

(No Model.)

J. BABIS.  
BRUSH FOR WASHING BOTTLES.

No. 564,497.

Patented July 21, 1896.

FIG. 1.

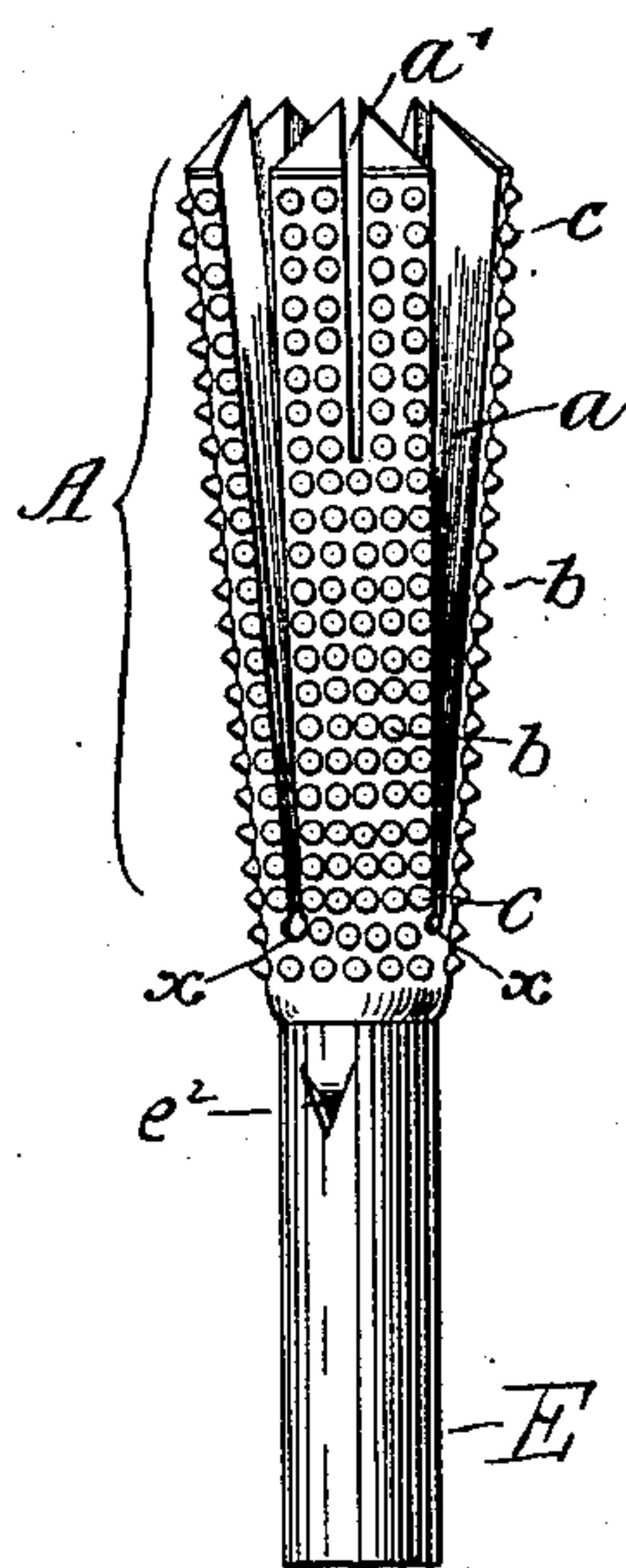


FIG. 2.

