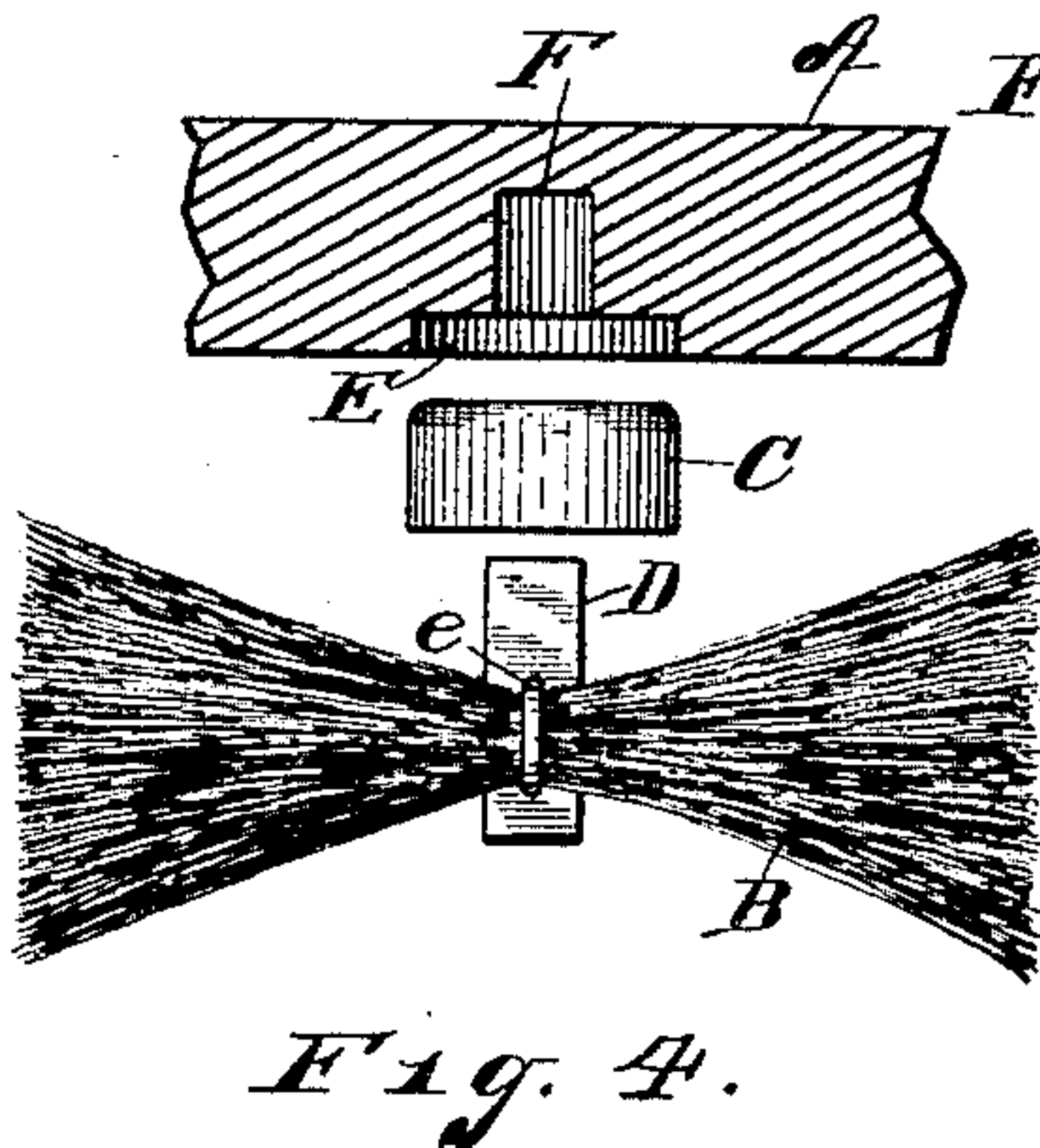
