

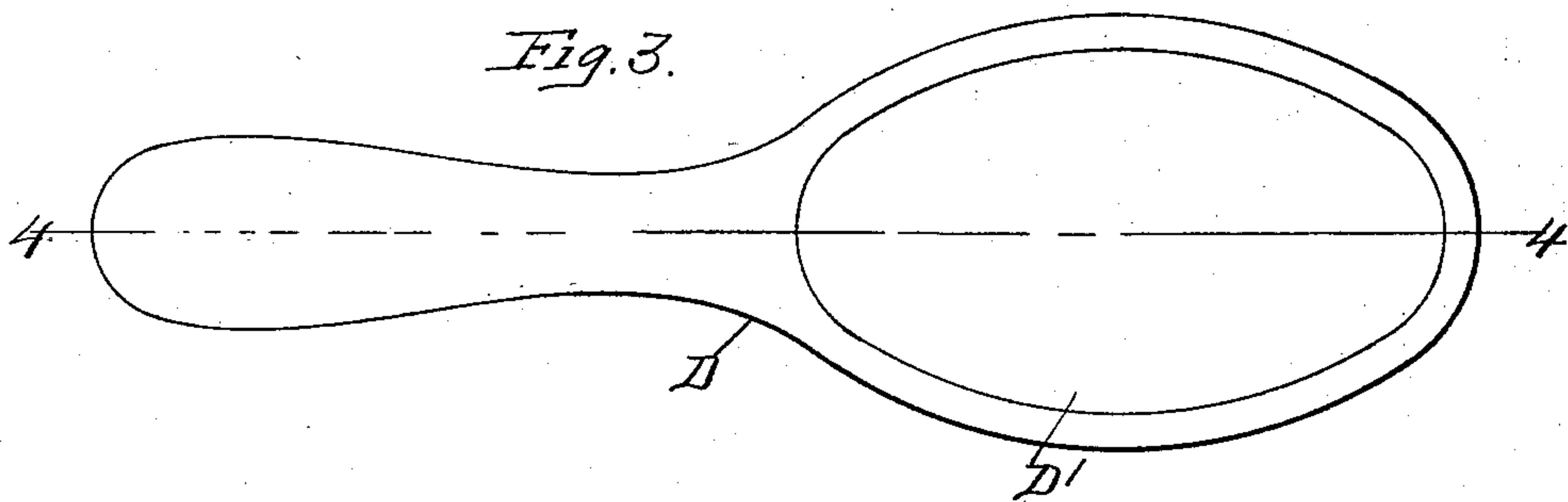
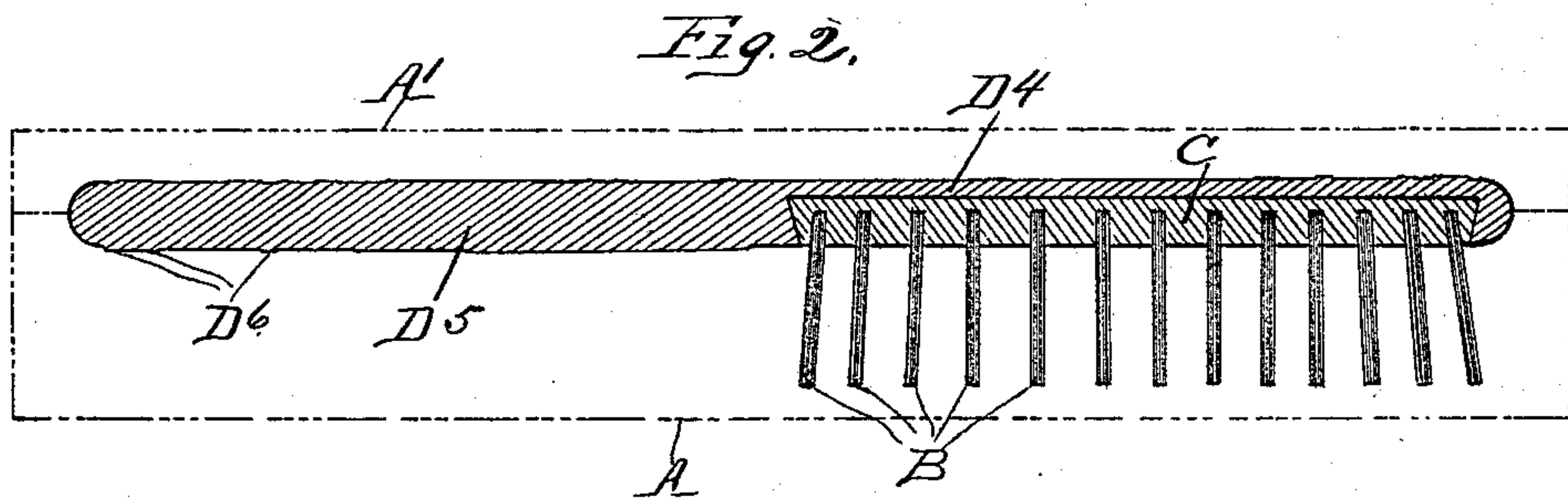
