No. 735,797. PATENTED AUG. 11, 1903.

M. McCARTHY.

BRUSH.

APPLICATION FILED MAY 31, 1902.

NO MODEL.

FIG. 1.

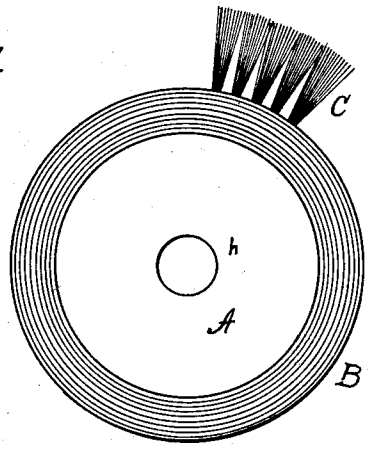


FIG. 2.

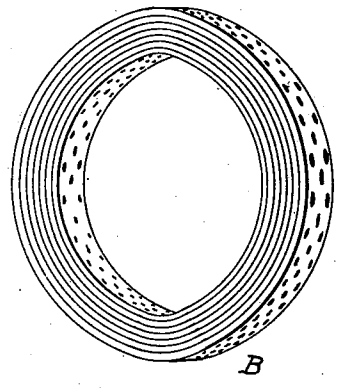
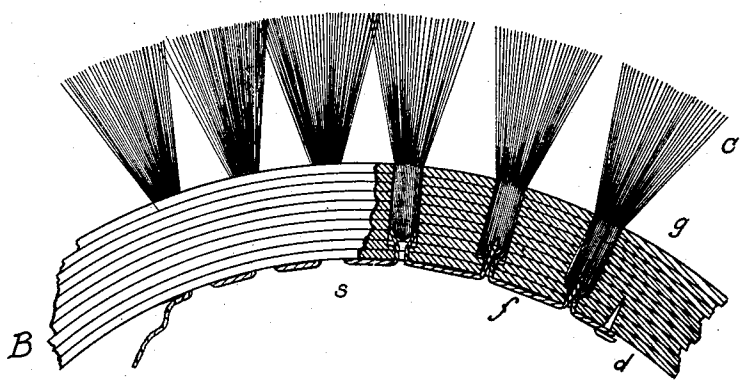


FIG. 3.



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No. 735,797. Patented August 11, 1903.

UNITED STATES PATENT OFFICE.

MICHAEL McCARTHY, OF BROCKTON, MASSACHUSETTS.

BRUSH.

SPECIFICATION forming part of Letters Patent No. 735,797, dated August 11, 1903.

Application filed May 31, 1902. Serial No. 109,669. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL McCARTHY, a citizen of the United States, residing at Brockton, in the State of Massachusetts, have invented certain new and useful Improvements in Brushes Which are Adapted to be Rotated, and Especially to Those That Require Considerable Strength in Their Construction; 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.

My invention relates to improvements in brushes; and the objects of my invention are, first, to provide a brush in which the bristles or other parts of a like character shall be very firmly held; second, to construct the parts so that they shall be strong enough to withstand the centrifugal force resulting from a high speed of rotation; third, to produce a brush which can be cheaply made and the parts of which can be easily put together.

I obtain the objects of my invention by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 shows an end view of a brush with the bristles held in the outer rim of the brush and the central core in its place. Fig. 2 represents the outer rim before the bristles are inserted and with the core removed. This figure is a view from one side and shows the holes on the outside of the rim in which the bristles are to be inserted and the holes on the inside of the rim through which the cord for holding the bristles passes. Fig. 3 is a section of a part of the outer rim of a brush, showing some of the bristles in place and the cord. This figure shows a large number of holes for the insertion of bristles. Each hole has a small opening to the inside of the rim.

Similar letters refer to similar parts throughout the several views.

In order to construct the brush of my invention, I take a cylinder of wood of the size of the core A which I desire and preferably roll paper B around it. After the cylinder has been covered with one thickness of paper I begin to glue the paper and continue the process of rolling until the core has been made the desired size. This thickness will vary, according to the kind of a brush desired, but the thickness will usually be from one-half to three-quarters of an inch. I prefer to use a roll of a length, generally of forty inches, sufficient to make a number of brushes; but this is only a matter of convenience and economy. With a saw I cut this roll and inclosing rim of paper into parts according to the width or thickness of the brush which I desire to make. I bore into the periphery of the rim holes, as shown in Fig. 2, adapted to the kind of a brush desired; but these holes are usually about one-eighth of an inch in diameter. These holes go entirely through the rim, but they are smaller at the interior of the rim than at the outside. In the boring of these holes I use a bit which either has a shoulder or else it draws to a smaller diameter at its point. Both of these forms of holes are shown in Fig. 3 of the drawings. In some kinds of brushes one kind is preferable to the other; but either may be used. The core of the rim is knocked out in order to allow of the operation of inserting the bristles. These bristles are drawn from the outside by means of a cord, wire, or other flexible means, (see *f*, Fig. 3,) the cord or wire being sent from the inside of the rim to the outside and looped over the center of the bristles. The bristles are then drawn into the holes as far as the shoulder or the beginning of the narrowing of the holes, as shown in Fig. 3. This process of inserting the bristles is continued until all the holes are filled, care being taken to draw the cord or wire tightly at every hole. When all the bristles have been inserted, the ends of the cord or wire are fastened usually with a small tack *d*, driven into the inside of the rim. Usually I replace within the rim the core A, which has been driven out, or some equivalent therefor. The core when replaced is usually coated with glue on its periphery, and the brush becomes quite rigid in its construction. Through the center of the core I bore a hole *h* of the size required to fit the shaft on which the brush will be mounted for the purpose of being made to revolve. When mounted upon a revolving shaft, there is no danger that the parts will fly into pieces, for the rim, made by the winding of paper or similar material, is very strong and will stand a great strain.

After having tried a great many ways of

producing a round revolving brush I have adopted as my preferred construction one made by winding paper, as herein shown and described.

As the brushes which I make must be revolved at a very high rate of speed, it is important that they should be light in weight and that the outer rim should be of a material strong and tenacious enough to stand a great centrifugal force and of an elastic nature. After repeated experiments with other materials for my outside rim I have secured the requisite strength, lightness, cheapness, elasticity, and other desired qualities by winding a roll of paper around a cylinder, so as to form a bristle-holder. It is necessary to fasten the bristles or other brushing material very securely to the holder, so as to prevent them from being driven out.

I do not wish to be limited to the use of bristles for my brush.

I know that brushes have been made having one part holding the bristles and another part covering the back of the holder and do not claim, broadly, a brush of this description.

What I claim, and desire to secure by Letters Patent, is—

1. A circular brush composed of a wooden core, having means for attaching it to a revolving shaft; a holder made by winding a sheet of paper around the core and provided with holes from the exterior to the inside face and being attachable to and detachable from the core and brushing materials drawn into the holes of the holder and fastened thereto by a continuous cord substantially as shown or described.

2. In a circular brush the combination of a holder made by winding paper around a core and provided with holes therethrough, said holes being smaller at the inside face than at the outside; a wooden core within the holder made attachable to and detachable from the holder; bristles in the holes of the holder, and means for attaching the said core at its center to a revolving shaft substantially as shown or described.

MICHAEL McCARTHY.

Witnesses:
MICHAEL CONNORS,
CHAS. ALLEN TABER.