

Sept. 11, 1923.

1,467,874

W. M. MUCHOW
DENTIST'S DRILL CLEANER

Filed Aug. 12, 1921

2 Sheets-Sheet 1

Fig. 2.

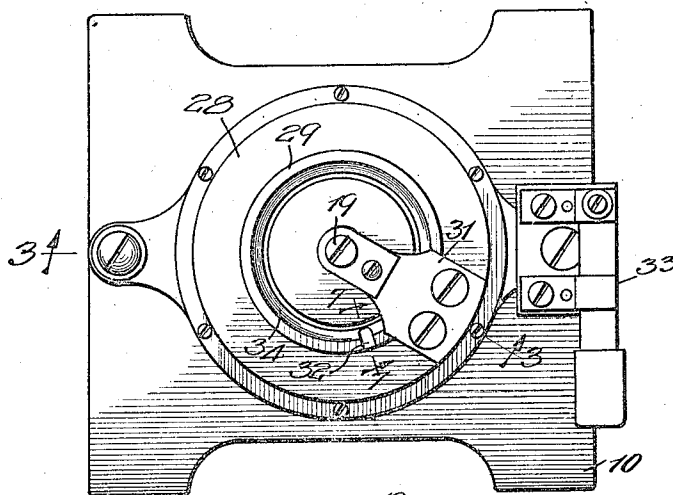
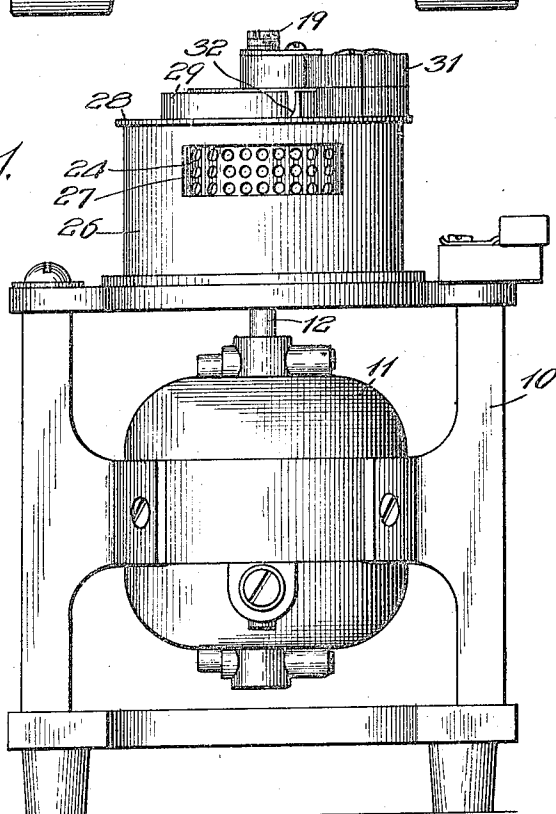


Fig. 1.



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2 Sheets-Sheet 2

Fig. 3.

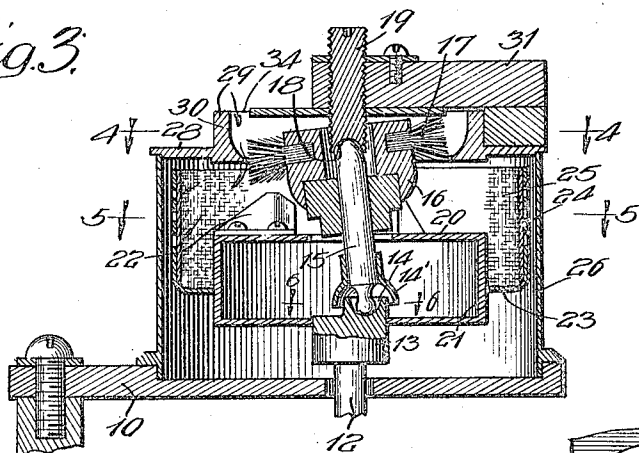


Fig. 6.

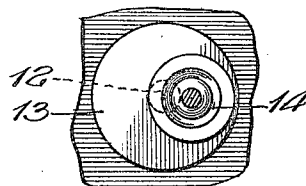


Fig. 4.

