

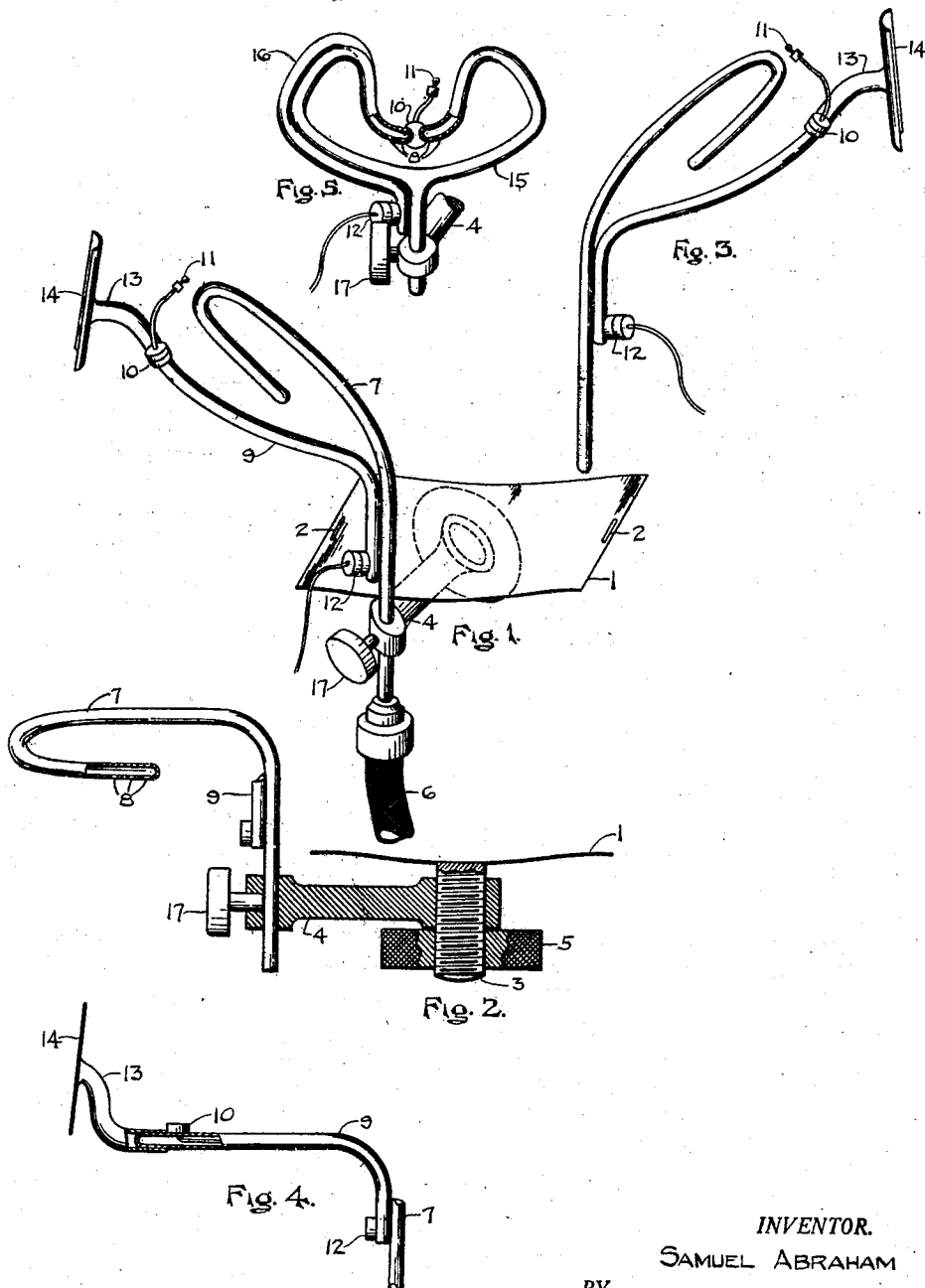
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COMBINATION DENTAL APPLIANCE

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## UNITED STATES PATENT OFFICE

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## COMBINATION DENTAL APPLIANCE

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This invention relates to the class of apparatus employed in the performance of dental and surgical operations in the mouth, and more particularly to a combination dental appliance for facilitating and simplifying the work of the operator.

