

[54] **MARKER FOR USE IN THE DETECTION OF OESTRUS IN ANIMALS**

[76] Inventors: **Douglas R. Lang; Graeme K. Hight**,
Whatawhata Country, both of
Hamilton, New Zealand

[22] Filed: **May 22, 1973**

[21] Appl. No.: **362,763**

[30] **Foreign Application Priority Data**

May 10, 1968 New Zealand..... 152488

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 822,266, May 6, 1969, abandoned.

[52] U.S. Cl..... 119/1, 119/157, 54/1,
401/214, 128/2 H

[51] Int. Cl..... **A01k 67/00**

[58] Field of Search 119/1, 157; 128/2 H, 1 R;
54/1, 6 R; 401/214

[56] **References Cited**

UNITED STATES PATENTS

2,122,580	7/1938	Morris	401/214
2,487,557	11/1949	Jourgensen	54/1
3,306,005	2/1967	Stafford	54/6 R

FOREIGN PATENTS OR APPLICATIONS

152,488 5/1967 New Zealand..... 128/2 H

OTHER PUBLICATIONS

Chin-Ball Mating Device, Frank Paviour, Hamilton, New Zealand - 1970.

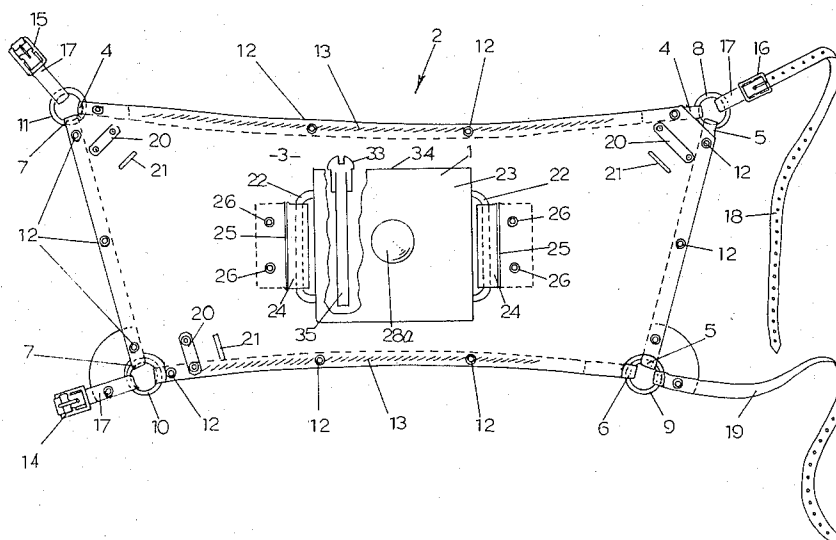
Primary Examiner—Aldrich F. Medbery

Attorney, Agent, or Firm—Holman & Stern

[57] **ABSTRACT**

A marker for use in the detection of oestrus in animals in which a container for a suitable marking fluid is fixed by harness means in an appropriate position, preferably under the chin, on a male animal. The container is secured to the harness means and is equipped with a fluid outlet closed by a spring loaded valve such as a ball whereby during or at about the time of copulation with a female animal, the valve will engage an appropriate portion of the female animal's body thus opening the fluid outlet for transferring the marking fluid to the skin or hair of the female animal.