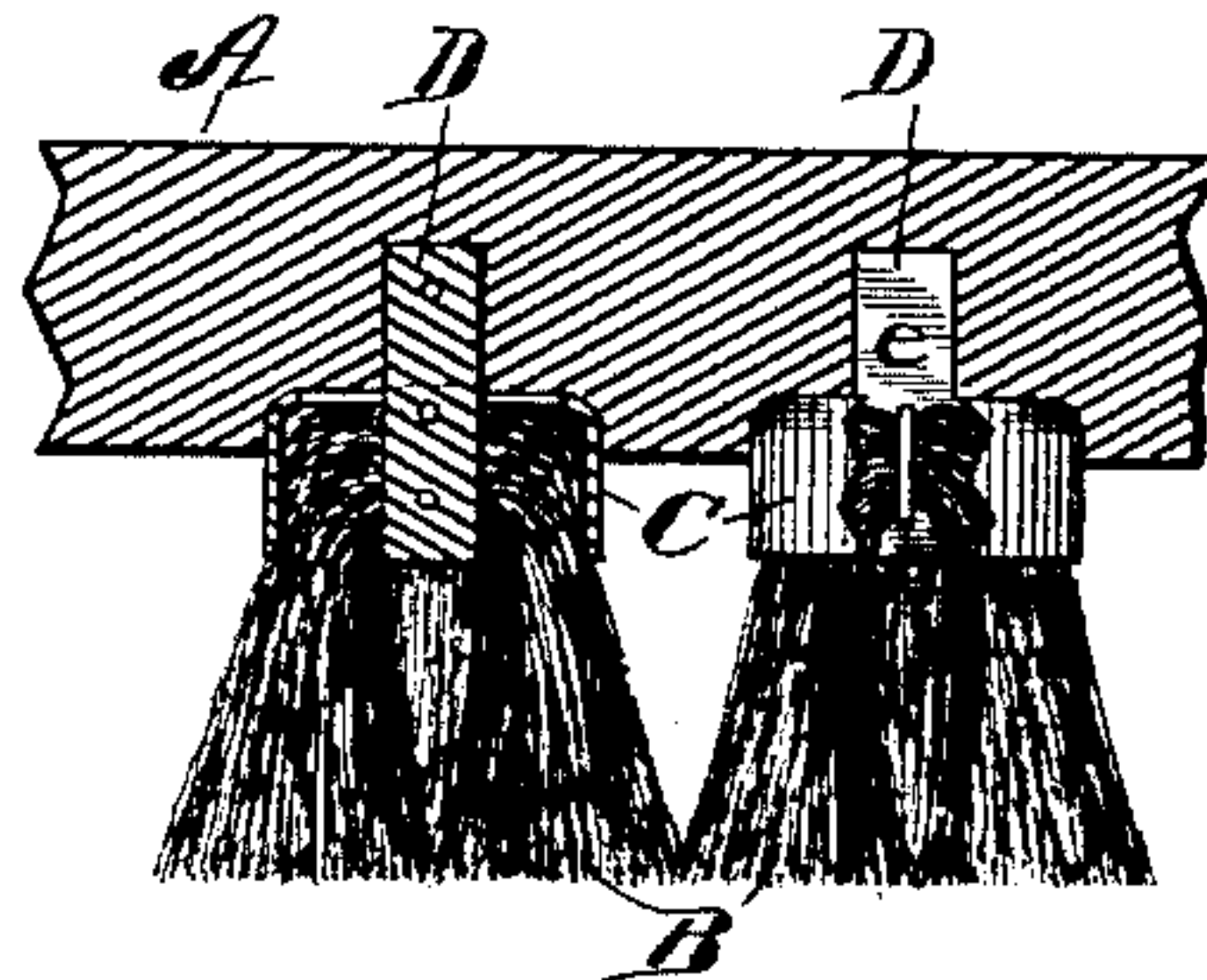
