R. T. BURNLEY.

DENTAL INSTRUMENT.

APPLICATION FILED APR. 14, 1908.

907,003.

Patented Dec. 15, 1908.

Fig. 1.

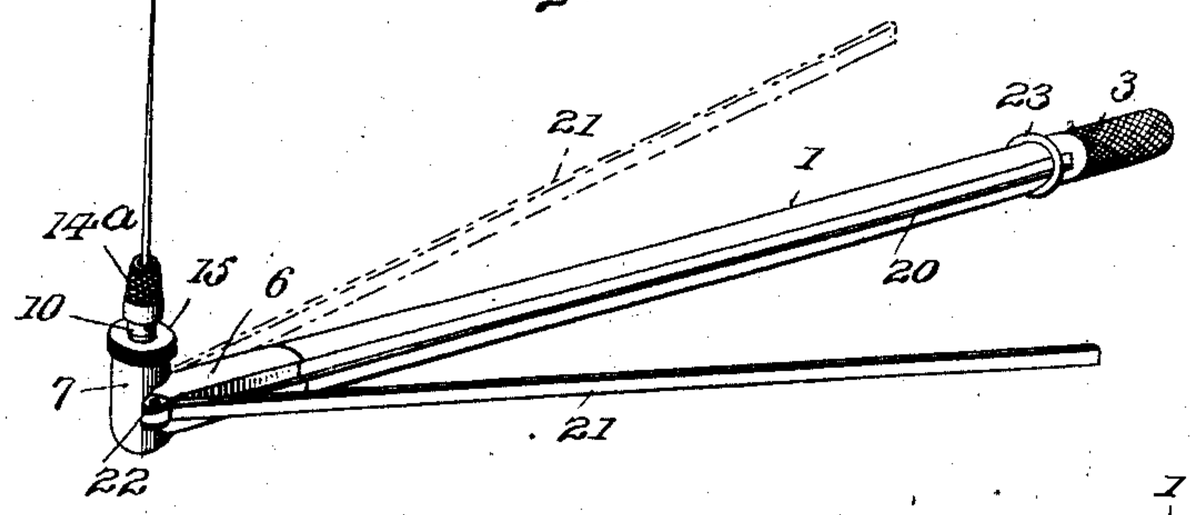


Fig. 5.

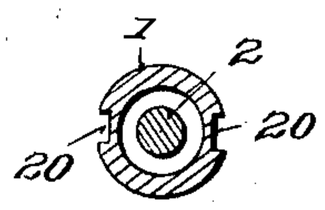


Fig. 2.

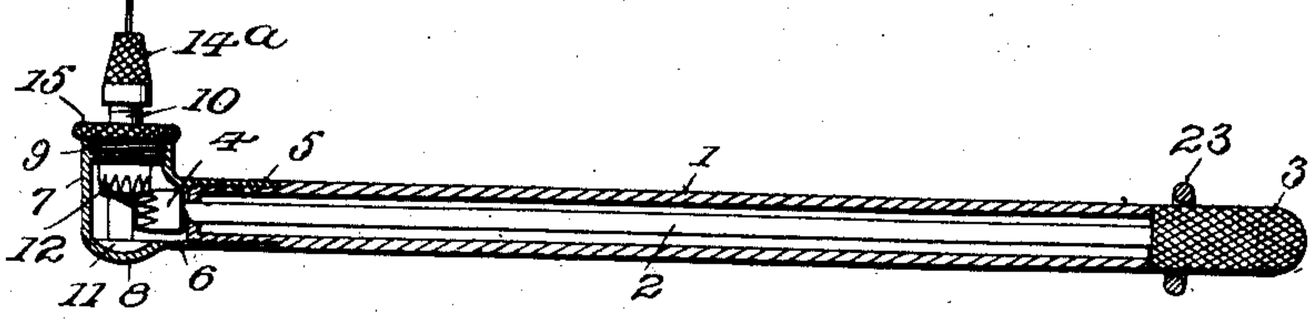


Fig. 3.

