

STABLE DENTAL MIRROR - INVENTION

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ABSTRACT

The present invention is about a stable dental mirror that is placed on the rubber dam frame (RDF) used during dental treatment. The mirror is able to be moved and rotated through 360 degrees and does not need to be held, thus freeing the dentist's hands which will cause less muscle stress and fatigue. Also, it does not have closely spaced joints, which yields good mirror stability with minimum vibration. Furthermore, it is easy to use and clean because it includes one fixed piece without any sharp projections.

Keywords: *New dental mirror, invention*

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INTRODUCTION

Dentistry, is a visually dependent occupation. It requires precision and great attention to details because it is carried out in a dark and confined field of fractions of millimeters. Dental practitioners usually complain of pain in several parts of their bodies including the neck, back, shoulders, and hands because of the need to lean over the patient for a clear field of vision. Studies reported higher prevalence of work-related musculo-skeletal disorders (WMSDs) and pain among dental practitioners because of awkward static positions and poor posture for extended periods of time.¹⁻⁴ WMSDs have high probability of developing into a chronic condition and the potential to be persistent for a long time especially the hand.⁵⁻⁶ In addition to physical stress, dental practitioners complain of mental stress during treatment and fatigue after the treatment.

A traditional dental mirror has a straight handle held by the dental practitioners throughout the treatment. This mirror allows the dental practitioners to see the teeth without bending and leaning close to the patient. But this occupies one of the dental practitioners' hands and both hands are needed during treatment. Thus, the dental practitioners must constantly change between holding the mirror and other tools or materials which is time consuming and stressful for them especially with magnification. Because it necessitates

and requires readjustment and refocusing of the microscope each time the mirror is used. This makes the whole procedure lengthy and frustrating.

Further, the slightest movement of the mirror during the use of a microscope or any magnifying devices may result in loss of focus of the field of operation. Readjusting the mirror may cause loss of time as well as frustration, stress and fatigue for both the dentist and patient. To overcome this problem, dentists tend to hold the mirror in a fixed position during the dental procedure to achieve a stable vision of the working field. This will lead to the development of stress and pain in the hand and eventually a chronic medical condition. Ergonomic studies propose that holding dental mirror in a static position for a long time is a contributing factor for WMSDs.⁷ In order to prevent WMSDs, we have to reduce physical effort with ergonomic adaptations to the dental mirrors.⁷

Throughout the years there were several attempts to solve these problems. Inventors came with several patented ideas to overcome these problems. These ideas had several designs which describe the dentist's mirror that is connected to either the microscope, the clamp, the dentist's finger, or the high suction tip.⁸⁻¹¹

Invention idea

This invention¹² overcomes the limitations of previous dental mirrors by placing the mirror on the rubber dam frame (RDF) used during treatment, allowing free use of either a microscope or magnifying dental loupes as well as enabling the dentist's hands to move freely once the mirror is placed. The new dental mirror has a simple design that does not have closely spaced joints, which yields good mirror stability with minimum vibra-

