

Jan. 29, 1957

C. P. D. CLAESSENS

2,779,100

DENTAL MIRROR

Filed Sept. 16, 1954

Fig. 1

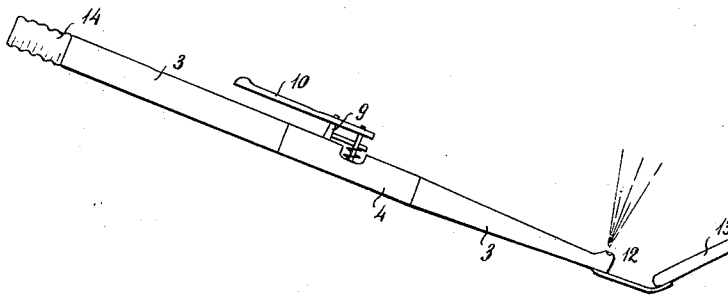
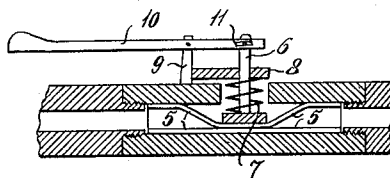


Fig. 2



Inventor
Carolus P. D. Claessens
by
Stevens, Davis, Miller & Neuber
his attorneys

1

2,779,100

DENTAL MIRROR

Carolus P. D. Claessens, Boskoop, Netherlands

Application September 16, 1954, Serial No. 456,450

Claims priority, application Netherlands
September 21, 1953

3 Claims. (Cl. 32—69)

It is known that the pain occurring on drilling or grinding by the dentist is mainly caused by the heat developed by the rotating drill or grinding disc.

For the grinding off of teeth and molars as must be done e. g. for putting on a crown about 25 years ago so called diamond discs have been introduced being metal discs covered with diamond dust. Such a diamond disc grinds much faster away the material of the tooth than a steel drill, however, in accordance therewith develops much more heat.

To make said treatments bearable to the patient various methods have been developed with the purpose of removing the frictional heat, and this is then done by blowing on a gas, such as air or carbon dioxide, or by spraying on a liquid, water presenting itself for this purpose in the first place. The apparatus used therefore was then always combined with the straight or bent holder of the drill which combination hampers very much the grinding and the view on the work.

Devices have been designed in which a liquid or medicine was introduced through the hollow stem of a mirror as used always by the dentist. In said constructions a hollow tube forming the continuation of the hollow stem is passed from the back side of the mirror through the centre thereof to the front. In the centre of the mirror a small fountain is then formed after the other end of the stem is connected to a water duct under pressure and the action of the fountain is further improved by giving the discharge end of the tube the form of a narrowing nozzle. If one should use said mirrors for cooling purposes various disadvantages would be connected therewith.

In the first place the bore through the mirror creates just at the most important place, viz. the centre of the mirror, an inactive portion and the function of the mirror is thereby greatly hampered. The work of the dentist is on this account made very difficult.

In the second place there is a possibility that the ejected liquid hits the eye of the dentist in a very undesired manner.

And in the third place the drilling of the surface of the mirror and thereafter the construction of an immovable unit also means a cumbersome construction raising the price of the apparatus.

The above drawbacks will be avoided by the apparatus according to the invention.

An embodiment thereof is shown in Fig. 1, whereas Fig. 2 shows on a somewhat larger scale a section through the valve portion of Fig. 1.

The stem-like handle 3—3 contains the valve portion 4 which may be screwed in between the front and the back part of the handle. In said part 4 a rubber tube 5

2

is glued with the ends which tube may be compressed by means of a stamp 6 and a pressure spring 7 which presses against a surface 8 which in some way or other is rigidly connected to the portion 4. In Fig. 2 said surface 8 is connected with a standard 9 in which a lever 10 is pivotally mounted. The right end of the lever 10 is provided with a slit 11 through which a pin sticks connected to the stamp 6. A pressure exercised on the left part of the lever lifts the stamp 6 against the pressure of the spring 7 so that the cooling medium, liquid or gas may start to flow. As soon as the pressure on the lever is removed the spring 7 compresses the tube 5 and flow is stopped.

Finally the nozzle is indicated with the reference 12 and the mirror with the reference 13. At 14 the handle of the mirror is connected to a supply tube through which the cooling medium is introduced.

The first feature of the new apparatus is therefore that the total reflecting surface is maintained and that the nozzle is directed to the space before the mirror.

Practice has shown that it is most practical to apply the nozzle in such a manner that an angle of about 90° is formed with the direction of the stem the mirror making an angle of 135° (45°) with the stem (see Fig. 1).

It is obvious that the new mirror must be connected to the water conduit or an air compressor as always is present on the dental unit (frame of the drilling machine). When the valve present therein is adjusted to the desired consumption the object aimed at is already attained.

Working with the new apparatus is still somewhat refined by applying the valve in the stem so that the dentist while working may vary the intensity of the jet without touching the valve in the unit.

The apparatus according to the invention may also be connected to a cylinder filled with a gas under pressure, e. g. carbon dioxide, which cylinder then is provided with a reduction valve.

It is further possible to surround the line, e. g. in the portions 3, with a heating wire through which an electric current may be passed so that it becomes possible to heat the medium if necessary. The supply tube for the medium to be used may then be combined in a simple manner with the line for the electric current.

The cooling medium injected in the mouth may be ejected in a known manner out of the lower part of the mouth by means of a suction means for saliva.

Finally it is recommended to construct the new apparatus out of at least two portions, a mirror portion and a stem portion, which may be connected to each other e. g. by means of screw thread or a bayonet joint. The mirror portion is during use more exposed to damage than the stem portion and the stem portion may therefore be retained when the mirror must be replaced. The mirror must also be boiled regularly for disinfection which will then be easier.

I claim:

1. A dental mirror comprising a hollow stem forming a supply line for a fluid and having an end, a mirror rigidly connected to said end at an angle of about 45° thereto, said stem adjacent said end being provided with a jet opening facing the reflecting surface of the mirror and spaced inwardly on the stem from the mirror, said opening being so arranged that the jet direction of the opening is at an angle of about 90° with the stem.

3

2. A dental mirror as claimed in claim 1, wherein the stem is provided with an electric heating means for heating the fluid flowing through the stem.

3. A dental mirror as claimed in claim 1, wherein said stem has a compressible section in a portion of its bore, a spring urged pressure member, radially extending through the stem and bearing against said section to maintain it closed and a manually operable release means on the exterior of the stem for lifting the pressure member to permit the section to open under the force of the fluid.

10

4

References Cited in the file of this patent

UNITED STATES PATENTS

1,352,789	Craig -----	Sept. 14, 1920
1,905,633	Feltham -----	Apr. 25, 1933

FOREIGN PATENTS

625,454	Great Britain -----	June 28, 1949
---------	---------------------	---------------