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**McIntosh**

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[54] **DEVICE FOR TREATMENT OF BLOAT OF RUMINANTS**


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[51] **Int. Cl.** ..... **A61b 17/34,** A61m 27/00
[58] **Field of Search** ..... 128/347, 305, 214.4, 347, 128/350 R, 350 V



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[57] **ABSTRACT**

An instrument for the treatment of chronic bloat of ruminants. The instrument has two L-shaped halves and a collar that fits over the corresponding legs of each half to hold the instrument in its assembled relationship after insertion. After an incision is made in the skin, muscles, peritoneum and rumen of the ruminant to be treated, the leg of one half is inserted and then the leg of the other half. The halves are then joined and the collar placed in position to hold the instrument together and in place for an indefinite period of time.


**12 Claims, 2 Drawing Figures**

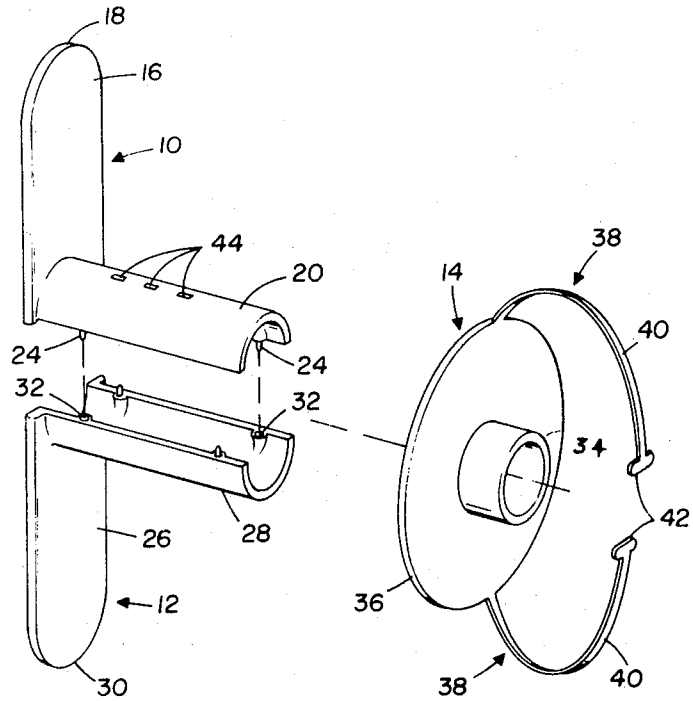


FIG 2

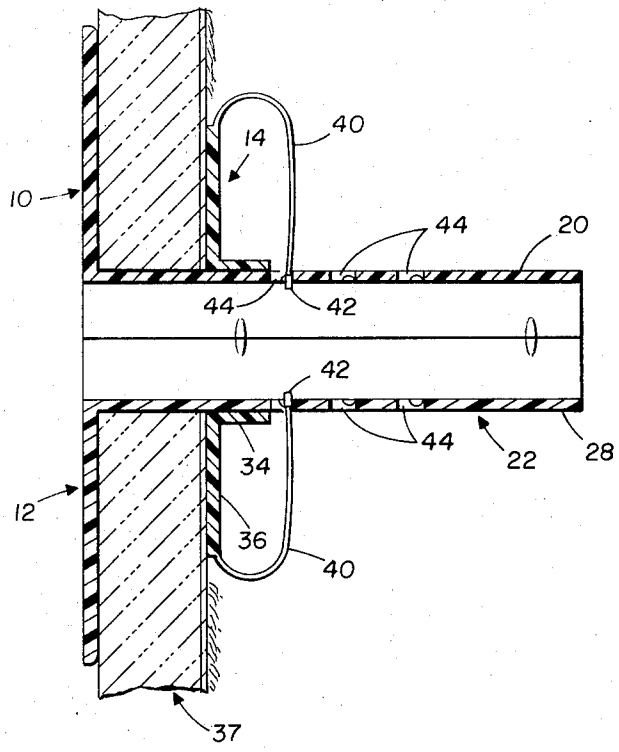
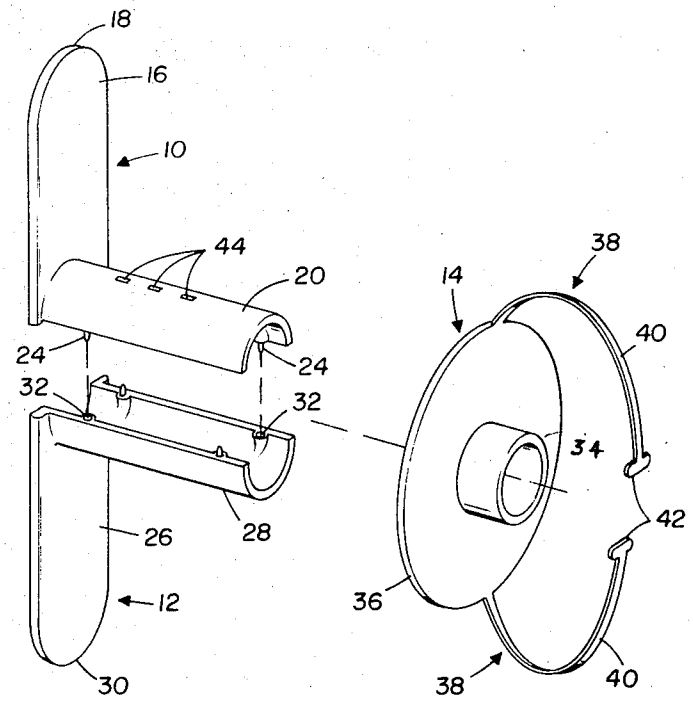

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FIG 1


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# DEVICE FOR TREATMENT OF BLOAT OF RUMINANTS

## BACKGROUND OF THE INVENTION

The problem of bloat in ruminants such as cattle is a relatively common and sometimes serious condition. Temporary relief from bloat can be accomplished by puncturing through the various tissues leading into the rumen and inserting a tube to permit the fluids causing the bloat to escape. Upon withdrawal of the tube, the wound caused by the puncture will rapidly heal. However, chronic bloat in ruminants obviously cannot be treated in this same manner. In the case of chronic bloat, there are known in the prior art devices which can be fitted in place after an incision into the rumen is made to continuously relieve the bloat caused by fluids in the rumen. Such prior art devices, however, cannot be used over a long period of time since in some cases the opening into the rumen will be blocked by