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M. E. STONE
DENTAL MOUTH PROP
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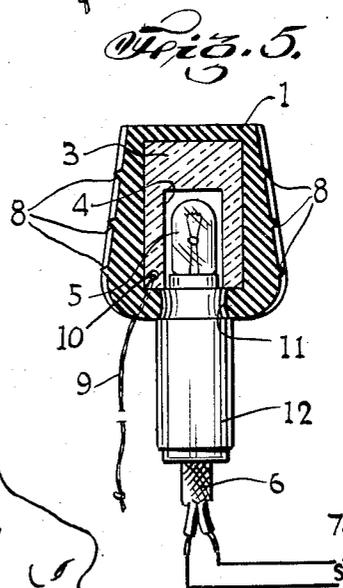
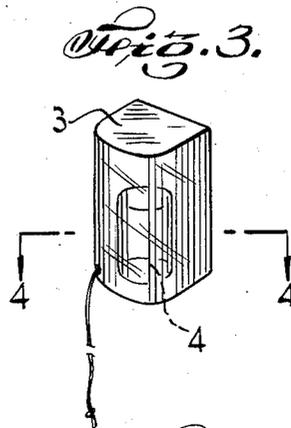
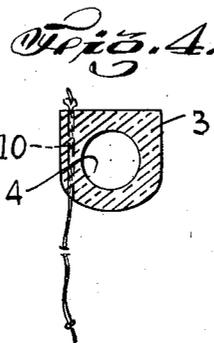
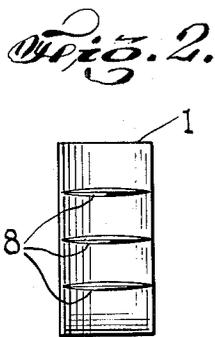
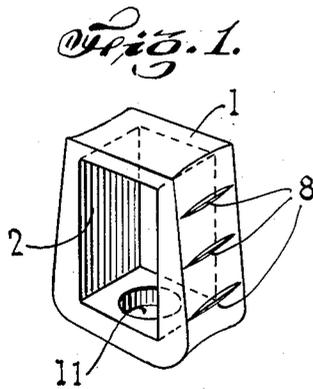
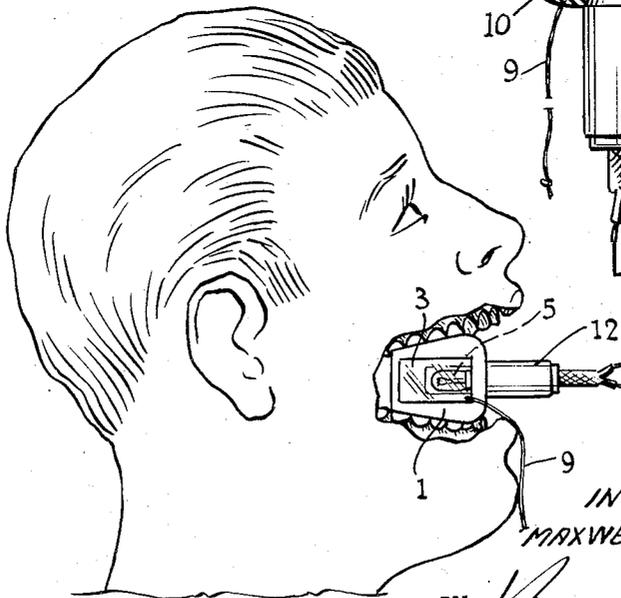


Fig. 6.



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DENTAL MOUTH PROP

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3 Claims. (Cl. 128—13)

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This invention relates to dental mouth props and deals in particular with a combination dental mouth prop and illuminator.

Dental mouth props are in common use to prop the patient's jaws apart to permit the dentist or physician to perform the required operation. Illuminators are likewise in use, serving to illuminate the patient's mouth at the spot where the operation is to be performed. Generally, the mouth props available consist of a rubber block and the illuminator consists of a light or light applicator inserted into the mouth.

Since the use of separate mouth props and illuminators is accompanied by obvious complications since the space available for the dentist to work in is limited enough as it is and the more equipment is used, the more difficult the dentist's job is made, attempts have been made to provide combination props and illuminators. Such combination devices have not, however, served to solve the dentist's problems in that they were generally too complicated to serve their purpose simply and effectively. The net result has been the continued use in actual practice of separate props and illuminators, the prop being handled by the dentist and the illuminator being held in position by the nurse.

It is one object of this invention to provide a combination dental mouth prop and illuminator. It is another object of this invention to provide such combination prop and illuminator which shall be simple and effective and which shall be more efficient than separate props and illuminators heretofore used. Other objects and advantages of my invention will appear from the description thereof hereinafter following.

The nature of my invention is illustrated in the accompanying drawings, forming part hereof, and in which:

Fig. 1 represents a perspective elevational front view of the prop part of the combination dental prop and illuminator of my invention,

Fig. 2 represents a perspective elevational side view of the prop part of Fig. 1,

Fig. 3 shows a perspective elevational view of another part of the combination dental prop and illuminator of my invention,

Fig. 4 represents a cross-sectional view on the line 4—4 of Fig. 3,

Fig. 5 represents an elevational view of the combination dental prop and illuminator of my invention, and

Fig. 6 shows visually the application of my combination prop and illuminator positioned in the patient's mouth to separate the jaw.

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Referring to the drawings, my combination dental prop and illuminator comprises the soft rubber frame or casing 1 with aperture 2, the illuminator barrel or housing 3 mounted within the aperture 2 of the frame 1 and itself provided with a lamp bore 4, and within the bore 4 the light 5. The light 5 has suitable connections 6 to the source of power 7, which is a small battery or transformer.