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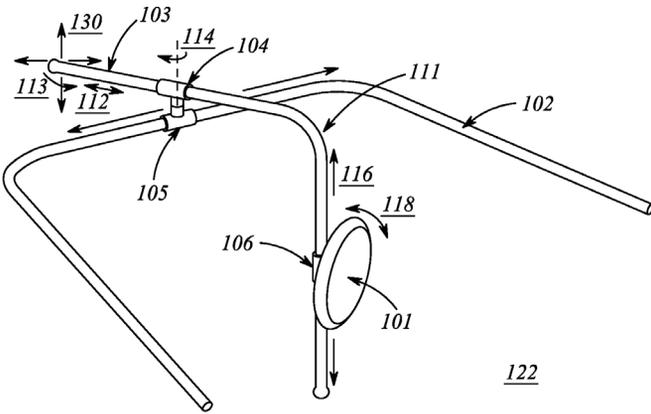
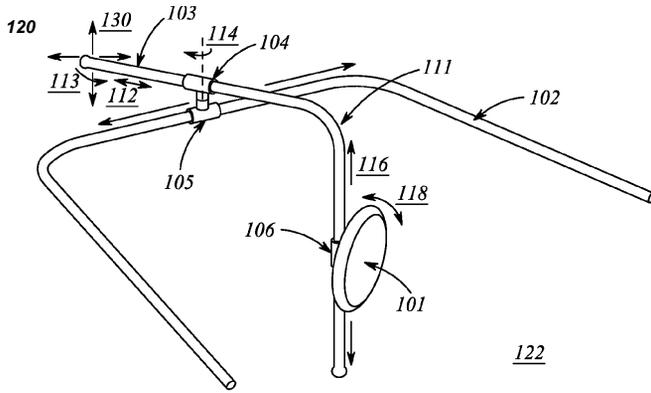


Fig. Ia

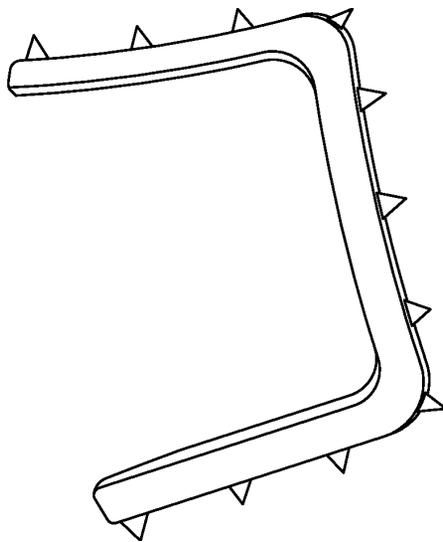


Fig. Ib

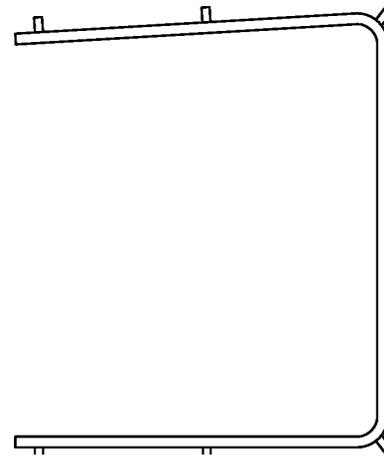


Fig. 1c

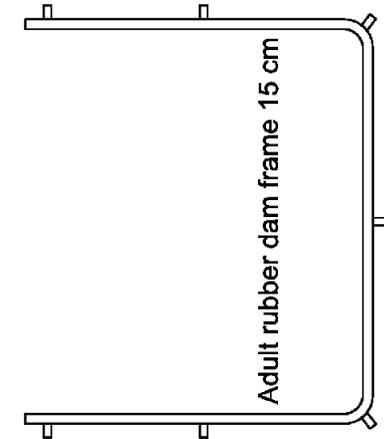


Fig. 1d

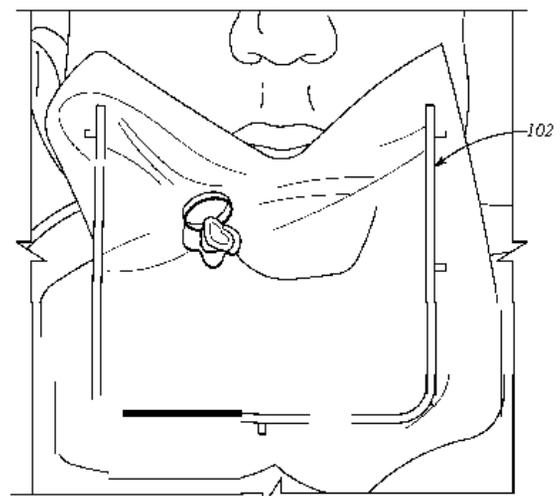


Fig. 1e

(57)ABSTRACT

A stable dental mirror assembly that is used by dentists during the treatment of patients is described. The mirror is fixed on a rubber dam frame that is placed in the patient's mouth during treatment. The dental mirror includes a handle on which the mirror slides. The handle includes an elbow curve. In further aspects, a method for using a dental mirror assembly and a

