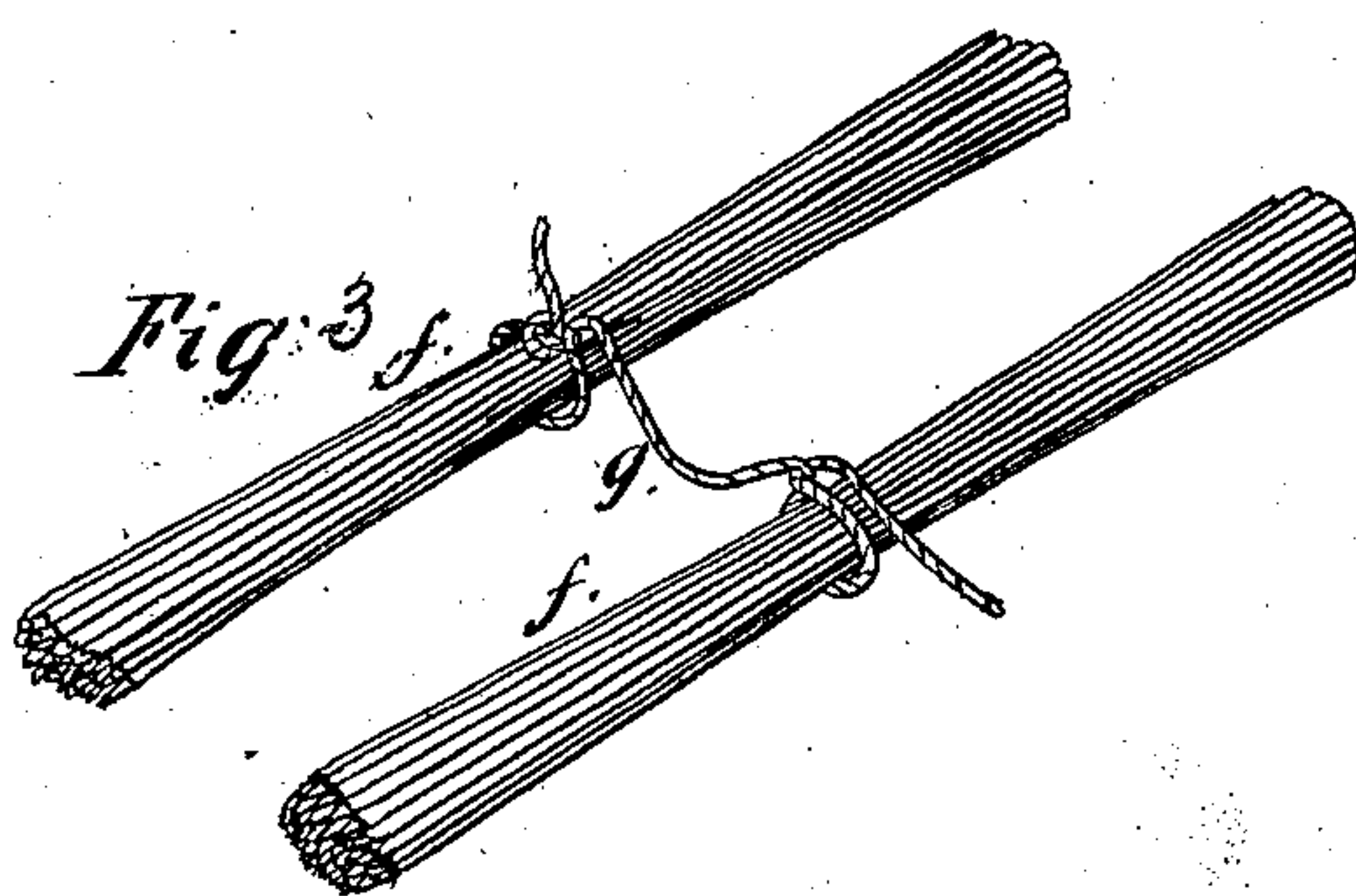
