

Dec. 19, 1950

G. C. WILHIDE
WIRE WHEEL BRUSH

2,534,892

Filed Aug. 4, 1945

2 Sheets-Sheet 1

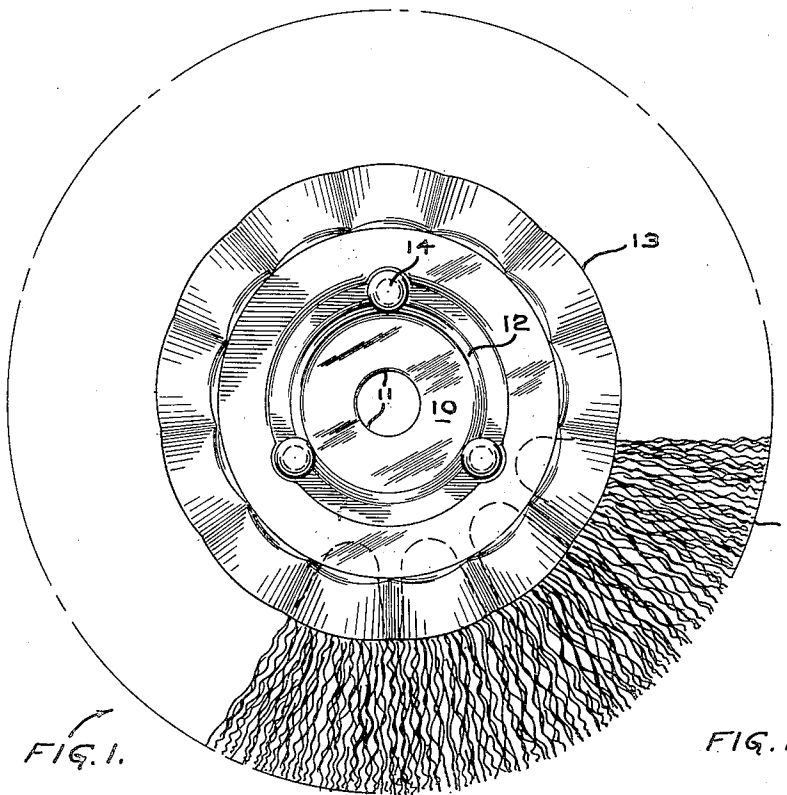


FIG. 1.

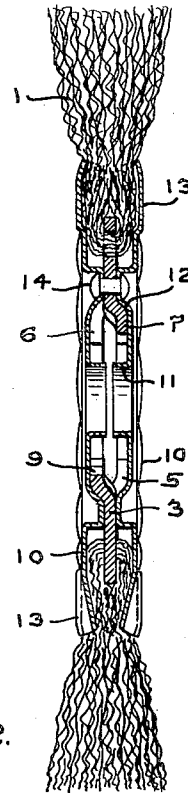


FIG. 2.

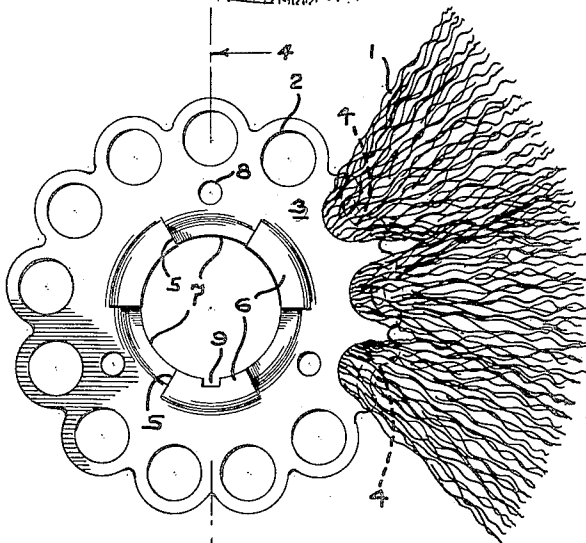


FIG. 3.

