

[54] **CALF EXTRACTION MECHANISM**

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[58] Field of Search **128/352, 353; 254/150 R**

[56] **References Cited**

UNITED STATES PATENTS

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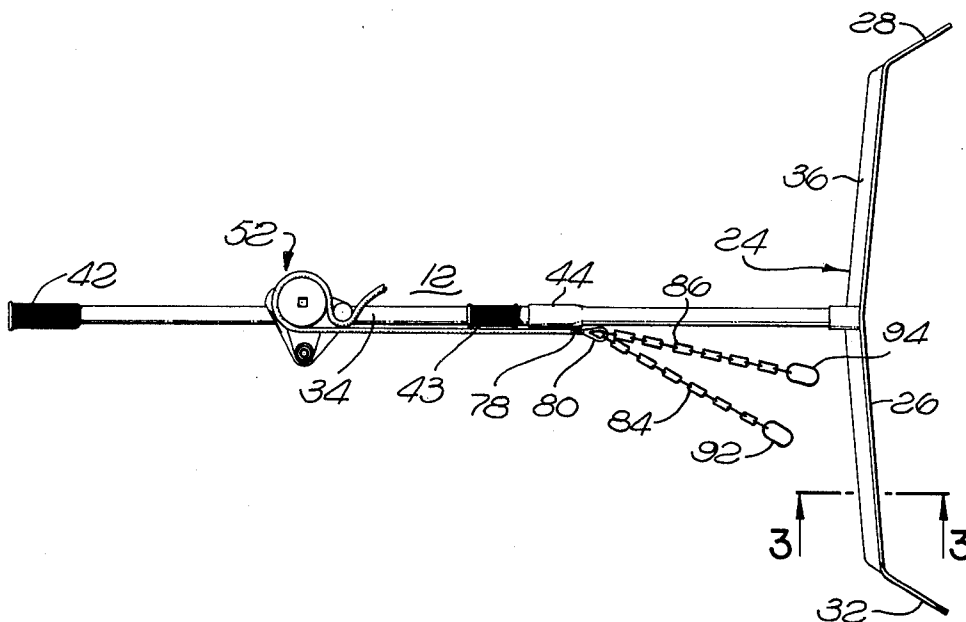
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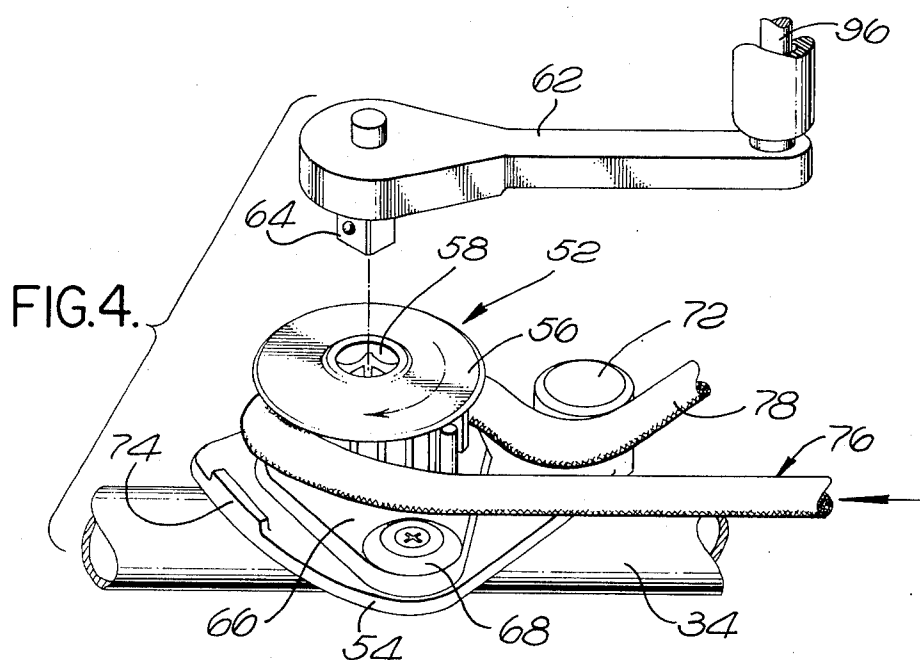
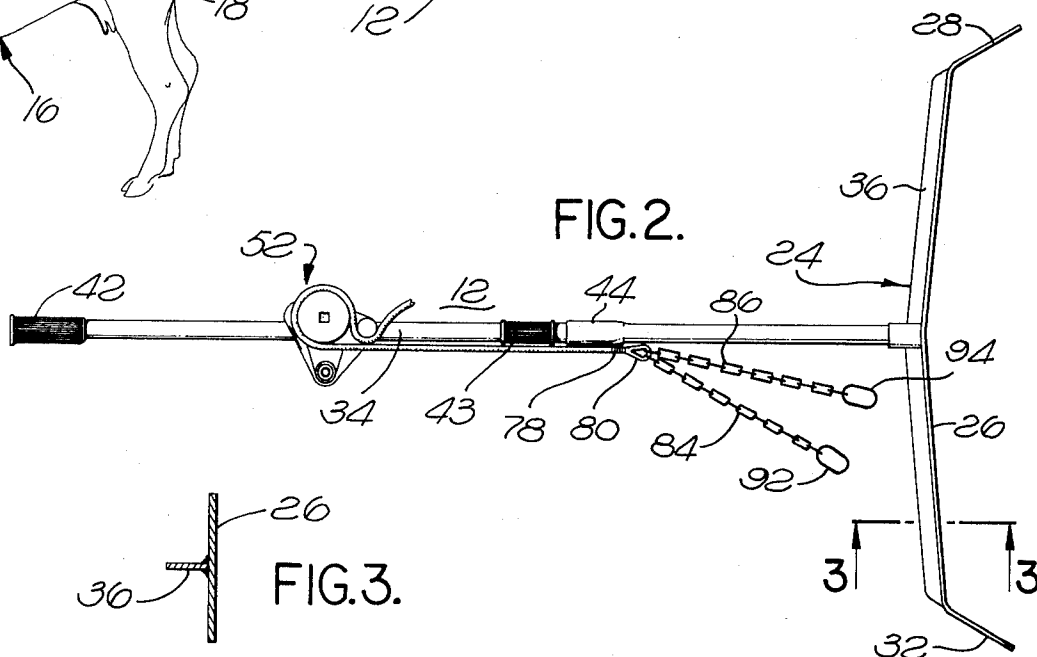
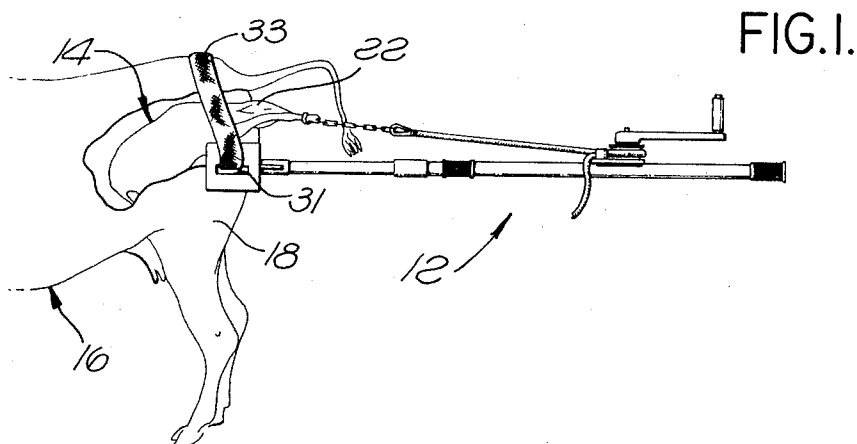
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ABSTRACT