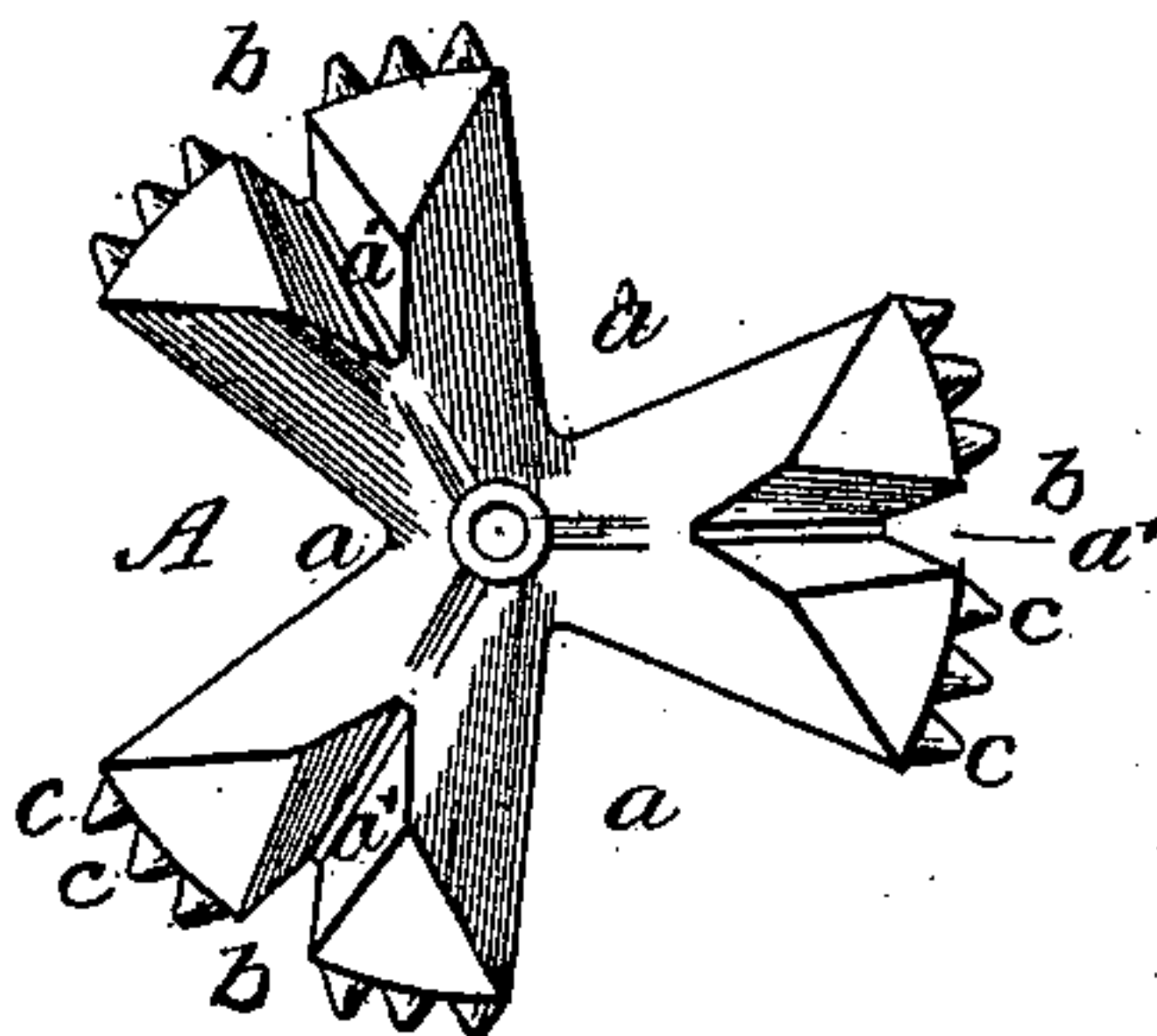


FIG. 3.