The frame 1 consists of soft rubber or other elastic elastomer and has a tapered shape in line with the angular opening of the jaw as indicated in Fig. 6. It is provided with a few lateral ribs 8 serving as stops to prevent slipping of the patient's teeth on the otherwise smooth surface of the prop.

Within the soft rubber frame or prop 1, inserted in the aperture 2 thereof, is a lamp barrel or housing 3 provided with a cylindrical bore 4 to receive the light 5. This housing 3 consists of suitable material transparent to the light radiations from the bulb 5. Thus it may consist of glass, although I prefer to make it of light plastic such as methyl methacrylate. The housing has outside dimensions corresponding to the inside dimensions of the aperture 2 of the outer frame 1, but preferably slightly larger so that the lamp housing 3 is held tightly within the soft rubber frame 1 by the contracting forces of the latter. The lamp housing may, as shown in Fig. 4, have a flat back and a convex, rounded surface which in use is directed toward the spot or area to be illuminated, with the result that the flat rear surface acts as a partial reflector of light, thus concentrating the light on the place where it is primarily desired. It will be understood, of course, that this flat rear surface combined with a rounded front surface, although preferred, is not necessary and that both front and rear surface may be flat or rounded, as may be desired. It will also be understood that where desired the reflectivity of the rear surface or even the side surfaces may be enhanced, if necessary, by providing a specific mirror surface either on the inside, or, preferably, on the outside of such surfaces of the housing 3, e. g. by metallizing such surface or surfaces on the outside, or a reflecting surface may be provided in the body of the lamp housing. The convex surface also aids in inserting the housing within the rubber frame. Reflectivity and greater light diffusion may also be increased by ashing, or roughening, the outside surfaces, or at least the rear surface, of the housing, preferably all three surfaces other than the one through which the light is radiated upon the area to be illuminated.

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The housing 3 may be provided with a string or cord 9 fastened thereto in any suitable manner, e. g. by inserting a pin 10 into the body of the housing near its lower end and securing such string 9 thereto. The purpose of this string will be explained hereinafter.

The source of light 5 is provided within the bore or orifice 4 of the lamp housing 3. It is advantageously a miniature lamp requiring little current which is supplied from a suitable source such as transformer 7. The bulb may be provided within its housing in any suitable manner, e. g. by having it project into the bore 4 through a passageway 11 in the rubber frame 1 within which the handle 12 with socket 13 of the bulb 5 may be held by mere frictional engagement with the rubber frame 1. Of course, the light bulb 5 may also be secured in other ways, e. g. by frictional engagement of the bulb base or socket with the bore 4.

The entire combination prop and illuminator of my invention is then inserted between the teeth of the patient's jaw, as shown in Fig. 6.

The dentist is enabled to handle the entire combination without the assistance of a nurse. The light source is right within the prop from where it is most efficient in illuminating the spot or area of dental operation. The soft rubber frame combined with the stiff and rigid lamp housing conveys to the entire assembly the desired characteristics of a dental prop which has on the one hand sufficient body and strength to withstand the closing force of the patient's jaw and on the other hand sufficient softness and resiliency to serve as a cushion to avoid injury to the patient's teeth.

The patient's jaw must be kept apart for a variety of reasons associated with dental operations. In some cases the prop is required merely to keep the teeth apart and give the patient a feeling of comfort. In other cases the operation is accompanied by general anesthesia. In this case the jaw must be opened before the application of the anesthesia, since during the anesthesia the jaw would close. It so happens that frequently during an operation under general anesthesia it is necessary to operate at various places within the patient's mouth and for this reason it is imperative to operate with two dental props. In the instant case it is necessary to insert only one prop, perform the operation, insert the other prop at the other side of the jaw and remove the first prop. At this point the combination prop illuminator of my invention exhibits a further advantage because removal of the prop, during anesthesia, is extremely simple. This is accomplished by squeezing the lamp housing 3 from its frame by simple hand pressure, whereupon the soft rubber frame collapses and is easily removed. The string 9 serves the pur-

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pose of avoiding swallowing of the housing in such case or other undesirable location in the patient's mouth or throat.

The invention is, thus, characterized by a simplicity of parts assembled in as small a space as possible and easy to handle in actual practice, and there are no unnecessary parts sticking out within the patient's mouth and interfering with the dentist's operation. There is, furthermore, no danger of breakage of any parts while in the patient's mouth.

The materials of my prop illuminator are capable of being sterilized in any suitable manner, e. g. by application of boiling water or by steaming.

The prop illuminator is also useful for general medical, including surgical, uses by physicians generally and the term "dental" mouth prop as used in the appended claims shall not be interpreted to limit the illuminator prop to use by dentists.

What I claim is:

1. A combination dental mouth prop and illuminator, comprising a flexible tapered elastomer prop provided with a transverse passage occupying a substantial part of the lateral surface of said prop and having at one end a bore, a rigid inflexible light transmissive core occupying the entire passage and supporting said flexible elastomer prop and having a longitudinal bore with its opening aligned with the bore at the end of said prop, the core being held in position within said passage by frictional contact with said prop, and a source of light within said longitudinal bore.

2. A combination dental mouth prop and illuminator according to claim 1, in which at least the surface opposite the light entrance of the light transmissive core is provided with a reflecting surface.

3. A combination dental mouth prop and illuminator according to claim 1, in which the core consists of light transmissive plastic material and in which at least the surface opposite the bore and the surfaces at the side of the light are roughened to increase light diffusion and reflection.

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REFERENCES CITED

The following references are of record in the file of this patent:

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