9 Claims, 12 Drawing Figures



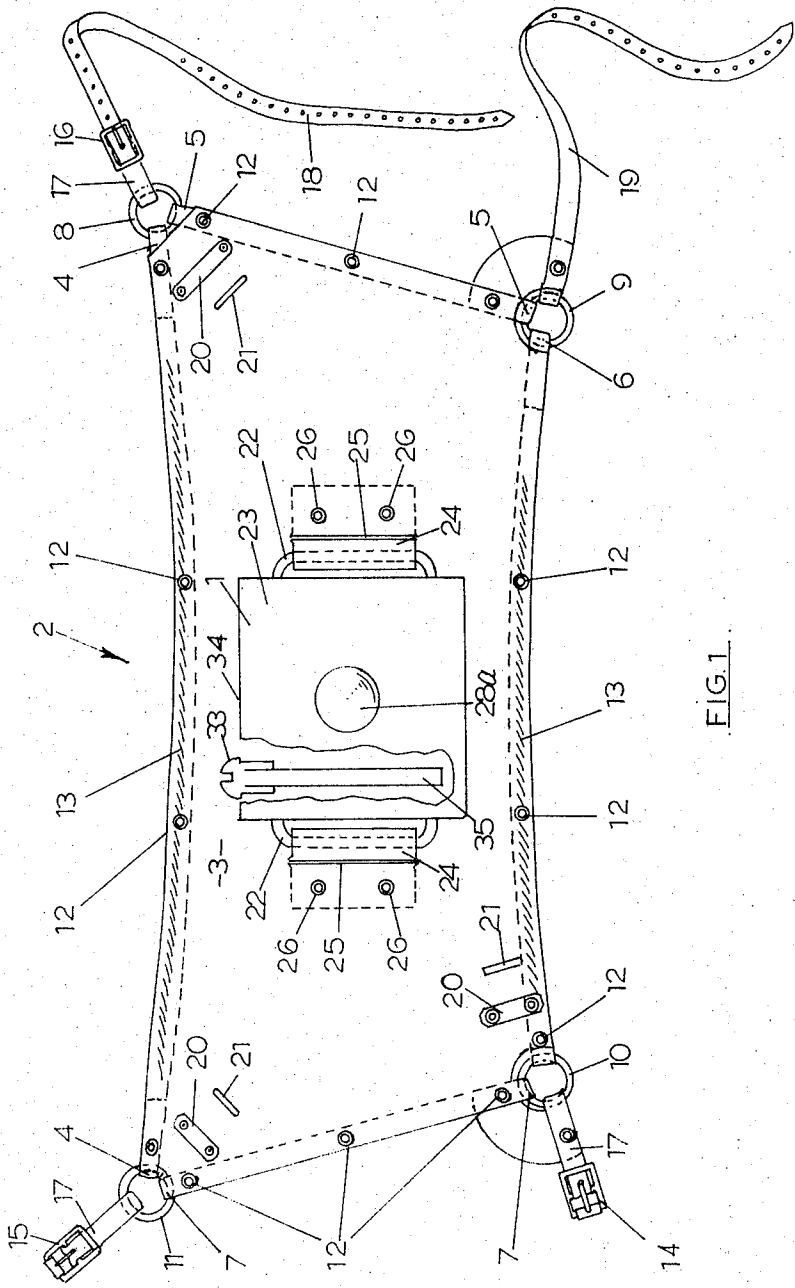


FIG. 1

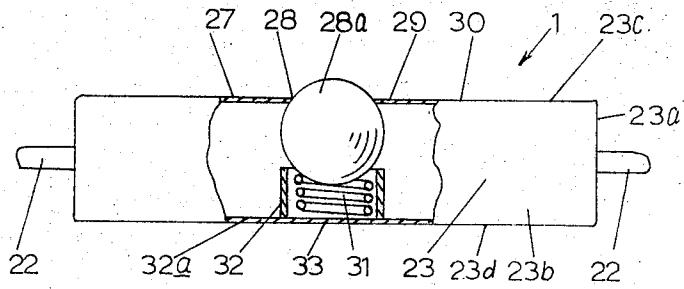


FIG. 2

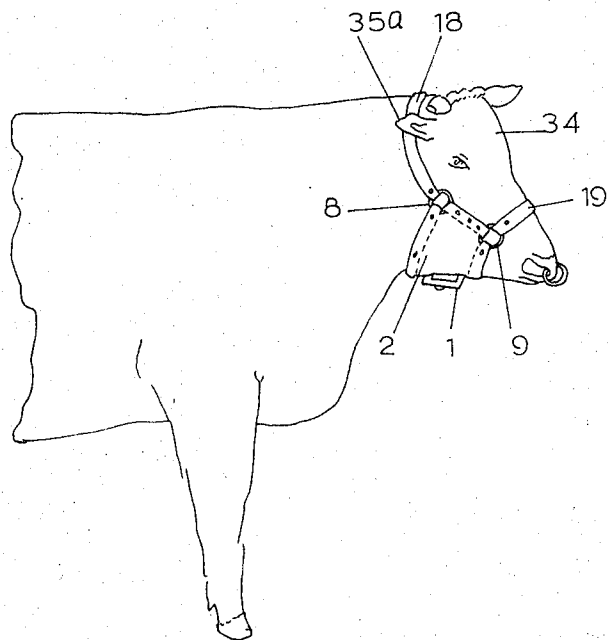
