F. SCHREY & O. OESTERREICHER.

ROTARY BRUSH.

APPLICATION FILED MAR. 27, 1911.

1,050,489. Patented Jan. 14, 1913.

Fig. 1.

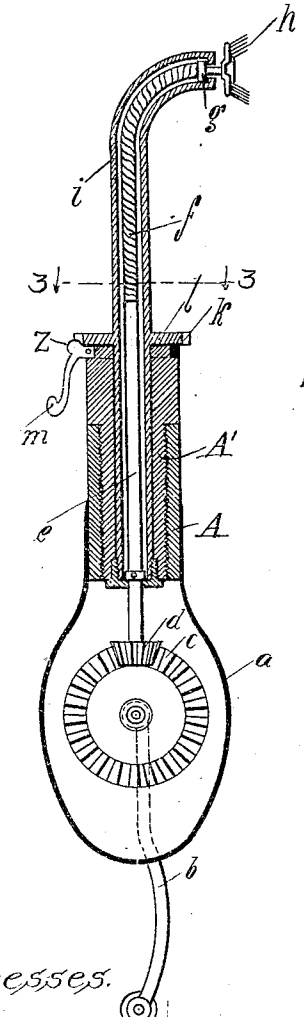
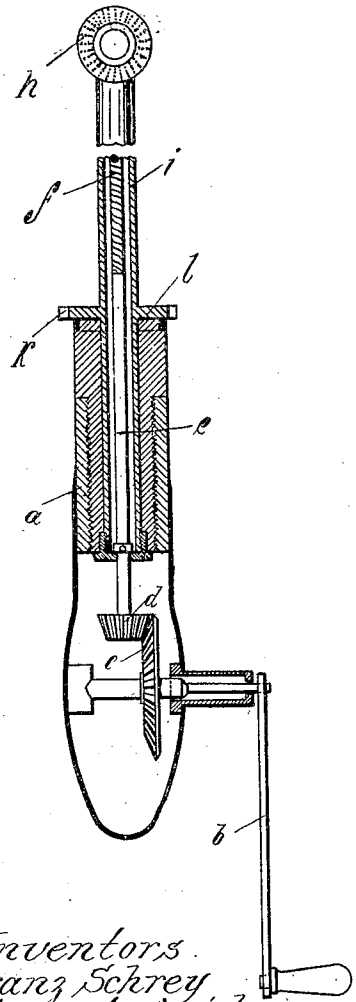


Fig. 2.



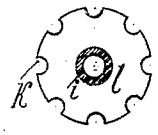


Fig. 3.

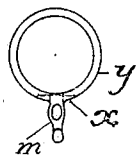


Fig. 4.

Witnesses.
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UNITED STATES PATENT OFFICE.

FRANZ SCHREY AND OTTO OESTERREICHER, OF VIENNA, AUSTRIA-HUNGARY.

ROTARY BRUSH.

1,050,489. Specification of Letters Patent. **Patented Jan. 14, 1913.**

Application filed March 27, 1911. Serial No. 617,175.

To all whom it may concern:

Be it known that we, FRANZ SCHREY, engineer, and OTTO OESTERREICHER, gentleman, subjects of the Emperor of Austria-Hungary, residing at Vienna, in the Empire of Austria-Hungary, have invented a new and useful Rotary Brush, of which the following is a specification.

This invention relates to apparatus for cleaning teeth and especially to that type of apparatus in which rotating brushes are used and the object of the invention is to arrange the apparatus in such a manner that the rotating brush is connected with the mechanism for actuating same and both parts are mounted in a casing which serves as a handle for the apparatus.

A hollow arm extending from and forming continuation of the casing may be turned and adjusted thereon as desired. The upper free end of this arm is curved and in its interior there is a flexible cable, carrying a chuck for the brush to be fixed thereto. In case the adjusting device is disengaged the bent arm may be adjusted either by hand or automatically by means of the action of the conical gears and crank.

We will now describe the invention with reference to the annexed sheet of drawing in which—

Figure 1 is a front view, partly in section and Fig. 2 a sectional side view of the device, at right angles to Fig. 1. Fig. 3 is a section along the line 3—3 of Fig. 1; Fig. 4 is a detailed plan view of the locking mechanism.

a is a casing serving as a handle for the apparatus. This casing has an extension A with inner threads into which is threaded an inner cylindrical piece sleeve A^1 to fit thereon. *c* is a conical toothed wheel located in the hollow casing in suitable bearings, and provided with a crank *b* at the outside end of the axle of wheel *c*. A second conical wheel *d* on a spindle *e* is in gear with wheel *c*. To the spindle *e* is fastened at one end a flexible cable or tube *f* which acts as a flexible driving shaft and carries a chuck *g* on its other end for the insertion of a brush *h* of a suitable form or shape and being surrounded by a hollow arm *i* rotatably fastened in the casing *a* for the purpose of guiding the cable *f* and preventing same from damage or injury. This arm carries a disk *l* having notches *k* on its periphery and is adjustably located in the casing *a*. A latch lever *m* fulcrumed on the casing *a* may be brought into engagement with the notches of the disk *l* for fixing the latter in the desired position.

