

No. 702,530.

Patented June 17, 1902.

J. F. BOWDITCH.

BRUSH.

(Application filed Nov. 21, 1901.)

(No Model.)

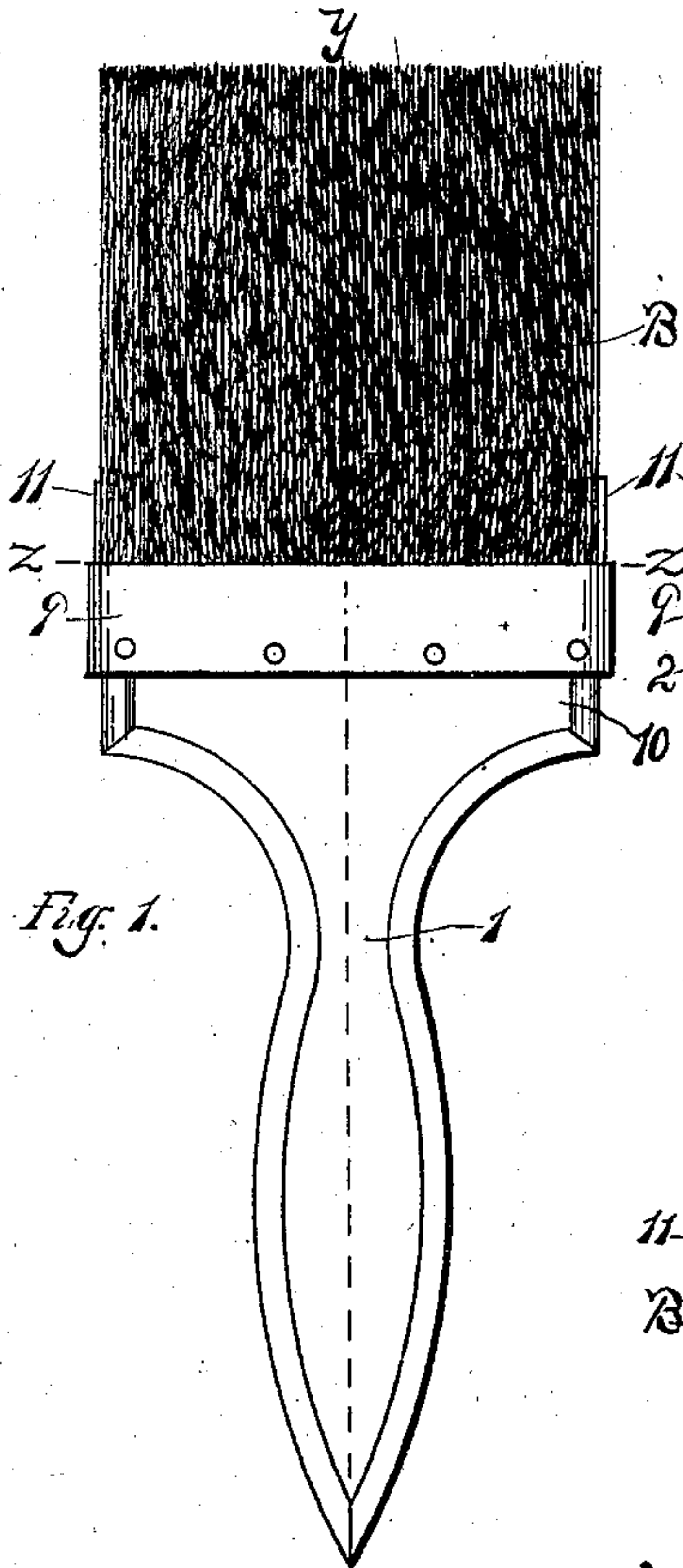


Fig. 1.

