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(54) APPARATUS FOR HOLDING OPEN THE MOUTH OF AN ANIMAL WITH ITS JAWS IN A FIXED RELATIONSHIP FOR PERFORMING A MEDICAL OR DENTAL PROCEDURE

(71) Applicant: **PETER D. MARO**, Darien, CT (US)

(72) Inventor: **PETER D. MARO**, Darien, CT (US)

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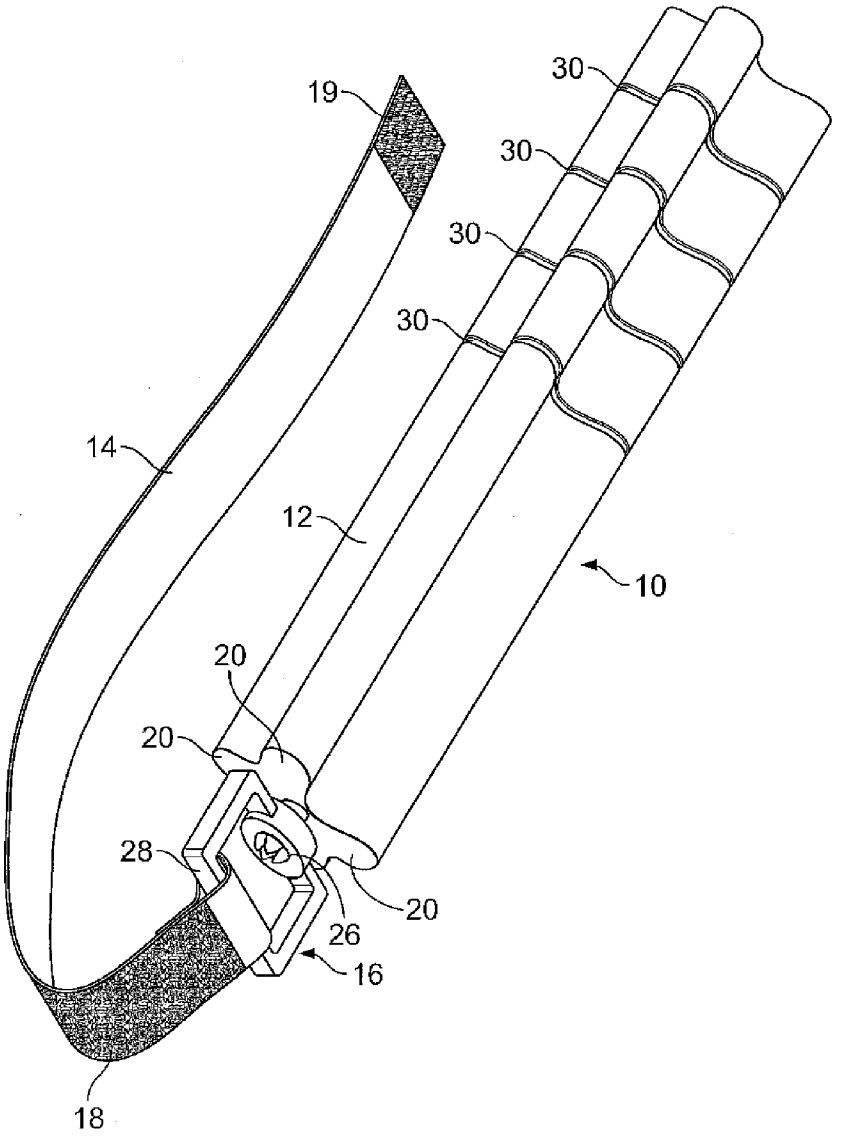
(57) **ABSTRACT**

Apparatus for spacing apart the jaws of an animal, such as a canine, in a fixed relationship during the performance of a medical or dental procedure. The apparatus includes a bite member for spacing apart the teeth of an animal, a strap adapted to be wound around the snout of the animal for confining the snout and a strap connector with the strap connector having one end thereof adapted for attachment to the strap and another end for holding the jaws in relatively tight engagement against the bite member after the strap is wound around the snout.



