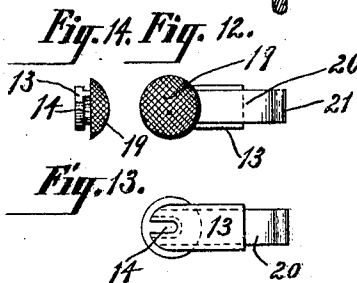
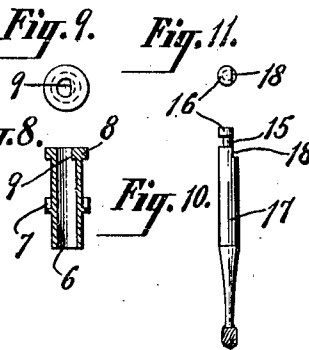
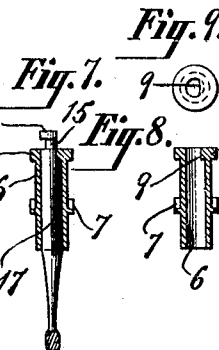
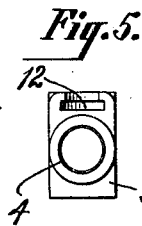
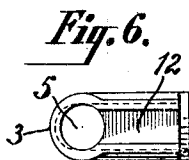
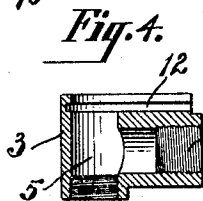
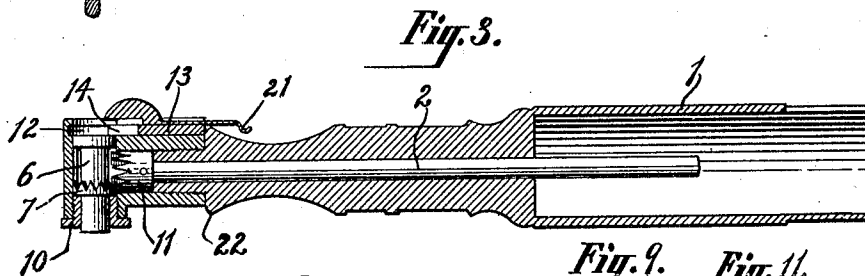
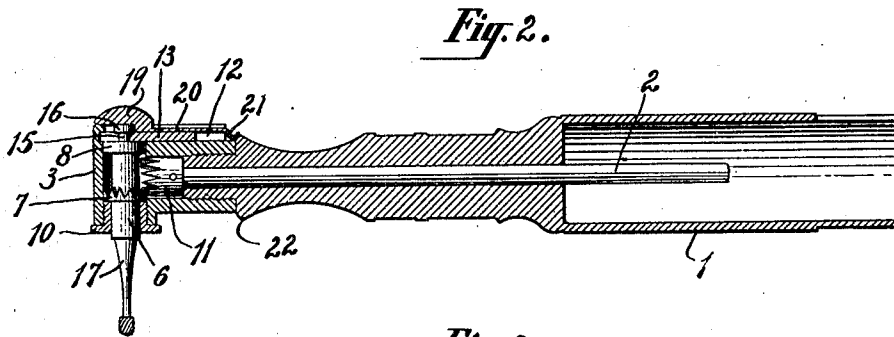
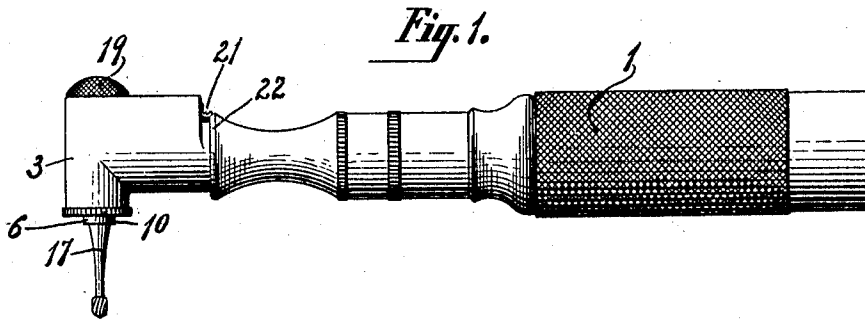


No. 870,825.

PATENTED NOV. 12, 1907.

J. F. HARDY.
 ANGLE ATTACHMENT FOR DENTAL HANDPIECES.
 APPLICATION FILED AUG. 29, 1906.



Witnesses:
F. S. Hachmberg.
Henry Schmeig.

Inventor:
James F. Hardy
By Brown & Wood
his Attorneys

UNITED STATES PATENT OFFICE.