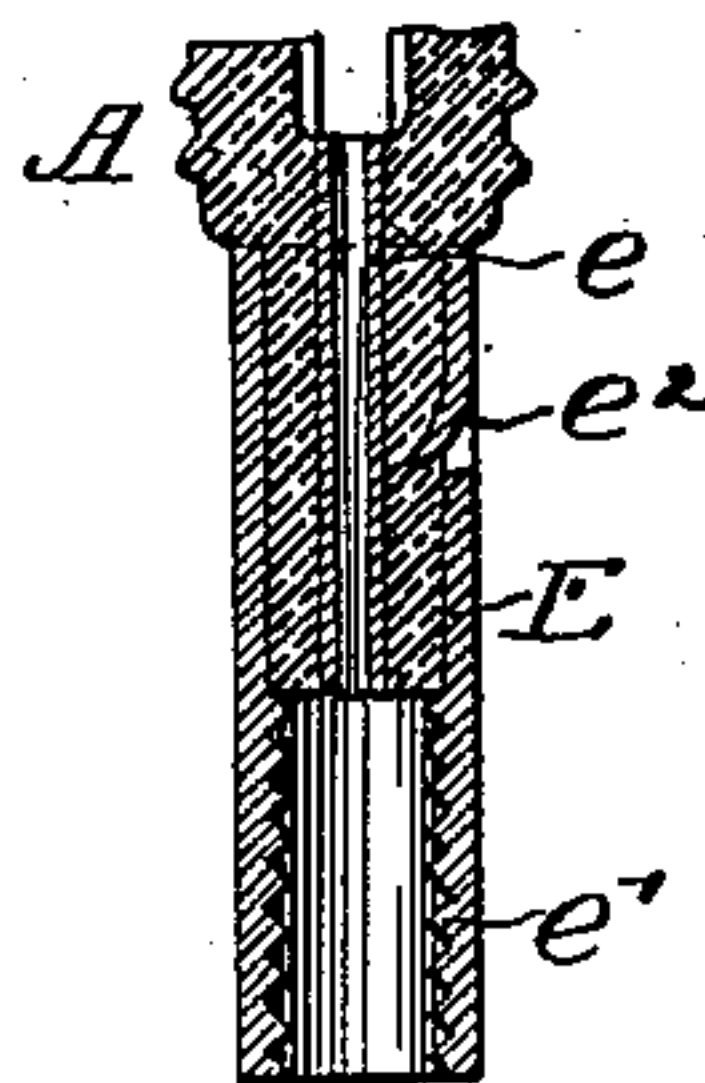
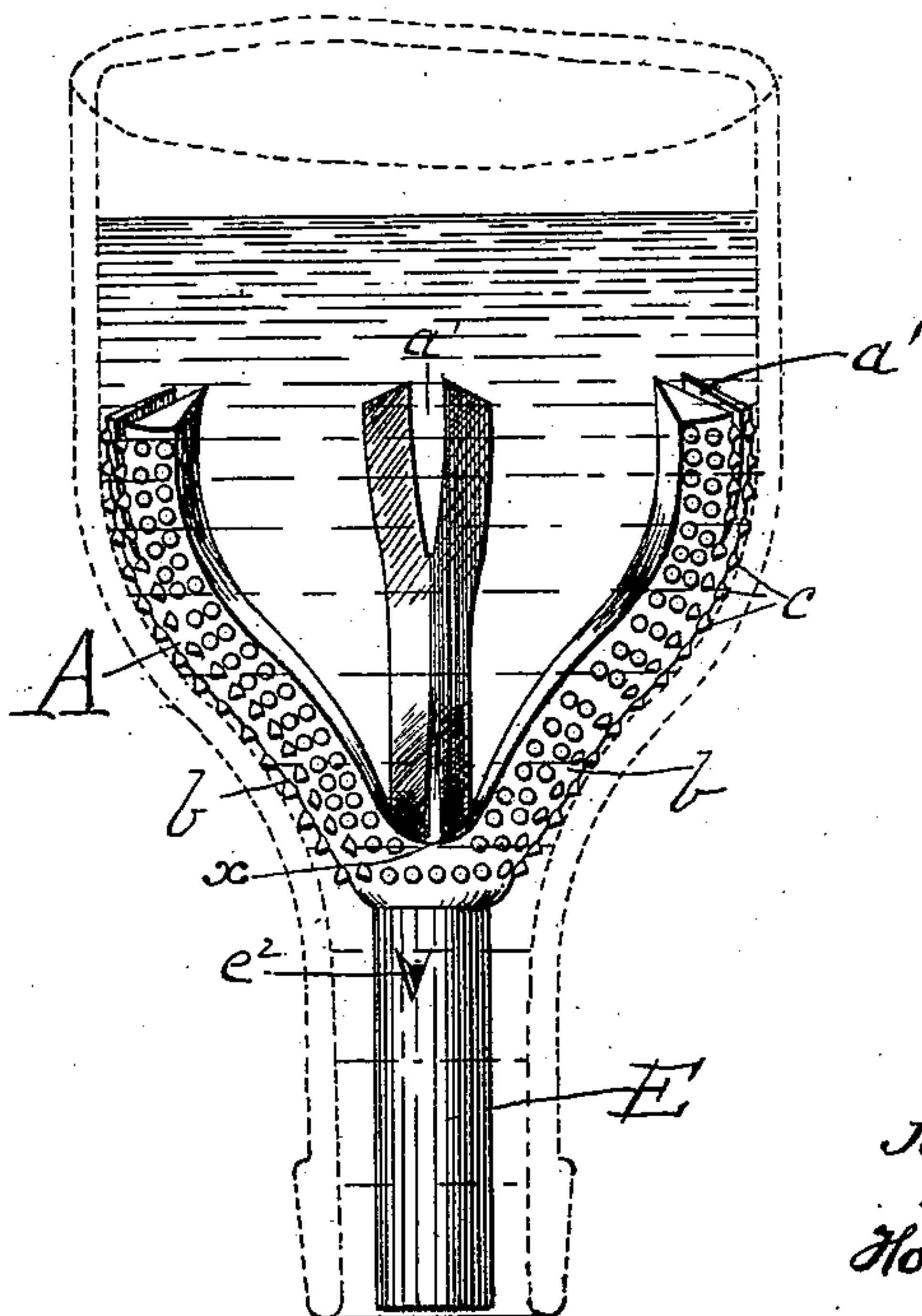