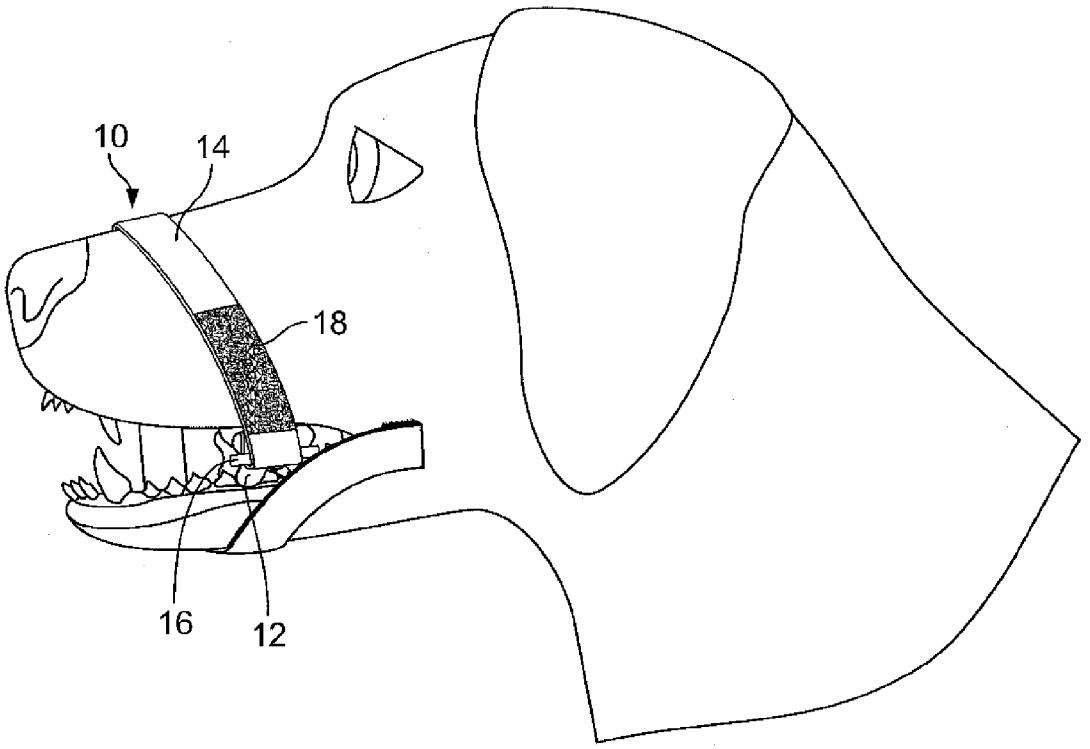


FIG. 1

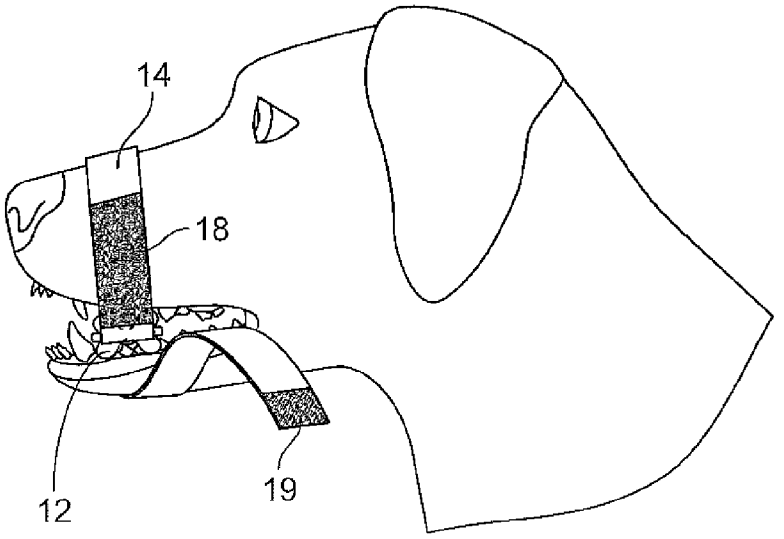


FIG. 2

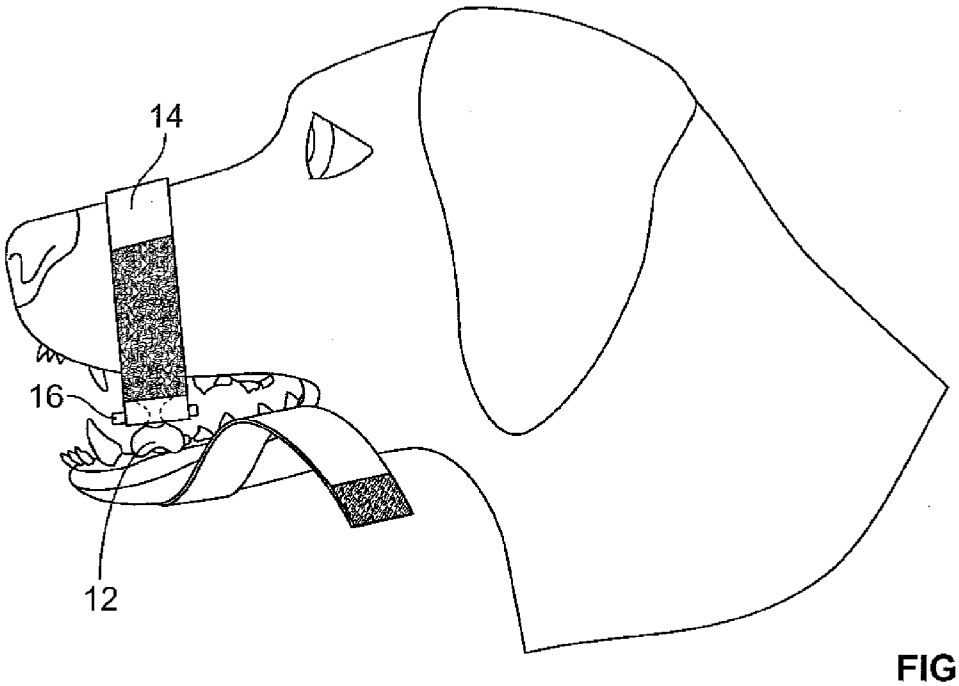


FIG. 3