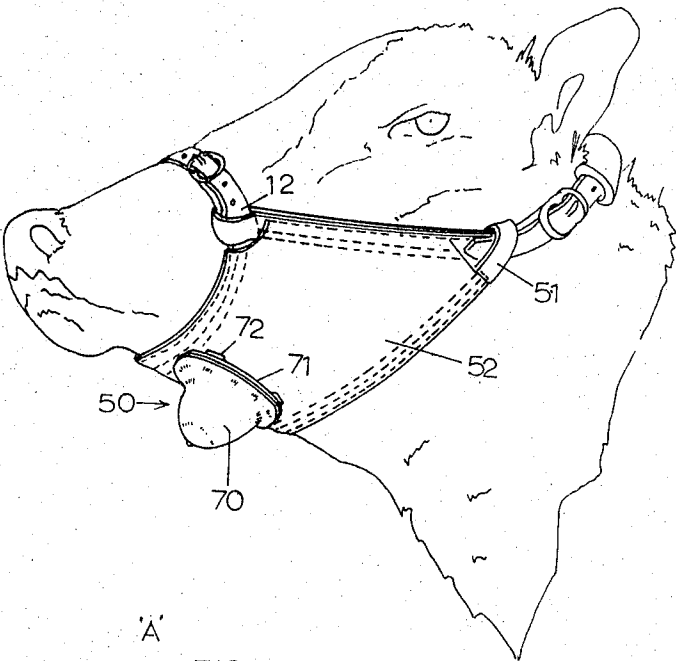


FIG. 3



A

FIG 4

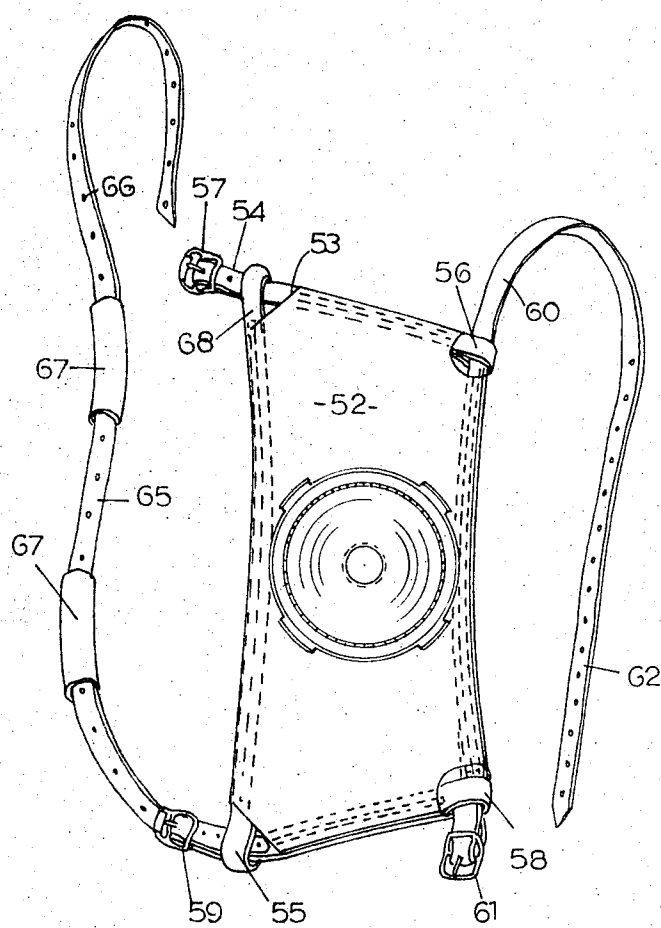
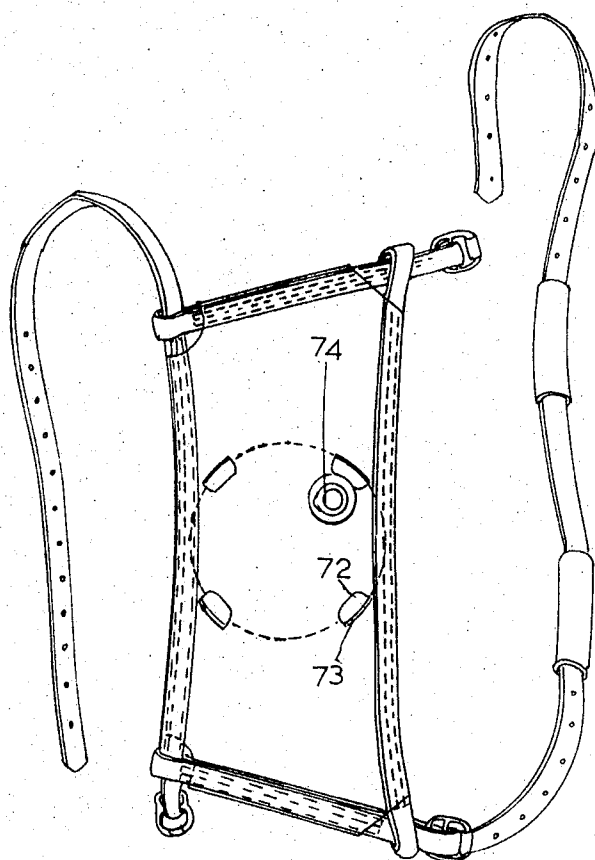