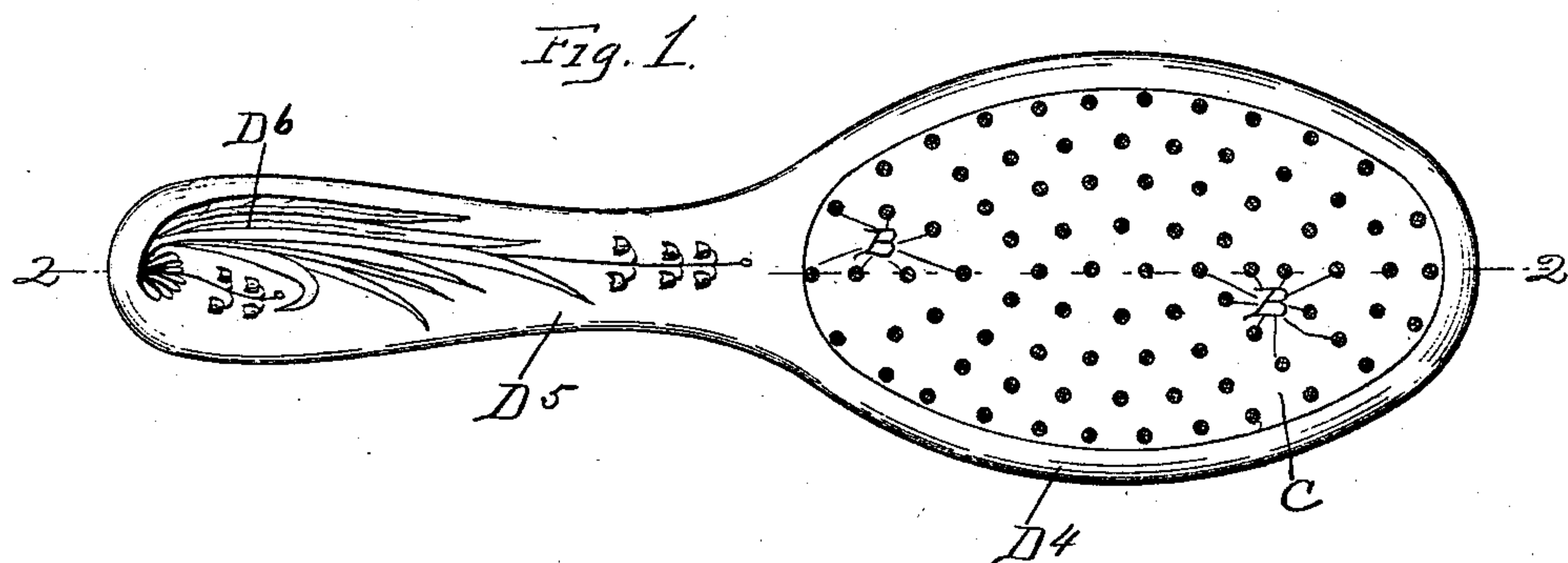
(No Model.)

