

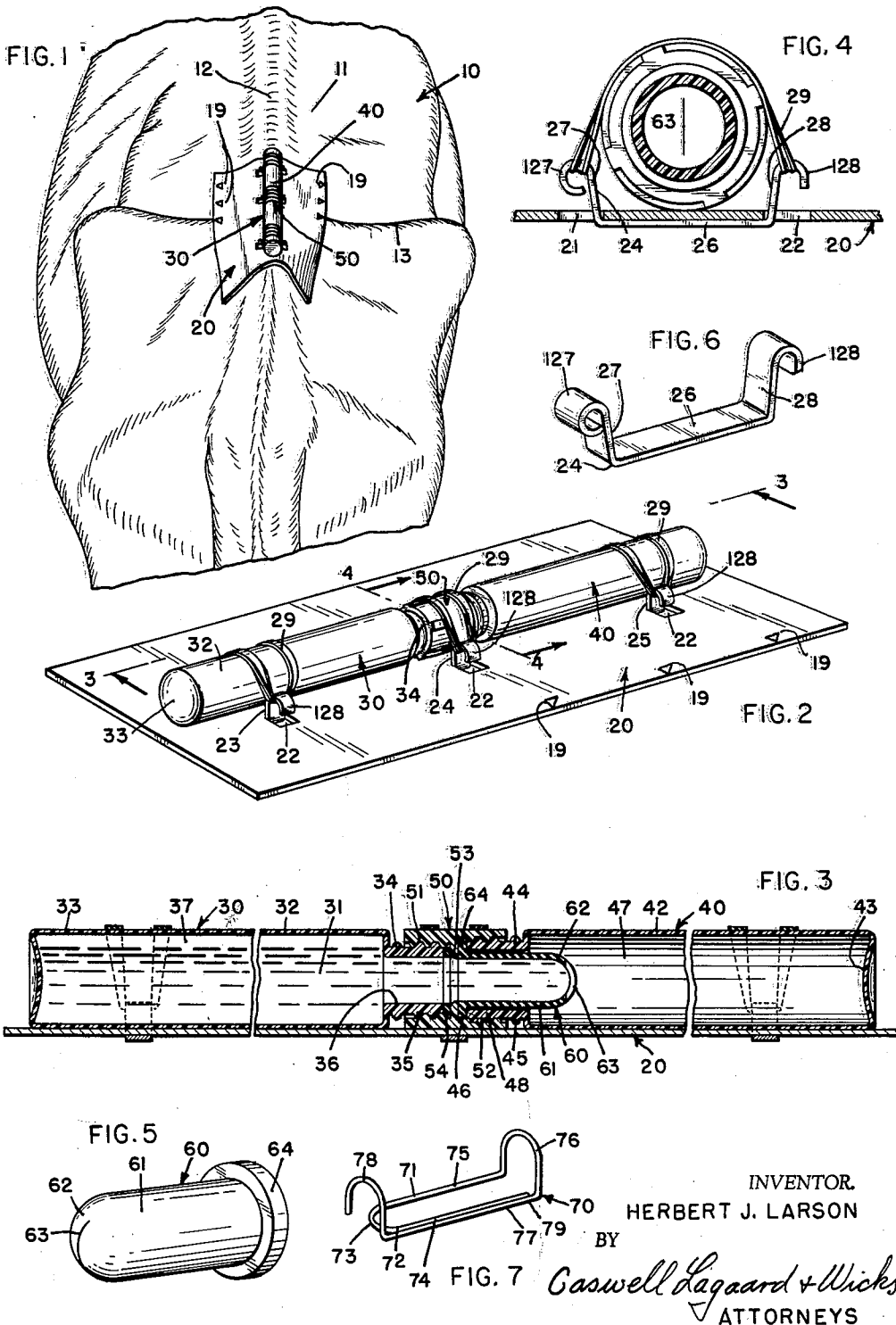
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CATTLE STANDING HEAT DETECTOR

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CATTLE STANDING HEAT DETECTOR

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The herein disclosed invention relates to an apparatus whereby cattle running at large in big herds, in pastures, can be identified when in heat and easily removed from the herd for breeding as by artificial insemination. Cows are classified as in standing heat when said cow submits to being mounted by another cow, this condition occurring in the early stage of a heat period. Dairy cattle, which are closely confined and controlled, are largely bred by artificial insemination. Cattle running at large in pastures, such as beef cattle, are not bred artificially because of the almost impossibility of herding a cow out of a herd without some identifying mark. Cows all look the same and it is impossible to keep a man's eye on one cow, and know she is the right cow once she has milled with the herd.

