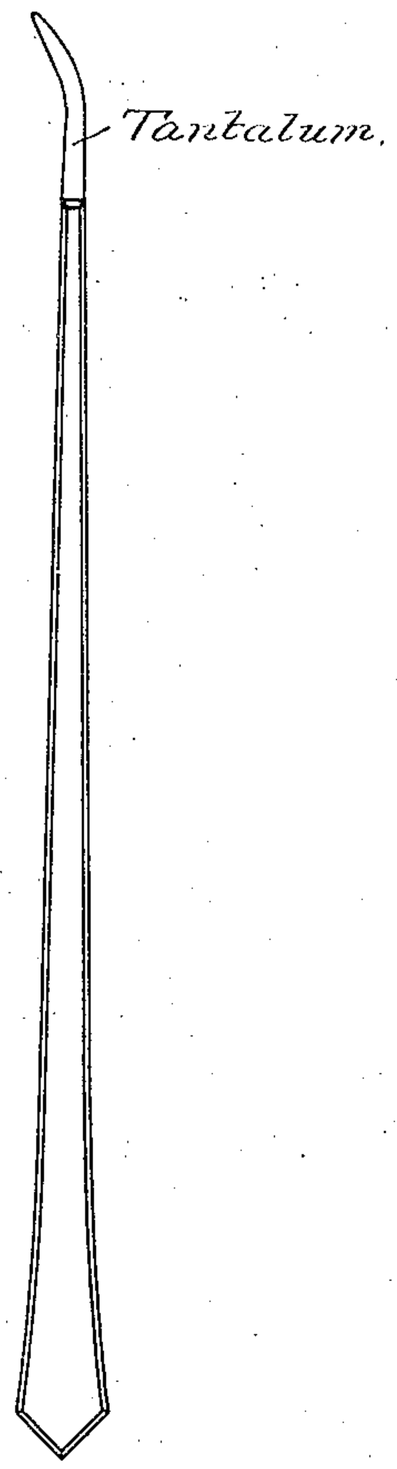
O. NEUGEBAUER.

DENTAL INSTRUMENT.

APPLICATION FILED NOV. 19, 1907.

940,351. Patented Nov. 16, 1909.



Witnesses
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UNITED STATES PATENT OFFICE.

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DENTAL INSTRUMENT.

940,351. Specification of Letters Patent. Patented Nov. 16, 1909.

Application filed November 19, 1907. Serial No. 402,929.

To all whom it may concern:

Be it known that I, OTTO NEUGEBAUER, a subject of the German Emperor, and resident of Alte Cellerheerstrasse 64, Hanover, Germany, have invented certain new and useful Improvements in Dental Instruments, of which the following is a specification.

My invention relates in general to dental instruments for working fillings.

Heretofore such instruments have been formed of steel, agate, ivory and other materials. There have, however, been certain inherent difficulties in this art which render the use of the materials heretofore known for such purposes subject to serious disadvantages. In the first place, the reagents employed in dental practice are injurious to steel, and those materials which could withstand the reagents, lacked the necessary toughness and other physical properties which permitted the manufacture of the instruments in the most advantageous form. Furthermore, it is often necessary or desirable to work in locations where it has been exceedingly difficult to provide for the suitable instruments. For example, the space may be very limited as in the case of nerve canal roots and in such places, even steel drills of requisite strength are frequently too large. Another difficulty has been to provide an instrument having the good properties of steel, but having at the same time an extreme hardness beyond that possessed by steel. The successful use of porcelain and silicate fillings generally has been seriously handicapped by the lack of a suitable tool for working it. These fillings are subject to discoloration when worked by the instruments heretofore employed. Numerous other difficulties, well known to those skilled in this art are met with and remain unsolved by the instruments heretofore available.

In accordance with my invention, these instruments are constructed of a material which I have found to be peculiarly suited to such use and which does away with substantially all of the difficulties and limitations of the character above referred to. This material is tantalum. Pure tantalum or tantalum mixed with iron or with carbon serves these purposes and hence reference to tantalum will be understood to indicate as well as pure tantalum, the tantalum with admixtures noted. This material is extremely hard, has a very high melting point, great toughness, the desired flexibility, and remarkable elasticity. Especially is the form in which admixtures are present of extreme hardness. It can be rendered harder than steel while still retaining its flexibility, toughness and elasticity. On the other hand, tantalum is entirely indifferent to the reagents used in dentistry, not being attacked by any acids with the exception of hydrofluoric acid and resistant to most basis. Consequently the instruments constructed in accordance with my invention may be readily cleaned and disinfected in acid, or may be boiled in soda water without fear of detriment. It is also superior in its operation, since it retains its cutting edge better than steel and is not so liable to fracture. It does not discolor porcelain or silicate fillings and may be employed for all fillings, even those containing mercury and those just mentioned.

The instruments may be constructed much thinner than similar instruments of steel, while at the same time they are of equal strength and durability.

The accompanying drawing shows a dental instrument having a tantalum blade or operating part constructed in accordance with my invention.

It is of course unnecessary to form the entire instrument of the material in question, as in many instances only the operating part need be so formed, the other parts being of any suitable material.

I am aware that tantalum has been employed for certain other purposes, as for example, in electric lighting, but so far as I am aware, I am the first to point out and use in dental instruments those properties which I have discovered to be so peculiarly suited and by which so many advantages are to be obtained.

I claim:

A dental instrument for working fillings having its operative part or parts composed of tantalum.

In testimony whereof I have signed my name to this specification in the presence of two witnesses.

OTTO NEUGEBAUER.

Witnesses:

LEOP. FRANKE,

MAX KÜRSCHNER.