FIG. 4.



Witnesses:

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Inventor:

*John Babis*  
*by his Attorneys*  
*Howson & Howson*

# UNITED STATES PATENT OFFICE.

JOHN BABIS, OF PHILADELPHIA, PENNSYLVANIA.

## BRUSH FOR WASHING BOTTLES.

SPECIFICATION forming part of Letters Patent No. 564,497, dated July 21, 1896.

Application filed October 21, 1895. Serial No. 566,395. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN BABIS, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Brushes for Washing Bottles, of which the following is a specification.

My invention relates to certain improvements in bottle-cleaners of the type in which a flexible head has a series of arms which are projected against the interior of the bottle by centrifugal force.

One object of my invention is to form the heads with the slots therein by casting, so as to retain the tough skin and prevent splitting, and, further, to fork each member of the head, to roughen the outer surface so that it will remove all particles of dirt from the bottle, and to so secure the head to the sleeve that it will not be accidentally displaced.

In the accompanying drawings, Figure 1 is a side view of my improved bottle-cleaner. Fig. 2 is a plan view slightly enlarged. Fig. 3 is a sectional view of the lower portion of the head. Fig. 4 is a side view showing the cleaner expanded within the bottle.

Heretofore in the manufacture of bottle-cleaners of this type it has been customary to make a solid casting of rubber and cut it to form the members, the cuts extending the full length of the head. This method of manufacturing is objectionable, as the rotation of the head caused the sections to split at the points  $\alpha$  and they soon became detached.

A is the head cast in the form shown in Figs. 1 and 2, with the long slots  $a$  dividing the head into three sections,  $b b b$ , and the slots  $a'$  dividing each section, as shown, the slots  $a'$  extending only a short distance, as illustrated in Fig. 1. Both the long and short slots are formed during the process of casting the head; consequently the tough skin which is formed on the surface of any cast-rubber article is retained and splitting of the head is avoided to

a great extent, as the rubber will expand to a considerable extent, as shown in Fig. 4, without cracking, but where the members are cut apart the cut naturally weakens the joints and practically starts the tear. The outer surface of each member has a series of rounded projections  $c$ , which rub against the interior of the bottle and work into any grooves or flaws in the glass and remove the dirt therefrom.

In the base of the head is a tube  $e$  for the passage of water up through the head, and inclosing the base is a tube or sleeve  $E$ , having a threaded portion  $e'$  adapted to the spindle of the washing-machine. One or more tongues  $e^2$  are bent from the sleeve  $E$  into the base of the head  $A$ , as clearly shown in Figs. 1 and 3, retaining the sleeve.

When the cleaner is applied to the revolving spindle and it enters a bottle to be cleaned, the sections are forced outward as shown in Fig. 4, and the forked members of each section also spread, so that six rubbers are at work at one time, and the strength of each section is increased, not only by the reduction of the number of sections, but also owing to the fact that the sections are cast in the manner shown in Fig. 1.

I claim as my invention—

The combination in a bottle-cleaner, of the head made up of a series of sections, a sleeve inclosing the head, one or more tongues on said sleeve adapted to be pressed into the shank of the head so as to retain them in position, substantially as described.

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

JOHN BABIS.

Witnesses:

WILL. A. BARR,  
JOS. H. KLEIN.