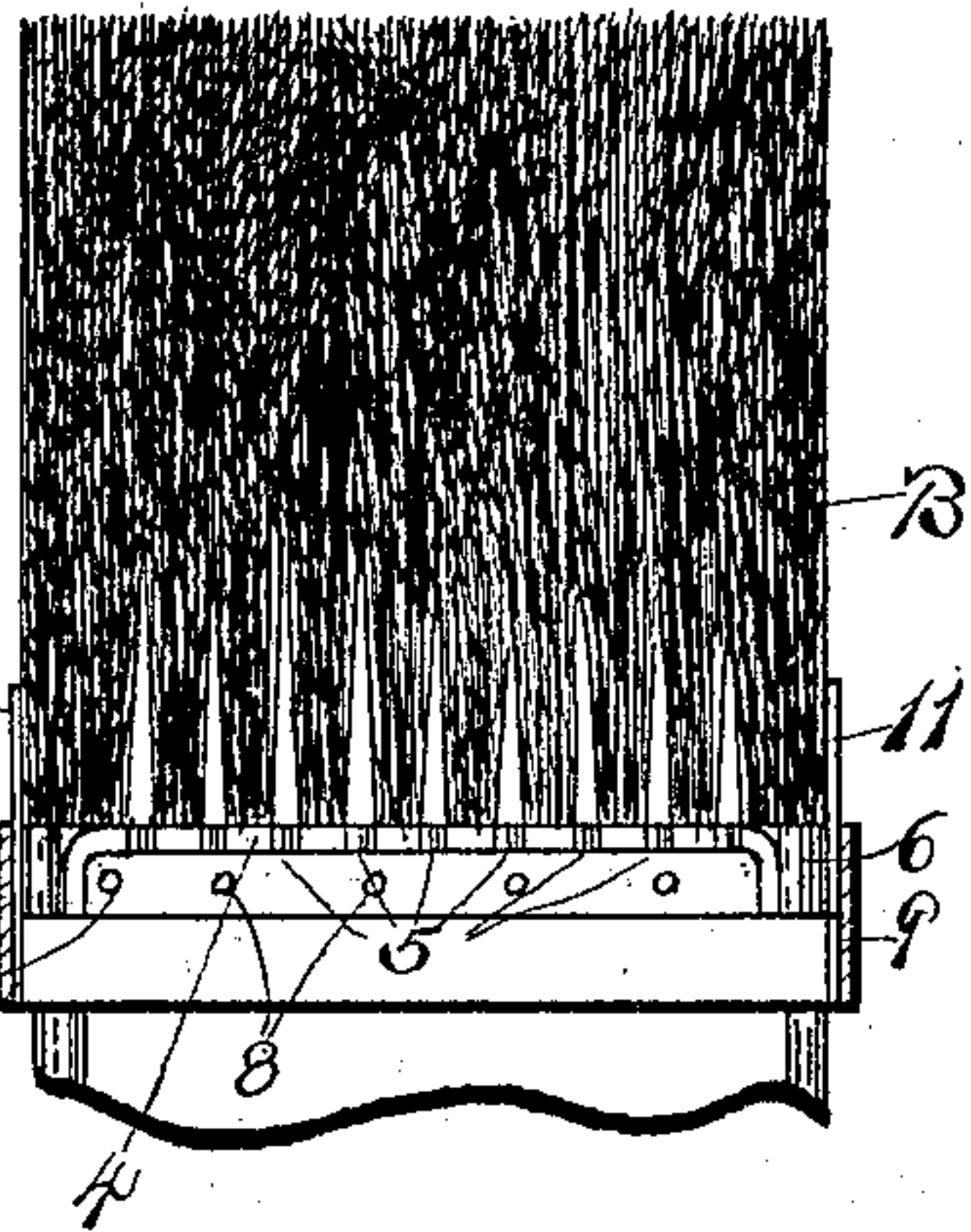


Fig. 2.

