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DENTAL TOOL ANGLE.

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FIG. 1.

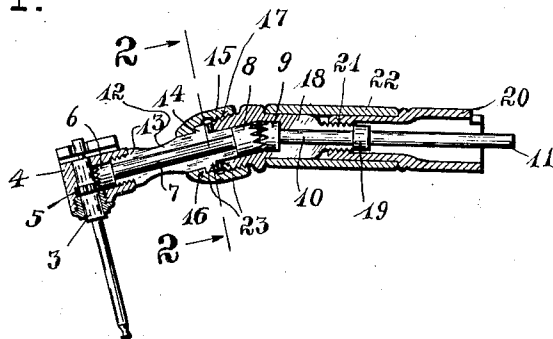
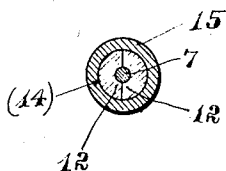


FIG. 2.



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UNITED STATES PATENT OFFICE

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DENTAL TOOL ANGLE

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2 Claims. (Cl. 32—27)

This invention relates to devices used by dentists and the like professionals by which a drill or similar tool used in the mouth of a client receives its motion from a power source.

One of the objects of this invention is to provide a device designed to facilitate a sterilizing of a tool in every detail part inside and outside.

Another object is to split housing parts, held together by adjoining sleeve or head parts.

Another object is to provide an adjustment whereby the front end can be adjusted to and held in different positions.

Other objects will appear from the following description and appended claims as well as from the accompanying drawing, in which—

Fig. 1 is a slightly enlarged longitudinal mid-sectional view of a device designed to function according to this invention.

Fig. 2 is a cross section on line 2—2 of Fig. 1.

Devices of the type referred to here are generally designed to hold small tools such as a drill in its front end and having its rear end designed to be attached to and operated by a flexible shaft.

The short shaft 3 in the front head 4 should therefore be understood to be designed to receive and hold such small tools in the customary manner.

This shaft 3 is provided with a small gear 5 meshed with the end-gear 6 on the shaft 7, which is provided with another end-gear 8 on the opposite end, the gear 8 being meshed with the end-gear 9 on the shaft 10, of which the end 11 extends outwardly from this device and is designed to be connected to a flexible shaft in the customary manner.

A housing 12, serving also as the bearing for the shaft 7, is preferably made in longitudinally split portions or halves, as clearly illustrated in Fig. 2, the end 13 being screwed into the head 4 and is thereby held together, while the opposite end is provided with an annular shoulder 14 and otherwise finished to turnably receive the screw-cap 15, which is provided with a corresponding shouldered portion 16 to firmly but turnably engage this end of the housing 12, thereby holding this end together.

The opposite flat faces of the housing 12 are well enough fitted to retain a sufficient amount of a suitable lubricant when the halves are screwed and clamped together as described above, with the shaft 7 turnable therein.

The threaded engagement at 17, between the sleeve or screw-cap 15 and the one end of the

adjoining housing 18, serves to hold together this end of the also split housing 18.

While the end-gear 9 on the one end of the shaft 10 abuts against one end of the split housing 18, a shoulder-ring 19 is provided on the shaft 10 to abut against the opposite end of the housing 18.

As stated, the sleeve or screw-cap 15 engaging over one end of the housing 18 by the screw-engagement 17, a handle-sleeve 20 is provided with a screw-engagement 21 whereby the opposite end of the housing is held together. A short sleeve 22 is disposed between the handle-sleeve 20 and the split housing 18, serving to hold together that end of the housing when the screw-cap 15 is loosened for certain adjustments, keeping the housing also together and assembled while the whole front end is unscrewed.

For sterilizing purposes it is very desirable that each and every part of such a device can be separated to assure a really perfect sterilizing, since in the joints and between the several parts and even inside of the housing parts of such a device infecting matter may accumulate, and since the front end particularly should require frequent disassembling, the screw-cap 15 serves exactly this purpose, and the insert sleeve 21 is intended to reach far enough over the front-end of the rearmost housing to maintain this rearmost housing 18 assembled whenever so desired.

Whenever the screw-cap 15 is unscrewed, the housing 12 as well as the end-gear 8 easily slip out of the end of the rearmost housing 18, the end-gears 8 and 9 being designed so that they will mesh well directly endwise as well as at slightly inclined positions or angles with respect to the longitudinal axis of the shaft 10, nevertheless, these gears 8 and 9 engage more like coupling members in an endwise direction.

The retaining of the rearmost housing 18 in its assembled condition or position by the sleeve 22, and also the loosening of the front housing 12 by the screw-cap 15 serves, furthermore, to free the small end-teeth engagement, indicated at 23, between the front-housing 12 and the rear-housing 18, by which the setting of these small teeth in the opposing faces of the two housings can be accomplished in such a manner that the front head 4 can be turned to different positions with respect to the bend in the angle connection of the device.

In other words, the drill or tool-holding end of the head 4 can be made to point eventually towards the side at which the angle of the device points, being practically in the manner illus-

trated in the drawing; while the front or tool-holding end of the head may also be turned or adjusted to point sidewise or at any angle radially with respect to the longitudinal axis of the shaft 7 in the front-housing 12, the small teeth of the engagement at 23 being also really mere end coupling members, the smallness of the teeth being selected in order to allow very short turning adjustments between the two housings to make this tool or device very adaptable for work in almost any direction while the main handle part of the device remains in the same position within the hand of the operator who eventually may be used to handling such a device in a certain manner with respect to the main angle of the device while the drill or inserted tool may point in different directions.

Having thus described my invention, I claim:

1. In a device of the class described, longitudinally split housing portions made in pairs, one of said pairs having a bent-end with a central longitudinal axis at an angle to the central longitudinal axis of the larger part of this pair, joining portions engaging and holding

said housing portions, one of said joining portions engaging and holding another of said pairs to the bent-end of the first-named pair thereby forming a bend in the assembled adjoining pairs of the housing, and operating means turnably disposed in and through the assembled adjoining pairs and joining portions and adapted to be separated to be sterilized inside and outside where hollow and joined.

2. In a device of the class described, longitudinally split housing portions made in pairs, one of said pairs having a bent-end with a central axis at an angle to the central longitudinal axis of the other portions of this pair, joining portions engaging and holding said housing portions, the end-faces of adjoining housing portions including said bent-end being provided with fine engaging teeth whereby joined housing portions can be turnably adjusted to different positions within short fractions of a turn, and operating means disposed in and through the assembled adjoining housing portions and through the joining portions.

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