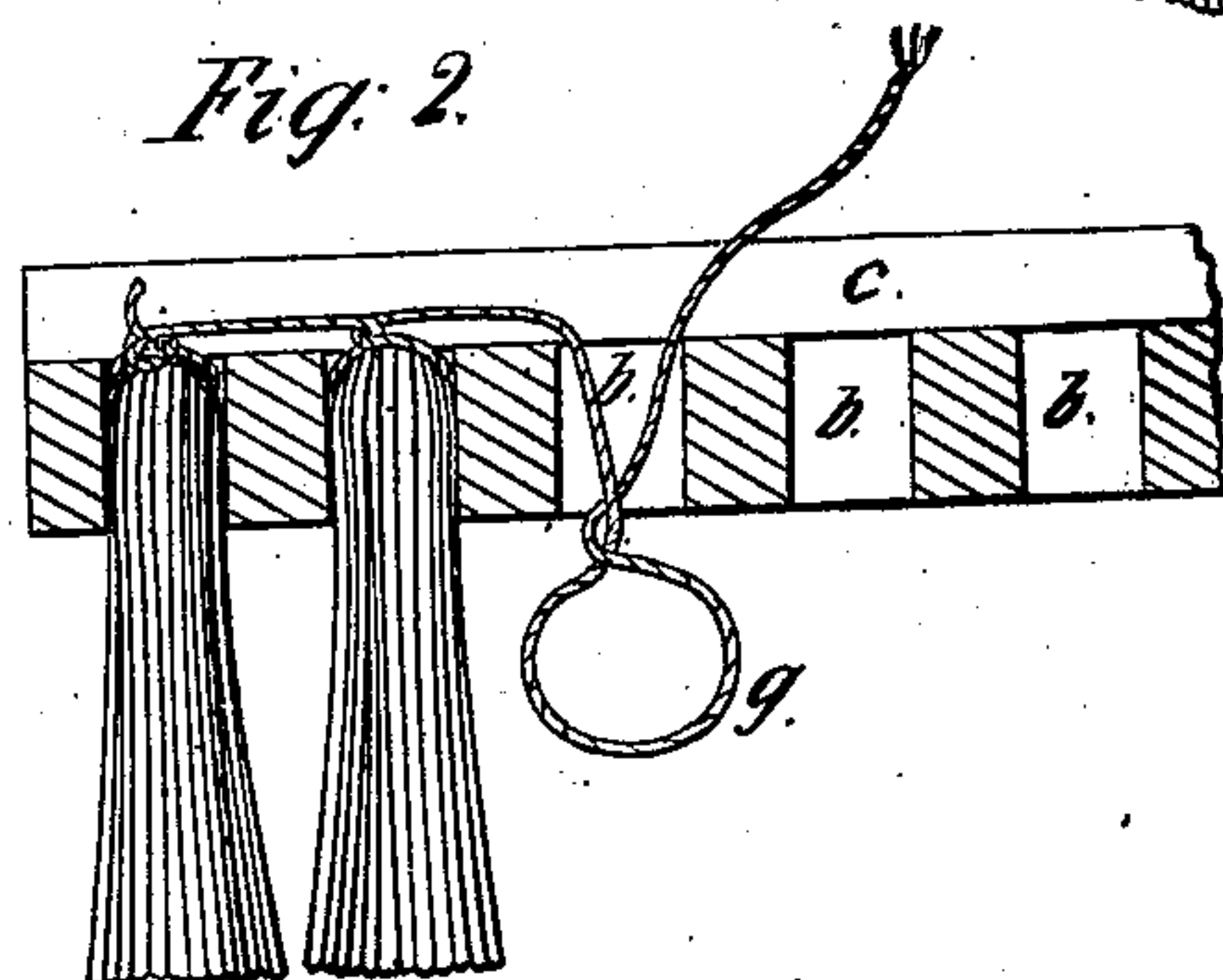