tissue growth attempting to heal the wound. In other prior art devices, the skill of a veterinarian is required in order to use the device thus increasing the cost to the owner of the ruminant. In many other prior art devices, the cost of the device itself is relatively high, and with such devices, they must be removed before the ruminant is shipped to market. There is, therefore, a need for an inexpensive, disposable device for the treatment of chronic bloat in ruminants which device can be employed by the layman and left in place in the ruminant indefinitely.

## SUMMARY OF THE INVENTION

The device of the invention is an instrument made of two substantially identical halves combined with a collar. Each half is somewhat L-shaped with one leg of the L providing a tongue and the other leg providing half of a circular hollow tube. After an incision is made into the rumen, one of the halves is inserted through the incision with the tongue being inserted first. The half is then turned approximately 90° so that the tongue lies along the inside of the rumen with the other leg extending through the incision. The other half is then similarly inserted and the two halves joined thus forming a hollow tube extending through the incision. A collar is then slipped over the end of the tube that extends outside of the skin of the ruminant and the collar is adjustably locked in place thus holding the instrument in place until the collar is subsequently released and the instrument removed. If desired, a cap may be removably inserted into the hollow tube.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded perspective view of an instrument constructed according to the principles of the invention; and

FIG. 2 is a view partly in section showing the assembled instrument in place in the ruminant.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT OF THE INVENTION

The preferred embodiment of the invention described in detail hereinafter illustrates a disposable device which is preferably formed from a plastic material. However, the material used in the manufacture of the device forms no part of the invention.