FIG. 5 . 'B'



'C'

FIG. 6

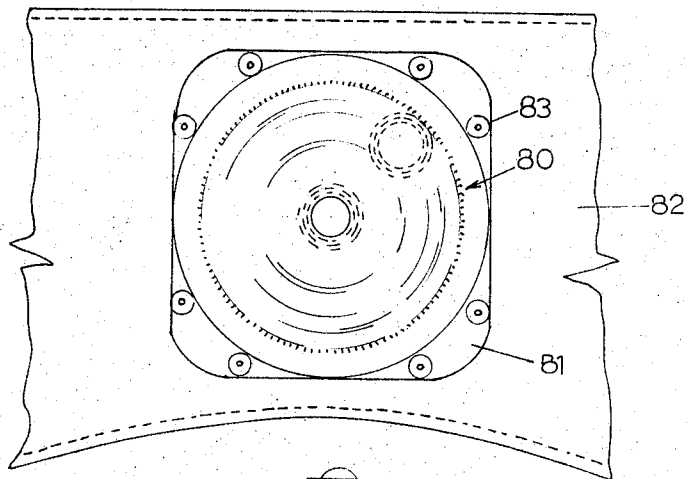


FIG. 7.

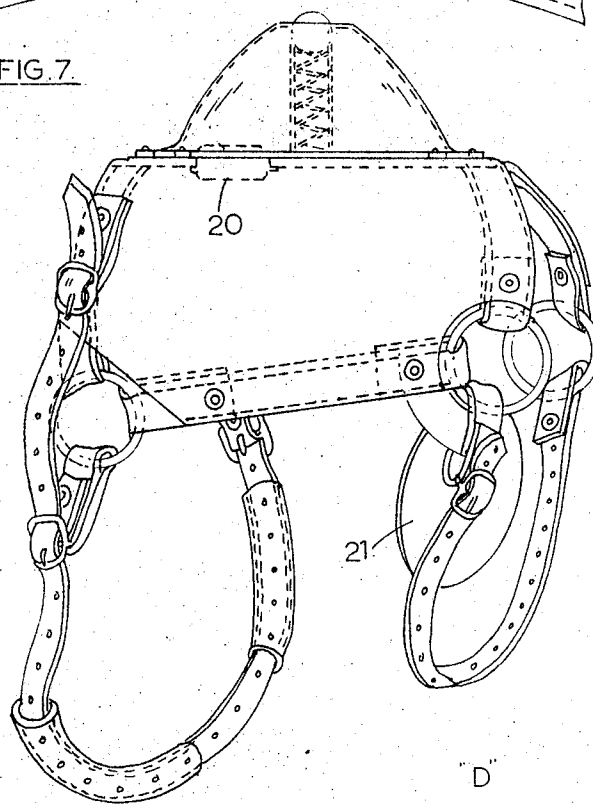


FIG. 8.