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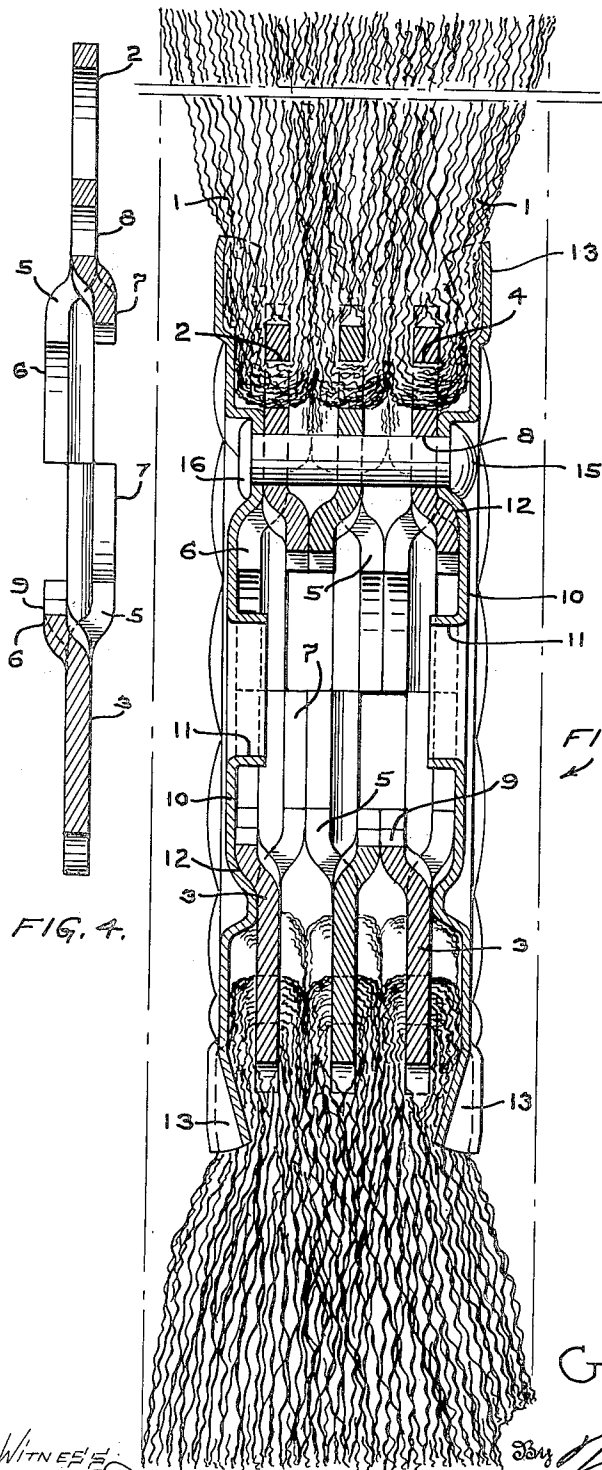


FIG. 4.

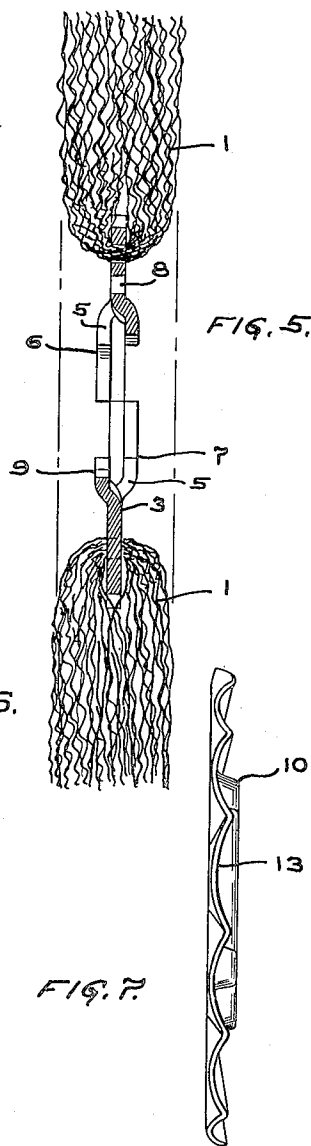


FIG. 5.

FIG. 6.

FIG. 7.

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WIRE WHEEL BRUSH

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10 Claims. (Cl. 15—181)

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This invention relates to a wire wheel brush for cleaning castings, molds, gears, storage battery parts, and also for cleaning welds and removing scales from forged and hardened parts, also for cleaning various metals before brazing and polishing, and for cleaning automobile bodies, stoves and the like, and for removing paint and otherwise treating surfaces preparatory to painting. It is also useful for buffing tires, tubes and the like, and it has many other useful purposes. Heretofore in the production of such brushes, spacers have been placed between the tuft-holding sections or disks. The disks have the tufts extending through them, at their periphery, and these tufts extend on both sides of the disks and compel their separation. The disks are usually riveted together or otherwise fixed with permanent means and in order to hold the disks securely on the arbor, spacers have been placed between each disk to make the central section of the assembled disks rigid. In the assembly of the disks this not only requires additional material, but additional time, and one of the objects of this invention is to make a single disk that includes integrally with it suitable spacing means. These spacing elements may be stamped in the disk either at the same time the disks are stamped from the plates and the rest of the form given them, or they may be stamped in separate operations. In the assembly, however, all that need be done is to place the disks with corresponding spacing means on each disk facing each other; no separate element need be introduced.