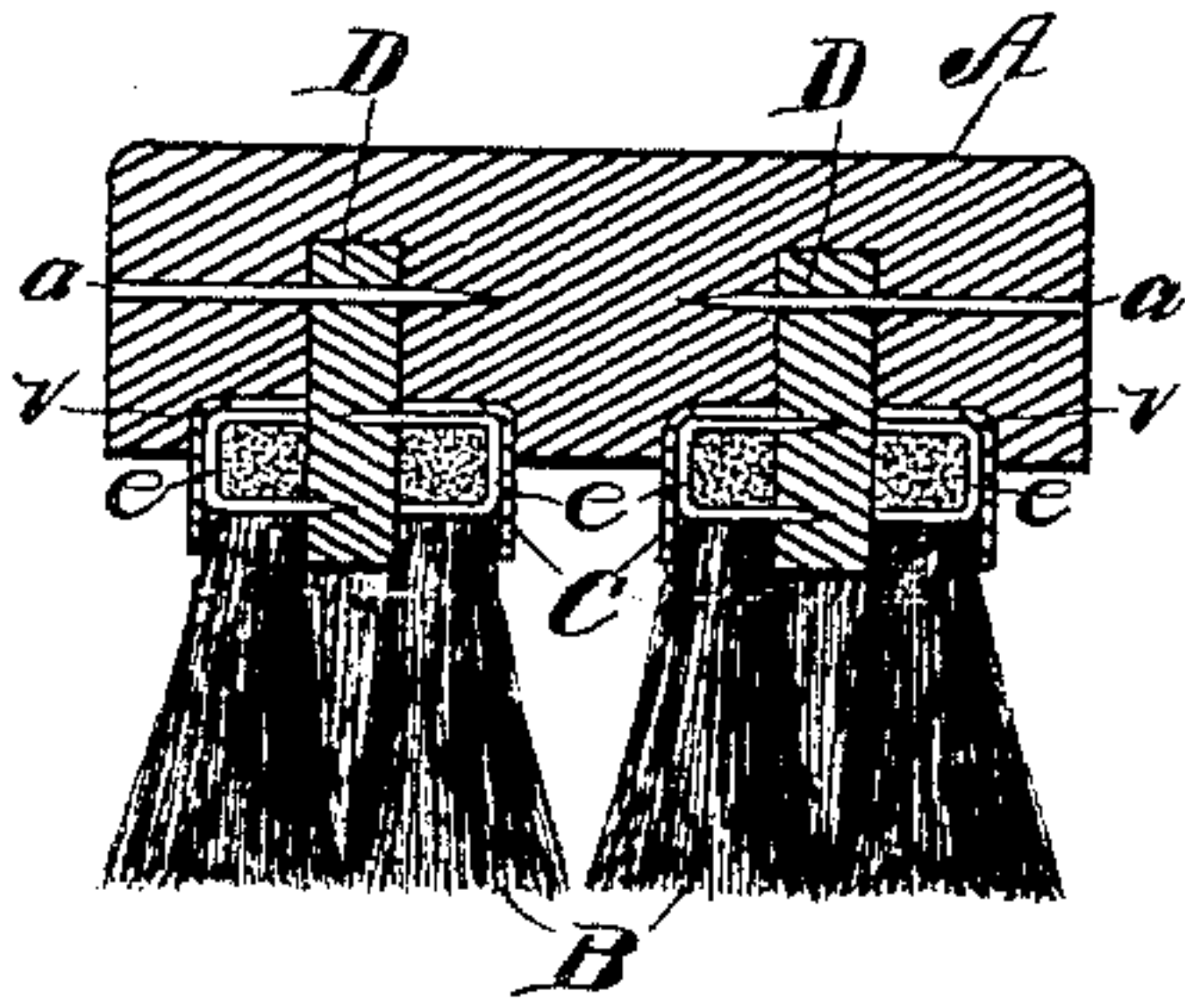