Another object of the invention resides in providing a detector which when once actuated may be reset for repeated use to show whether cow repeats heat or is bred.

A still further object of the invention resides in constructing the detector with a flexible container containing a colored liquid and positioned on the back of the cow to be bred in a position for engagement with the mounting cow.

An object of the invention resides in a transparent receptacle communicating with the container, disposed ahead of the same and adapted to receive the discharge from the container when pressure is applied to the same.

Another object of the invention resides in providing a connector between the container and receptacle and having a passageway therethrough communicating with the interiors of said container and receptacle.

A still further object of the invention resides in providing a check valve across said passageway permitting flow from said container to said receptacle and restraining flow in the reverse direction.

An object of the invention resides in providing the container and receptacle with facing threaded necks and the connector with threaded sockets to receive said necks, the diameters of said necks at said threads being different to prevent interchange of connections between said necks and sockets.

Another object of the invention resides in providing said necks with bores, one bore being of greater diameter than the other, and in constructing the check valve tubular in form and of a diameter to be received into the bore of greater diameter, said check valve being of a diameter greater than the bore of lesser diameter.

Other objects of the invention reside in the novel construction and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

In the drawings:

FIG. 1 is a perspective view of a portion of a cow illustrating the application of the invention thereto.

FIG. 2 is a perspective view of the detector before application to the cow.

FIG. 3 is a longitudinal sectional view taken on line 3-3 of FIG. 2 and drawn to a greater scale.

FIG. 4 is a cross sectional view taken on line 4-4 of FIG. 2.

FIG. 5 is a perspective view of the valve member of the invention detached from the adjoining structure.

FIG. 6 is a perspective view of one of the fasteners of the invention.

FIG. 7 is a perspective view of a modified form of fastener.

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For the purpose of illustrating the application of the invention, a portion of a cow 10 has been shown in the drawings which illustrates the back 11 of the cow and the backbone 12 running along the same. In addition, the hip bones of the trunk of the cow have been shown which are indicated by the reference numeral 13.

The invention comprises a base or supporting structure 20 on which is mounted a flexible container 30 containing a colored liquid 31 and a transparent receptacle 40 connected together by means of a connector 50. Disposed within the connector 50 is a check valve 60 by means of which the liquid contained in the container 30 may flow from container 30 and into receptacle 40 but not in the opposite direction. These parts will now be described in detail.

The base 20 is constructed from a sheet of flexible material which may be a sheet of fabric impregnated with a suitable plastic to render the same capable of conforming to surface on which the same is applied. This base may also be constructed of a plastic material in sheet form. The base 20 is provided with spaced holes 21 and 22 arranged at intervals along the same. Fasteners 23, 24 and 25 are employed one at each pair of holes and which are identical in construction. Only fastener 24 will be described. This fastener consists of a bar 26 having legs 27 and 28 extending outwardly therefrom and projecting through the holes 21 and 22, the bar 26 underlying the back of the base 20. The leg 27 terminates in an eye 127 while the leg 28 terminates in a hook 128. Operating in conjunction with the legs 27 and 28 is a continuous rubber band 29, looped through the eye 127 and adapted to be hooked on the hook 128.

The container 30 is tubular in form having a body 32 formed with a base 33 at one end and a neck 34 at its other end. The neck 34 is formed with external threads 35 and has a bore 36 extending through it and communicating with the interior of the container which is indicated by the reference numeral 37. Container 30 is constructed of an opaque flexible plastic material such as polyethylene and is adapted upon lateral pressure being applied to the same to discharge the contents of said container through the bore 36.

The receptacle 40 is similar in construction to the container 30 and comprises a body 42 provided with a base 43 at one end and a neck 44 at its other end. Neck 44 is formed with external threads 45 and has a bore 46 extending through it and communicating with the interior 47 of said receptacle. Receptacle 40 is constructed from a clear plastic material such as polyethylene and which is not easily broken or caused to leak upon pressure being exerted on the same, such as pressure produced by the mounting of one cow on the other.