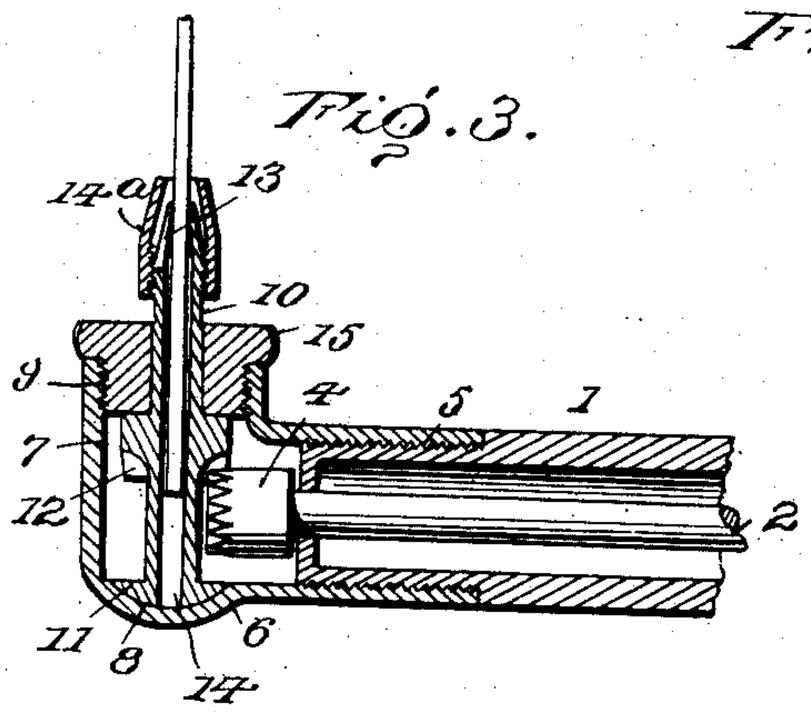
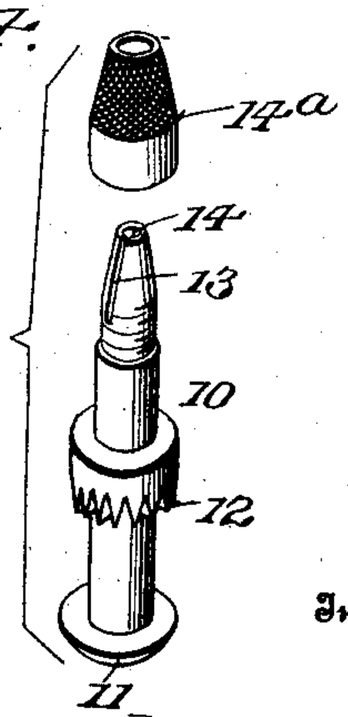


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

RICHARD TOLBERT BURNLEY, OF ATLANTA, GEORGIA.

DENTAL INSTRUMENT.

No. 907,003. Specification of Letters Patent. Patented Dec. 15, 1908.

Application filed April 14, 1908. Serial No. 426,991.

To all whom it may concern:

Be it known that I, RICHARD TOLBERT BURNLEY, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented certain new and useful Improvements in Dental Instruments, of which the following is a specification.

This invention relates to improvements in tools designed primarily for operating in connection with broaches and the like, by hand.

The rear teeth of a patient are extremely difficult to operate upon by reason of the fact that with tools now in use, it is necessary to insert the fingers in the mouth to manipulate them, which is awkward and frequently hides from view the particular part to be treated. This is especially true in removing a nerve from a rear tooth.

According to my invention, I provide an instrument having the parts so arranged that the broach may be operated by means wholly outside the mouth, which enables the operator to have a full view of the particular part being treated. The broach is angularly disposed, and may be inserted in the root canal, and revolved to grip the nerve and remove it from the tooth.

The fundamental feature of the invention is to construct and arrange the parts in simple, yet durable form, whereby a tool is rendered practical and efficient.

The invention also possesses other advantages, which will be hereinafter described.

In the drawings: Figure 1 is a perspective view of the tool. Fig. 2 is a vertical central section. Fig. 3 is a similar view of one end, on an enlarged scale. Fig. 4 is a detail perspective view of the chuck. Fig. 5 is a detail cross section taken through the tubular handle.

The numeral 1, indicates a tubular handle, which receives a shaft 2, formed at its outer end with a finger piece 3, and provided at its opposite end with a small pinion 4. The ends of the handle 1, fit against the finger piece 3, and the pinion 4, respectively, to retain the shaft in proper relation, and thereby prevent its being displaced. The pinion is secured to the shaft in any appropriate manner, and as it wears may be readily replaced.

The handle 1, is threaded at 5, adjacent the pinion 4, and receives the threaded end of a coupling member 6. The opposite end of the coupling is formed with an angular extension 7, the bottom of which is formed with a semi-spherical seat 8, and its outer end is interiorly threaded at 9.