A calf extracting mechanism comprising in combination a bracing member and a winch member. The bracing member is of generally U-shaped configuration and is defined by a base having an arm extending from opposite ends of the base in a first direction. The bracing member is of generally planar cross-sectional configuration. A support rod extends at a right angle from the center of the brace member in a second direction generally opposite from the first direction. The winch member is secured to the support rod and includes a pivotal member, a drum and an idler roller. Rotary forces are applied to revolve the drum which simultaneously varies the space between the idler roller and the drum. A rope is slidably movable between the idler roller and the drum and removable from the winch when the rotary forces are moved from the drum. A plurality of chain members are secured to one end of the rope. The chain members are movable upon rotation of the drum, and are secured to the feet of the calf.

5 Claims, 4 Drawing Figures





CALF EXTRACTION MECHANISM

BACKGROUND OF THE INVENTION

1. Field of the invention

The field of art to which the invention pertains includes the field of calf extraction, particularly, with respect to a mechanism for providing a mechanical advantage in removing a calf from the cow's uterus.

2. Description of the prior art

In conventional calf delivery, the preferable technique is for the calf to be delivered on its belly so that its curve follows the natural curvature of the canal through which it must pass. Preferably, the calf moves from the uterus through the vagina in a head first position. The front legs first extend through the vaginal opening. Assistance in delivery normally requires that the calf be pulled feet first through the vaginal opening. Ropes or chains can be secured to the feet of the calf. Then a conventional mechanical advantage type arrangement is utilized to pull the rope so that the calf is removed from the uterus through the vagina. The mechanical advantage arrangement includes a heavy gear box which is difficult to handle. Typically, the mechanical advantage arrangement is secured to a bracing member, one end of which is positioned adjacent the cow. The rope is then wound around the drum of the mechanical advantage arrangement. Such devices normally do not allow rapid replacement of the rope and chains when it is desirable for a different type of rope or chain to be utilized with calf delivery. Additionally, the bracing member is not designed for an ideal positioning wherein the comfort of the cow as well as the person utilizing the device requires a maximum comfortable position for both. Further, in order to prevent transmittal of disease to the cow as well as the person delivering the calf, it is necessary that the rope and chain be readily replaced and that the bracing member be easily sterilized.