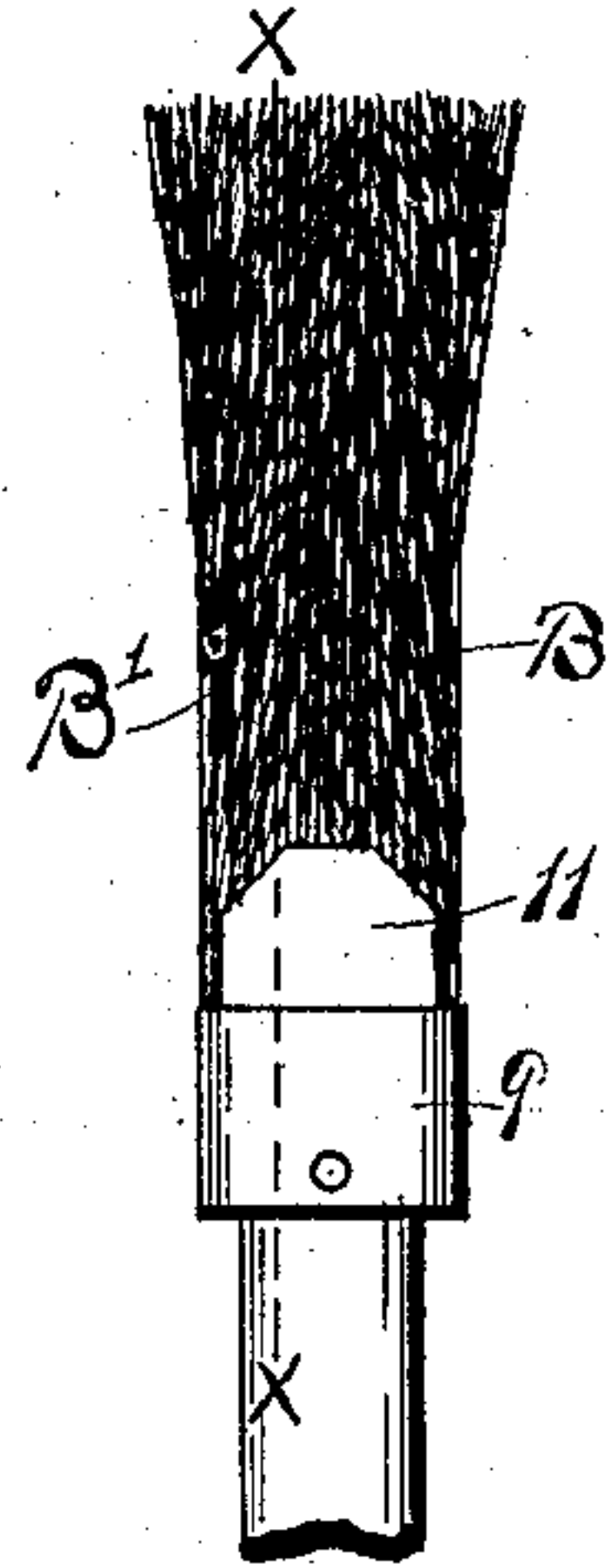


Fig. 3.