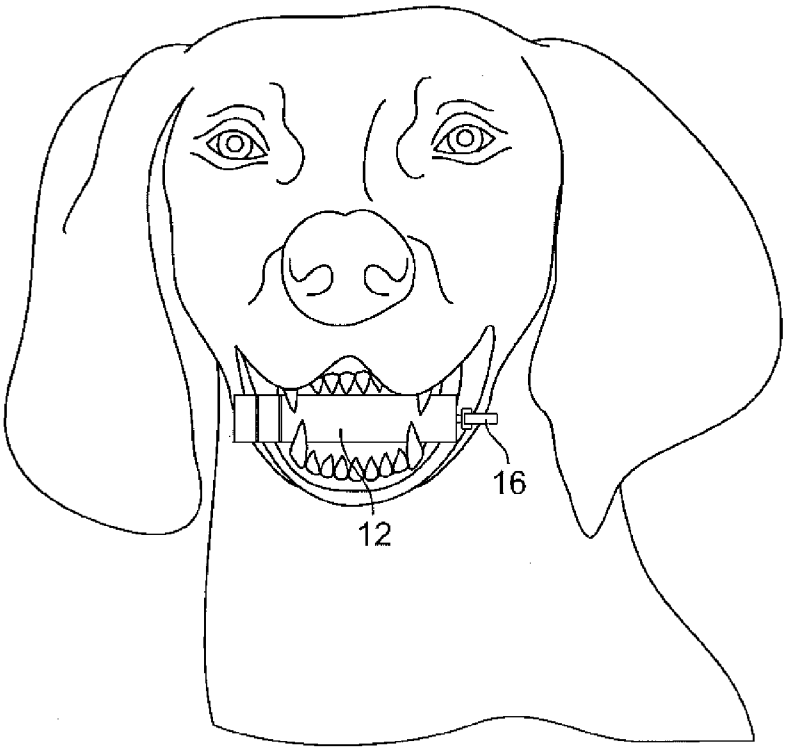


FIG. 4

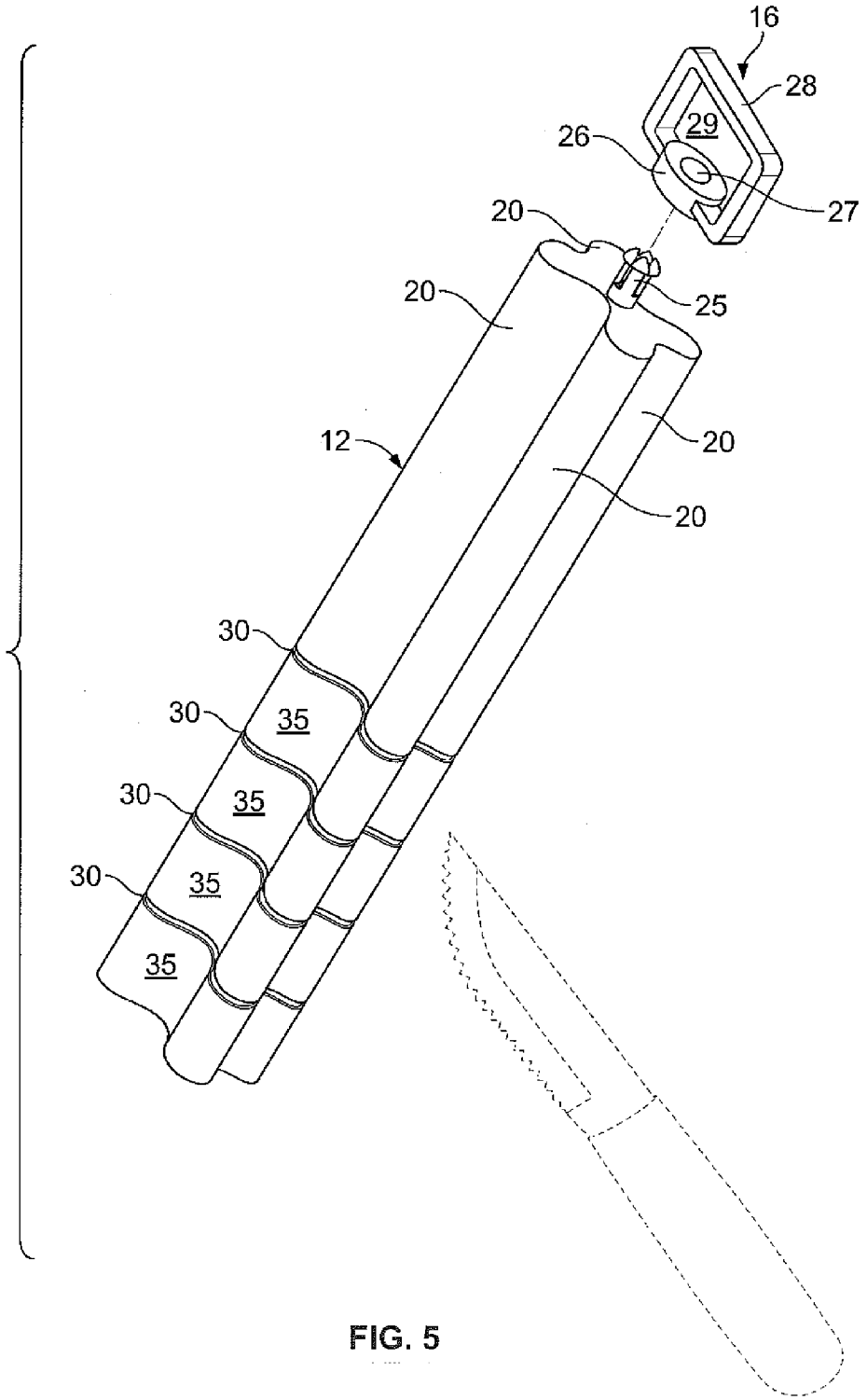


FIG. 5

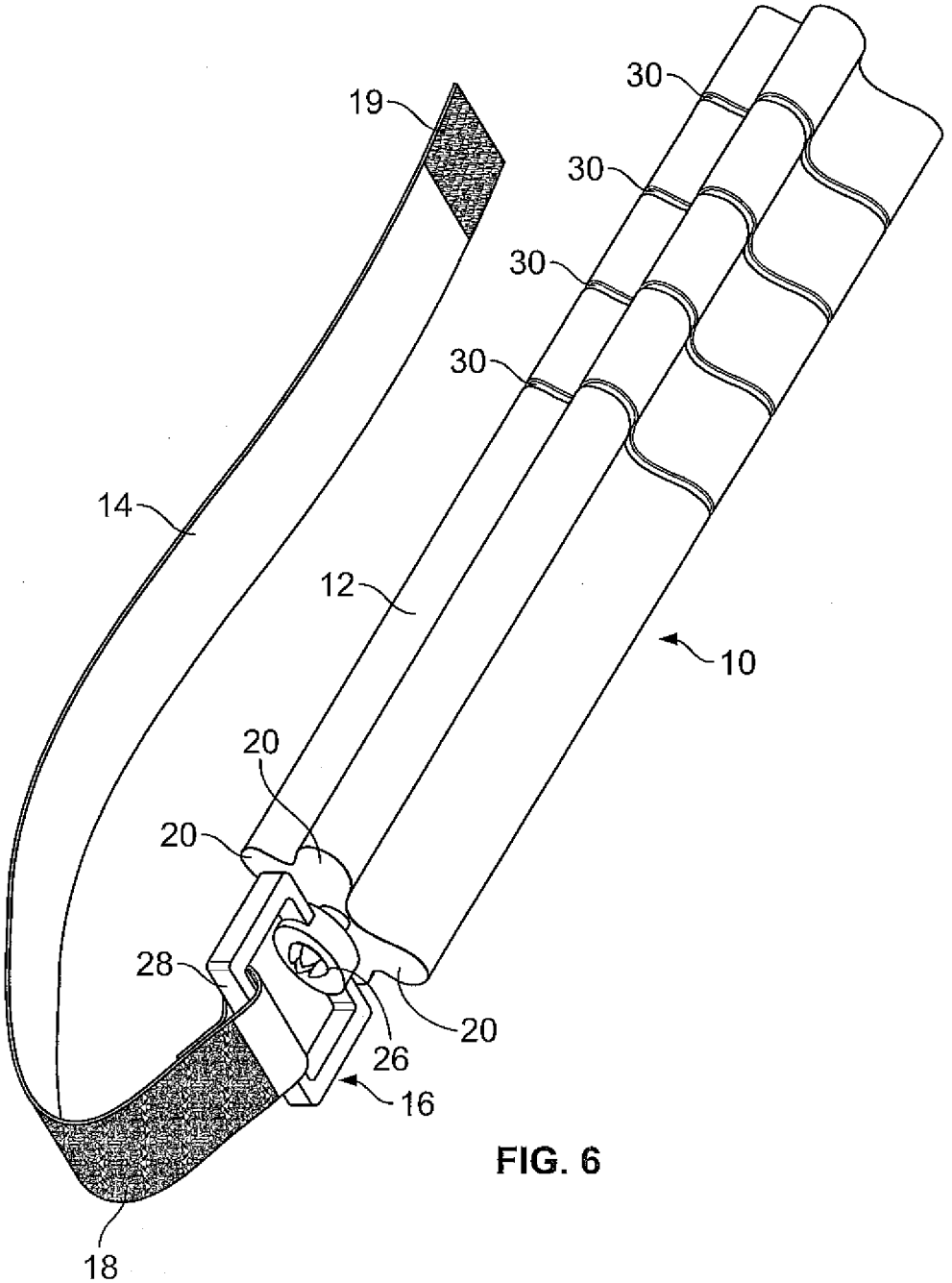


FIG. 6

APPARATUS FOR HOLDING OPEN THE MOUTH OF AN ANIMAL WITH ITS JAWS IN A FIXED RELATIONSHIP FOR PERFORMING A MEDICAL OR DENTAL PROCEDURE

FIELD OF THE INVENTION

[0001] The present invention relates to apparatus for holding open the mouth of an animal with its jaws in a fixed relationship for performing a medical or dental procedure.