These spacing means are also useful when the end plates of the brushes are placed on a group of assembled disks. The end plates are shaped to conform to the spacing projections and add additional rigidity to the assembly of end plates and disks. It is preferred that the end plates serve as the arbor supports and this additional nesting relation between the disks and end plates has consequently greater importance. The rigidity and stability of the assembled brush are additional advantages that the invention obtains, in addition to the lessened cost both in materials and labor.

Other objects and advantages of the invention will be apparent from the following description and the accompanying drawings forming a part hereof and in which:

Figure 1 is a side elevation of a brush embodying this invention, part of the tufts being shown and others indicated.

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Figure 2 is a sectional view through the center thereof.

Figure 3 is a side elevation of a tuft-holding disk having three tufts therein.

5 Figure 4 is a cross sectional view on line 4—4 of Figure 3.

Figure 5 is a cross sectional view of a single tuft-holding disk with the tufts therein.

10 Figure 6 is an assembled view of a brush using three disks.

Figure 7 is an edge elevation of an end plate.

In the drawings similar numerals refer to similar parts throughout the several views.

The brush of Figure 1 is made up of a single disk of tufts 1 of wire placed in openings 2 of disks 3. The outer periphery of the disks 3 is then clamped inwardly tightly upon the center of the tufts as shown at 4. This construction of the tufted disks is identical to that shown in the Potter Patent #2,290,575, July 21, 1942.

20 The center of each disk then has axial slits cut therein, preferably six as shown in Figure 3 at 5. These slits separate segments of the center of the disks and these segments are struck out sideways of the disks, alternate segments being on opposite sides. The segments projecting outwardly are shown at 6 and those projecting inwardly are shown at 7. Each disk has holes 8 therein for the passage of rivets therethrough and each disk may have a groove 9 therein to guide the assembler in obtaining accurate alignment of the disks in relation to each other.

It will be apparent that a brush may be made up of either one or many disks in accordance with the need to be served. In Figures 1 and 2 a brush is shown composed of one disk. The end plates 10 are turned inwardly at the center, 11, to form an arbor support. They are stamped with a shoulder 12 which exactly conforms to the outer shape of the segments 6 and 7, which they are next to in the assembled brush. The outer periphery 13 of the end plates is scalloped, partly for the additional strength thereby given to the edge of the end plate, but primarily to form gripping sockets for the extending tufts to direct them radially and firmly hold them from rotating in respect to the assembled brush.

When one tufted disk forms the brush, an end plate is placed on each side of the disk and a rivet 14 is passed through the openings in the end plates corresponding to openings 8 in the disks and through the openings 9. It will be noted that the nesting relation between the shoulders of the segments 6 and 7 and shoulders 12 of the end plates forms additional radial thrust

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surfaces or bearing surfaces, should pressure be placed on the arbor support 11, by the placing of pressure upon the periphery of the brush. This support is additional to that of the rivets 14.

When more than one disk is utilized to construct a brush, they are placed so that segments facing the adjoining disk are in register with those of the adjoining disk. The segments thereby form spacing means between the two disks. Since it is preferred to only bore three holes for rivets or bolts in each disk, the disk may have to be turned over to obtain the proper registry of adjacent segments. The disks are identical on each side and any number may be thus used to build up a brush of substantially any desired extension. As shown in Figure 6 three disks are used to construct the brush. The segments separate the disks at the center and the projecting tufts separate them at the periphery. A sufficiently rigid structure is thereby obtained for placing the bolts or rivets 15 in place and spreading the ends 16.

It will be apparent that spacers and fillers are consequently not required and a comparatively few parts are required to complete the assembly. An arbor may be placed through the center opening 11 on the end plates 10 to support the brush.

The operation, construction and assembly of a brush of one or a plurality of sections is believed to be clear from the above description. It will be apparent that many modifications may be made in the construction of the parts without departing from the invention.

What is claimed as new and is desired to be secured by Letters Patent is:

1. A brush comprising a tuft holding disk, U-shaped tufts mounted at their bights circumferentially in the disk, the tufts extending radially from each side of the disk, said disk being axially perforated and having a plurality of circular segments at the axial edge of the axial perforation extending circularly alternately from each opposite side thereof, an end plate fixed to one side of said disk having a central portion adapted to be supported by an arbor and a radially extending outer portion to hold the tufts radially and an intermediate portion shaped to conform to the outer configuration of the segments, the nesting relation of the segments and intermediate portion transmitting radial pressure from the tuft disk to the end plate arbor supported part.