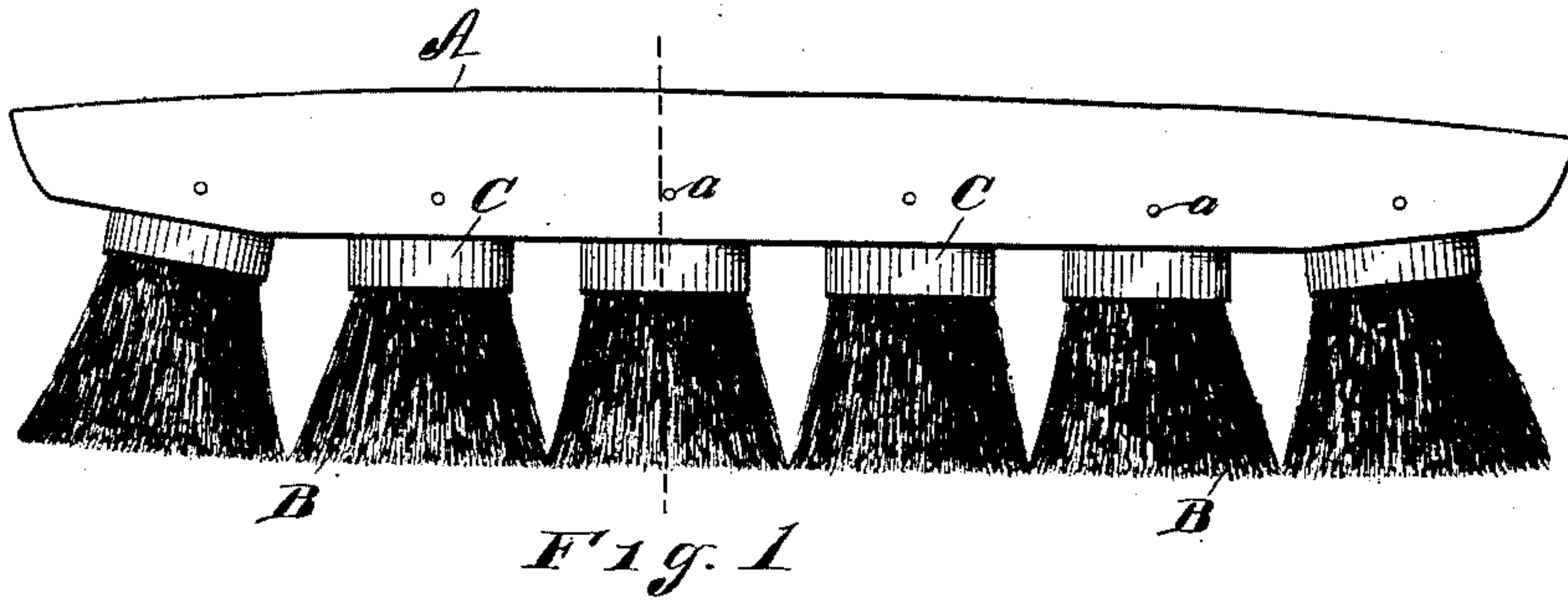