BACKGROUND OF THE INVENTION

[0002] A mouth prep or bite block has previously been used by dentists or veterinarians to space apart the lower jaw (mandible) from the upper jaw (maxilla) for performing a dental or medical procedure. Use of a prop or bite block holds the mouth open but has substantial limitations in that it does not maintain the upper and lower jaws in a fixed relationship. A conventional mouth prep and bite block permits the animal to further open up its mouth and reposition the bite block during the medical or dental procedure or possibly expel the bite block entirely from the mouth. A conventional muzzle will restrain the mouth of the animal but does not provide adequate access and/or exposure of the teeth in the mouth to perform a dental or medical procedure. For example, when cleaning teeth, the lower and upper teeth must be adequately spaced apart and the teeth must be exposed at the gumline where tartar forms.

[0003] The apparatus of the present invention not only holds the mouth of an animal open but establishes a fixed spacial relationship between the upper and lower jaws for performing a medical or dental procedure. Moreover, the apparatus of the subject invention permits the spacing between the upper and lower jaws to be adjusted to accommodate different size animal mouths.

SUMMARY OF THE INVENTION

[0004] The apparatus of the subject invention comprises a bite member for spacing apart the teeth of an animal, a strap adapted to be wound around the snout of the animal for confining the snout and a strap connector with the strap connector having one end thereof adapted for attachment to the strap and another end in removable engagement to the bite member. The strap preferably includes a Velcro type fastener for securing one end of the strap to the strap connector and for allowing the strap to be wound around the snout and affixed at the opposite end thereof for securing the strap in relatively tight engagement wound about the snout of the animal. The Velcro type fastener may be located at opposite ends of the strap or may extend from end to end on one or both sides of the strap.

[0005] The bite member is a body of any desired geometry composed preferably of rubber or silicone rubber and of a size adapted for placement between the animal's upper and lower teeth to hold open the mouth of the animal. Although rubber or silicone rubber is preferred, the bite member may be of any other material composition including wood, relatively hard plastic and foam.

[0006] The bite member should preferably have an elongated body of a length sufficient to longitudinally extend from opposite sides of the mouth of the animal. The bite member body geometry is preferably cylindrical but may be rectangular and should include a plurality of protuberances which extend outwardly from the body to form, in cross section, an undulating geometry so that the bite member will vary in height based on its rotational orientation. Four protuberances is preferred, forming a clover leaf type pattern.

[0007] The bite member is preferably detachably connected to the strap connector. In the preferred embodiment, the bite member has a male protuberance of elastic material extending from one end of its body for removable attachment to a female coupling in the strap connector. The strap connector is a fixture in an open geometry with one side having the female coupling for engaging the male protuberance of the bite member and having on another side thereof a bar to which the strap member is attached.

[0008] The bite member may also include a plurality of grooves formed at one end thereof with the grooves spaced apart at preferably equal distances to form removable sections of the bite member. The plurality of grooves facilitate the removal of one or more of the sections of the bite member by cutting off one or more of the grooves, which reduces the length of the biting member to approximately the width of the snout of the animal being treated.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. **1** is a side elevational view of a canine with the apparatus of the subject invention shown partially assembled about the snout of the canine;

[0010] FIG. **2** is another side elevational view similar to FIG. **1** with the apparatus of the subject invention shown partially assembled and with the bite member oriented within the mouth of the canine to provide a first controlled spacing between the teeth;