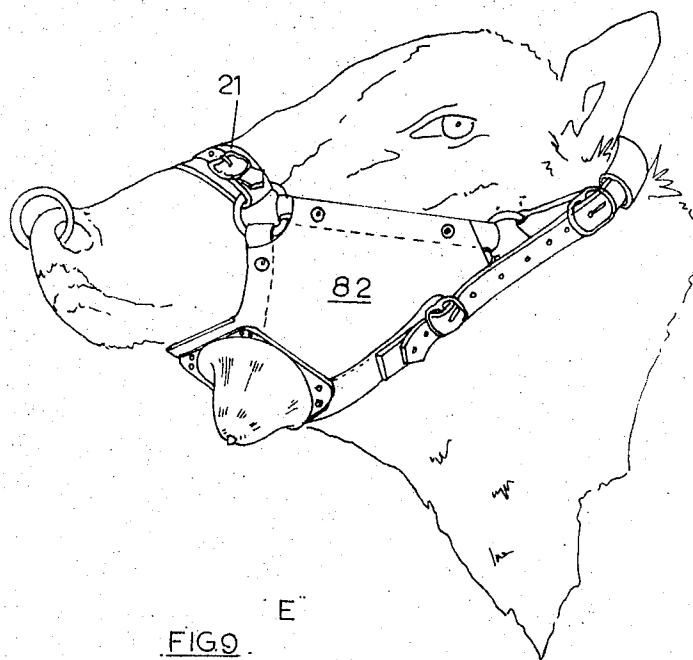


FIG 9

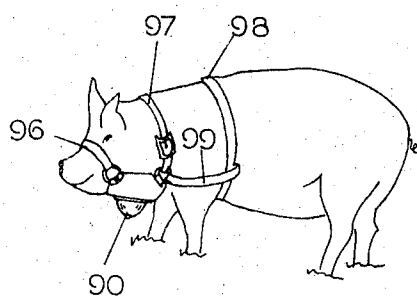


FIG 10

FIG. 11

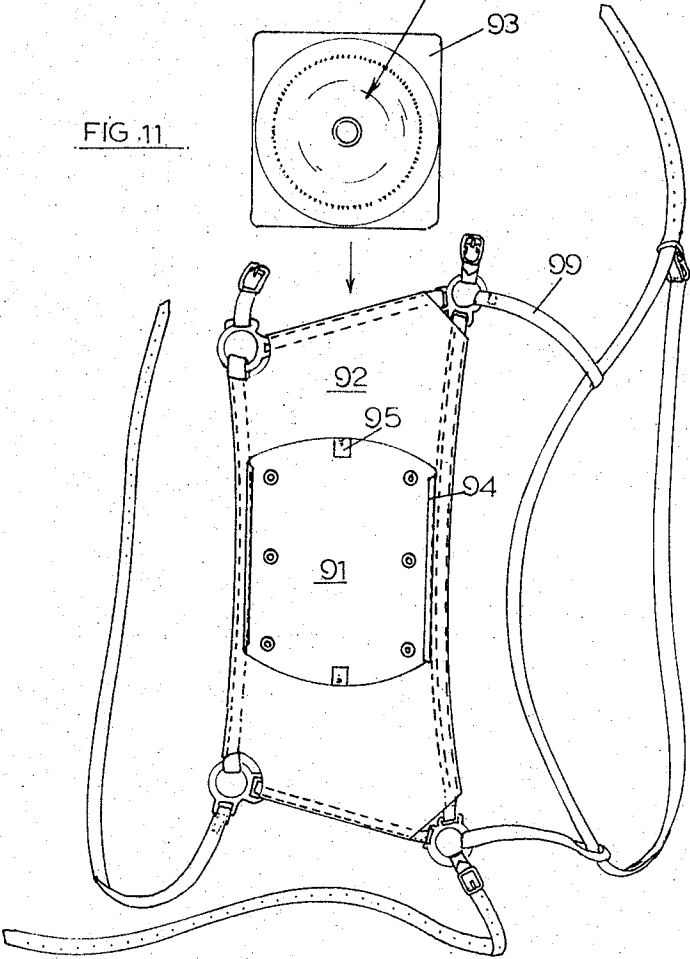
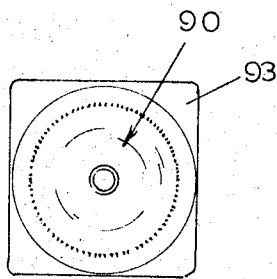


FIG. 12

MARKER FOR USE IN THE DETECTION OF OESTRUS IN ANIMALS

BACKGROUND OF THE INVENTION

This application is a continuation-in-part of our co-pending application Ser. No. 822,266 filed May 6, 1969 now abandoned and entitled "Markers for the Detection of Oestrus."

The present invention relates to markers for the detection of oestrus and is particularly though not solely for use in detecting oestrus in cattle.