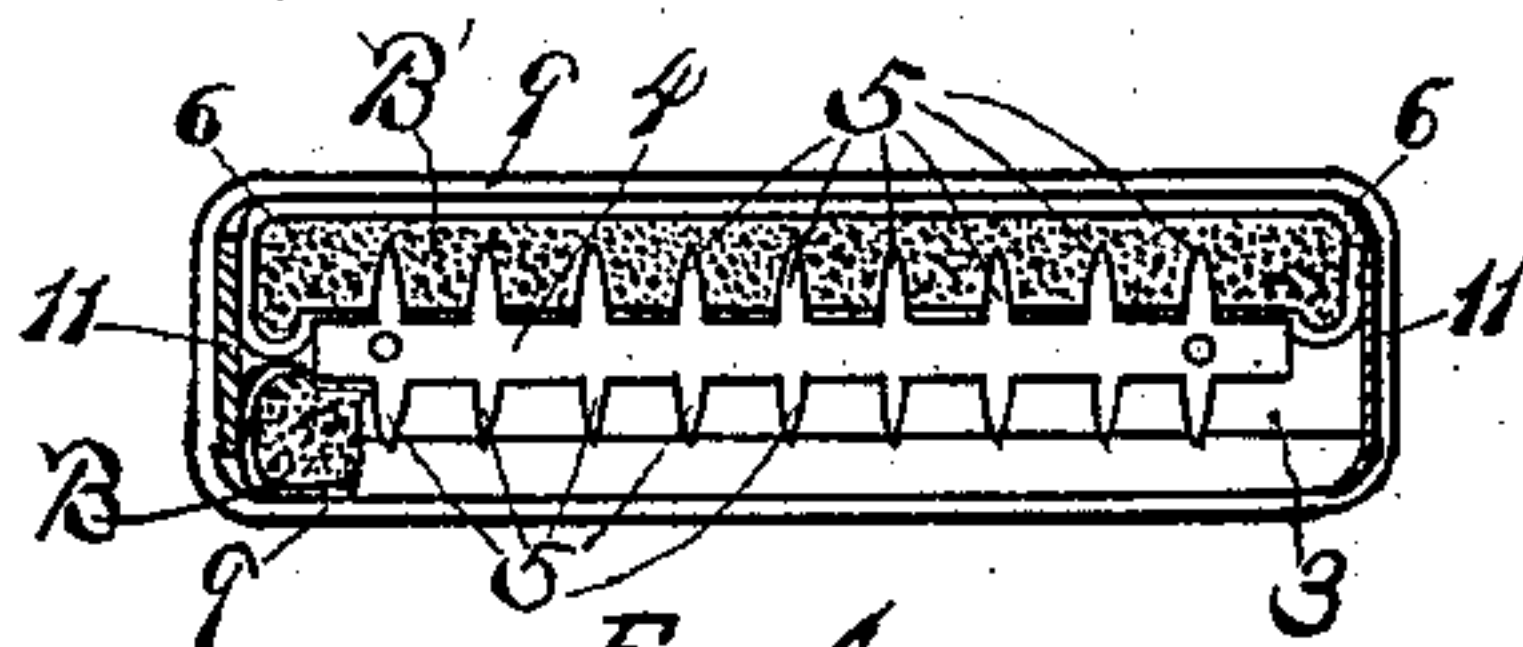


Fig. 4.

Fig. 7.

