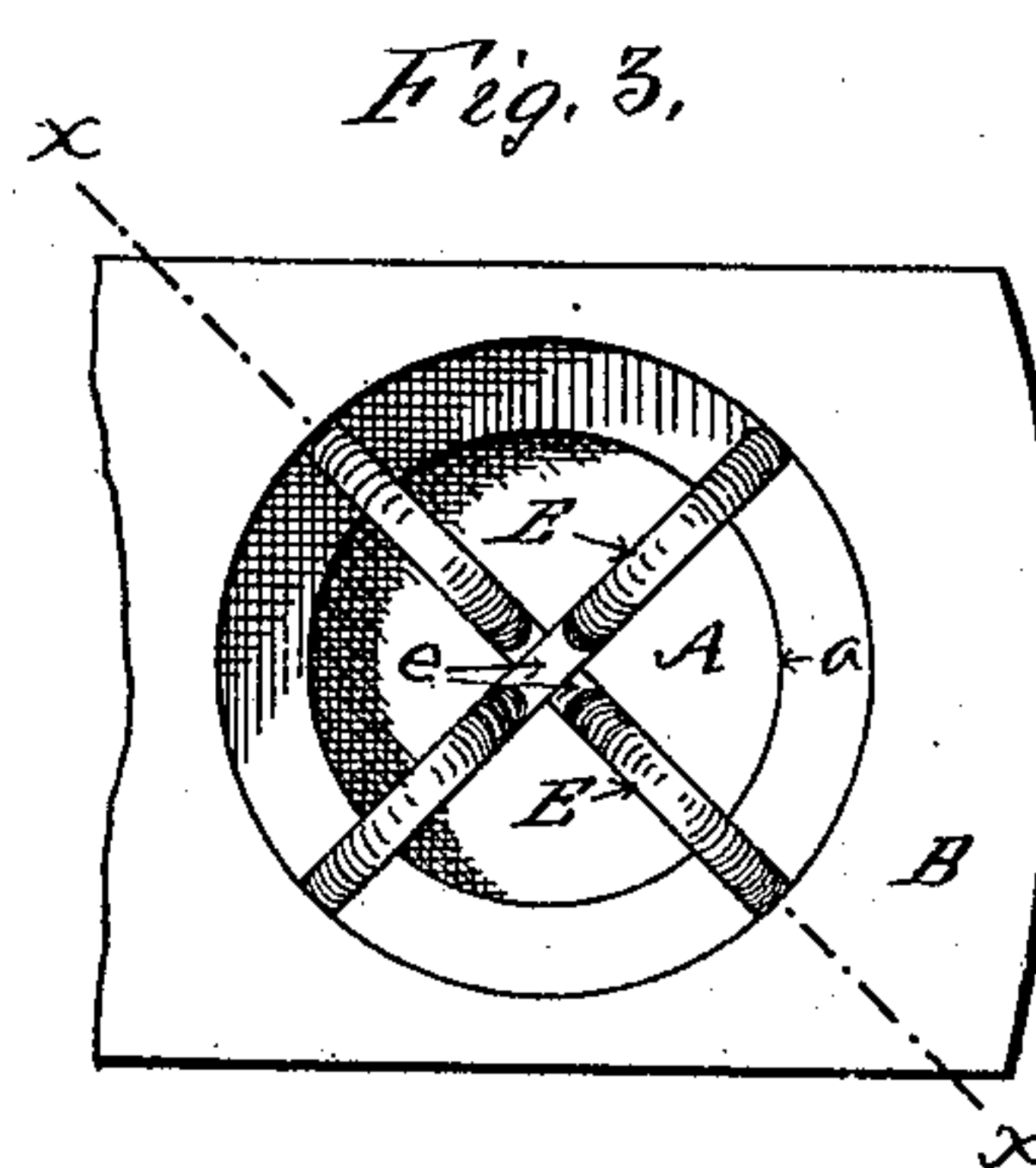