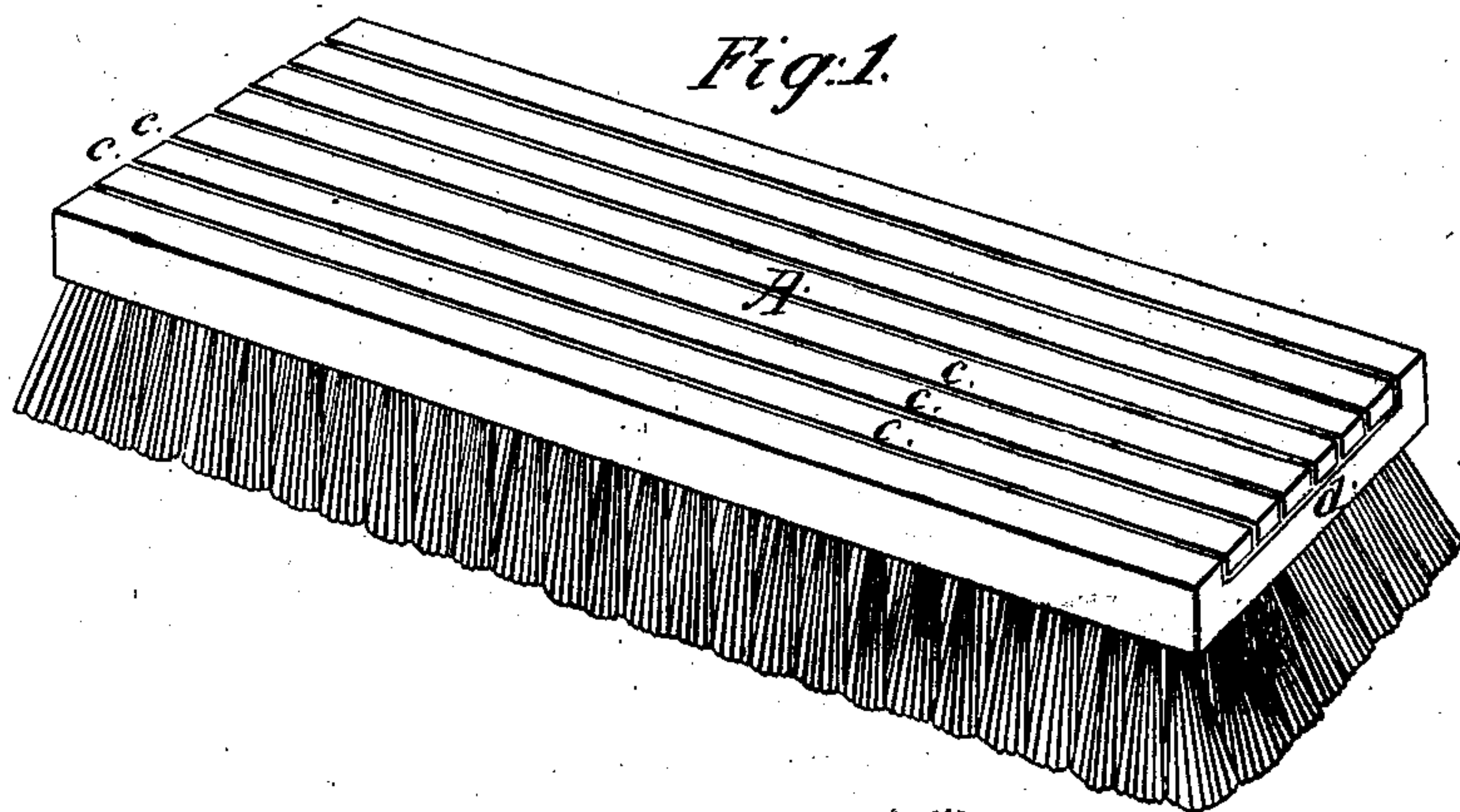


