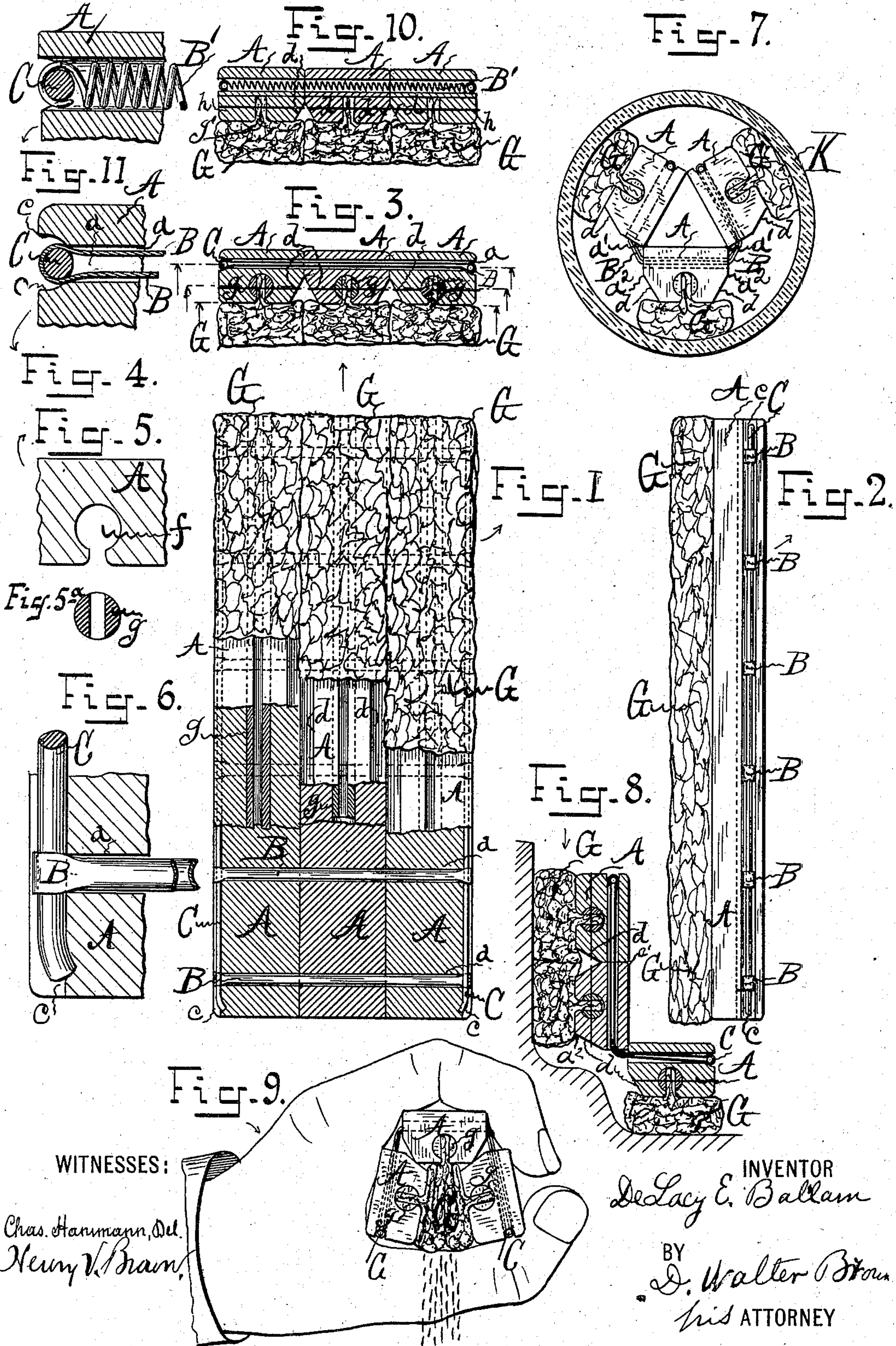


(No Model.)

DE LACY E. BALLAM.  
BRUSH.

No. 565,589.

Patented Aug. 11, 1896.





# UNITED STATES PATENT OFFICE.

DE LACY E. BALLAM, OF BROOKLYN, NEW YORK, ASSIGNOR TO PATRICK J. GRACE, OF SAME PLACE.

## BRUSH.

SPECIFICATION forming part of Letters Patent No. 565,589, dated August 11, 1896.

Application filed December 18, 1895. Serial No. 572,489. (No model.)

*To all whom it may concern:*

Be it known that I, DE LACY E. BALLAM, a citizen of the United States, and a resident of the city of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Universal Brushes, of which the following is a specification.

The invention relates to universal brushes, that is, brushes which are so constructed that their shape may be changed at will to adapt them to clean a great variety of surfaces, corners, hollow bodies, and the like.

Particularly the invention relates to such brushes when constructed with working surfaces of absorbent substances, such as sponge, and which are adapted to take up water to assist in the cleansing action of the brush.

It is an important feature of my invention that it enables the user to readily press the different parts of the absorbent material against each other for the purpose of wringing out surplus water.