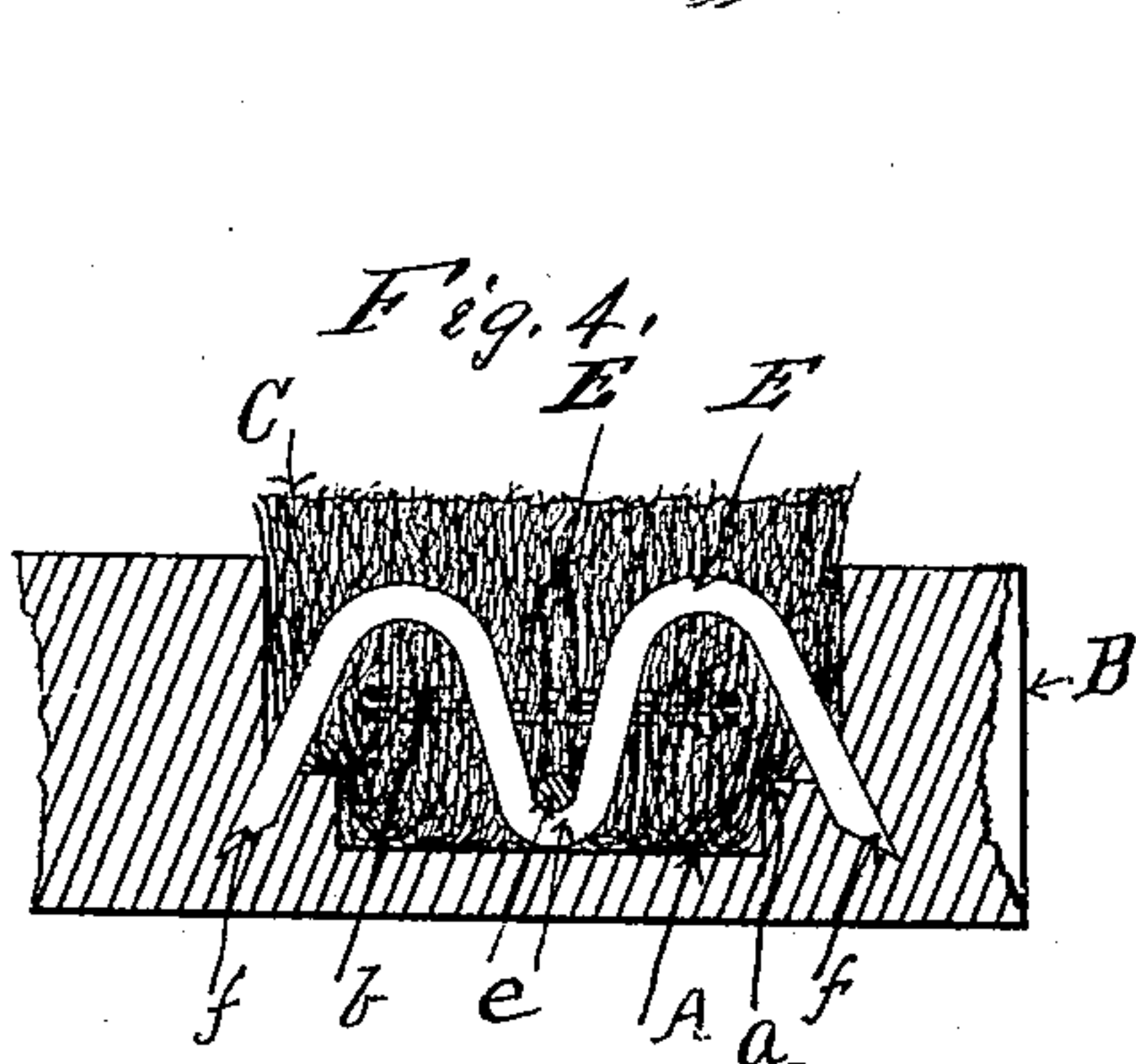
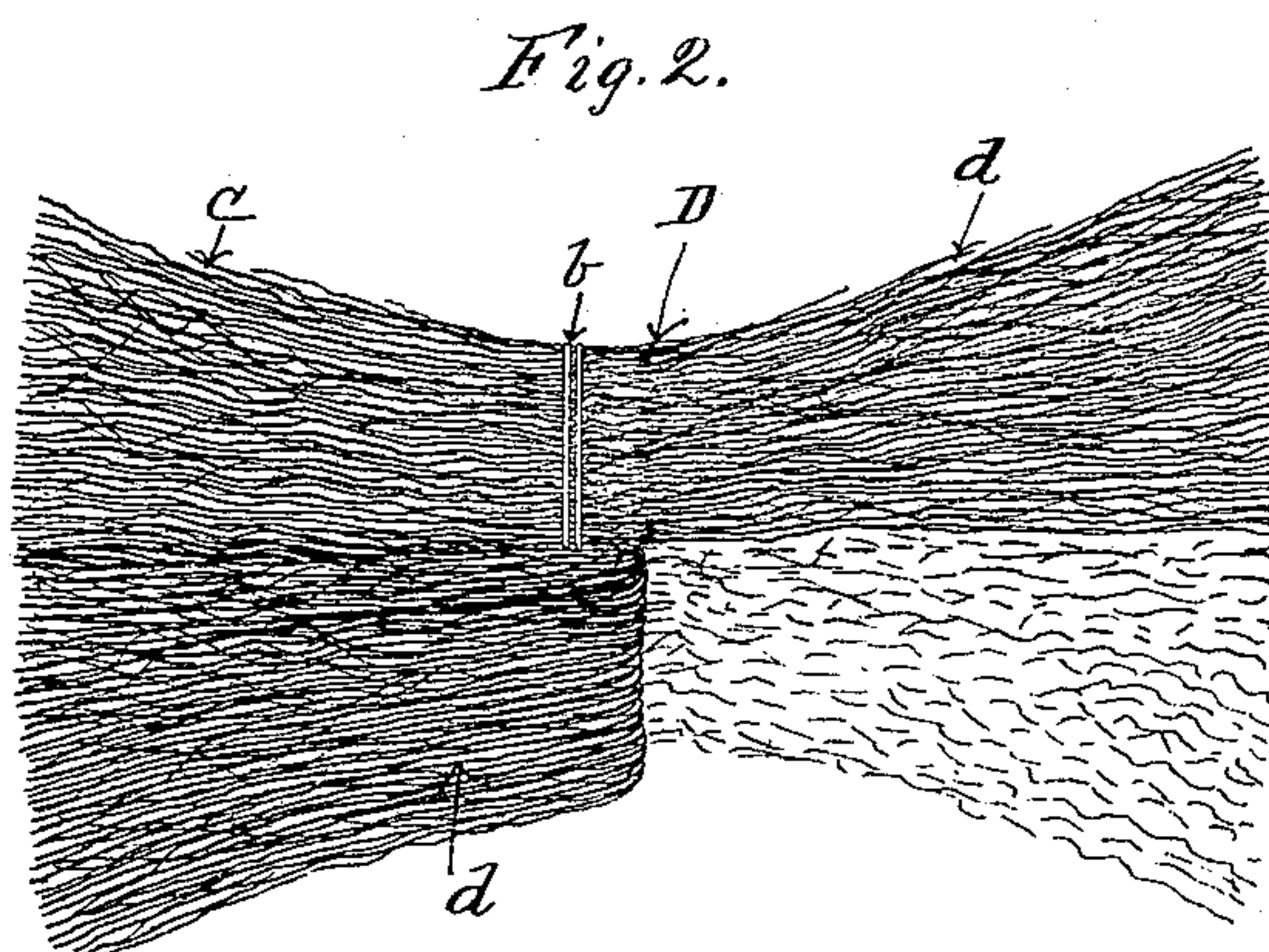