The latch-lever *m* is rotatably mounted on the pivot, which pivot is carried in the ring *y* which is clamped about the upper end of the handle *a* beneath the disk *l* in such manner that the shoulder *z* is adapted to be brought into engagement with the slots *k* in the disk *l* and hold it against rotation when the free end of the latch *m* is rotated out from the handle *a*.

The apparatus works as follows: When the crank *b* is turned, rotary movement is transmitted to the brush *h* by means of the gears *c*, *d*, spindle *e* and flexible cable *f*, so that the brush may be moved along the teeth with sufficient rapidity. By a suitable adjustment or displacement of the arm *i* with regard to the casing *a* either by hand or after rotating the latch out of engagement with disk *l*, or by the friction existing between spindle *e* and arm *i*, the latter is caused to make a slight turn, and the brush may be carried also along the back side of the teeth without in any way altering the position of the casing *a* and thereby the teeth as well as the interstices between same may be thoroughly cleaned.

It is evident that the construction of the apparatus can be modified without departing from the scope of this invention, for example the conical gears may be omitted and the crank be fitted directly upon an extension of spindle *e* outside the casing *a* but in this case the advantages of any easy handling and reliable function of the apparatus would be lost or at least diminished.

The apparatus as described and shown is simple in its construction, and allows cleaning of teeth and of the interstices between same in a reliable and efficient manner.

The adjustment of the hollow arm is necessary to allow cleaning of all surfaces of the teeth and the interstices without materially moving the handle, which, as stated, contains the driving mechanism. If the hollow arm be not adjustable it would be necessary for example to rotate the whole device for a half revolution to cause the brush to press against the inner side of the teeth. To actuate the device in a comfortable and suitable way, it is necessary to have the crank *b* directed outward for the reason that the crank driving hand is free to act. The ad-

vantage gained by the adjustable arm therefore consists in allowing cleaning of all sides of the teeth without an essential or remarkable movement of the casing or handle. To obtain the adjustment it is sufficient to bring the lever *m* out of engagement with the notches *k* of the disk *l* and either to rotate the crank *b* or to turn by hand the hollow arm to the desired extent.

What we claim as our invention, is:

1. In an apparatus for cleaning teeth by means of a rotating brush the combination of a hollow handle, a spindle in the handle fastened to one end of a flexible cable carrying on its free end a brush, means for rotating the spindle, a rigid hollow arm rotatably mounted in the handle, the said arm being bent on its top end and surrounding the cable as a guide, means for locking the bent arm in every desired position in respect to the handle.

2. In an apparatus for cleaning teeth by means of a rotating brush the combination of a hollow handle, a spindle in the handle fastened to one end of a flexible cable carrying on its free end a brush, means for rotating the spindle, a rigid hollow arm rotatably mounted in the handle, the said arm being bent on its top end and surrounding the cable as a guide, a disk carried by said arm and means connected with the handle adapted to engage with the disk thereby locking the arm.

3. In an apparatus for cleaning teeth by means of a rotating brush the combination of a hollow handle, a spindle in the handle fastened to one end of a flexible cable carrying on its free end a brush, means for rotating the spindle, a rigid hollow arm rotatably mounted in the handle, the said arm being bent on its top end and surrounding the cable as a guide, a notched disk carried by the said arm and a catch lever fulcrumed on the handle and adapted to engage the notches in the disk.

4. A brush comprising a hollow handle, a shaft rotatably mounted therein at right angles to the axis of the handle, a crank for said shaft at one side of the handle, a beveled gear mounted on said shaft, a sleeve projecting upwardly from said handle and screw-threaded therein, a tubular arm having a curved end rotatably mounted in said sleeve, a flange on said tubular arm, a straight shaft rotatably mounted in said arm a beveled pinion carried thereby in mesh with the beveled gear on the drive shaft, a flexible shaft located within said tubular arm and terminating at one end in said straight shaft, a brush carried by said flexible shaft at the other end at the end of the arm, a ring surrounding said arm and fixed upon said sleeve and a locking lever carried by said ring and in removable engagement with said flange for holding said arm in any desired position with respect to the handle.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FRANZ SCHREY.
OTTO OESTERREICHER.

Witnesses:
JOHANN LUX,
AUGUST FUGGER.