2 Sheets—Sheet 1.

W. MORRISON.  
BRUSH.

No. 539,903.

Patented May 28, 1895.



Witnesses:  
G. H. Curtis  
J. E. Curtis

Inventor:  
William Morrison  
By Mosher & Curtis  
Attys.

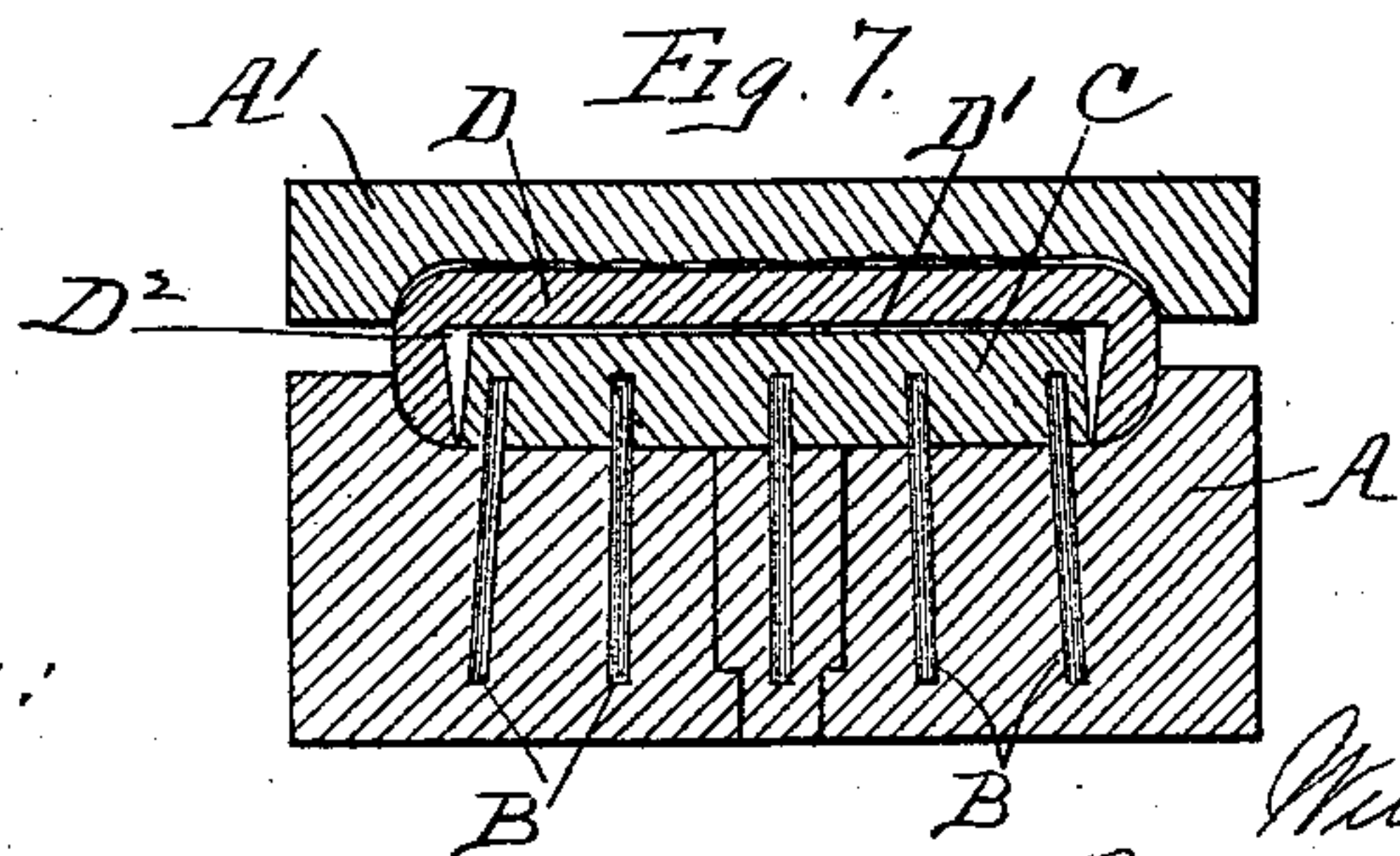