dental mirror assembly kit are described. The dental mirror may be moved through 360 degrees and does not need to be held, thus freeing the dentist's hands. Additionally, the dental mirror assembly provides a stable visual field and allows easy movement and adjustment of the mirror.

18 Claims, 6 Drawing Sheets

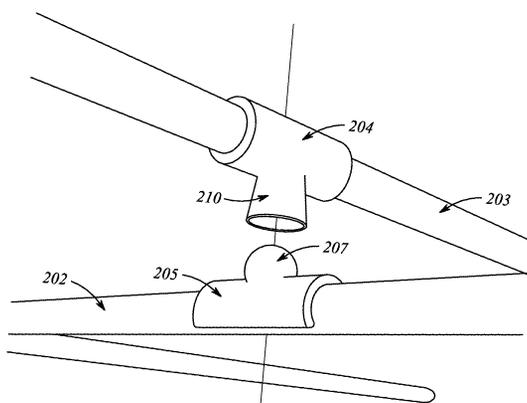


FIG. 2

Fig. 2

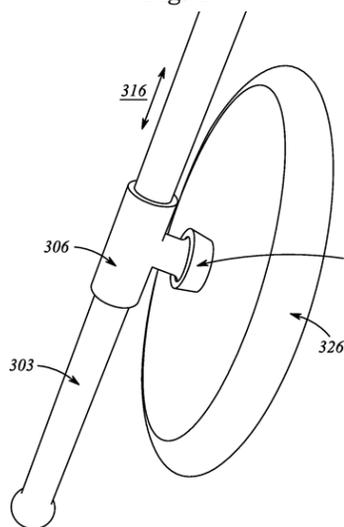


Fig. 3

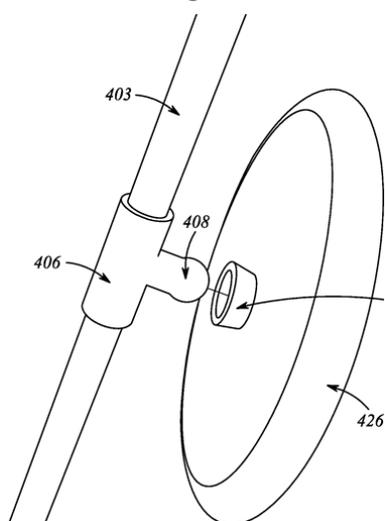


Fig. 4

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete appreciation of this disclosure and many of the attendant advantages thereof will be readily obtained as the same becomes better understood by reference to the following detailed description

when considered in connection with the accompanying drawings, wherein:

FIG. 1A illustrates the mirror attached to the rubber dam frame, according to certain embodiments.

FIG. 1B-1D illustrate types of rubber dam frames which may be used with the stable dental mirror.

FIG. 1E illustrates the way in which the rubber dam and rubber dam frame are used to protect the patient's mouth.

FIG. 2 illustrates the way in which the mirror is fitted on the rubber dam frame and the joint that facilitates the movement of the handle, according to certain embodiments.

FIG. 3 illustrates lateral movement of the mirror on the handle, according to certain embodiments.

FIG. 4 illustrates the ball and socket joint which enables circular and swivel movement of the mirror on the handle, according to certain embodiments.

CONCLUSION

A patent titled "Stable Dental Mirror" was issued on Nov 24th 2020 from the United States patent office (US 10,842,369 B2). We are currently working on developing the instrument that will help us carry out the dental treatment without experience any stress or fatigue and prevent the development of WMSDs.

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