[0011] FIG. **3** is yet another side elevational view similar to FIG. **2** with the apparatus of the subject invention shown partially assembled and with the bite member oriented in a position oriented about 90° from the orientation shown in FIG. **2** to provide a second controlled spacing between the teeth;

[0012] FIG. **4** is a front view of the canine shown in FIG. **1** showing the preferred placement of the bite member of the apparatus of the subject invention extending lengthwise between opposite sides of the mouth and adjacent to the canine and incisor teeth of the canine;

[0013] FIG. **5** is an exploded view in perspective of the bite member and strap connector of the apparatus of the subject invention with the strap connector shown detached from the bite member and with a cutting utensil, in phantom, for use in cutting off sections of length of the bite member to accommodate different size canines; and

[0014] FIG. **6** is a perspective view of the apparatus of the subject invention.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

[0015] The apparatus **10** of the subject invention is shown in FIG. **6** and comprises a bite member **12**, a strap **14** and a strap connector **16**. FIGS. **1-4** show the apparatus of the invention **10** partially assembled about the snout of a canine. The strap **14** is intended to be wound around the snout after the bite member **12** is placed in the mouth to confine the snout in relatively tight engagement against the bite member **12** for establishing a fixed spacial relationship between the upper and lower jaws throughout a medical or dental procedure.

[0016] The bite member **12** is preferably inserted into the mouth of the animal to lie transverse to the snout of the animal and preferably behind and adjacent to the canine teeth in the lower jaw and the incisor teeth in the upper jaw , i.e., between the incisors and the molar carnassial teeth but closer to and preferably adjacent the incisor teeth. This provides the greatest degree of freedom for the Dentist or Veterinarian to perform a procedure such as cleaning. By locating the biting member **12** near the front teeth particularly adjacent the incisors opens the back portion of the mouth to allow access to the gumline where tartar forms. The bite member **12** is preferably detachably connected to the strap **14**.

[0017] In the preferred embodiment as shown in FIGS. **5** and **6** the bite member **12** is a body preferably composed of rubber or silicone rubber and of a size adapted for placement between the animals upper and lower teeth to hold open the mouth of the animal. Although rubber or silicone rubber is preferred the bite member may be of any other material composition including wood, relatively hard plastic and foam.

[0018] Although the body of the biting member **12** may have any desired geometry a cylindrical or rectangular geometry is preferred and more particularly having a plurality of undulating protuberances **20** which project from the body of the biting member **12** and preferably form, in cross section, a clover leaf pattern. Each of the undulating protuberances **20** have essentially the same dimensions so that the bite member **12** will vary in height based on its rotational orientation. Accordingly, when the bite member **12** is placed into the mouth of the canine as shown in FIGS. **1** the bite member **12** lies in a first position in which the spacing between the upper and lower jaws are fixed at a first controlled spacing. In this position the protuberances **20** extend longitudinally from their opposite ends in the mouth of the canine. However, in FIG. **3** the bite member **12** is shown rotated about 90 degrees from the position shown in FIGS. **1** and **2** representing a second controlled spacing of the teeth which is larger than the spacing created between the teeth in the first position. In the second position the protuberances **20** are vertically oriented relative to the first position in the mouth of the canine. Stated otherwise, the plurality of protuberances **20** give the bite member **12** in one orientation representing the first position a longer width and a shorter height and creates a smaller opening between the upper and lower teeth than when oriented in the second position which results in a longer height enlarging the opening between the teeth. For small and medium size dogs, for example, the biting member **12** should be oriented in the dog's mouth in the first position whereas for larger dogs the biting member **12** should be oriented in the dog's mouth in the second position which involves a rotation of the biting member **12** of ninety degrees.

[0019] The bite member **12** is preferably detachably connected to the strap connector **16**. The bite member **12** has a male protuberance **25** of elastic material extending from one end of its body for removable attachment to a female coupling **26** in the strap connector **16**. The strap connector **16** is a fixture having an open geometry, preferably rectangular in configuration, with a female coupling **26** at one end having an opening **27** therein for engaging the male protuberance **25** of the bite member **12** and having a bar **28** on an opposite side about which the strap member **14** is attached.