The container 30 and receptacle 40 are connected together by means of connector 50 which has two internally threaded sockets 51 and 52 and into which the threaded necks 34 and 44 of the container 30 and receptacle 40 may be screwed. The diameter of the neck 44 at the locality of the threads 45 is greater than the diameter of the neck 34 at the locality of the threads 35 so that the respective necks can only be screwed into the particular sockets with which they are intended to operate. Between these sockets connector 50 has an annular partition 53 extending inwardly from said sockets and formed with a central passageway 54 therethrough. This passageway directly communicates with the bore 36 of container 30. The passageway 54 communicates with the interior 47 of the receptacle 40 through the check valve 60 in a manner to be presently explained.

The check valve 60 comprises a tubular body 61 constructed of rubber or some other similar flexible material and which fits freely into the bore 46 of receptacle 40. This bore is of a diameter greater than the diameter of

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the bore 36 of container 30 so that it cannot be inserted into the same. The body 61 is constructed with a dome-shaped end 62 which has a transverse slit 63 in the same. A flange 64 encircles said body and when the valve is inserted into the bore 36 becomes seated against the end 48 of the neck 44 of receptacle 40. This flange is further seated against the partition 53 of connector 50 and when the parts are screwed together flow is possible only from the container 30 and into the receptacle 40 through the slit 63 in the valve 60.

The manner of using the invention is as follows: The valve 60 is first inserted into the bore 46 of receptacle 40 with the flange 64 resting on the end 48 of neck 44. Connector 50 is then screwed on said neck clamping said flange between the partition 53 and said end. Container 30 is next filled with the colored liquid and connector 50 with receptacle 40 attached screwed on the neck 34 of container 30. A gasket 54 between the partition 53 and the end 38 of the neck 34 of said container prevents leakage out of the device. The assembly is now placed on the base 20 between the legs 27 and 28 of each of the fasteners 23, 24 and 25. The rubber bands 29 which have been attached to the eyes 127 are now brought over the container 30, connector 50 and receptacle 40, and hooked over the hooks 128. This holds the device attached to base 20. On the base 20 are marks 19 which indicate where the device is to be placed on the cow's back. There are three of said marks indicating the position for different sizes of cows. Base 20 is next coated with a suitable adhesive and the same attached to the cow's back 11 straddling the backbone 12 and at the proper position with respect to the hip bones 13 as designated by the marks 19 on the base 20 and with receptacle 40 foremost. Any substantial downward pressure exerted on the container 30 as by a cow mounting the cow in heat will partially collapse the container 30 and force a portion of the liquid therein through the valve 60 and into the interior 47 of receptacle 40. This will readily be apparent through the transparent body 42 of the receptacle 40. Valve 60 prevents the liquid in receptacle 40 from being drawn back into the container 30.

The advantages of the invention are manifest. The device is extremely simple in construction and easy to operate. The device may be used over and over again by pouring out the liquid discharged into receptacle 40 back into container 30 and washing out said receptacle. The device is positive in action and the actuation of the device readily ascertainable.

The fastener 24 shown in FIG. 6 is constructed from sheet metal. An alternate construction shown in FIG. 7 may be constructed of wire. This fastener is indicated by the reference numeral 70 and is formed from a length of wire 71. One end 72 of this length of wire is bent back upon itself to form a bend 73 and two parallel reaches 74 and 75. The reach 75 at its end opposite the bend 73 is turned upwardly and bent back upon itself to form an eye 76. The other end 77 of the length of wire is bent to form a hook 78 at its free end and a reach 79 parallel with and extending along the reach 74. Reach 79 issues from the lower end of the eye 76. Reaches 74, 75 and 79 all lie in a common plane and take the place of the bar 26 of the fastener 24. The use of the fastener 70 is the same as the use of the fastener 24.

While it has been found that a suitable adhesive may be applied to the base 20 at the time of application of the device to the cow, a previously applied adhesive may also be employed, protected by a covering of Holland cloth or the like and adapted to be removed before application of the device to the cow's back.

Changes in the specific form of the invention, as herein described, may be made within the scope of what is claimed without departing from the spirit of the invention.