Essentially the invention therefore consists in a brush made in sections which are movable on each other, and said sections being held together by springs arranged substantially perpendicular to the joints of the brush. Any deflection of a section of the brush puts increased tension on the springs, which therefore act to normally hold the brush flat and stiff, and to restore it to the flat shape after it has been put into different shapes. Thus, whenever the sections of the brush are turned out of line considerable force is exerted by the springs to turn them back into line, and this renders the brush a very useful cleaner of hollow bodies, such as tumblers, and the brush will fit into many sizes of bodies, according to the degree its sections are deflected.

Referring to the drawings which accompany the specification to aid the description, Figure 1 is a plan, partly broken away and sectioned, Fig. 2 is a side elevation, and Fig. 3 a cross-section, of the brush. Fig. 4 is an enlarged sectional detail showing how the rubber springs are positioned. Figs. 5 and 5<sup>a</sup> are enlarged details showing one device for securing sponge in the brush-backs. Fig. 6

is an enlarged detail showing a rubber spring and retaining-rod in elevation. Fig. 7 is a view of a brush placed in a hollow round body, as a lamp-chimney or tumbler. Fig. 8 is a view of the brush applied to cleaning corners and moldings. Fig. 9 illustrates how the user compresses the absorbent surfaces to squeeze out surplus water. Fig. 10 is a cross-section of a brush equipped with metal springs, and Fig. 11 is an enlarged sectional detail showing how the springs are positioned.

The brush-back is preferably made of wood and is composed of several sections A A A. Near each end, and at as many intermediate places as are desired, said sections A A A are perforated with horizontal through-and-through holes *a*, positioned so that, when the sections are placed edge to edge, the corresponding holes of each section will form a through-and-through passage-way, as seen in Fig. 3. There may be any number of sections A, and usually three will be preferable. Springs B are drawn through said holes *a*, and the ends of said springs are fastened on rods C, arranged lengthwise on the outside edges of the outside sections A. Said springs B may be of any suitable elastic material, as rubber or metal springs. In Figs. 1, 3, 4, and 6 they are shown as stout, endless rubber bands. In this case they are drawn through the aforesaid holes *a*, the rods C slipped through the loops of the bands, and the said rods C are then secured to the backs in any manner, as by bending the ends of the rods and driving them into the backs, Fig. 1. For finish the edges of the back may be recessed as at *c* to receive said rods C. When coiled springs B' are used, as in Figs. 10 and 11, the ends of said springs B' will be fastened on the said rods C. In assembling the parts said springs B or B' will be drawn out, so as to have a certain original tension on the rods C and draw the sections A A firmly together.

As shown in Figs. 3 and 10, a considerable part of the edge of each section above and below the holes *a* will be a plain surface perpendicular to the axis of the holes, so that the tension of the springs will hold the sections in line and the brush flat; but to facilitate closing the sections to squeeze out surplus water a certain part of the lower adjacent



edges is cut away on a bevel, as at  $d\ d$ , Figs. 3 and 10.

The absorbent material is preferably sponge. It can be secured to the backs in the following manner:

Longitudinal grooves  $f$ , opening through the under surface of the sections A, receive round rods  $g$ , which are split the greater part of their length. Pieces of sponge G are caught in the cleft of the rods  $g$  and fastened therein by tacks or rivets. Small waste pieces of sponge can be used, such pieces being arranged one after the other the length of the rods  $g$ . When said rods  $g$  are furnished with the sponge, they are slipped from one end into the grooves  $f$  and then nailed therein. In Fig. 10 the sponge G is shown secured in grooves  $g'$ , which are formed in strips  $h$ , that are nailed on the sections A A.

It will be evident that when the sections A are deflected in one direction the upper corners  $a'$  of the sections become the pivots, and when they are deflected in the other direction the lower corners  $a^2$ , or even some parts lower down, become the pivots about which the sections turn, and as both such corners are out of the line of the axis of the springs the deflection in either direction stretches the springs, which therefore restores the sections to their original position as soon as the deflecting force is removed.

For cleaning such a body as a tumbler or lamp-chimney K the sections A A are bent back until the brush will enter the body, and then, upon the user removing his hand, the sections spring out against the surface to be

cleaned. Thus the brush adapts itself to a considerable range of sizes of articles.

To get into corners and around moldings, the brush can be bent into various shapes, one of which is shown in Fig. 8.

To squeeze the brush, as, after dipping it in water, the user deflects the sections inwardly, as seen in Fig. 9, and thereby presses the different parts of the sponge one on the other and expresses the surplus water. As soon as the pressure is removed the sections spring back to their normal position.

I prefer to use sponge as the absorbent material on the working faces of the sections of the brush, but I may employ other substances, as waste, felt, or bristles.

Now, having described my improvements, I claim as my invention—

The combination in a brush, of a plurality of backs, transverse holes through each of said backs positioned so that corresponding holes are all in the same right line, elastic bands passing through said holes, fastenings for securing the ends of the bands to the outside sections of the backs, and pivotal portions on the adjacent edges of the sections of the backs positioned out of the line of said bands, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 16th day of December, 1895.

DE LACY E. BALLAM.

Witnesses:

HENRY V. BROWN,  
DAVID W. BROWN.