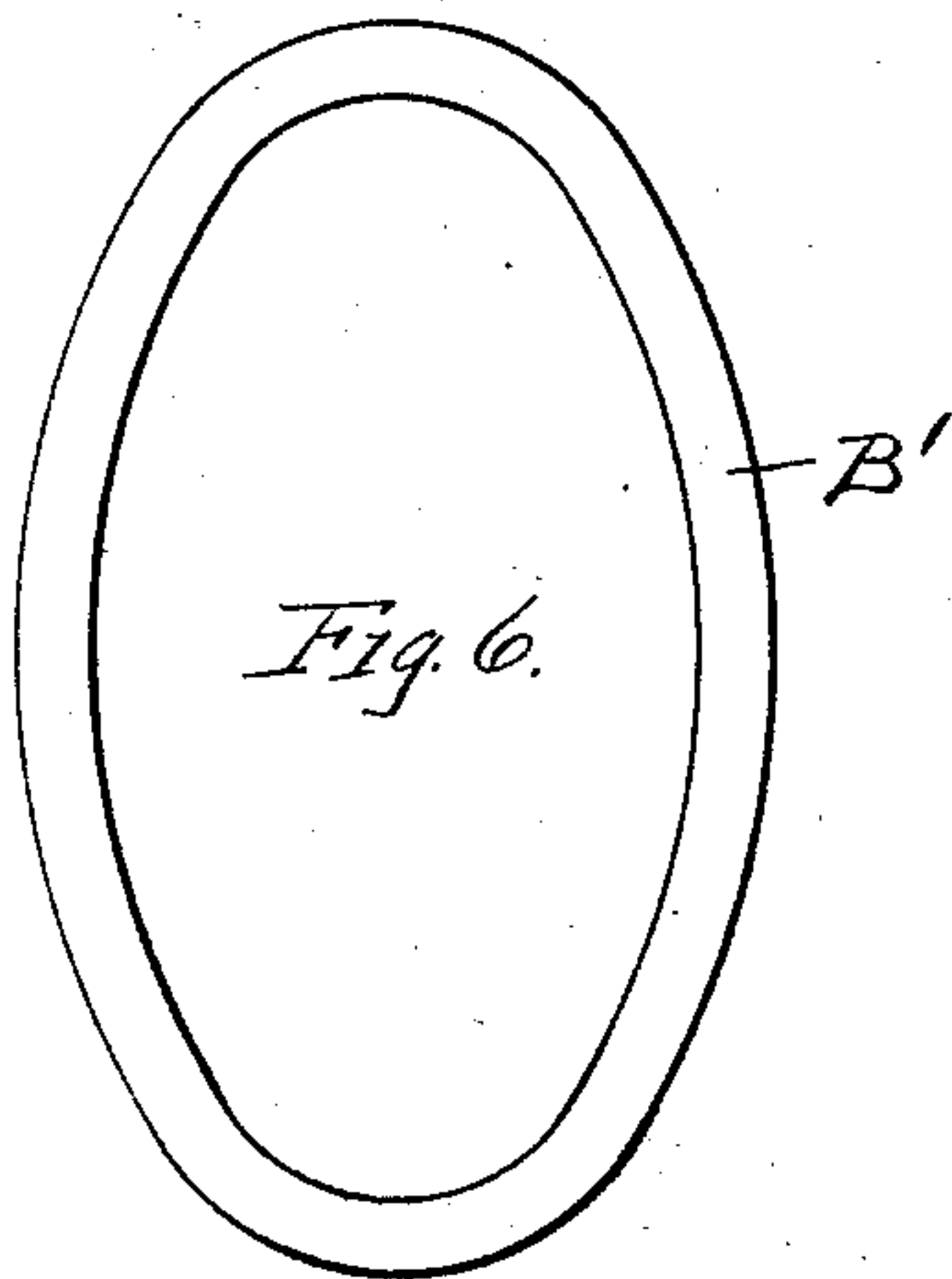
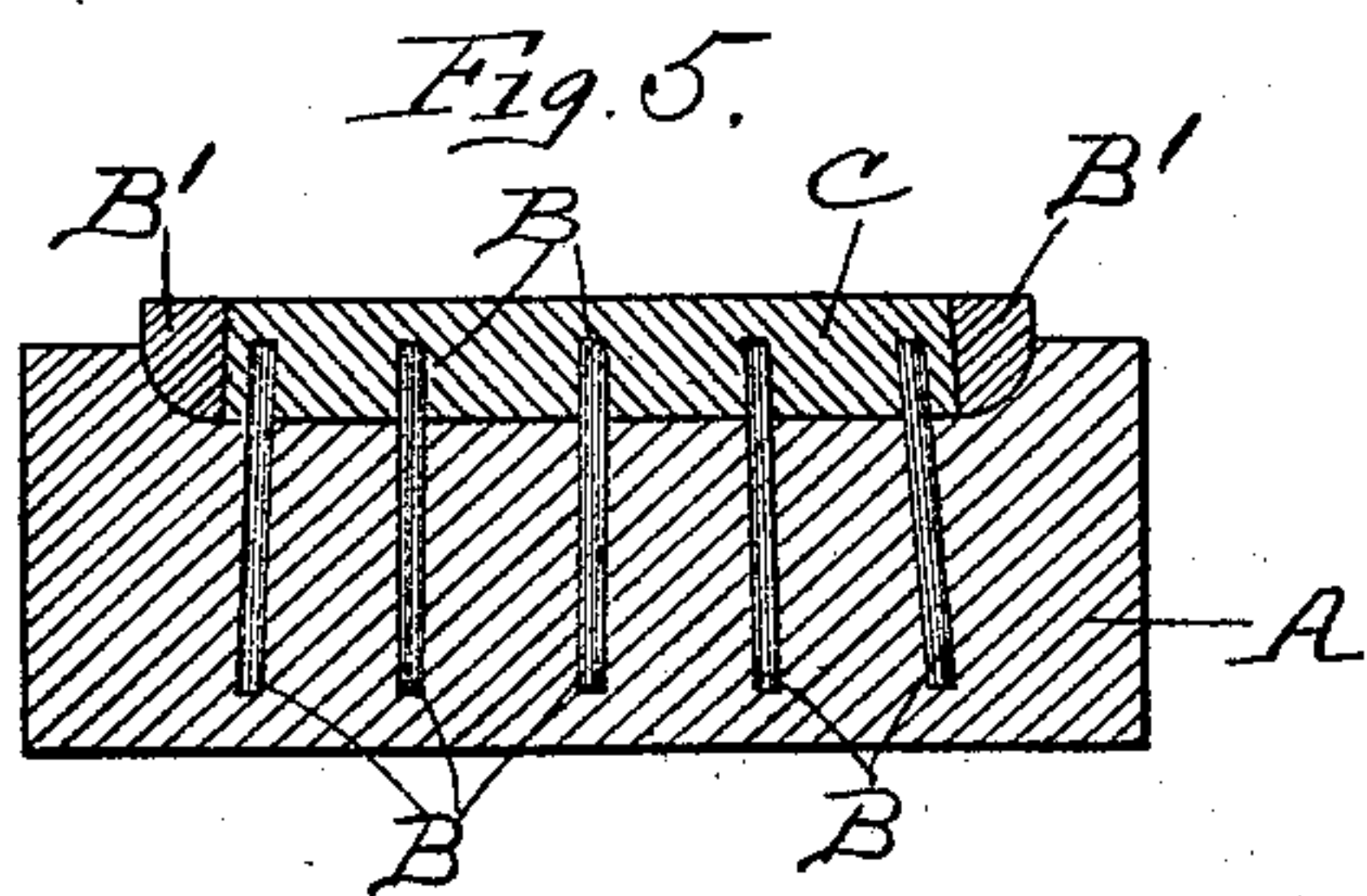
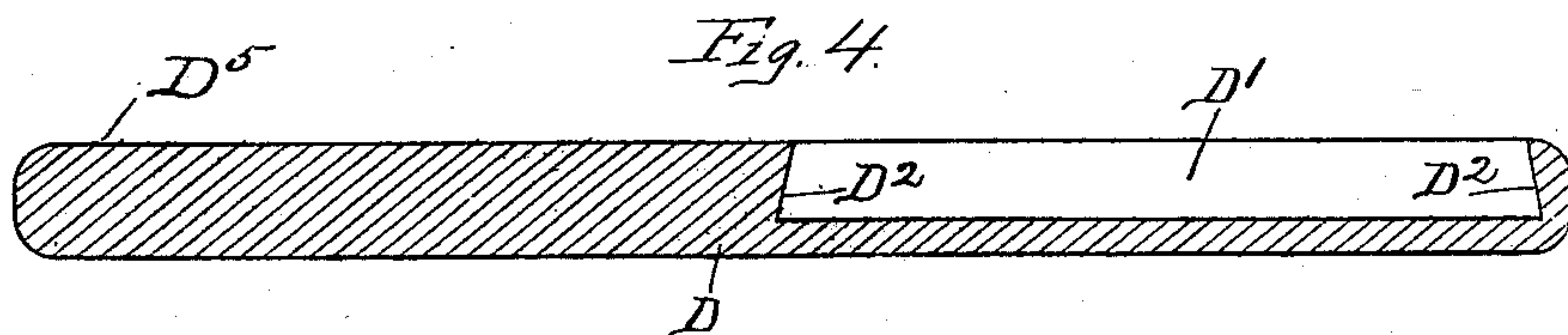
(No Model.)