JAMES F. HARDY, OF NEW YORK, N. Y., ASSIGNOR TO CONSOLIDATED DENTAL MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

ANGLE ATTACHMENT FOR DENTAL HANDPIECES.

No. 870,825.

Specification of Letters Patent.

Patented Nov. 12, 1907.

Application filed August 29, 1906. Serial No. 332,440.

To all whom it may concern:

Be it known that I, JAMES F. HARDY, a citizen of the United States, and resident of the borough of Manhattan, in the city and State of New York, have invented a new and useful Improvement in Angle Attachments for Dental Handpieces, of which the following is a specification.

My invention relates to angle attachments for dental hand pieces with the object in view of providing means for readily removing the tool from and adjusting it in its operative position, for cleansing or for the substitution of a different tool.

In the accompanying drawings, Figure 1 is a view of the attachment in side elevation with tool in position for use; Fig. 2 is a view of the same in longitudinal section, Fig. 3 is a longitudinal section with tool removed, Fig. 4 is a sectional view in detail of the tool support, Fig. 5 is an end view of the same, Fig. 6 is a top plan view of the same, Fig. 7 is a sectional view of the tool operating sleeve, showing a tool in position therein, Fig. 8 is a similar view with tool removed, Fig. 9 is a top plan view of the same, Fig. 10 is a view of the tool in detail, Fig. 11 is a top plan view of the same, Fig. 12 is a top plan view of the tool retaining dog, Fig. 13 is a bottom plan view of the same, and Fig. 14 is an end view of the same.

The hand piece denoted by 1 supports the tool driving spindle 2 in the usual manner. On to the end of the hand piece the tool support 3 is screwed by means of an internally screw-threaded socket piece 4. A transverse socket piece 5 in the tool support 3 receives the tool driving sleeve 6, the latter being provided with a pinion 7 and an annular bead 8. The annular bead 8 serves as an external bearing for the sleeve and also projects throughout a portion of its extent into the bore in the sleeve as shown at 9, to lock the tool against rotation therein. The sleeve 6 is held in the socket 5 by means of a tubular nut 10 which screws into the end of the socket and bears against the side of the pinion 7. The tool driving spindle 2 is provided with a pinion 11 which intermeshes with the pinion 7 when the parts are in operative adjustment.

In the top of the support 3, immediately above the socket piece 4, there is formed on the inner face of the support, a groove 12 extending along both sides and across the end of the support. In this groove or these grooves the tool retaining dog 13 slides, a slot 14 in the end of the dog receiving and embracing the opposite

sides of the neck 15 of the tool. The neck 15 of the tool, when the tool is in position in the sleeve 6, projects above the top of the sleeve as clearly shown in Figs. 2 and 7, and above the neck 15 the tool is provided with an enlarged head 16 of greater diameter than the middle of the slot 14 in the tool retaining dog. The body 17 of the cutter is intended to have a close sliding fit with the interior bore of the sleeve 6, and the said body is cut away at 18 in proximity to the neck 15 to receive the internal projection 9 on the sleeve to lock the tool against rotation.

The dog 13 has fixed to its outer face a finger piece 19 for operating it and a flat retaining spring 20, the latter being provided at its end with a short depression 21 in position to seat against the projecting shoulder 22 on the hand piece when the dog is in locking adjustment as shown in Figs. 1 and 2. The depressed portion 21 of the spring is preferably given a curved form as shown, so that it may be forced back over the shoulder 22 by a forcible push on the finger piece 19 but will at the same time hold the dog in locking position against unintentional misplacement.

The structure is simple and effective and admits of quickly removing the tool by simply sliding the dog back while the tool sleeve itself may be removed by simply unscrewing the nut 10.

What I claim is:—

1. The combination with suitable tool supporting mechanism and tool driving mechanism, of a tool retaining dog seated on said support to be moved toward and away from the tool along the tool support, said dog having an integral spring portion at its free end in position to engage the tool support to hold the locking dog in locking adjustment.

2. The combination with a hand piece containing a tool driving spindle and a tool support, of a tool holding sleeve removably seated in the tool support in position to be rotated by the tool operating spindle, the tool shank and the sleeve being provided with flattened engaging surfaces to prevent the tool from rotating relative to the sleeve, a dog slidably seated in the tool support and constructed to engage the tool and hold it against longitudinal displacement with its flattened surface in engagement with the flattened surface of the sleeve and having an integral spring portion adapted to engage the tool support for locking the dog in its holding position.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this 22nd day of August 1906.

JAMES F. HARDY.

Witnesses:

H. D. BEELTMAN,
JAMES MURRAY.