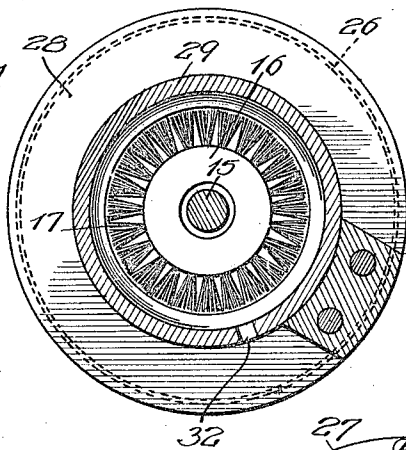


Fig. 7.

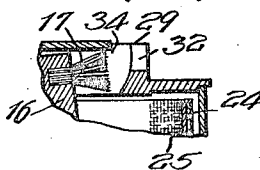
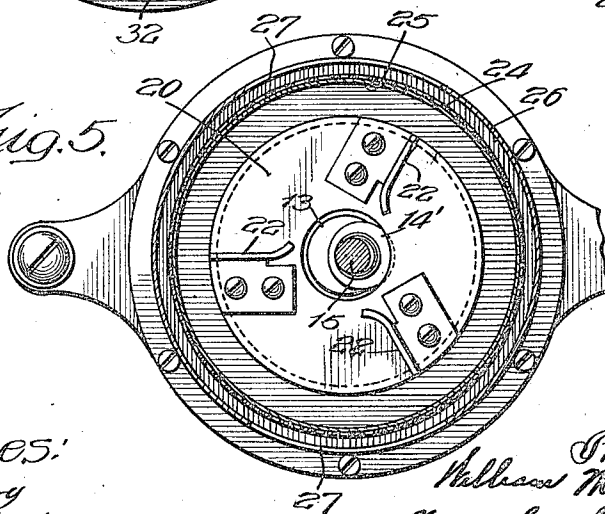


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM MARK MUCHOW, OF EVANSTON, ILLINOIS, ASSIGNOR TO FLOSSY DENTAL MFG. CO., OF EVANSTON, ILLINOIS, A CORPORATION OF ILLINOIS.

DENTIST'S DRILL CLEANER.

Application filed August 12, 1921. Serial No. 491,850.

To all whom it may concern:

Be it known that I, WILLIAM MARK MUCHOW, a citizen of the United States, and resident of Evanston, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in a Dentist's Drill Cleaner, of which the following is a specification.

My invention relates to dentists' appliances and particularly to a novel motor-driven cleaning device having a peculiar motion and effectively serving to perform the desired functions.

One of the objects of my invention is to provide a device of the character described which is adapted to effectively clean the drills of various shapes commonly employed by dentists, the result being secured by bringing the drills into contact with the surface of a circular brush mounted for compound movement. The peculiar movement is secured by pivoting the brush in bearings, one of which is concentric and the other eccentric to the axis of rotation. This results in a wobbling motion, the periphery of the brush defining a volute curve. Thus the action of the brush on a stationary object, such as a drill, is in two directions. Provision is also made for manually moving the drill about the periphery of the brush in order that all sides of the drill may be brought into contact.

In addition I provide means associated with the brush for reducing the air pressure in the space beneath the brush, whereby the particles removed from the drill are received within a chamber having a reticulated wall covered by fabric through which the air is expelled, the particles being retained by the fabric. Provision is made for removal and replacement of the fabric as required.

The invention will be more readily understood by reference to the accompanying drawings, wherein,

Fig. 1 is a side elevation of a device constructed in accordance with my invention;

Fig. 2 is a plan view thereof;

Fig. 3 is a sectional view on the line 3—3 of Fig. 2;

Fig. 4 is a sectional view on the line 4—4 of Fig. 3;

Fig. 5 is a sectional view on the line 5—5 of Fig. 3;

Fig. 6 is a fragmentary sectional view on the line 6—6 of Fig. 3; and

Fig. 7 is a fragmentary sectional view on the line 7—7 of Fig. 2.