Having described the invention, what is claimed as new and desired to be protected by Letters Patent is:

1. In a cattle standing heat detector,

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- (a) a base for attachment to the back of the cow to be bred,
 - (b) a container mounted on said base and constructed from flexible material,
 - (c) a colored fluid within said container,
 - (d) a transparent receptacle for the colored fluid mounted on said base ahead of said container,
 - (e) a connector between said container and receptacle and having a passageway therethrough bringing said container into communication with said receptacle defining a sealed enclosure and
 - (f) a check valve extending across said passageway, said check valve permitting flow from said container to said receptacle and preventing flow from said receptacle to said container.
2. In a cattle standing heat detector,
- (a) a base for attachment to the back of the cow to be bred,
 - (b) a container mounted on said base and constructed from flexible material,
 - (c) a colored fluid within said container,
 - (d) a transparent receptacle for the colored fluid mounted on said base ahead of said container,
 - (k) said container and receptacle having necks facing one another,
 - (l) a connector between said necks,
 - (m) disengageable attaching means between said connector and necks,
 - (e) said connector having a passageway therethrough bringing said container into communication with said receptacle defining a sealed enclosure and
 - (gg) a valve having a movable part and disposed between said container and receptacle and controlling the flow of fluid therebetween.
3. In a cattle standing heat detector,
- (a) a base for attachment to the back of the cow to be bred,
 - (b) a container mounted on said base and constructed from flexible material,
 - (c) a colored fluid within said container,
 - (d) a transparent receptacle for the colored fluid mounted on said base ahead of said container,
 - (n) threaded necks on said container and receptacle facing one another,
 - (l) a connector between said necks,
 - (p) threaded sockets in said connector adapted to receive said threaded necks,
 - (q) said connector having a passageway therethrough bringing said container into communication with said receptacle defining a sealed enclosure and
 - (gg) a valve having a movable part and disposed between said container and receptacle and controlling the flow of fluid therebetween.
4. In a cattle standing heat detector,
- (a) a base for attachment to the back of the cow to be bred,
 - (b) a container mounted on said base and constructed from flexible material,
 - (c) a colored fluid within said container,
 - (d) a transparent receptacle for the colored fluid mounted on said base ahead of said container,
 - (n) threaded necks on said container and receptacle facing one another,
 - (l) a connector between said necks,
 - (p) threaded sockets in said connector adapted to receive said threaded necks,
 - (r) the threads on one neck and the cooperating socket differing from the threads on the other neck and the other socket to prevent the second named socket from being screwed on the first named neck,
 - (q) said connector having a passageway therethrough bringing said container into communication with said receptacle defining a sealed enclosure and
 - (gg) a valve having a movable part and disposed be-