It has been the object of my invention to provide a combination dental appliance of the character set forth, combining into a compact and efficient arrangement the essential appliances, i. e., the saliva ejector, the cotton roll holder and tongue retractor, as are at present utilized while operating in the mouth. A further prime object of this invention has been the provision of an electric lighting means, incorporated in the appliance, that would permit the operator to dispense with the elaborate lighting means now used at the dental chair. Furthermore, the employment of my combination appliance eliminates entirely the need for dental rubber dam.

With the use of the saliva ejector, cotton roll holder, tongue retractor, etc., as is the case at present, it is a requisite that the dental operator has the aid of an assistant in the manipulation of these appliances. With the use of my combination appliance the services of this assistant may be dispensed with.

An important feature of my invention resides in the provision of a means for applying a cotton roll in the bucco maxillary section of the mouth, to absorb the saliva from the parotid glands exuded through Stenson's duct, in addition to the cotton rolls provided for the lingual and labial portion of the mandible.

While the functions of the aforesaid separate appliances have been combined into this improved combination appliance, the simplicity of construction of my appliance compares most favorably with that of any of the individual appliances it supplants. Moreover, the construction and arrangement of the members of this combination appliance permits a readable sterilization of any of the individual parts.

With the foregoing and other objects and advantages in view, the invention consists of the improved and novel construction, arrangement and combination of parts, the es-

sential features of which will hereinafter be more specifically described and illustrated in the accompanying drawing wherein:

Figure 1 is a view of my dental combination appliance in perspective.

Figure 2 is an elevational view of the appliance in section.

Figure 3 is a view of the right mouth member of the appliance in perspective.

Figure 4 is an elevational fragmentary view of the right mouth member of the appliance partly in section.

Figure 5 is a view of the central mouth member of the appliance in perspective.

Referring to the drawing, more particularly Fig. 1, I have shown the chin-plate 1 as the means for supporting my appliance to the head. This chin-plate 1 is shaped to conform to the contour of the under portion of the chin, and made preferably of a thin stiff metal. In the drawing the chin-plate 1 has been shown rectangular in form for simplicity, but may be extended to conform to any portion of the head. The chin-plate is provided with the openings 2, for insertion of the conventional head straps, when it is desired to support the appliance more positively under the chin.

The under side of the chin-plate 1 terminates centrally into the threaded head 3 carrying the bracket arm 4, which in turn supports the mouth members of the appliance. One extremity of the arm 4 is threaded internally to engage with the threaded portion of the head 3. This method of joining one extremity of the arm 4 to the head 3, provides the arm 3 with a rotatable movement to accommodate either the right, central or left mouth member in the mouth. The particular mouth member utilized is held in position, against horizontal movement, by tightening of the clamping nut 5 against the arm 4.

This combination appliance has been shown in the drawing provided with three individual mouth members, i. e., a right mouth member, illustrated in Fig. 3, to be used when operating on the right side of the mouth posteriorly, a central mouth member, illustrated in Fig. 5, to be used when operating in the anterior section of the mouth, and

a left mouth member, illustrated in Fig. 1, to be used when operating on the left side of the mouth posteriorly. Each of the three mouth members comprises a double tubular limb construction, the two lengths of tubing, or limbs, being rigidly joined for a section of their length by solder, or any other suitable means. One limb of each mouth member is composed of a length of tubing shaped to conform to that section of the mouth with which it cooperates, and is adapted to convey the saliva from the mouth to the saliva outlet hose 6. The other limb of this mouth member comprises a second length of tubing, correspondingly shaped to suit that section of the mouth wherein it is disposed, and provides the electric lighting means at the desired location in the mouth.

