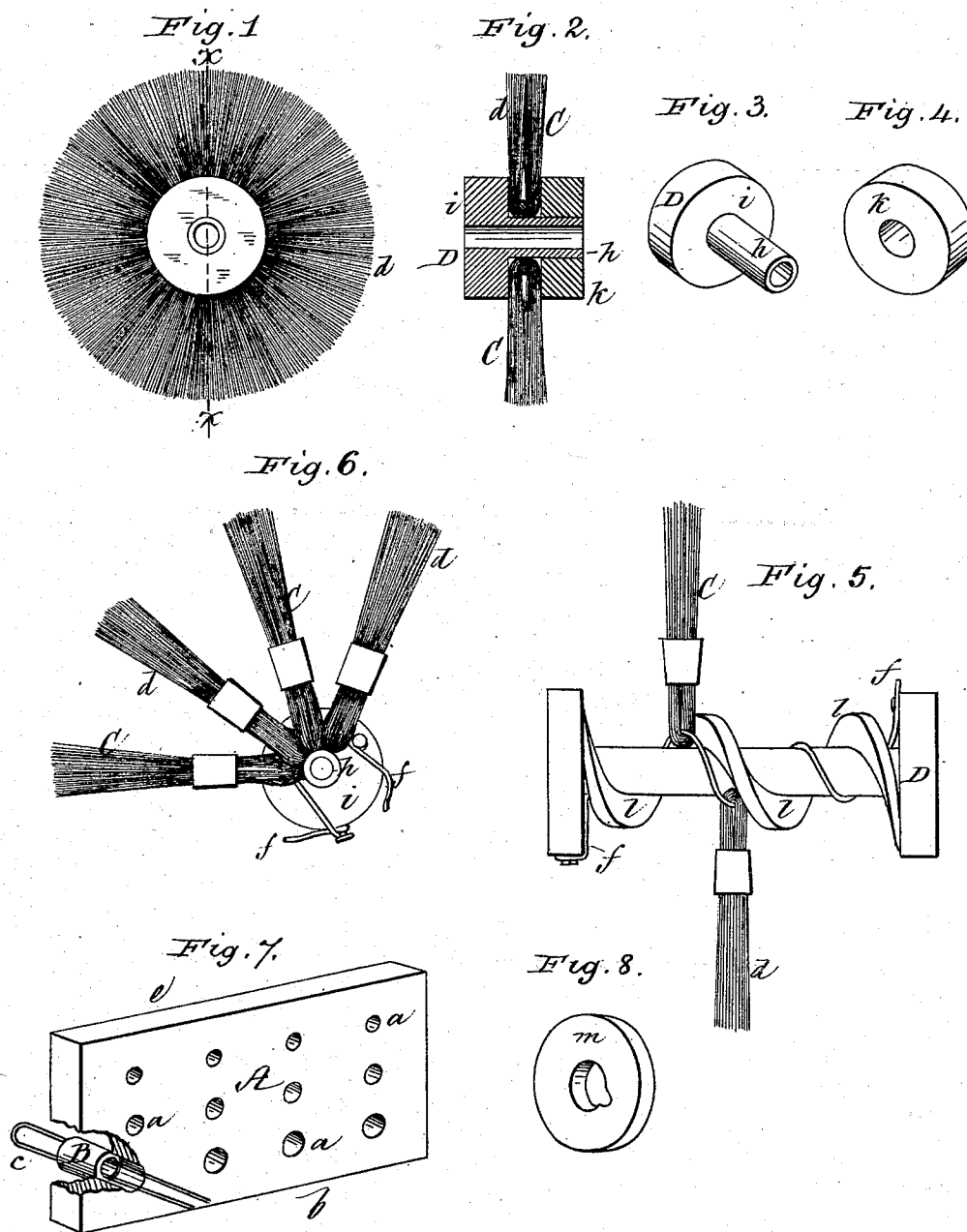


(No Model.)

B. F. QUINBY.  
CIRCULAR BRUSH.

No. 258,117.

Patented May 16, 1882.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

BENJAMIN F. QUINBY, OF BOSTON, MASSACHUSETTS.

## CIRCULAR BRUSH.

SPECIFICATION forming part of Letters Patent No. 258,117, dated May 16, 1882.

Application filed January 24, 1882. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. QUINBY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Circular Brushes for Cutting Down and Smoothing Off the Surfaces of Metal, Ivory, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 represents a circular brush constructed in accordance with my invention. Fig. 2 is a transverse section through the same on line *xx* of Fig. 1. Fig. 3 is a perspective view of one side of the stock or holder, having the central tubular portion formed integral therewith. Fig. 4 is a perspective of the opposite side of the stock or holder to be slipped over the outer end of the tubular portion. Fig. 5 represents a brush constructed in accordance with my invention, in which the bristles or their equivalents are spirally arranged; Figs. 6, 7, and 8, details to be referred to.