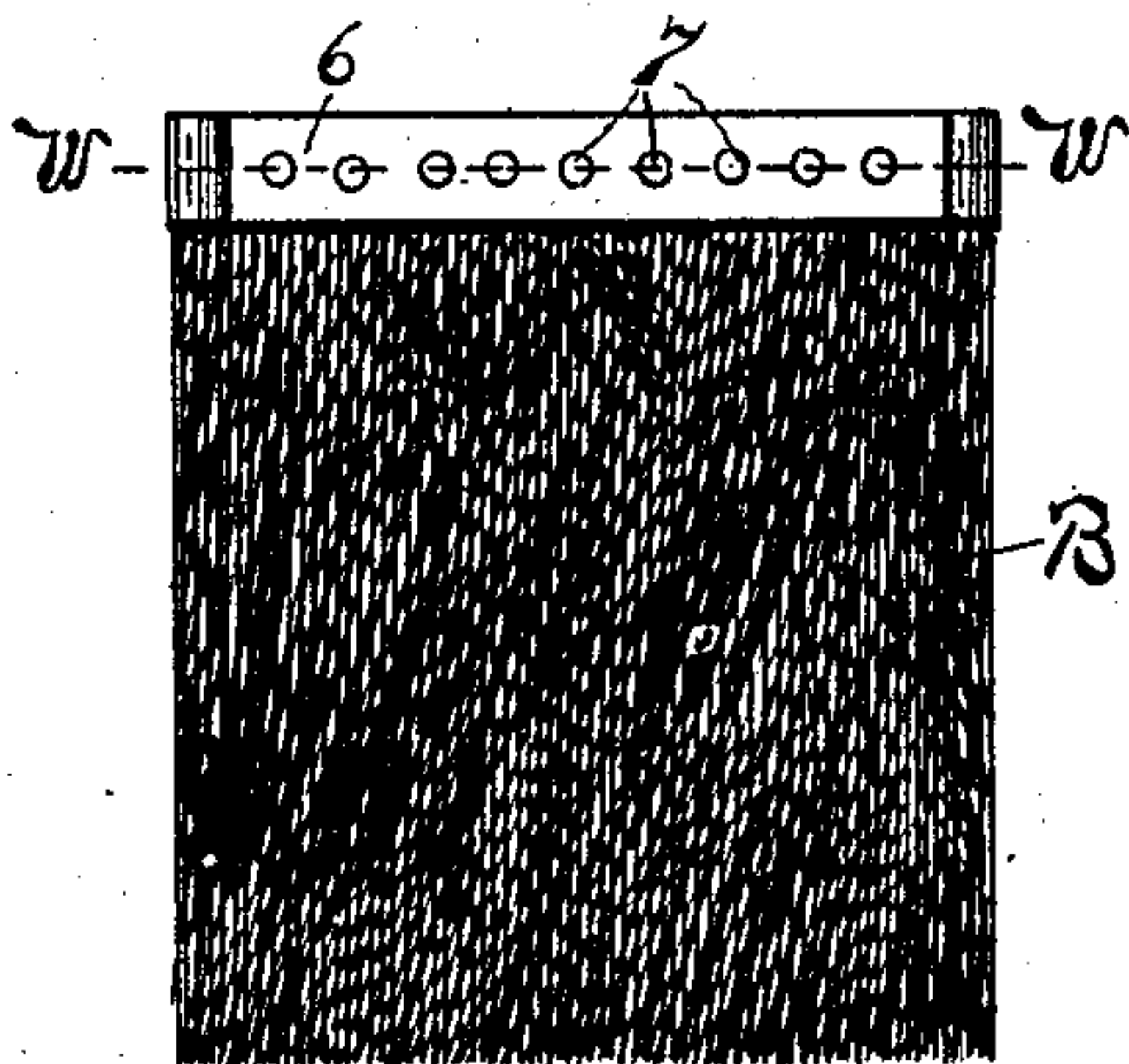
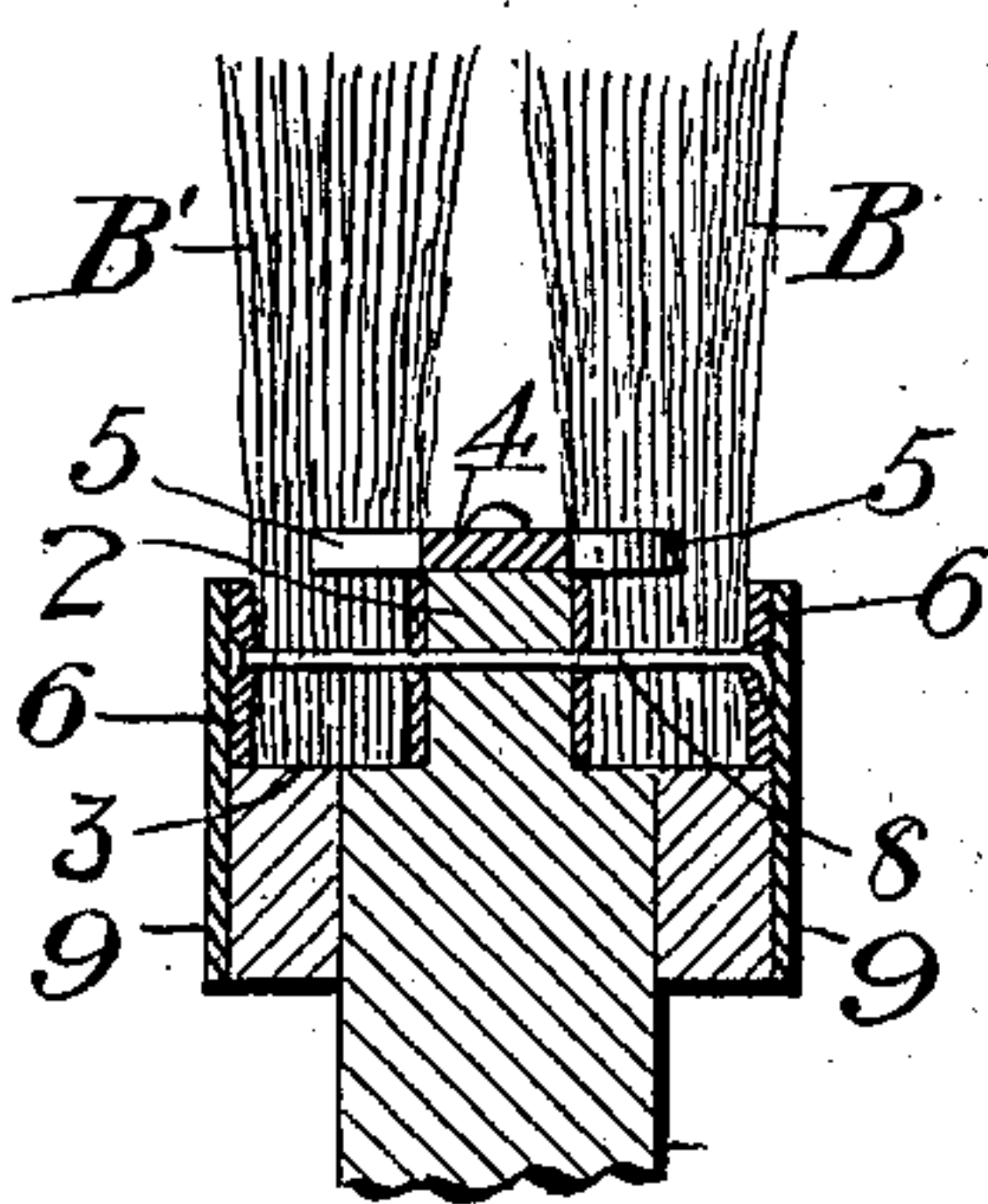


Fig. 5.



Fig. 6.

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# UNITED STATES PATENT OFFICE.