Fitting in the angular extension 7, is a chuck member 10, formed at its lower end with a semi-spherical base 11, which fits in the semi-spherical seat 8. The chuck is formed with a beveled pinion 12, designed to mesh with the pinion 4, and extending beyond the pinion is a threaded split extension 13. The chuck is formed with a central opening 14, throughout its entire length to receive the end of a broach or the like. A threaded collar 15, engages the threaded portion 9, of the angular portion of the coupling, and bears on the beveled pinion 12, to hold the chuck in position in said coupling. A threaded nut 14^a, engages the threaded split extension 13, to bind the broach in fixed position to cause it to turn with the chuck, when the finger piece is operated.

By reason of the chuck having an opening throughout its entire length, the operative distance between the end of the broach, and the nut 14^a, may be altered, which quite frequently is required, depending entirely on the nature of the treatment and the location of the tooth.

On each side of the tubular handle, is formed a groove 20, to receive braces 21—21, hinged at 22, and retained in the grooves when not in use by a movable ring 23. This construction affords a right or left hand outwardly extending member, to steady the tool when operating the finger piece. By reason of the angular disposition of the braces, it enables the operator to obtain the desired leverage, and at the same time will allow of the hand holding the tool being out of the way of the front of the mouth.

In operation, the end of the tool is inserted in the mouth of the patient, and the broach is located in the canal of the particular tooth to be treated. The finger piece is rotated, which, through the gear connection, rotates the broach and gradually withdraws the nerve. Obviously the operator has full view, which makes the tool advantageous when treating a rear tooth. Furthermore, by the angular disposition of the chuck, and the means provided for adjusting the broach make the tool operable to varying conditions so frequently occurring when filling teeth.

By constructing the chuck of one piece as described, I reduce the liability of loss of parts, and consequent delay, to a minimum,

and at the same time produce a simple and compact structure susceptible of quick attaching and detaching of the broach when necessary. This semi-spherical end of the chuck and its seat, serve to form an abutment for the chuck when pressure is applied to it, and serves also to reduce friction between the gears. For instance, if the chuck did not abut against the base of the extension, when pressure is applied to the said chuck, the gears would be forced together, consequently creating a great deal of friction between the gears, and thereby necessitating, a greater effort to turn the handle.

What I claim is:

1. In a dental instrument, a tubular handle, a shaft extending through the handle and provided at one end with a finger piece, a pinion secured to the opposite end of the shaft, the pinion and finger piece bearing respectively against the inner and outer ends of the tubular handle, an angular tubular extension fitted on the tubular handle and formed at an end with a concave seat internally threaded at its opposite end, a chuck formed with an opening having a convex head at one end to engage the concave seat in the extension, the opposite end of the chuck being reduced and split a pinion fast on the chuck which engages the pinion on the shaft, a threaded nut engaging the internally threaded portion of the extension and engaging the pinion on the chuck to hold said pinion in engagement with the pinion on the shaft, and retain the chuck in the extension, and means coöperating with the split end of the chuck to hold a tool.

2. In a dental instrument, a tubular handle, a shaft mounted in the handle and provided on one end with a finger piece which abuts against one end of the tubular handle, a pinion on the other end of the shaft which abuts against the adjacent end of the tubular handle, an angular extension on the tubular handle, said extension having interior threads at its free end and a seat in its base, a chuck in the tubular handle, said chuck having a base to engage the seat and formed at its free end with a split exteriorly threaded extension and formed with a centrally disposed opening extending throughout its entire length, a pinion intermediate the extension and the base of the chuck, said pinion engaging the pinion on the shaft, and a threaded nut engaging the threaded portion of the angular extension and above the pinion to retain the chuck in position.

3. In a dental instrument, the combination with a tubular handle, a shaft mounted in the tubular handle, a chuck, gears between the chuck and the handle, a brace on the tubular handle to steady the instrument, and a device to lock the brace close to the handle.

4. In a dental instrument, the combination with a tubular handle formed with grooves, a shaft mounted therein, a finger piece on the shaft, a chuck, gears between the chuck and the shaft, braces hinged to the handle and normally seated in the grooves, and a locking device to hold the braces in the grooves when not in use.

5. In a dental instrument, the combination with a handle and a chuck for holding a tool, and a hinged brace on the handle to steady the instrument.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD TOLBERT BURNLEY.

Witnesses:
W. N. Woodson,
Jno. Imirie.