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- tween said container and receptacle and controlling the flow of fluid therebetween.
5. In a cattle standing heat detector,
- (a) a base for attachment to the back of the cow to be bred, 5
 - (b) a container mounted on said base and constructed from flexible material,
 - (c) a colored fluid within said container,
 - (d) a transparent receptacle for the colored fluid mounted on said base ahead of said container, 10
 - (n) threaded necks on said container and receptacle facing one another,
 - (l) a connector between said necks,
 - (p) threaded sockets in said connector adapted to receive said threaded necks, 15
 - (s) the diameter of the apexes of the threads of one of said necks being less than the diameter of the apexes of the socket of the connector engaging the other neck,
 - (q) said connector having a passageway therethrough bringing said container into communication with said receptacle defining a sealed enclosure and 20
 - (gg) a valve having a movable part and disposed between said container and receptacle and controlling the flow of fluid therebetween. 25
6. In a cattle standing heat detector,
- (a) a base for attachment to the back of the cow to be bred,
 - (b) a container mounted on said base and constructed from flexible material, 30
 - (c) a colored fluid within said container,
 - (d) a transparent receptacle for the colored fluid mounted on said base ahead of said container,
 - (n) threaded necks on said container and receptacle facing one another, 35
 - (l) a connector between said necks,
 - (p) threaded sockets in said connector adapted to receive said threaded necks,
 - (t) the diameter of one of said necks at the threads being less than the diameter of the other neck at its threads, 40
 - (q) said connector having a passageway therethrough bringing said container into communication with said receptacle defining a sealed enclosure and
 - (gg) a valve having a movable part and disposed between said container and receptacle and controlling the flow of fluid therebetween. 45
7. In a cattle standing heat detector,
- (a) a base for attachment to the back of the cow to be bred, 50
 - (b) a container mounted on said base and constructed from flexible material,
 - (c) a colored fluid within said container,
 - (d) a transparent receptacle for the colored fluid mounted on said base ahead of said container, 55
 - (n) threaded necks on said container and receptacle facing one another,
 - (l) a connector between said necks,
 - (p) threaded sockets in said connector adapted to receive said threaded necks, 60
 - (v) the form of the threads of one of said necks differing from the form of the threads of the other neck and the threads of the sockets corresponding in form with the threads of the necks with which they are intended to engage, 65
 - (q) said connector having a passageway therethrough bringing said container into communication with said receptacle defining a sealed enclosure and
 - (gg) a valve having a movable part and disposed between said container and receptacle and controlling the flow of fluid therebetween. 70
8. In a cattle standing heat detector,
- (a) a base for attachment to the back of the cow to be bred, 75
- (b) a container mounted on said base and constructed from flexible material,
 - (c) a colored fluid within said container,
 - (d) a transparent receptacle for the colored fluid mounted on said base ahead of said container,
 - (w) necks on said container and receptacle facing one another,
 - (x) said necks having bores therethrough of different diameters,
 - (l) a connector between said necks,
 - (m) disengageable attaching means between said connector and necks,
 - (y) said connector having a passageway communicating with the bore in the neck of said container and with the bore in the neck of said receptacle defining a sealed enclosure and
 - (z) a tubular check valve received within the bore of greater diameter and being of greater diameter in places than the diameter of the lesser bore to prevent insertion of said valve member into said bore of lesser diameter.
9. In a cattle standing heat detector,
- (a) a base for attachment to the back of the cow to be bred,
 - (b) a container mounted on said base and constructed from flexible material,
 - (c) a colored fluid within said container,
 - (d) a transparent receptacle for the colored fluid mounted on said base ahead of said container,
 - (w) necks on said container and receptacle facing one another,
 - (x) said necks having bores therethrough of different diameters,
 - (aa) the bore in said receptacle being of greater diameter than the bore in said container,
 - (l) a connector between said necks,
 - (m) disengageable attaching means between said connector and necks,
 - (y) said connector having a passageway communicating with the bore in the neck of the container and with the bore in the neck of the receptacle, and
 - (bb) a tubular check valve received within the bore in the neck of said receptacle, and being of greater diameter in places than the diameter of the bore in the neck of said container to prevent insertion into the bore of said container.
10. In a cattle standing heat detector,
- (a) a base for attachment to the back of the cow to be bred,
 - (b) a container mounted on said base and constructed from flexible material,
 - (c) a colored fluid within said container,
 - (d) a transparent receptacle for the colored fluid mounted on said base ahead of said container,
 - (e) a connector between said container and receptacle and having a passageway therethrough bringing said container into communication with said receptacle and
 - (f) a check valve extending across said passageway, said check valve permitting flow from said container to said receptacle and preventing flow from said receptacle to said container, and
 - (ee) marks on said base registerable with the hip bones of cows for determining the positioning of the detector on different sizes of cows.
11. In a cattle standing heat detector,
- (a) a base for attachment to the back of the cow to be bred,
 - (h) an elongated container open at one end and closed at its other end and mounted on said base, said container extending in the general direction of the backbone of the cow, said container being constructed of flexible material,
 - (i) an elongated transparent receptacle open at one end and closed at its other end and mounted on said

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- base, said receptacle being disposed in alignment with said container and ahead of the same with the open ends juxtaposed;
- (ff) means for connecting said container and receptacle together at their open ends defining a sealed enclosure, and
- (gg) a valve having a movable part and disposed between said container and receptacle and controlling the flow of fluid therebetween.
12. In a cattle standing heat detector,
- (a) a base for attachment to the back of the cow to be bred,
- (h) an elongated container open at one end and closed at its other end and mounted on said base, said container extending in the general direction of the backbone of the cow, said container being constructed of flexible material,
- (i) an elongated transparent receptacle open at one end and closed at its other end and mounted on said base, said receptacle being disposed in alignment with said container and ahead of the same with the open ends juxtaposed,
- (ff) means for connecting said container and receptacle together at their open ends defining a sealed enclosure, and
- (f) a check valve extending across said passageway, said check valve permitting flow from said container

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- to said receptacle and preventing flow from said receptacle to said container.
13. In a cattle standing heat detector,
- (a) a base for attachment to the back of the cow to be bred,
- (h) an elongated container open at one end and closed at its other end and mounted on said base, said container extending in the general direction of the backbone of the cow, said container being constructed of flexible material,
- (i) an elongated transparent receptacle open at one end and closed at its other end and mounted on said base, said receptacle being disposed in alignment with said container and ahead of the same with the open ends juxtaposed,
- (k) said container and receptacle having necks facing one another,
- (hh) means for connecting said necks together defining a sealed enclosure,
- (ii) and a valve having a movable part and disposed at the locality of said necks and controlling the flow of fluid therebetween.

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