2 Sheets—Sheet 2.

W. MORRISON.  
BRUSH.

No. 539,903.

Patented May 28, 1895.



Witnesses:  
G. N. Curtis.  
J. E. Curtis.

Inventor:  
William Morrison  
By Mosher Curtis  
attys.



# UNITED STATES PATENT OFFICE.

WILLIAM MORRISON, OF LANSINGBURG, NEW YORK, ASSIGNOR TO EMMA MORRISON, OF SAME PLACE.

## BRUSH.

SPECIFICATION forming part of Letters Patent No. 539,903, dated May 28, 1895.

Application filed January 5, 1895. Serial No. 533,947. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM MORRISON, a citizen of the United States, residing at Lansingburg, county of Rensselaer, and State of New York, have invented certain new and useful Improvements in Brushes, of which the following is a specification.

The invention relates to such improvements and consists of the novel construction and combination of parts hereinafter described and subsequently claimed.

Reference may be had to the accompanying drawings, and the letters of reference marked thereon, which form a part of this specification.

Similar letters refer to similar parts in the several figures therein.

Figure 1 of the drawings is a face view of a finished brush. Fig. 2 is a vertical longitudinal section of the same, taken on the broken line 2 2 in Fig. 1, the relative position of the die-mold sections being indicated by dotted lines. Fig. 3 is a face view of a recessed back-blank made of wood, without the bristle-supporting block. Fig. 4 is a longitudinal vertical section of the same, taken on the broken line 4 4 in Fig. 3. Fig. 5 is a vertical cross-section of one of the die-mold sections, the ring for molding a plastic bristle-supporting block, and a molded block with bristles. Fig. 6 is a top plan view of the block-molding ring detached. Fig. 7 is a vertical cross-section of both die-mold sections inclosing a recessed wooden back-blank, having a molded compressible bristle-block within the back-recess.