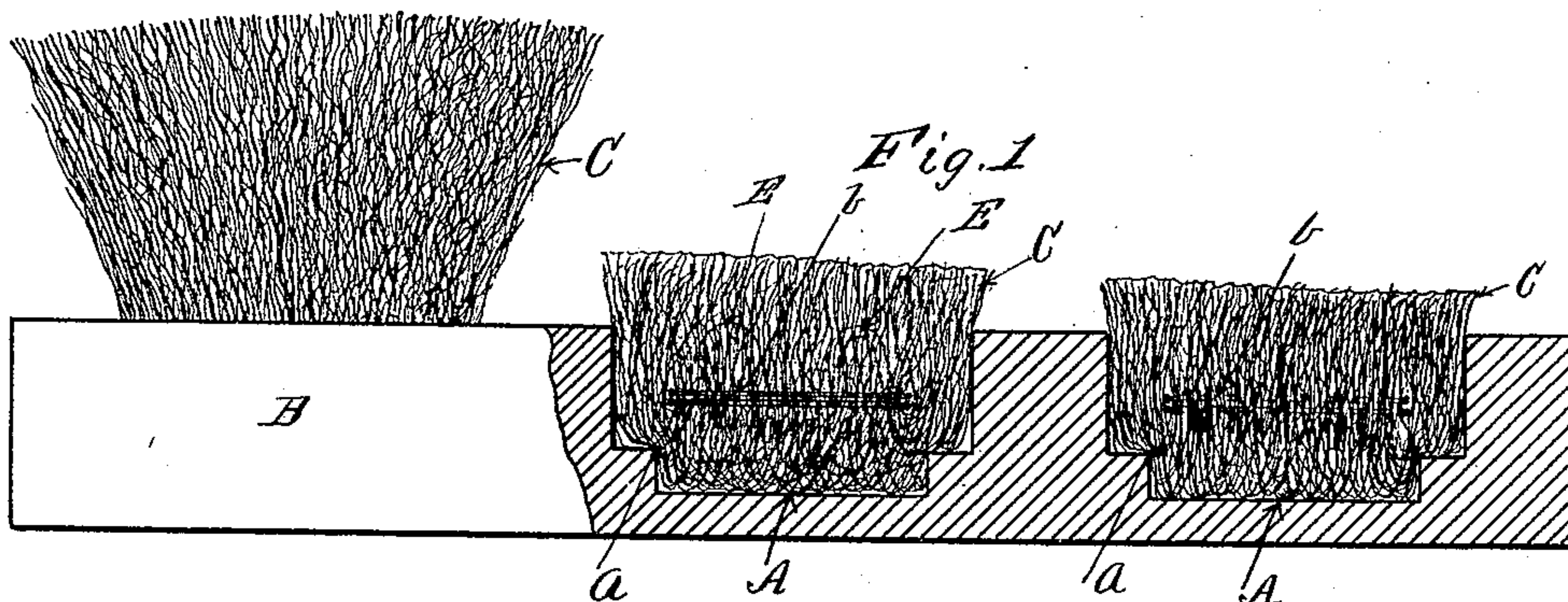