PRIOR TECHNIQUES

At present, there are three methods available for detection of oestrus in cattle: (1) The "Kamar" heat mount detection pad, which is placed on the cow's rump and on pressure from the bull at copulation releases a colored marker. (2) By the conversion of the "Sire-Sine" ram mating harness to the bull. This is done by utilizing crayon and crayon holders from the ram harness and attaching it to a head halter so that it fits under the jaw. At mating, the bull drags his jaw along the back of the cow, leaving streaks of colored crayon as identification marks. (3) A mating harness consisting of a pad of eight inch by twelve inch by two inches of material which fits the brisket of the bull and which contains colored pastes. These pastes are forced through the material when pressure is applied, and the color substance is transferred to the cow's rump.

Each of the above techniques has been tested and found unsatisfactory. The first technique gave too many false positives as a result of mounting by other cows, and in addition, material from the crayon rubbed off on trees. The second technique, under range conditions was useless. The crayons crumbled and deteriorated rapidly or, following rain, become covered with stones and grit or became hard and shiny. In the third technique, the pad soon became encrusted with mud and debris, and failed to mark the cows.

OBJECTS AND SUMMARY OF THE INVENTION

It is, therefore, an object of the present invention to provide markers in the form of a marking material dispensing means for the detection of oestrus which will obviate or minimize the disadvantages of the present techniques or which will at least give the public a useful choice.

Accordingly, the marker comprises a container for holding a marking material selected from marking liquids and pastes, an opening in the container, a ball rotatably mounted in the opening to effectively seal the opening, a spring holding the ball in position in the opening yet allowing the ball to be rotated therein, and harness means fixing the container in an appropriate position on a male animal so that during copulation, or at about the time of copulation, the ball will engage an appropriate portion of the body of the female animal to cause marking material contained in the container, to be transferred therefrom onto the skin or hair of the female animal.

Several embodiments of the invention will now be described with reference to the accompanying drawings in which,

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of a halter for a bull, incorporat-

ing a marker according to the invention, and showing part of the marker taken away,

FIG. 2 is a side view of the marker, again with parts broken away to show the interior,

FIG. 3 is a side view of a bull's head with the halter and marker fixed thereto,

FIG. 4 is a fragmentary view in perspective of another type of marker held under the chin of a bull,

FIG. 5 is a plan view of the marker illustrated in FIG. 4 before attachment to the bull,

FIG. 6 is a bottom view of the marker shown in FIG. 5,

FIG. 7 is a plan view of a further embodiment in which the halter or harness is broken away,

FIG. 8 is a view in side elevation of the marker disclosed in FIG. 7,

FIG. 9 is a view similar to FIG. 4 of the marker shown in FIGS. 7 and 8 in operative position,

FIG. 10 is a side view of a boar with a marker held in place under the chin of the boar,

FIG. 11 is a plan view of the container for the marker fluid of the embodiment shown in FIG. 10, and

FIG. 12 is a bottom view of the harness shown in FIGS. 10 and 11 before attachment to the boar.

DETAILED DESCRIPTION OF THE EMBODIMENTS

Referring to the drawings, a marker 1 is mounted on a harness or halter, and in FIGS. 1 and 3, a halter 2 is shown for mounting the marker 1 below the chin of a bull. The halter 2 has, for example, a leather platform 3, and straps 4, 5, 6 and 7 fix rings 8, 9, 10 and 11 to the platform 3, with the ends of the straps 4, 5, 6, and 7 being looped around the rings, and being fixed to the platform 3 by rivets 12 and lines of stitching 13, the loops being, of course, riveted. This arrangement gives a strong construction likely to last a season for a free range bull. Buckles 14, 15 and 16 are fixed, as shown, by loops 17, a head strap 18 is fitted to the buckle 16, and a nose strap 19 is fixed to the ring 9. End retaining loops 20 and slots 21 are provided on the platform 3 so that the loose ends of the straps 18 (both ends) and 19 may be captured so that they may not be caught in sticks or wires.

The marker 1 has end loops 22 fixed to a casing or container 23, both being preferably of stainless steel, and leather loops 24 pass through slots 25, and are fixed with rivets 26. The container is defined by end walls 23a, side walls 23b, top wall 23c and a bottom wall 23d thereby providing a substantially rectangular body. The top wall 23c has an aperture 28 therein, in which a ball 28a fits, with face 29 defining the aperture being sloped so that the junction of the face 29 and top wall 23c is sharp (FIG. 2) and the face 29 is so sloped that the ball 28a bears against the sharp junction. As the ball rotates, the sharp junction has a cleaning action on the ball, removing debris therefrom. This is a considerable advantage.