Referring to Fig. 1, the saliva ejecting limb 7 of the left mouth member has been shown formed of a vertical section, bent over substantially horizontal at the top where it enters the mouth, and terminating into a U shaped sector closed at the end. The U shaped portion of this limb 7 is formed to lay positioned on the lingual portion of the mandible. In this position the saliva collecting in this part of the mouth is drained through the openings 8, three such openings being illustrated reference being had to Fig. 2, situated in the under portion of the U sector near its extremity. It has been the object in terminating the upper extremity of the right and left mouth members in form of U sectors, to provide for the insertion of one or more cotton rolls, of the variety ordinarily used in mouth operations, to be disposed and retained between the arms forming the U shaped sector.

The limb 9 providing the electric lighting facilities, reference being had to Figures 1 and 4, extends likewise vertically for a portion of its length, and at the top, where it enters the mouth, is bent substantially horizontal. The vertical portion of the limb 9 is rigidly joined, by solder or any other suitable means, to the vertical portion of the limb 7, forming therewith a single unit. The horizontal portion of the limb 9, where it enters the mouth, forks away from the horizontal portion of the limb 7, so that it is disposed along the labial portion of the mandible. At each extremity of the limb 9 is permanently mounted an electrical receptacle, or rather the base part thereof, with the wires extending through the hollow of the tubing limb. Both ends of the limb 9 are sealed water-tight.

In the upper receptacle 10 is plugged the electric light 11 furnishing the illumination for the mouth. This light 11 is supported on a flexible tubing 18, or any other flexible agent, permitting the light 11 to be moved and directed in the mouth as required. To the receptacle 12, mounted at the lower ex-

trinity of the limb 9, is plugged in the electric connection leading to the source of electric current. Should it prove desirable a rheostat may be readily connected between the receptacle 12 and the source of electric supply.

In addition to supporting the electric lighting means for the illumination of the mouth, the limb 9 also acts as the means for retaining cotton rolls, one or more as required, on the labial portion of the mandible. The adaptability of the limbs 7 and 9 to function as retainers of cotton rolls in the mouth, dispenses with the necessity for use of the cotton roll holder, as is ordinarily employed for operations in this portion of the mouth.

In the general class of cotton roll holders at present in use, there is no provision made for damming and absorbing the saliva issuing from the parotid salivary glands through Stenson's duct. In my combination appliance I have provided the arm 13, removably mounted to the upper extremity of the limb 9, and the shelf 14 rigidly joined thereto. This shelf 14 is fitted to support one or more cotton rolls in the area of the mouth surrounding the outlet of Stenson's duct, to dam and absorb the saliva discharged therefrom.

The arm 13, referring to Fig. 4, has been here shown comprised of a tubing element, fixedly held in a sliding fit connection with an extension of the upper extremity of the limb 9. To remove this cotton roll arrangement it is merely necessary to slidably disengage the arm 13 from the extension of the limb 9.

The right mouth member, illustrated in Fig. 3, is similar in construction and functionality of the parts, to the left mouth member as described hereinbefore. The saliva ejector limb 7 and the limb 9 providing the electric lighting for the right mouth member, are shaped to be disposed in their respective locations on the right side in the mouth, corresponding to the similar parts of the left mouth member.

In the central mouth member, reference being had to Fig. 5, the saliva ejector limb 15 comprises a vertical length of tubing bent over substantially horizontal where it enters the mouth, and there branching off into a right and left sector, each sector terminating in a closed end. Each of the sectors of the limb 15 is shaped to conform to the structure of the mouth it traverses, with the ends bent downwards to form a cradle for the tongue. Towards the extremity of each sector are positioned the openings 8 in the tubing, to drain the saliva collecting in this part of the mouth. The sectors of the limb 15 too act as the means for retaining cotton rolls, both lingually and labially, in this portion of the mouth.

The limb 16, referring to Fig. 5, furnishing the electric lighting means in the mouth, an-

teriorly, comprises a vertical length of tubing bent over substantially horizontal where it enters the mouth, and from there on following in shape the left sector of the limb 15.

5 The limb 16 has been here indicated as fixedly joined to the limb 15, by solder or any other suitable means, throughout the length of this sector of the limb 15. This limb 16 containing the electric lighting wires is sealed watertight at both extremities, and has mounted thereon the base part of the light receptacle at the upper end, and the base plate of the receptacle receiving the electric source connections at the lower end. Should it prove desirable the upper portion of the limb 16 may be shaped to just as readily follow the shape of the right sector of the saliva ejector limb 15.