(Model.)

E. I. MILLER.  
BRUSH.

No. 484,107.

Patented Oct. 11, 1892.



WITNESSES

F. J. Bannix

A. L. Jackson

INVENTOR

Edward I. Miller.

By H. Sturgeon  
Atty.



# UNITED STATES PATENT OFFICE.

EDWARD I. MILLER, OF WESTFIELD, NEW YORK, ASSIGNOR TO THE  
BUSINESS MEN'S MANUFACTURING COMPANY, OF SAME PLACE.

## BRUSH.

SPECIFICATION forming part of Letters Patent No. 484,107, dated October 11, 1892.

Application filed July 20, 1891. Serial No. 400,175. (Model.)

*To all whom it may concern:*

Be it known that I, EDWARD I. MILLER, a citizen of the United States, residing at Westfield, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Brushes; and I 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention consists in the improvements in brushes hereinafter set forth and explained and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, partially in section, of my improved brush. Fig. 2 is a view of one of my improved brush-tufts in process of construction. Fig. 3 is a top or plan view of one of the tuft-holes in the brush-block, showing the relative positions of the staples for securing the tuft therein. Fig. 4 is a diagonal vertical section of a portion of my improved brush on the line *xx* in Fig. 3.

Like letters refer to like parts in all the figures.

In the construction of my improved brush I preferably bore the tuft-holes A in the brush-block B, so as to leave a small annular ledge *a* at the bottom of the hole A, as and for the purpose hereinafter set forth.

In making the tufts C for my improved brush I take a bunch of fibers or bristles D, Fig. 2, of about two-thirds the size of the tuft-hole A, and bind it firmly with wire, cord, or other suitable binder *b* at one side of the center thereof. I then divide the longer end *d* of the bunch D centrally and fold it outward over the binder *b*, so as to annularly surround the shorter end *c* of said bunch D, as illustrated by the partial folding of the same in Fig. 2. The folded end of the tuft so formed is then thrust into the tuft-hole A in the brush-block B.

For securing the tuft C in place in the tuft-hole A, I use staples E, made with a central depression *e*, which when the staple is being driven home passes down centrally through the tuft C nearly to the bottom of the hole A

and operates as a guide to prevent the staples from turning sidewise while being driven. The points *f* of these staples are cut diagonally, so that when being forced downward they engage with the annular ledge *a* in the tuft-hole A, and the points *f f* are thereby carried outward, so that they enter the brush-block B, as illustrated in Fig. 4, and become so firmly engaged therein that they hold the tuft C securely in place.

In securing the tuft C in place I preferably use two staples E, placed diagonally in the brush-block B and at right angles to each other. It is, however, obvious that in securing small tufts in a brush-block a single staple would be sufficient.

In the construction of my brush-block I have shown a brush having but three large circular tufts. It is obvious, however, that my improved brush may be constructed of any convenient number of small tufts.

Having thus fully described my invention, so as to enable others to construct and use the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a brush, of a brush-block provided with tuft-holes A and brush-tufts consisting of bunches of brush fiber bound together near the centers thereof and having their longer ends centrally divided and turned outward and backward over the binders thereon, with staples E, provided with central depressions *e*, substantially as and for the purpose set forth.

2. The combination, in a brush, of a brush-block provided with tuft-holes A, formed with ledges *a*, and brush-tufts consisting of bunches of brush fiber bound together near the centers thereof and having their longer ends centrally divided and turned outward and backward over the binders thereon, with staples E passing down over the tuft-binders and provided with central depressions *e*, passing down inside of the binders, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD I. MILLER.

Witnesses:

BYRON FENNER,  
WILLIAM RUSSELL.