In the drawings it will be seen that I provide a frame 10, adapted to support a motor 11, the armature shaft 12 of which projects upwardly and terminates in a member 13, having an offset bearing or seat 14. The member 13 is, in effect, a pitman as the bearing 14 is laterally offset from the center of rotation of the shaft and serves as a support for a shaft 15, carrying at its upper end a brush 16 of circular form having radial bristles 17. In order to prevent the entrance of dislodged particles into the bearing 14 I provide a hood or cover 14', the edges of which overhang the bearing, as best shown in Fig. 3. The upper end of the shaft 15 is carried in a bearing 18, constituted by the concaved lower end of a threaded member 19. The bearing 16 is concentric to the armature shaft and brush.

Fixed to the member 13 is a part having a horizontal upper wall 20 and side walls 21, fan blades 22 being secured to the wall 20 for a purpose to be later described. Projecting from the side walls 21 are the horizontal portions 23 of a cup-shaped device having an open top and reticulated side walls 24. These side walls may consist merely of a screen of small mesh of sufficient stiffness to be self-sustaining under the rotation imparted to the device. Mounted on the inner surface of the wall 24 is a fabric band 25 which may contain a sterilizing substance.

The parts just described are incased within a cylindrical wall 26, fitted within a suitable recess in the top member of the frame 10. The casing 26 is provided with one or more openings 27 permitting the escape of air from the interior thereof. The top of the casing 26 is closed by a wall 28 having an upstanding annular flange 29, the inner surface 30 of which is curved, terminating at a point close to the periphery of the bristles 17. The threaded member 19 is held in an arm 31, also secured to the cover 28. The flange 29 is provided, as shown in Figs. 2 and 7, with a small notch 32 at one point of a size to permit the insertion of a drill. This is intended for use in cleaning flat-faced and similarly shaped cutters. A

switch 33 is indicated but this will be positioned at a suitable point for the most convenient operation.

5 It will be noted that the driving force applied to the brush is frictional only, this having been found to be ample and to obviate certain difficulties.

10 The fan blades together with the action of the brush create a peculiar air condition whereby a suction is created past the periphery of the brush and an increased pressure at the periphery of the rotating reticulated wall. Thus any particles removed from the drill are drawn into the space beneath the
15 brush and are projected against the fabric and held thereby. I will not herein attempt to explain the reason for this peculiar action.

20 In operation the brush being rotated, a drill is placed in the circular space 34, as shown in Figs. 2 and 3, and manually moved angularly around the slot as far as permitted. This results in presenting all of the surface of the drill to the action of the brush
25 and the peculiar action of the bristles serves to remove particles both from the longitudinal and circular grooves in the drill. The wobbling action of the brush shaft serves to combine an up-and-down and a rotary motion, and all of the recesses in the drills are
30 thoroughly cleaned. When it is desired to replace the fabric 25 the casing 26 and the parts supported thereby are lifted, thus readily giving access to the interior of the
35 device.

Obviously the device is capable of much modification and I do not wish to be limited except as indicated in the appended claims.

I claim:

1. In a tool cleaning device, the combination of a driving shaft, a driven shaft, a brush supported by the driven shaft, one end of said driven shaft being concentric and the other end eccentric to the driven shaft, and means for supporting a tool in proximity to the periphery of said brush.

2. A cleaning device for dental tools comprising in combination, a driving shaft, a driven shaft forming in effect a continuation of the driving shaft, the connection between the driving and driven shafts being eccentric, the free end of the driven shaft being concentric, a brush supported by the driven shaft, and means for holding a tool in surface contact with said brush.

3. In a device of the class described, the combination of a shaft adapted to be rotated, a substantially parallel shaft forming a continuation of the first shaft, an eccentric connection between the two shafts, a brush carried by the second shaft the parts being so arranged that the brush is caused to wobble, and means forming a guide for a dental tool around the periphery of the brush.

4. In a device of the class described, the combination of a circular brush, means for imparting a wobbling, rotative movement to the brush, a fan rotatable with the brush, means for guiding a tool adjacent to the periphery of the brush, and a fabric wall surrounding said fan, whereby particles dislodged by said brush are withdrawn by said fan and deposited on said fabric walls.

Signed at Chicago, Illinois, this 9th day of August, 1921.

WILLIAM MARK MUCHOW.