10 In each instance, the vertical length of saliva ejector limb has been shown greater in length than that of the limb supplying the electric lighting means. That portion of the vertical length of the saliva ejector limb extending down beyond the other limb, is adapted to be supported in a cooperatively positioned opening in the arm 4, in a slidable fit, reference being had to Figures 1 and 2. By this arrangement the limbs 7 and 9, also 15 and 16, may be moved up or down, or rotated, to readily insert any of the mouth members in the mouth, or remove them from the mouth. To hold the particular mouth member utilized, in a desired fixed position in the mouth, the set screw 17 is employed locking the mouth member in the required position.

20 The preferred material for the construction of the mouth members of my combination appliance would be brass, but hard rubber or a composition material may be substituted therefor, in whole or in parts.

25 While I have described and illustrated a preferred embodiment of my invention hereinbefore, I would have it understood that I do not limit myself to the details of construction and arrangement of parts set forth and shown, but reserve the privilege to make modifications and changes within the spirit and scope of the claims appending.

30 What I claim is:

1. In a dental appliance of the class described, the combination of a mouth member comprising a tubular saliva ejector limb provided with openings to drain the saliva from the mouth, of a second tubular limb rigidly connected to the first named limb for a part of its length adapted to contain electric wires, receptacle means for leading the electric current into and therefrom the electric lighting limb and an electric light flexibly connected to the upper receptacle of the electric lighting limb; of a chin-plate for connecting the appliance to the head, of a bracket arm movably joined to the chin-plate adapted to movably support the mouth member and clamp-

ing means for fixedly positioning the mouth member.

2. In a dental appliance of the class described, in combination with a mouth member comprising a tubular saliva ejector limb, a second tubular limb for supplying the lighting means in the mouth and an electric light flexibly and removably connected to the electric lighting limb; of a chin-plate for mounting the appliance on the chin, of a bracket arm movably supported to the chin-plate and adapted to movably carry the said mouth member, of a clamping means for rigidly holding the said mouth member in position and means for supporting cotton rolls in the area about Stenson's duct in the mouth.

3. In a dental appliance of the class described, in combination with a mouth member comprising a tubular saliva ejector limb adapted to retain cotton rolls in the section of the mouth where it is disposed, a second tubular limb for supplying the lighting means in the mouth and similarly adapted to retain cotton rolls in the section of the mouth where it is disposed and an electric lighting means flexibly supported in the mouth; of a chin-plate for connecting the appliance to the chin, of a bracket arm movably held by the chin-plate and adapted to movably support the said mouth member, of a clamping means for the said mouth member and a tubular element adapted to be removably joined to the tubular limb supplying the electric lighting means and rigidly supporting a shelf element adapted to retain cotton rolls in the area about Stenson's duct in the mouth.

4. In a dental appliance of the class described, the combination of a mouth member adapted to be disposed centrally in the mouth comprising a tubular saliva ejector limb, a second tubular limb for supplying the lighting means in the mouth and an electric light flexibly connected to the electric lighting limb; of a chin-plate provided with a threaded extension for connecting the appliance to the head, of a bracket arm threaded at one end to engage the threaded head of the chin plate and adapted at the other end to movably support the said mouth member, of a clamping means for the chin-plate and a set screw means for fixedly holding the mouth member.

5. In a dental appliance of the class described, the combination of a mouth member adapted to be disposed laterally in the mouth comprising a tubular saliva ejector limb, a second tubular limb for supplying the lighting means in the mouth and an electric light flexibly connected to the electric lighting limb; of a chin-plate provided with a threaded extension for connecting the appliance to the head, of a bracket arm threaded at one end to engage the threaded head of the chin plate and adapted at the other end to

movably support the said mouth member, of a clamping means for the chin-plate and a set screw means for fixedly holding the mouth member.

5 Signed at New York, in the county of New York and State of New York this 21st day of Feb. A. D. 1929.

SAMUEL ABRAHAM.

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