

W. J. CAMERON.
RETRACTOR.
APPLICATION FILED APR. 28, 1919.

1,389,436.

Patented Aug. 30, 1921.

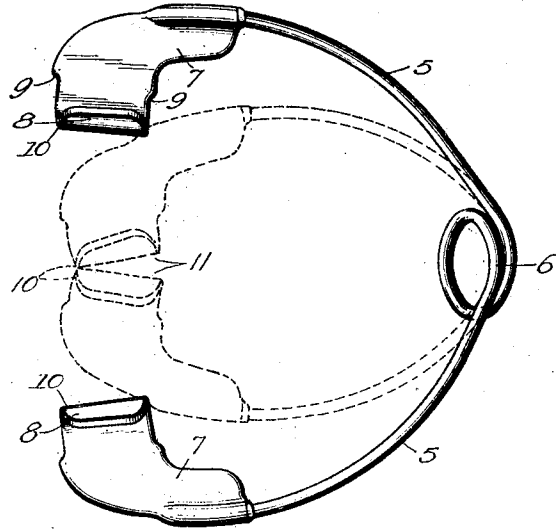


Fig. 1.

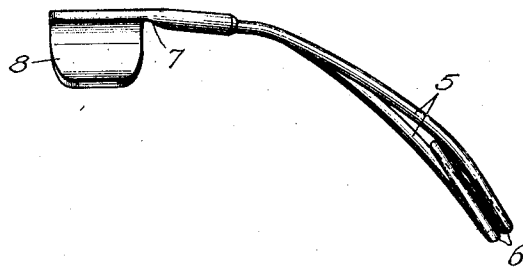


Fig. 2.

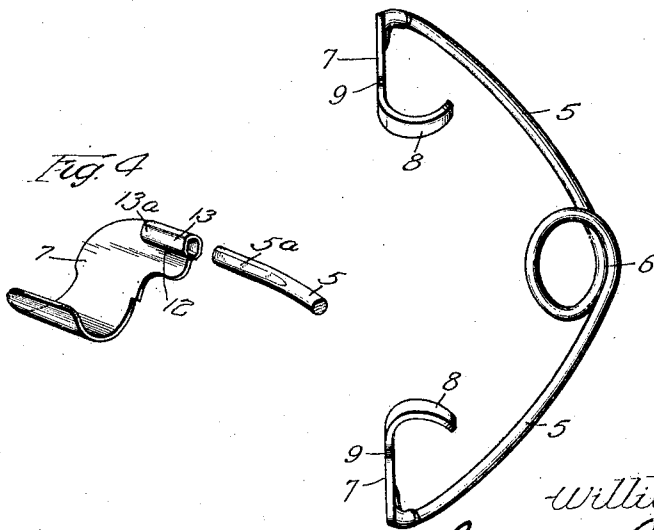


Fig. 3.

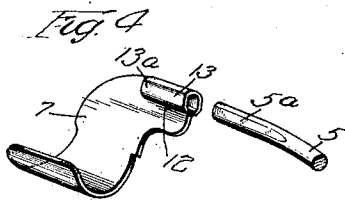


Fig. 4.

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RETRACTOR.

1,389,436.

Specification of Letters Patent.

Patented Aug. 30, 1921.

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To all whom it may concern:

Be it known that I, WILLIAM J. CAMERON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Retractors, of which the following is a full, clear, and exact description.

My invention relates to surgical instruments, and has special reference to a retractor device that is particularly adapted for use by dentists for the purpose of holding a patient's mouth or jaw in open positions.

The primary object of my invention is the provision of an instrument of this character that is somewhat flexible in its structure so that it will not rigidly hold the jaws open or separated, and at the same time, in the event the patient should attempt to suddenly close his jaws, the teeth engaging portions of the retractor will prevent the patient bringing the teeth into contact with each other or closing the mouth to such an extent as to break or damage the instrument being employed or incidentally injuring himself. Another object of my invention is the provision of a retractor that is simple in construction, and to this end, as will hereinafter be seen, I have fabricated the device so that it is an integral or inseparable structure. Further objects are the provision of a retractor that is novel in construction, economical to manufacture, easy to use, and automatic and dependable in its operation, and I prefer to accomplish all of the foregoing objects in substantially the manner hereinafter set forth.

Reference will now be made to the accompanying drawings that form a part of this specification, in which—

Figure 1 is a side view or elevation of my improved retractor.

Fig. 2 is a top plan thereof.

Fig. 3 is an edge view of my retractor.

Fig. 4 is a perspective view of one of the retractor plates and a fragmentary portion of the spring arm about to be assembled.