*Bicknell & Abel.*

*Brush.*

*N<sup>o</sup> 5,267.*

*Patented Sept. 4, 1847.*





# UNITED STATES PATENT OFFICE.

R. M. BICKNELL AND CHAS. J. ABEL, OF PHILADELPHIA, PENNSYLVANIA.

## SCRUBBING-BRUSH.

Specification of Letters Patent No. 5,267, dated September 4, 1847.

*To all whom it may concern:*

Be it known that we, ROBERT M. BICKNELL and CHAS. J. ABEL, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and Improved Process of Working and Manufacturing the Fibers of the Piassaba (a product of South America) into Brushes; and we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1, is a perspective view of a brush; Fig. 2, a longitudinal section of a portion of the same, and Fig. 3, a perspective view of a couple of bundles of the fibers of piassaba prepared for use.

Similar letters refer to corresponding parts in all the figures.

The brush stock A we prepare by boring a suitable number of straight holes *b, b*, nearly through the same, for the reception of the bunches of piassaba; we then cut longitudinal channels *c, c*, in the back of the stock, intersecting with each row of holes. We also cut transverse channels *d*, in each end of the brush stock, intersecting with, and uniting the ends of the channels *c, c*. The piassaba when heretofore used for brooms or brushes has been inserted and secured in the stocks in the following manner. The fibers having been assorted into bunches of suitable size, and cut to the required length,—one end of each bunch has been wrapped with twine and immersed in glue, pitch, or other adhesive substance, and inserted into holes in the stock. Or they have been sometimes wrapped and inserted into conical apertures and secured by wedges driven into the ends from above. Brushes constructed by either of these methods are destroyed by the action of water, and consequently will not answer for scrubbing brushes. Our improved method of inserting and securing the above-named material in the stocks of

brushes, is simpler, and our brushes are not injured by the action of water.

The following is a description of our improved method of inserting and securing the fibers of the piassaba in the stocks of brushes.

The fibers having been assorted into bundles (*f, f*), of suitable size, and cut to the required length, are softened by water till they will bend freely without breaking; when thus prepared the end of a cord *g*, passing through the channel *c*, and the hole *b*, at the corner of the stock, is made fast by a noose to the center of one of the bunches of fibers, which is then bent and drawn by the cord into the hole. A bite of the cord is then passed through the channel *c*, and the next hole *b*, in succession from the corner, and is made to embrace, by a round turn and hitch (as represented), another bunch of fibers; the cord is then acted upon with sufficient force to draw the bunch of fibers (having been previously bent double), into the hole, and also to remove the slack of the cord between the same and the bunch preceding it. In this manner the operation is continued till the stock of the brush is filled; the cord being of sufficient length to extend from one bunch of fibers to another throughout the brush, retaining each one in its position. After many experiments and failures, in the attempt to procure a cord with which we could work the wet fibers without injury to them or to the cord, we invented the following process of manufacturing a cord which perfectly answered our purpose, viz:

The fibers or threads of the material of which the cord is composed, are previously saturated with shoemaker's wax; and the cord manufactured of materials,—thus prepared,—is thoroughly coated with bees-wax. Manufactured and prepared in this manner, we can fill an entire brush with a single cord, without its becoming rough or spongy, or



swollen, and without any injury to the respective bunches of fibers.

What we claim as our invention, and desire to secure by Letters Patent, is—

- 5 1. The manner of manufacturing the fibers of the piassaba into brushes, viz: softening the same until they can be bent double without breaking, folding the bunches thereof at their centers and insert-  
0 ing and securing the same, while in a wet or moist state, in the respective holes in the brush stock, by means of a cord manufactured and prepared, substantially in the manner and for the purpose herein set forth.

2. We also claim the method of manufac- 15 turing and preparing the cord *g*, substantially as herein described, for the purpose of enabling us to work the bunches of piassaba in a wet or moist state as herein set forth.

ROBERT M. BICKNELL.

CHAS J. ABEL.

Witnesses to the signature of Robert M. Bicknell:

Z. C. ROBBINS,

GUY C. HUMPHRIES.

Witnesses to the signature of Mr. Abell:

THOMAS D. SMITH,

JOHN T. BROWN.