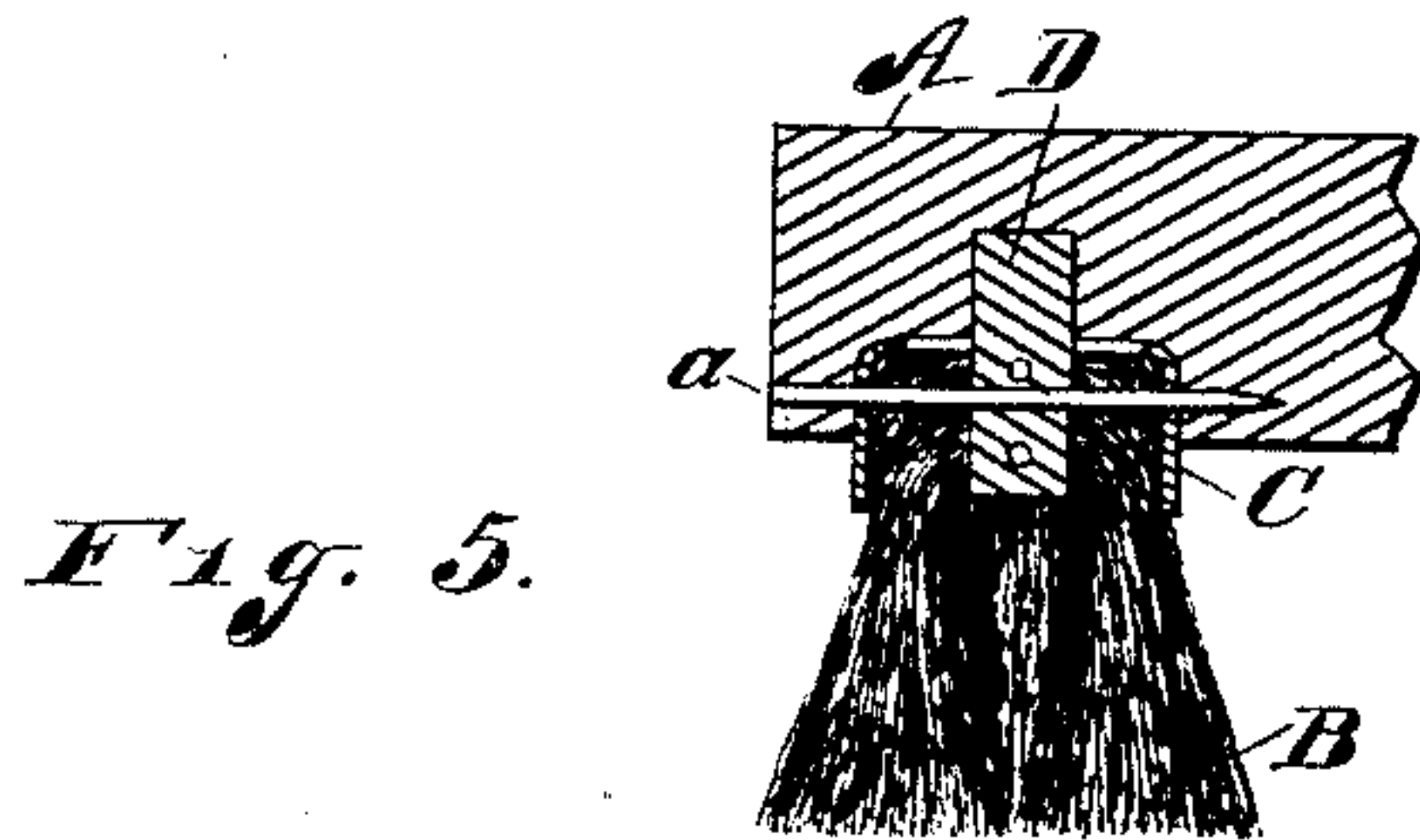