In the drawings, similar reference characters have been employed to identify the same parts throughout the divers views, and by referring to Fig. 1, it will be observed that the structure, preferably, comprises a pair of bowed arms 5, 5, that are of corresponding shape and preferably of wire of round cross-section. These arms are formed

from a single piece of wire the central portion of which is formed into a coil 6 of substantially circular contour, and from which coil the arms diverge, and the coil 6 is positioned inside the reentrant angle formed by the convergence of the arms 5. As seen in Fig. 2, the arms while diverging are also bowed so that when the retractor is positioned in the mouth of the patient the arms and the spring coil will lie substantially flat or flush against the cheek of the patient.

To the outer ends of the arms 5 are suitably secured a pair of plates 7, 7, that are substantially L-shape in blank form and the wire forming the arms 5 is secured to the shorter member of the blank by soldering, welding, or in the way shown in Fig. 4. The opposite portions of these plates 7 are looped or bent in substantially J-shape, as seen in Fig. 3, to provide hooks 8, 8, of sufficient width and depth to permit the patient's teeth to conveniently engage them. Immediately before the plate begins its bend to form these hooks, suitable lateral shoulders 9, 9, are made on opposite sides of the plates to accommodate suitable attachments for retractors, such as a tongue depressor and cotton roll holders, as disclosed in my prior Letters Patent No. 1,238,001, issued to me August 21, 1917, or an illuminating attachment, such as disclosed in my prior Letters Patent, No. 1,231,702, issued to me July 3, 1917.

As will be seen in dotted lines in Fig. 1, the plates are so disposed by the bowing of the arms 5 that when the patient attempts to bring his or her teeth together the outer corners 10, 10, will meet and a space 11 will be left between the teeth, which will prevent the patient damaging the work, instrument or injuring himself.

In the use of the instrument just described the expansive action of the coil or spring 6 is sufficient, under normal conditions, to hold the patient's mouth in an easy extended or open position, but will not hold the jaws rigid so as to cramp the buccinator muscles of the cheek as would be the case in the event the retractor arms were rigidly retained in adjusted positions. Owing to the curvature given to the arms 5, and the spacing of their outer ends, in the manner shown, the retractor is positioned to conform to the face of the patient in such manner that the operative can have free access

to all parts of the mouth without interference, and at the same time the retractor will be maintained against lateral movement and will not slue or caster.

5 It will be understood that the plates 7, the arms 5 and the spring coil, while disclosing a preferred form of my invention, need not necessarily be constructed in the manner shown. For example, the instrument or retractor may be made of a strip of spring metal bent substantially U-shaped, and the outer ends of the arms of the U be given a quarter turn so as to position the strip of metal flat against the cheek and the J-shaped hooks then turned back. I desire it understood that all such modifications are included within the scope of my invention as expressed in the appended claims.

A preferred manner of constructing and assembling the teeth engaging plates with the bowed arms is shown in detail in Fig. 4. In this construction the shorter lateral arm of the plate 7 has a notched recess 12 cut in its upper edge and a short length of tubing 13 is brazed or otherwise secured therein. The side opposite walls of this tube is, preferably, flattened, as at 13^a, and the end portions of the arm 5 are likewise flattened, as at 5^a, to interfit the interior of the tube 13 and prevent rotation of the members. The tube is filled with solder and the end of the arm is inserted therein after which the wall structure is covered with solder and nickel plated so that it presents a smooth appearance, as shown in Figs. 1, 2 and 3 of the drawings.

What I claim is:—

1. A dental retractor comprising two arms normally resiliently diverging and bowed to one side whereby when the retractor is positioned in the mouth of the patient the said arms will lie substantially snugly against the cheek of the patient thereby leaving the mouth of the patient unobstructed.

2. A dental retractor comprising a pair of normally spaced spring arms bowed to one side whereby the retractor is formed on an arc, and oppositely disposed teeth engaging members extending in the same direction from one side of the arms within the arc of the arms whereby when the retractor is positioned in the mouth of the patient the arms will lie snugly against the cheek of the patient, thereby leaving the mouth of the patient unobstructed.

3. A dental retractor comprising a pair of normally yieldingly held spaced arms, and oppositely disposed teeth engaging members extending in the same direction from one side of said arms and so relatively positioned that they will contact only at the dental corners when brought into contact with each other.

Signed at Chicago, county of Cook, and State of Illinois, this 24th day of April, 1919.

WILLIAM J. CAMERON.

Witnesses:

E. K. LUNDY, Jr.,
FLORENCE MITCHELL.