JOHN F. BOWDITCH, OF BOSTON, MASSACHUSETTS.

## BRUSH.

SPECIFICATION forming part of Letters Patent No. 702,530, dated June 17, 1902.

Application filed November 21, 1901. Serial No. 83,147. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN F. BOWDITCH, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Brushes, of which the following is a specification.

This invention relates to an improved method of securing the bristles of a brush to the handle.

As brushes are sometimes manufactured the bristles are compressed, bound, and cemented together onto a wooden core or body. It is well known that the bristles of a brush which is made in this manner almost invariably come out, this being due principally to the shrinking and swelling of the wood to which the bristles are bound. Moreover, in making flat brushes by present methods it is necessary to compress the bristles at the sides with considerable force. This pressure tends to spread out and weaken the ends, so that the bristles are not firmly held at these points. Another objection to the above method is that the binding of the bristles causes them to be pressed together near their butts, so that they will not hold as much paint or other liquid as if they were spread out at this point.

The object of my invention is to overcome the above-named defects, and thereby produce a brush in which the bristles are so firmly secured to the handle that they will not be caused to drop out from the shrinking or swelling of the wood or from any other causes of which I am aware.

A further object of my invention is to produce a brush which is provided with means for spreading the bristles inside the body near the butts and for forming the brush so that it will be as solid at the ends as in the middle. I accomplish this object by binding the butts of the bristles in sections by means of metal ferrules, which are compressed about the bristles in a mold and then held together by nails, and by securing these sections to the end of the handle by means of a metal plate having a series of teeth which pass over the edges of the ferrules and into the bristles.

For a complete understanding of my invention reference is made to the accompanying drawings, in which—

Figure 1 is a side elevation of a flat brush

made according to my invention. Fig. 2 is a side elevation of the brush, showing one brush-section removed. Fig. 3 is an end elevation thereof. Fig. 4 is a section on the line Z Z of Fig. 1, one of the brush-sections being partly broken away. Fig. 5 is a side view of one of the brush-sections. Fig. 6 is a cross-section on line W W of Fig. 5. Fig. 7 is a cross-section on line Y Y of Fig. 1.

The handle 1 is provided with a flat tongue 2 at its head 10, which corresponds in shape to the desired shape of the brush. Said tongue is smaller than the main part of the head, so that a flat surface 3 is formed about it which is perpendicular to the sides of the tongue. A metal plate 4, preferably of brass, is firmly secured to the outer end of tongue 2, and the ends of said plate are bent down against the side ends of tongue 2, as shown in Fig. 2, thus preventing the tongue from being split when nails are driven therethrough. The side edges of said plate are provided with a regular series of transversely-projecting teeth 5, said teeth projecting beyond the side edges of the tongue, as shown in Figs. 4 and 7.

The manner of securing the bristles to the construction just described is as follows: A mass of bristles B, which are just sufficient for half the brush, are drawn into a ferrule 6, of pliable metal, preferably a composition zinc. The butts are made even and dipped into cement to a depth about equal to the width of the ferrule. A series of small nails 7 are then driven completely through the ferrule and butts of the mass and clenched on the opposite side, as indicated in Fig. 6, and then the ferrule is compressed between suitably-shaped molds, thus clenching the nails tight against the outer sides of the ferrule and so firmly binding the ferrule about the bristles that they would be firmly held even if the cement were not employed. However, the cement materially strengthens the connection and is therefore preferably used. When the section is molded, the ends 6' thereof are bent transversely to the same side, as shown in Fig. 6. A second section B' is made in like manner, and the two sections are then placed with their butt-ends against the surface 3 of the head, the inner sides thereof being pressed against the sides of the tongue 2 and the transversely-bent ends 6' of each section meet-