A device constructed according to the principles of the invention is comprised of three basic components,



these being two substantially identical halves **10** and **12** and a collar **14.** The half **12** has a tongue **16** that preferably has a rounded end **18** and the upper surface of which has rounded edges. The tongue **16** is formed integrally with and at a substantially right angle to a leg **20** which is semi-circular in cross-section and when joined with the corresponding part of half **12** forms a hollow tube **22.** Leg **20** preferably has one or more projections **24** extending outwardly from the axial edges of the leg.

The half **12** is substantially identical to half **10,** and thus has a tongue **26** formed integrally with and at substantially a right angle to leg **28.** Tongue **26** also has a rounded end **30** and the upper surfaces of the tongue **26** are rounded. Leg **28** has one or more projections **24** which correspond to recesses **32** formed along each axial edge of leg **28.** Recesses (not shown) similar to recesses **32** are also formed in leg **20** and correspond in size and location to the projections **24** on leg **28.** The projections **24** and recesses **32** thus serve to assure proper alignment of the two halves **10** and **12** when the instrument is assembled and to aid in maintaining the instrument in assembled condition.

When the two halves **10** and **12** are assembled, collar **14** can be fitted over the hollow tube **22.** Thus, the interior diameter of collar **14** is slightly larger than the exterior diameter of the hollow tube **22.** Collar **14** preferably has a central annular projection **34** and an outwardly extending annular flange **36** which, when the instrument is assembled and in place in a ruminant, keeps the instrument from slipping to the inside of the rumen and also aids in maintaining the instrument tightly in place. When the instrument is in assembled condition and positioned in a ruminant, collar **14** can be positioned axially along tube **22** in any desired position depending upon the thickness of the skin, muscles, peritoneum and wall of the rumen all represented by the reference numeral **37.** To maintain the collar **14** in a selected position, there are preferably provided locking means **38** which are preferably formed intergrally with the collar **14** and include flexible arms **40** permanently attaching to the collar **14** and T-shaped pins **42** formed at the outer ends of the flexible arms **40.** A plurality of elongated openings **44** are axially spaced along the leg **20** of half **10** and leg **28** of half **12.** The openings **44** are elongated in an axial direction, and the T-shaped pins **42** would normally be in a position transverse to the long axis of openings **44.** Thus, when the collar **14** is slipped over the tube **22** and positioned at the desired place, the flexible arms **40** can be twisted so that the T-shaped pins **42** can be inserted through the selected openings **44** with the resiliency of the flexible arms **40** causing the T-shaped pins to rotate so that they are crosswise of the openings **44** inside of the tube **22.** This thus serves to lock the collar positively in place on the tube **22** so that it cannot be removed without first twisting flexible arms **40** until the T-shaped pins **42** are in alignment with the openings **44** and withdrawn through the openings **44** from the inside of tube **22.**

The use of the device of the invention should be evident from the foregoing description. However, to summarize its use, an incision of sufficient size to admit a tongue **16** or tongue **26** is made through the skin, muscles, peritoneum and wall of the rumen. One of the halves (e.g., half **10**) is grasped by holding leg **20** and then the tongue **16** is inserted through the incision and into the rumen at which time the half is rotated approx-

imately 90° until the tongue 16 lies along the inside of the wall of the rumen. The second half 12 is then similarly inserted, and the leg 20 is joined to the leg 28 with the projections 24 fitted into recesses 32. The collar 14 is then slipped over the tube 22 until the flange 36 rests securely against the skin of the ruminant. Collar 14 can be positioned with projection 34 extending either outwardly as shown in the drawings or inwardly in which case projection 34 would extend into the incision. The T-shaped pins 42 are then inserted through the openings 44 to lock the collar 14 in its selected position. If desired, a tube or cannula may be inserted through the hollow tube 22 so that frothy material or liquid can be withdrawn from the rumen.