[0020] The strap **14** is composed of a flexible relatively elastic material preferably having a conventional Velcor-type fastener **18** at one end thereof on both sides for attachment to the bar **28** of the strap connector **16** by inserting the strap **14** through the central opening **29** of the strap connector **16** and folding over the end to attach the Velcor-type fastener **18** on both sides of the strap **14**. The strap **14** is then wound around the snout of the canine until the jaws of the canine are held in relatively tight engagement against the bite member **12** with the section of Velcro fastener **19** at the opposite end of the strap **14** affixed to the Velcro fastener **18** at the end of the strap engaging the strap connector **16**. The Velcro type fastener may alternatively be placed on both opposite sides of the strap **14** from end to end.

[0021] The bite member **12** preferably also includes a plurality of grooves **30** which are spaced apart at preferably equal distances to form removable sections **35** between the grooves **30** of the bite member. The individual grooves **30** are essentially identical to one another and facilitate the removal of one or more of the sections **35** of the bite member **12** by cutting through one or more of the groves **30**, using a cutting utensil such as a knife as shown in phantom in FIG. **5**, for removing one or more sections **35** of the bite member **12** in order to reduce the length of the biting member until the bite member **12** has a length which when placed in the mouth of the canine extending transversely between the opposite sides of the mouth of the canine approximates the width of the snout of the canine being treated.

What is claimed is:

1. Apparatus for spacing apart the jaws of an animal in a fixed relationship during the performance of a medical or dental procedure comprising: a bite member for placement in the mouth of the animal to space apart the teeth, a strap adapted to be wound around the snout of the animal and a strap connector with the strap connector having one end thereof adapted for attachment to the strap and another end in removable engagement to the bite member such that when the strap is wound around the snout the strap holds the jaws in relatively tight engagement against the bite member.

2. Apparatus as defined in claim **1** wherein the animal is a canine and the bite member is placed between the incisors and the molar carnassial teeth in close engagement adjacent the incisors.

3. Apparatus as defined in claim **2** wherein the strap has a Velcro fastener at least at each end thereof for removably attaching the strap to the strap connector and for attaching opposite ends of the strap after winding the strap around the snout of the canine.

4. Apparatus as defined in claim **3** wherein the bite member is composed of a material selected from the group consisting of: rubber, silicone rubber, wood, relatively hard plastic and foam.

5. Apparatus as defined in claim **4** wherein the bite member comprises a flexible male protuberance extending from one end thereof for attachment to said strap connector.

6. Apparatus as defined in claim **5** wherein the strap connector is a fixture having an open geometry comprising a female coupling at one end thereof for removably coupling the flexible male protuberance to the bite member.

7. Apparatus as defined in claim **6** wherein the strap connector further comprises a bar at an end opposite the female coupling and an opening through which the strap is inserted for attachment of the Velcro fastener at one end of the strap to the bar.

8. Apparatus as defined in claim **5** wherein the bite member comprises a body of cylindrical or rectangular geometry having a plurality of undulating protuberances projecting from the body of the biting member.

9. Apparatus as defined in claim **8** wherein each of the undulating protuberances have essentially the same dimension such that the placement of the bite member in the mouth of the canine and its orientation controls the spacing between the upper and lower jaws of the canine.

10. Apparatus as defined in claim **9** wherein one orientation of the bite member within the mouth of the canine represents a first position for the bite member between the upper and lower teeth and an orientation of the bite member of about 90 degrees from the orientation in the first position forms a second position for the bite member between the upper and lower teeth in which the opening between the teeth is larger than the opening formed in the first position to accommodate different size animal mouths.

11. Apparatus as defined in claim **8** wherein the bite member **12** further comprises a plurality of grooves spaced apart to form removable sections between the grooves **30** of the bite member.

12. Apparatus as defined in claim **11** wherein the grooves are spaced at equal distances apart from one another with the grooves facilitating the removal of one or more of the sections of the bite member by cutting through one or more of the grooves.

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