusetts, have invented an Improvement in Brush or
5 Cleaner for Bottle-Washing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 My invention relates to a brush or cleaner to be used in bottle-washing machines of the kind in which said brush is attached to the end of a rotating shaft and is guided through the neck into the interior of the bottle, in
15 which the brush expands, so as to rub over the sides of the bottle as the brush rotates with its shaft.

One kind of brush commonly used in bottle-washing machines of this kind consists of
20 a soft-rubber cylinder connected to a chuck or metal holder at the end of the brush-shaft and having its projecting end separated by longitudinal divisions into four parts, more or less, which separate from one another by centrifugal force when the brush is rotated at
25 high speed. Brushes of this kind have usually been tubular, and both the chuck and portion of the brush fastened therein have had a longitudinal passage, through which
30 water passes from the hollow brush-shaft into the bottle. The soft or rubber portion of the brush as heretofore made has been inserted in a socket in the chuck, by which it is connected with the shaft, and secured in said
35 socket by rivets or other permanent fastening, so that the use of special tools was required for connecting the brush with the chuck or metallic shank-piece, and usually when a brush became worn the entire brush and chuck
40 were discarded and a new brush and chuck substituted, the connected brushes and chucks being furnished by the manufacturer.

The object of the present invention is to provide a brush that can be readily connected
45 with and disconnected from the chuck or metallic shank portion, so that when a brush is worn out the metallic shank need not be discarded, but a new brush may be connected therewith, the said brushes being furnished
50 by the manufacturer and properly constructed to be connected with the metallic shank-piece

or chuck without tools. In order to effect this result, the brush, composed of a long prism or cylinder of soft rubber, is molded and vulcanized with a screw-threaded shank
55 portion, which can be turned directly into the metallic chuck or socket; and in order to give greater firmness to the threaded portion of the chuck and prevent it from bending or springing torsionally when being turned into
60 and out from its socket, a rigid core or piece of wire may be vulcanized into the threaded shank portion. The brush has no axial bore or passage for water; but the metal chuck is provided with an axial inlet-passage com-
65 municating with radial outlet passages below the shank of the brush proper, by which water may be delivered into the bottle while the shaft is rotating therein, as is usual in bottle-washing machines of the kind referred to. 70

Having thus stated generally the object and principle of my invention, I will proceed now to describe the same in detail, and finally point out and distinctly claim the part or improvement which I claim as my invention. 75

Figure 1 is a side elevation of a brush or cleaner for bottle-washing machines embodying this invention connected with a metallic chuck or socket-piece, ready to be attached to the shaft of the machine; Fig. 2, a side
80 elevation of the brush proper detached; Fig. 3, a longitudinal section of the brush proper detached; Fig. 4, a longitudinal section of the chuck or metallic holder; and Figs. 5 and 6, transverse sections of the brush proper on
85 lines x and y , Fig. 2.

The brush proper a is composed of soft rubber, molded to proper shape and vulcanized, the working portion of said brush being preferably prismatic or polygonal in cross-
90 section, as best shown in Fig. 5, so as to present rubbing-edges to the interior of the bottle. This portion is separated by one or more longitudinal divisions a' , extending
95 nearly the entire length of the working portion into a number of separate fingers, which, owing to the flexible nature of the material, will spread apart or separate under the action of centrifugal force when the brush is rapidly
100 rotated, as shown in dotted lines, Fig. 1. The said brush proper is molded with an integral shank portion a^s , provided with an external

screw-thread, as clearly shown in Fig. 2, by means of which it may be securely attached to a metal socket-piece b , provided with an internal thread b' of proper size to receive the threaded portion a^3 of the brush proper.

When brushes of the kind shown in Fig. 2 are used, the threaded socket might be made in the end of the shaft of the machine; but it is preferable to make the socket-piece b separate from said shaft, and to provide the said socket-piece with means for attaching it to the said shaft or disconnecting it therefrom—such, for example, as the threaded portion b^2 —as this construction enables brushes of different kinds to be used with one machine and quickly exchanged one for another, as the metallic screw b^2 can be more readily screwed into and out from a corresponding socket in the end of the shaft than can the threaded shank a^3 of the brush be screwed into and out from its socket.

In order to provide for the introduction of water to the bottle while the brush is operating, the socket b^2 is provided with a longitudinal passage b^3 , communicating with a lateral passage b^4 , (see Figs. 1 and 4,) by which water is introduced from the hollow shaft into the bottle.

The threaded shank portion a^3 of the brush may be made firmer, so as to resist the torsional action in turning it into and out from its socket, by a rigid core c , which may consist of a piece of metal wire vulcanized into the rubber.

Rubber brushes having a screw-threaded

shank, as herein shown and described, may be easily connected with and disconnected from the metallic socket-piece, and consequently when the working part of the brush becomes worn or broken it can be removed from the metal socket-piece and another one inserted, and a single socket-piece will thus answer for a large number of brushes, while with brushes as heretofore made, in which the operative rubber part of the brush was fastened to the socket-piece by riveting, the difficulty of removing an old brush and connecting a new one was so great that it was usually not worth while to do it, and consequently when a brush became worn the entire brush and socket-piece were discarded and a new one substituted.

I claim—

A brush or cleaner for bottle-washing machines consisting of a piece of vulcanized rubber, one end of which is divided longitudinally and the other end of which, constituting the shank, is solid and molded with an external screw-thread, combined with a metallic socket-piece having a corresponding internal screw-thread, and an axial bore constructed with lateral outlets for introducing a cleansing-fluid, substantially as described.

In testimony whereof I have signed my name in the presence of two subscribing witnesses.

JOSEPH M. HOYT.

Witnesses:

JOS. P. LIVERMORE,
M. E. HILL.