Once in place, the instrument of the invention can be left in the ruminant indefinitely. Generally, this takes 2 to 6 weeks but sometimes longer until the animal is ruminating regularly. At that time the instrument is easily removed and can be disposed of or reused. The wound formed by the incision when the instrument was inserted will readily heal. However, if the instrument is left in place, the tongues 16 and 26 will prevent the tissue from growing over the opening and defeating the purpose of the instrument. If desired, a plug (now shown) can be inserted into the hollow tube 22 to prevent foreign matter from getting into the rumen. However, this is not necessary.

The device of the invention is obviously very simple and can be manufactured at a relatively low cost. The procedure can be done in a very short time of approximately 5 minutes. Once explained, the procedure can be accomplished by a layman thus saving the fee of a veterinarian.

Although only the preferred embodiment of the invention has been disclosed herein, it will be obvious to those skilled in the art that various revisions and modifications can be made in the preferred embodiment without departing from the spirit and scope of the invention. For example, separate locking pins of a variety of types could be used in place of the locking pins 38 illustrated herein. Also, the hollow tube 22 and collar 14 could be threaded so that the collar would be screwed down tightly when the instrument is assembled. It is my intention, therefore, that these and all other revisions and modifications which are obvious to those skilled in the art will be included within the scope of the following claims:

I claim:

1. A device for the treatment of bloat in ruminants including a means for providing a removable passageway through the tissues of the ruminant leading into its rumen, said device comprising a first component having a first member forming a longitudinal trough-like portion of a passageway open at its ends and a second member extending from said first member substantially at a right angle outwardly and away from said passageway, a second component separably connected to said first component and also having a first member forming a longitudinal trough-like portion of said passageway and a second member extending substantially at a right angle from said first member outwardly and away from said passageway, the first members of said first and second components defining a means for forming a tubular passageway when said trough-like portions are assembled in connected relationship, and means for maintaining said components in fixed assembled relationship to each other and in sealing contact with said tissues, said means also providing for separation of said components when the device is disassembled.

2. The device of claim 1 in which said means is a collar and cooperates with said second members when said device is assembled to hold said device in place on a ruminant.

3. The device of claim 1 in which said first and second components are identical in construction.

4. The device of claim 3 in which the first member of each of said components forms ½ of a hollow cylinder, and the second member extends from one end of the first member transversely to the axis of said cylinder.

5. The device of claim 4 in which each of said first members has a projection extending from a longitudinal edge thereof and a recess in a longitudinal edge thereof, the projection of one of said first members corresponding in size and location to the recess in the other of said first members so that a projection will extend into a corresponding recess when said first and second components are properly assembled.

6. The device of claim 4 in which said means is a collar having an interior opening corresponding to the exterior configuration of said first members when said first members are assembled, said collar being removably positioned on said first members when said device is assembled.

7. The device of claim 6 in which there is provided locking means selectively to limit the movement of said collar along said assembled first members in a direction away from said second members.

8. The device of claim 7 in which said locking means provides for selectively varying the distance within which movement of said collar is so limited.

9. The device of claim 8 in which said first members are provided with a plurality of openings spaced longitudinally along their length, and said locking means includes a locking pin insertable in a selected one of said openings.

10. The device of claim 1 in which said means is a collar having an interior opening corresponding to the exterior configuration of said first members when said first members are assembled, said collar being removably positioned on said first members when said device is assembled.

11. The device of claim 2 in which said collar means has an interior opening corresponding to the exterior configuration of said first members when said first members are assembled, said collar being removably positioned on said first members when said device is assembled.

12. The device of claim 11 in which said collar means has an outwardly extending flange adapted to be engagable with the outer skin of the ruminant when said device is assembled with said collar means positioned on said first members.

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