The object of my invention is to secure a compressible bristle-supporting block, molded from plastic material, in an undercut recess in the face of a partially formed back-blank of wood, by compression in suitable die-mold sections, and at the same time impart to the back-blank and block the desired form for a brush. The mold-sections may be like those employed for making brushes in which the bristle-supporting block is molded integral with the back from plastic material, and shown in United States patent issued to me for improvements in brush-molds, January 8, 1895, No. 532,210.

In the manufacture of my improved brush, I insert the bristles in the bristle-apertures or

recesses in one section A of the mold, forming the bristle-tufts B which project up above the molding surface that forms the face of the bristle-block. I then place the molding-ring B' upon the mold-section so as to inclose within the ring the projecting bristles and pour or pack around the bristles plastic material, which will afterward harden and support the bristles, until the space inclosed by the ring is filled, thereby producing a molded bristle-supporting block C. When the plastic material has sufficiently hardened, I remove the molding ring and substitute in its place the back-blank D having in its face a recess D' of a size and form to receive and approximately fit the bristle-block, as shown in Fig. 7.

The peripheral edges of the molded block are slightly beveled so that the block tapers outwardly from its supporting mold-section, the molding-ring being correspondingly beveled so that it may be easily withdrawn from the molded block. The recess walls of the back blank are beveled in the opposite direction, or undercut, as shown at D<sup>2</sup>, whereby the block will be firmly secured to the back, if the block is expanded edgewise to fill the undercut recess. To produce the desired expansion of the block edgewise, I then place the other section A' of the mold upon the back of the blank and press the sections together in a hydraulic or other powerful press. As the mold-sections come together, the bristle-block and back-blank are both compressed and given form. The compression of the block makes it thinner and expands it edgewise so that it tightly fills the entire recess in the finished back D<sup>4</sup>, as seen in Fig. 2. The blank is also made thinner and made to correspond in shape to the die-surfaces of the mold-section or sections, which engage it.

When desired, the die-surfaces may be provided with ornamental figures which will form corresponding ornamental figures upon the finished back. The back may have any desired general shape, and a handle D<sup>5</sup> of any desired form. Ornamental figures D<sup>6</sup> may be formed by the dies upon the handle-part.

When desired, the plastic material forming the bristle-block may be allowed to harden by cooling before the parts are compressed, and the exposed surfaces which are to be forced into contact with the back softened by



heating, thereby insuring the edgewise expansion necessary to fill the undercut space in the recess without danger of disturbing the relative position of the bristle tufts located in the hard part of the material.

The undercut walls of the recess may be of any known form which will clasp the edges of the compressed block to prevent its escape.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a brush, the combination with a back having an undercut recess in its face, of a bristle-supporting block formed of plastic material expanded edgewise in the recess by pressure, whereby it is secured to the back, substantially as described.

2. That improvement in the method of making brushes, which consists in compressing a bristle-supporting block within a recess in the face of a compressible back-blank, and at the same time molding the blank into a brush-back by pressure upon inclosing mold-sections, substantially as described.

3. That improvement in the method of making brushes in a mold, which consists in mold-

ing a bristle-supporting block from plastic material around tufts of bristles in one section of the mold, then forcing the molded bristle-block into an undercut recess in the face of a compressible back-blank, and at the same time molding the blank into a brush-back by pressure upon the inclosing mold-sections substantially as described.

4. The herein described method of making brushes which consists in molding a bristle-supporting block from plastic material around tufts of bristles in one section of the mold, allowing the molded material to harden by cooling, and softening the exposed surfaces of the molded material by heating, and then forcing the softened portion of the bristle-block into an undercut recess in the face of a brush-back.

In testimony whereof I have hereunto set my hand this 24th day of December, 1894.

WM. MORRISON.

Witnesses:

FRANK C. CURTIS,

HARRY H. ROUSSEAU.