2. A brush comprising a plurality of tuft holding disks, U-shaped tufts mounted at their bights circumferentially in the disk, the tufts extending radially from each side of the disk, each disk being axially perforated and having a plurality of circular segments at the axial edge of the axial perforation extending circularly alternately from each opposite side thereof, segments directed toward adjacent disks being in register to space the disks apart for the tufts to pass therebetween, end plates on the outer sides of the assembled disks, and means to hold the assembled disks and end plates together.

3. A brush comprising a plurality of tuft holding disks, U-shaped tufts mounted at their bights circumferentially in the disk, the tufts extending radially from each side of the disk, each disk being axially perforated and having a plurality of circular segments at the axial edge of the axial perforation extending circularly alternately from each opposite side thereof, segments directed toward adjacent disks being in register to space the disks apart for the tufts to pass therebetween, end plates on the outer sides of the assembled

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disks, each end plate having a central portion adapted to be supported by an arbor, a radially extending outer portion to hold the tufts radially and an intermediate portion shaped to conform to the outer configuration of the segments, the nesting relation of the segments and end plate intermediate portions transmitting radial pressure from the assembled disks to the end plate arbor supported part.

4. A brush comprising a tuft holding disk, U-shaped tufts mounted at their bights circumferentially in the disk, the tufts extending radially from each side of the disk, the disk being axially perforated and having at the axial edge of the axial perforation three projections on each side thereof, those on one side being interspaced circularly with those on the other and all being an equal distance from the disk center, and from each other, an end plate fixed to one side of said disk having a central portion adapted to be supported by an arbor and a radially extending outer portion to hold the tufts radially and an intermediate portion shaped to surround the projections radially, the surrounding relation of the end plate intermediate portions to the projections transmitting radial pressure from the tuft disk to the end plate arbor supported part.

5. A brush comprising a plurality of tuft holding disks, U-shaped tufts mounted at their bights circumferentially in the disk, the tufts extending radially from each side of the disk, each disk being axially perforated and having at the axial edge of the axial perforation three projections on each side thereof, those on one side being interspaced with those on the other side, and all being an equal distance from the disk center and from each other, projections pointing toward adjacent disks being in register, to space the disks apart, and means to hold the disks side-by-side together.

6. A brush comprising a tuft holding disk, U-shaped tufts mounted at their bights circumferentially in the disk, the tufts extending radially from each side of the disk, the disk being axially perforated and being cut radially at the axial edge of the axial perforation to form an even number of circular segments, each alternate segment projecting from the opposite side of the disk, there being a plurality of segments on each side, said segments, when in register with similar segments on adjacent disks, spacing the disks apart.

7. A brush comprising a plurality of tuft holding disks, each disk being axially perforated and being cut radially at the axial edge of the axial perforation to form an even number of segments, each alternate segment projecting from the opposite side of the disk, there being a plurality of segments on each side, segments projecting toward adjacent disks being in register to space the disks apart, and means to hold the disks together in side-by-side relation.

8. A brush comprising a plurality of side-by-side tuft holding disks, each disk being axially perforated and being cut radially at the axial edge of the axial perforation to form an even number of segments, each alternate segment projecting from the opposite side of the disk, there being a plurality of segments on each side, segments projecting toward adjacent disks being in register to space the disks apart, tuft directing plates on each end of the assembled disks and means passing through the plates and disks to hold them all together.

9. A brush comprising a plurality of side-by-side tuft holding disks, each disk being axially

perforated and being cut radially at the axial edge of the axial perforation to form an even number of segments, each alternate segment projecting from the opposite side of the disk, there being a plurality of segments on each side, segments projecting toward adjacent disks being in register to space the disks apart, end plates on each end of the assembled disks, each end plate having a central portion adapted to be supported by an arbor, a radially extending outer portion to hold the tufts radially and an intermediate portion shaped to conform to the outer configuration of the segments, the nesting relation of the segments and end plate intermediate portions transmitting radial pressure from the assembled disks to the end plate arbor supported part.

10. A brush comprising a tuft holding disk, U-shaped tufts mounted at their bights circumferentially in the disk, the tufts extending radially from each side of the disks, the disk having a central opening and being cut radially from the

opening to form an even number of segments disposed circularly about the central opening, each alternate segment projecting from an opposite side of the disk, there being a plurality of segments on each side, means on each side of the disk spaced therefrom by said segments to hold said tufts outwardly radially parallel to the disk.

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