My present invention relates particularly to that class of circular brushes employed in removing inequalities from the surface of various articles of metal and other material, in order thereby to produce a continuous smooth and uniform appearance, said operation being performed immediately after the "stoning" or "filing" process and before the final finishing, called the "buffing" process; and my invention consists in a stock or holder composed of two portions, not screwed together, but simply united by a central tubular portion, which may be made integral with or separate from one of the main portions, the bunches of bristles, or the material substituted therefor, being first bent or looped at their centers and arranged radially around and directly upon the exterior of the tubular portion of the holder, washers provided with a series of notches heretofore employed being dispensed with, the bunches of bristles being attached to said holder by means of wire and glue or other suitable adhesive substance, after which the opposite main portion is slipped over the tubular portion of the holder and the bristles or their equivalents evenly arranged or adjusted in their proper position and direction, when pressure is applied to securely and permanently confine

them between the opposite sides of the holder as desired.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In Fig. 7 of said drawings, A represents a metal plate, provided with a series of perforations, *a*, of different sizes, for the reception of the smaller ends of a series of slightly-conical tubes, B. From the outside *b* of the plate is passed a looped cord, *c*, through and slightly beyond the inside or larger end of the tube, and a number of bristles, *d*, sufficient to form a bunch, C, of the required size, being taken in the hand, they are arranged with their ends in line with each other and entered within the loop, so that the center of the bunch will bear against the loop when the former is drawn partially through the tube and into the plate, the bunch being thus crimped or bent at its center, when it is removed with its confining-tube from the inside *c* of the plate A. Next with a piece of annealed wire, *f*, one or two turns are taken around the tubular portion *h* of the stock or holder D, close up to the main portion *i*, from which it projects, leaving one end of the wire extending a short distance beyond its periphery, (see Fig. 6,) the surface of the tube *h* and the inner face of the portion *i* having a coating of glue or other adhesive substance applied thereto. Next a number of bunches are strung on the wire *f*, sufficient to fit snugly against each other once around the circumference of the tube *h*, and the other end of the wire also led out beyond the periphery of the portion *i*. The opposite side *k* of the holder is now slipped over the tube to hold the bunches while the tubes B are removed from them, when the bristles are free to be spread outradially, and are equally distributed, so that no intervals may occur at their outer ends, after which the whole is placed in a clamp and left until the adhesive material sets, and the two sides of the holder are securely united, the ends of the wire *f* being thereby indented within them, and the portion of the tube *h* which may project through the side *k* is cut off flush with its outer face. When a brush of two rows of bunches of bristles is required, the operation of stringing, applying, and securing the second row is similar to that de-

scribed for the single-row brush. Where several rows of bunches are required to form a wider brush, I prefer to interpose washers *m*, Fig. 8, of leather or other material, between every double (or pair of) contiguous rows of bunches, and apply glue or other adhesive material to the sides of the washers. The central portion, *h*, on which the bunches are arranged, is, as before stated, hollow, as well as the centers of the two sides of the holder, to allow of its passage on a rotating spindle. The exterior of the article whose inequalities are to be cut away or smoothed off is covered with a semi-liquid mixture of ground pumice and rotten stone, or a paste of rouge or other suitable gritty substance, a coarse gritty substance being best where the surface is quite rough.

In making a cylindrical brush with the bunches arranged spirally thereon I take a piece, *l*, of leather of the required length to extend from end to end of the portion of the tube between the sides *i k* when wound thereon, each end of the leather strip being beveled to an edge, Fig 5. This strip *l* is then wound one spiral turn around the tube and secured by glue, &c., thereto, then applying glue, &c., to the sides of the strip *l*, I secure by wire a series of bunches upon the corresponding portion of the tube, then wind spirally another turn of the strip *l*, secure it as before, and so continue till the width of the brush is reached.

With brushes of this class as heretofore constructed the stock or holder was formed in one piece and its circumference was provided with a series of perforations radially arranged, into which the bunches were drawn by wire, the bristles being held in the hand without being confined by tubes; but this construction was objectionable on account of the intervals or spaces occurring between contiguous bunches at the outer ends of the bristles. Furthermore, the bunches of brushes so constructed were liable to be drawn out or pressed in out of line, and with small brushes the perforations were so close as to materially weaken the holder, rendering it liable to crack after short use.

By my invention I secure strength and durability and can place more bristles in a brush of a given diameter, and thus obtain a continuous bristle-surface at the outer or working periphery of the brush than with one whose stock is in one piece and provided with a separate hole for the reception of a single bunch, as above referred to.

In the manufacture of my improved brush, I preferably employ bristles, but may use any suitable vegetable fiber as a substitute therefor.

The matter relating to the construction of a brush having a series of bristles spirally arranged directly upon the central tube of a holder composed of two side portions, in connection with a spirally-wound guiding-strip, *l*, I do not intend to claim in the present application, but propose to make it the subject of a future application.

I claim—

1. A stock or holder of a circular brush, composed of two main or side portions, *i k*, provided with central openings, and united by a central tubular portion, *h*, formed integral with or separate from one of the side portions, in combination with a series of bunches of bristles or their substitutes interposed between the two side portions and secured in place by wire and glue or other adhesive substance directly upon the central tubular portion, *h*, the said two portions of the holder being without screw-threads, and their union consequently accomplished without screwing them together, and the employment of washers provided with a series of notches for holding the bunches being dispensed with, my said holder being constructed substantially as and for the purpose described.

2. The within-described method of making a circular brush for removing the inequalities in the surface of metallic or other articles, consisting first in bending or looping the bunches of bristles or their substitutes at their centers by passing them through perforations in a plate and through tubes *B*, inserted in said perforations, then removing the bunches from the plate with their tubes *B* surrounding them, then stringing the bunches on a wire and arranging them radially upon and around a central tubular portion of the holder *D*, and securing them thereto by wire and glue or other adhesive substance, next slipping the portion *k* of the holder over the tubular portion *h*, then removing the tubes *B*, which confine the bunches, then spreading the ends of the bristles or their substitutes so as to form a continuous brush having no intervals at its periphery, and finally applying pressure to securely and permanently unite the whole, as and for the purpose specified.

Witness my hand this 2d day of January, 1882.

BENJAMIN F. QUINBY.

Witnesses:

N. W. STEARNS,  
WM. H. CHAMBERS.