The ball 28a is held in position by a spring 31, mounted in a short tube 32 extending from the bottom wall 23d towards but terminating short of the top wall 23c. One end of the spring bears against the ball while the other end bears against the bottom wall 23d. The tube 32 also acts as a stop to limit movement of the ball 28a against the resilience of the spring 31.

A filler plug 33 is threaded into one side wall 23b of the casing, and the plug 33 may include a dip stick 35.

The casing is filled or partially filled with a marking liquid which is preferably an oil based marking liquid of known type which is preferable for marking cattle, although an oil based marking fluid may not be permitted for use in the marking of sheep. However, other liquids may be used, and the invention is not limited in application to the marking of cattle.

The halter is shown fitted to a bull's head in FIG. 3, with the platform 2 and marker 1 under the animal's chin. The nose strap 19 runs over the animal's nose, and the head strap 18 over its head 34 behind its ears 35a.

During mating, the ball 28a makes contact with the body of the female, and the pressure on the ball is sufficient to cause it to rotate as the animals move relatively to one another, so that the marking fluid is carried out of the casing by the ball and is rubbed off the ball onto the body of the female, the hair of which is coated with streaks of the coloring material. The opening in which the ball is seated, is close fitting and sharp edged so that the ball is cleared of any debris as it is rotated. The opening is, therefore, kept reasonably clean, and the marker remains serviceable over considerable periods without attention. Furthermore, it is not affected by rain or local weather conditions.

In FIGS. 4-6 is illustrated a further embodiment for attachment under the chin of a bull, which is simpler in structural detail and capable of being manufactured more cheaply than the marker shown in FIGS. 1-3. The marker includes a container or tank 50 for the marking liquid and a halter or harness 51 supporting the container. The harness is provided with a leather section 52 which is substantially rectangular with the corners being cut away as indicated 53.

Straps 54 and 55 of a suitable material extend along and are secured to the short sides of the section 52 by stitching or the equivalent and the strap 54 is provided with a loop 56 at one end and a buckle 57 at the opposite end, with the loop and buckle extending through the cut away corners 53. The strap 55 also has a loop 58 at one end and a buckle 59 at the opposite end.

A strap 60 of nylon reinforced material extends along one longitudinal side of the section 52 and passes through the loops 56 and 58. A buckle 61 is secured to one end of the strap 60 with axially spaced apertures 62 starting from the other end thereof enable the strap length to be adjusted. As disclosed in 4, the strap 60 encircles the bull's head above the nose.

A strap 63 of the same material as the strap 60 extends along the other longitudinal edge of the section 52 and is looped and secured at its respective ends about the straps 54 and 55 as indicated at 64. A further strap 65 also of nylon reinforced material is formed with axially spaced apertures 66 throughout the length thereof and is secured by the buckles 57 and 59 to the straps 54 and 55. The strap 65 passes about the neck of the bull below the ears and soft rubber sleeves 67 encircle the strap for fitting behind the ears as depicted in FIG. 4.

By use of nylon material, the straps can be cut to suit each animal, with the straps trimmed and tucked into the loops as shown at 68 and 69 in FIG. 4.

The tank 50 includes a body 70 of conical configuration and peripheral edge or rim 71 thereof with a plu-

ality of spaced apart lugs or ears 72. The ears extend through slots 73 (FIG. 6) formed in the section 52 which are then folded back to secure the tank to the harness. This mode of attachment minimizes the likelihood of branches or sticks becoming fouled with the tank by being forced between the section 52 and the bottom of the tank 50.

The conical shape of the tank is advantageous over a rectangular tank since experience demonstrated that with a rectangular tank, the corner of the tank could ride over the back of a female animal preventing the marking device from operating with the greatest efficiency. Such problem does not exist with the conical tank.

The bottom or base of the tank 50 is provided with a filling aperture 74 which is accessible through a hole in the bottom of the section 52. The filling aperture may be closed by any suitable means.

In FIG. 7, the tank 80 is substantially the same as the tank 50 except the tank has a base flange 81 which is riveted to a leather piece 82 of the harness as shown at 83.