ing about the ends of the tongue 2, as shown in Fig. 4, so that the ends of the brush are continuous, as shown in Fig. 3. The width of ferrules 6 are such that when the sections  
 5 are placed in this position the teeth 5 will just pass above the inner edges thereof into the mass of bristles, nearly to the outer surface thereof. A series of large nails 8 are then driven completely through the ferrules  
 10 6, the butts of both sections, and the tongue 2 and clenched, as shown in Fig. 7, thus firmly securing each brush-section to the handle. To give the brush a finished appearance I bind the butt-ends of the sections  
 15 and the head of the handle with a metal band 9, which is nailed to the head. I also secure metal ears 11 inside of the band 9 at each end of the brush, said ears extending beyond the outer edge of said band about three-fourths  
 20 of an inch. These ears 11 perform a very important function, in that they may be bent inwardly into various positions, so that the width of the flag of the brush may be so varied that the brush may be made tapering  
 25 or square. These ears also prevent small bunches or sections of the bristles from bending away from the main part of the brush. The bristles at the ends of the brush are bound with the same tension as those in the  
 30 middle, and as the bristles are also uniformly distributed from end to end the brush will apply the paint evenly through its entire width. This enables a painter to draw solid straight-edged lines with the brush and to  
 35 paint close to a wall without touching it, as the brush will apply the paint as freely at the ends as in the middle, and there will be no loosely-projecting bristles to make ragged lines beyond the main part of the brush.  
 40 In addition to the functions of the teeth 5 of plate 4 in holding the brush-sections against the end of the handle they also perform the very important function of spreading the bristles near the head, as indicated in Fig. 2,  
 45 practically forming chambers which will hold the paint or other liquid where the bristles are usually pressed closely together. As the teeth do not protrude through the outer surfaces of the bristles, there will be no appreciable  
 50 leakage of the liquid to the surface from the chambers formed thereby. Moreover, it has been ascertained from practical use that the transversely-extending teeth in addition to giving fullness to the body of the brush also  
 55 increase its elasticity and prevent to a large degree the tendency which the bristles have to become matted together, and thus prevent the free flow of the liquid from all points as the brush is drawn over a surface.  
 60 From the foregoing description it will be apparent that I have produced a brush in which the shrinkage or swelling of the wood cannot possibly affect the security with which the bristles are attached to the head. More-  
 65 over, I have accomplished this result without increasing its weight.

Although my invention is not confined to the precise construction illustrated and certain features of my invention may be advantageously used in other forms of brushes, yet  
 70 I consider the particular construction and application which I have disclosed to be the most advantageous of any of which I am at present aware.

Having described my invention, what I  
 75 claim as new, and desire to secure by Letters Patent of the United States, is as follows:

1. A brush having the holder provided with a projecting tongue, two brush-sections which are secured to opposite sides of said tongue,  
 80 each of said sections comprising a metal ferrule, a mass of bristles which are arranged therein, and a series of nails which are driven through one side of each ferrule and clenched on the opposite side thereof to clamp the re-  
 85 spective sides of the bristles upon the bristles which they inclose.

2. A brush having the holder provided with a projecting tongue, brush-sections which are arranged on opposite sides of said tongue,  
 90 each of said sections consisting of a metal ferrule having a mass of bristles which is inclosed thereby, means for clamping the sides of the ferrules about the bristles, a plate having a series of transversely-projecting teeth,  
 95 which is secured to said tongue, said teeth projecting over the edges of the ferrules opposite the holder and holding said sections against the head thereof, and means for securing said sections to the sides of said tongue.  
 100

3. A flat brush having the holder provided with a rectangular-shaped tongue at the end of its head, two brush-sections which are secured to opposite sides of said tongue, said  
 105 sections each comprising a metal ferrule having the bristles arranged therein, means for clamping the sides of each ferrule about the bristles, the opposite ends of said ferrules being bent transversely about the ends of  
 110 said tongue and meeting so that the bristles which are clamped within said ends will meet to form a substantially continuous end for the brush.

4. A brush having its handle or holder provided with a tongue which is shaped to correspond with the desired shape of the brush,  
 115 brush-sections which are secured to opposite sides of said tongue, and a series of transversely-projecting teeth which are secured to the end of said tongue and penetrate and sub-  
 120 divide the mass of bristles on each side thereof.

5. A flat brush having two flexible metal ears which are secured to opposite ends of the head thereof and extend along the ends of the mass of bristles comprising the brush,  
 125 said ears being adapted to be bent into various positions to vary the width of the brush at its working end.

6. A brush comprising a head, two oppositely-arranged brush-sections, each of which  
 130 comprises a metal ferrule and a mass of bristles which are clamped thereby, means for



pressing said sections together, a securing-plate which is arranged between said sections and is provided with projecting teeth which extend over the edges of said ferrules, and  
5 means for securing said plate to said head.

7. A brush comprising a holder, two brush-sections, each of which comprises a metal ferrule and a mass of bristles which is clamped

thereby, and means for securing said sections together and to said holder.

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

JOHN F. BOWDITCH.

Witnesses:

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GEO. E. UCKER.