(Model.)

W. H. GATES & F. C. WELSH.
BRUSH.

No. 450,668.

Patented Apr. 21, 1891.



WITNESSES.

R. D. Wheeler
E. S. Wheeler

INVENTORS

W. H. Gates
F. C. Welsh
By *Russell D. Wheeler*
Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM H. GATES AND FORBES C. WELSH, OF WINDSOR, CANADA.

BRUSH.

SPECIFICATION forming part of Letters Patent No. 450,668, dated April 21, 1891.

Application filed June 16, 1890. Serial No. 355,534. (Model.)

To all whom it may concern:

Be it known that we, WILLIAM H. GATES and FORBES C. WELSH, the latter a British subject, the former a citizen of the United States, both residing at Windsor, Ontario, Canada, have invented certain new and useful Improvements in Brushes; and we do 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, which form a part of this specification.

This invention relates to brushes; and it consists in a new and novel manner of securing the bristles within the head or body of the brush, which will be hereinafter more fully set forth, and the essential features pointed out particularly in the claims.

In the accompanying drawings, forming a part of the specification, Figure 1 is a side elevation of a brush in which the bristles are secured by our improved means. Fig. 2 is a cross-section on dotted line of Fig. 1. Fig. 3 is a longitudinal section through a portion of the brush, taken at right angles to Fig. 2, the ferrule and post within the brush-head at the right of said figure being in elevation, a portion of the ferrule being broken away, showing the bristles folded therein. Fig. 4 is a view of a section through a portion of the brush-body, showing the recess therein, said view also showing the ferrule and a tuft of bristles secured to the post or plug in elevation, said parts being drawn apart. Fig. 5 is a sectional view through one of the cells of the brush-head, showing a modification in which the ferrule is sunk deeper into the brush-head and the securing-nail passed through the ferrule, as well as the post to which the bristles are secured.

Referring to the letters of reference, A indicates the body of the brush, which is provided in its under face with a series of annular recesses E, having the reduced sockets F leading centrally therefrom.

B indicates the bristles or fibers of the brush, a tuft of which is secured on each of two opposite faces of the stem or wooden post D by means of the staples *e e*, (clearly shown in

Figs. 2 and 4,) the staples being driven firmly into the post, so as to closely compress the bristles and secure them tightly thereto.

C indicates an annular metal ferrule, which is placed in the recess E in the body of the brush and into which the post D, with the bristles attached thereto, is forced, the bristles doubling within the ferrule and their ends protruding therefrom, as clearly shown in Fig. 3, the post D passing through the ferrule and into the socket F of the brush-head, in which it is secured by the nail *a*, that is driven through the brush-head and into said post, as shown in Fig. 2.

As the post and bristles are forced into the ferrule and socket in the brush-head, the staples *e e*, that secure the bristles to the post, strike and bear against the annular shoulder *v* of the ferrule, thus securely retaining the ferrule within the recess E of the brush-head; and as an additional security the recess E may be formed deeper in the brush-head, so as to sink the ferrule farther therein, in which it may be secured by driving the nail *a* through said ferrule, as well as the post D, as clearly shown in Fig. 5. By this arrangement of securing the bristles to the post D and forcing said post and bristles into the ferrule C within the brush-head the bristles are firmly anchored in the cells of the brush and are supported and held in place by said ferrule, which also prevents the post and bristles from swelling and splitting the head of the brush, said arrangement of parts producing a brush of attractive appearance and one of great strength and durability, in which the bristles or fibers are so firmly held within the cells as to prevent them from working loose and falling out.

The stem or post D may be cemented to the brush-body within the socket or otherwise secured therein without departing from the nature of our invention.

Having thus fully set forth our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In combination with the brush-body having the annular recess in its under face and the socket leading centrally therefrom, the metal ferrule located in said annular recess and the stem having the brush fiber secured

transversely thereto, one end of said stem being secured within the socket and the fiber being folded within the ferrule, with its ends projecting outward, substantially as specified.

5 2. A brush-body having an annular recess in one of its faces and an annular socket leading centrally therefrom into the body of the brush, combined with the ferrule, the stem having on opposite faces a tuft of fibers cross-
10 ing said stem and being attached thereto at the point of crossing, one end of said stem being confined within the socket, the bristles or fibers being folded within the ferrule, and the brad or nail securing said stem to the
15 brush-body, substantially as specified.

3. In combination with the brush-body having the annular recess therein, the socket leading centrally therefrom, the metal ferrule in said annular recess, the stem having on
20 two opposite faces the tuft of bristles, the staples securing said bristles to the stem, one end of said stem passing into the socket, the bristles being folded within the ferrule, their ends projecting therefrom, and the nail secur-
25 ing said stem and ferrule to the body of the

brush, substantially as and for the purposes specified.

4. In combination with the brush-body having the annular recess therein, the socket leading centrally therefrom and the stem hav- 30 ing on two opposite faces the tuft of bristles, one end of said stem passing into the socket, said stem being secured in the body of the brush, substantially as specified.

5. In combination with the brush-body hav- 35 ing the annular recess in its under face, the ferrule located in said annular recess and the stem having the brush fiber secured transversely thereto, said stem and fiber lying within the ferrule, the fiber being folded 40 therein with its ends projecting outward, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM H. GATES.
FORBES C. WELSH.

Witnesses:

E. S. WHEELER,
R. B. WHEELER.