The harness is provided with an adjustable nose strap 84 having a protective nose pad 85 and an adjustable strap 86 passes behind the ears and under the chin. The strap 86 is also provided with protective soft rubber sleeves 87 located behind the ears.

FIGS. 10-12 illustrate a marker for use on boars. A container 90 for a marking liquid which is similar generally to the tanks 50 and 80 is removably attached to a plate 91 secured to a leather piece 92 of the harness. The removability of the tank is important because when the boar lies down, the boar tends to lie in a position allowing the marking liquid to escape from the tank. To provide a connection between the tank and the plate 91, the base of the tank can be flanged as shown at 93 with the side flanges entering guides 94 on the plate 91 and spring clips 95 on the plate can engage the end flanges.

Adjustable strap 96 fits above the nose while adjustable strap 97 passes behind the ears. A further adjustable strap 98 is located behind the forelegs and is connected to the piece 92 by short straps 99.

The invention is not to be confined to any strict conformity to the showings in the drawings but changes or modifications may be made therein so long as such changes or modifications make no material departure from the spirit and scope of the appended claims.

What is claimed is:

1. A marker for use in the detection of oestrus in animals, including a closed container for holding a marking substance, said container having an outlet opening, a means for effectively sealing said opening and transferring said marking substance including a ball mounted for rotation in the opening, and a spring means biasing the ball in position in the opening yet allowing the ball to be rotated in the opening, means for mounting said container on a male animal in position for transferring said marking substance comprising a harness having a base member for attachment to a male animal, means attaching the container to the base member, adjustable strap means on the base member, one of said strap means encircling the animal's head rearwardly of the mouth and the other strap means behind the ears, with the base member and container being located on the throat area below the animal's chin, whereby during copulation or at about the time

5

of copulation with a female animal, the ball will contact an appropriate part of the female animal's body for causing marking substance in the container to be transferred therefrom onto the skin or hair of the female animal.

2. The marker as claimed in claim 1 in which said adjustable strap means are defined by nylon reinforced material.

3. The marker as claimed in claim 2 in which said other adjustable strap means is provided with resilient sleeves located behind the animal's ears.

4. The marker as claimed in claim 3 in which said one strap means is provided with a pad for protecting the animal's nose.

5. The marker as claimed in claim 1 in which said container is of conical configuration and is provided with a base, said base having spaced lugs thereon passing through slots in the base member so that when the lugs are folded back, the container is secured to the base member.

6. The marker as claimed in claim 1 in which said container is of conical configuration and is provided with a base flange and rivets securing the base flange and hence the container to the base member.

7. The marker as claimed in claim 1 in which said container is of conical configuration and said container and base member include complementary means defining a detachable connection between said container and base member.

8. A marking material dispensing means for use in the detection of oestrus in animals, comprising a substan-

6

tially rectangular closed container for a marking material selected from marking liquids and pastes, said container having first and second larger walls disposed a short distance from each other, said first larger wall having a circular opening therein, a ball rotatably mounted in said opening so as to effectively seal said opening, a spring biased between the ball and the second larger wall for holding said ball in position in said opening, but allowing the ball to be rotated therein, stop means extending from the second larger wall in the direction of the first larger wall to limit movement of the ball against the resilience of the spring, said opening having a sharp edge for removing debris from the ball, and a means for attaching the container to the animal in a dispensing position including a halter fixed to the container and holding the container below and against the chin of a male animal, the construction and arrangement being such that during copulation or at about the time of copulation with a female animal, said ball will engage an appropriate part of the body of the female animal to cause marking material in the container to be dispensed therefrom onto the skin of the female animal.

9. The marking material dispensing means as claimed in claim 8, in which said spring is a helical compression spring and said stop means comprises a short tube said spring being mounted within said tube, one end of the spring pressing against the ball and the other end against the second larger wall.

* * * * *

35

40

45

50

55

60

65

Disclaimer

3,842,802.—*Douglas R. Lang; Graeme K. Hight*, Whatawhata Country, Hamilton, New Zealand. **MARKER FOR USE IN THE DETECTION OF OESTRUS IN ANIMALS**. Patent dated Oct. 22, 1974. Disclaimer filed Oct. 5, 1976, by the assignee, *New Zealand Inventions Development Authority*.

Hereby enters this disclaimer to claim 6 of said patent.

[*Official Gazette December 7, 1976.*]