The present invention provides a lightweight calf extraction mechanism having a winch which provides smooth power to a rope for extracting a calf from a cow. The rope and chain are easily replaced and the support is made of material which can be readily sterilized. A strong structural support is provided which is comfortable for both the operator and the cow during the delivery procedure.

SUMMARY OF THE INVENTION

A calf extraction mechanism comprising a bracing member and a winch member. The bracing member is of generally U-shaped configuration and defined by a base having an arm extending from opposite ends of the base in a generally first direction. The bracing member is generally planar in cross-section. A support rod extends at a right angle from the center of the bracing member in a second direction generally opposite from the first direction. The winch member is secured to the support rod and includes a pivotal member, a drum and an idler roller. Rotary forces are applied to revolve the drum which reduces the space between the idler roller and the drum. A rope is slidably movable between the idler roller and the drum and is removable from the winch when the rotary force is removed from the drum. A plurality of chain members are secured to one end of the rope.

The advantages of this invention, both as to its construction and mode of operation, will be readily appre-

ciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings in which like reference numerals designate like parts throughout the Figures.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the calf extraction mechanism illustrating the technique for delivering a calf therewith;

FIG. 2 is a planar view of the calf extraction mechanism of FIG. 1;

FIG. 3 is a cross-sectional view of the bracing member taken along the line 3—3 of FIG. 2; and

FIG. 4 is a perspective view partially exploded of a portion of the support mechanism illustrating the details of the winch.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings there is shown in FIG. 1 a calf extractor mechanism 12 constructed in accordance with principles of the invention and utilized to remove a calf 14 from a cow 16. The cow 16 is illustrated in an upright position, with the calf extractor mechanism positioned adjacent the buttocks 18, directly below the vaginal opening 22. The cow, of course, could be in a lying position on its side and the calf extractor mechanism 12 is positioned in a similar position adjacent the cow buttocks 18. It should be noted that the calf 14 is illustrated as partially in the uterus of the cow with the head and leg portions extending out of the vaginal opening 22. The calf extractor mechanism 12 is shown in greater detail in FIG. 2 and comprises a generally U-shaped bracing member 24 formed of a planar base 26 and a pair of arms 28 and 32 respectively, which extend in a first direction in a slightly obtuse angle from opposite ends of the base 26, respectively. The free ends of the arms 28 and 32 each contain openings 31 to which a support strap 33 is secured.

A support rod 34 extends at right angles from the center of the base member 26 in a second direction opposite to the first direction. A supporting rib 36 extends lengthwise along the base member on the side adjacent the support rod 34. The supporting rib 36 is formed in a plane generally perpendicular to the plane of the planar base 26 as can be seen more clearly in the cross-sectional view of FIG. 3. The support rod 34 may contain a slightly enlarged sleeve 38 at its junction with the base 26 for providing additional structural rigidity. Typically, the support rod 34 and rib 36 are welded to the base 26 or otherwise secured thereto. The free end and intermediate portion of the support rod 34 contains rubber handles 42 and 43, respectively which enables the support rod 34 to be gripped by the operator when desired. Also the support rod 34 contains a central interlock 44 for enabling the support rod to be collapsed or separated when not in use.

Mounted on the support rod 34 is a winch 52 shown in greater detail in FIG. 4. The winch 52 may be of the type described in U.S. Pat. application Ser. No. 240,498, filed Apr. 3, 1972 and entitled Winch For Use On Sailboats. The major parts of the winch are described herein. The winch is secured to the support rod 34 at a base 54 by means of mounting brackets (not shown). The winch comprises a drum 56 having a cen-

tral opening 58 therein. A handle 62 contains a nut 64 which is inserted into the opening 58. Rotation of the handle causes the drum, which contains a ratcheting mechanism, to rotate in the direction shown by the arrow on the drum in FIG. 4. The drum 56 is pivotably movable on a plate 66 which is in turn secured to the base 54 at a pivot point 68. Additionally, an idler 72 is mounted on the base 54. Positioned on the edge of the base 54 on the side opposite the idler 72 is a stop flange 74 which prevents the plate 66 and drum 56 from pivoting beyond the base 54.

A rope 76 is wound around the drum 56 and positioned with its free end between the drum and the idler 72. The other end 78 of the rope 76 contains a loop 80 shown in FIGS. 1 and 2. A chain 82 having a pair of legs 84 and 86 is fed through the loop. The legs 84 and 86 each terminate at an enlarged locking link 92 and 94, respectively.

In operation of the calf extraction mechanism, the U-shaped bracing member 24 is placed adjacent the buttocks of the pregnant cow directly below the vaginal opening 22 as illustrated in FIG. 1. As the calf commences to pass through the vaginal opening during delivery the legs 84 and 86 are secured to one of the front feet of the calf, respectively. The handle 62 is rotated in a clockwise direction as illustrated in FIG. 4 causing the rope 76 to move in the direction shown by the arrow shown in FIG. 4. Continued rotation of the handle 62 causes the drum 56 to move toward the idler 72 with a tight fitting formed therebetween which prevents the sheet 76 from sliding in a direction opposite to the arrow in FIG. 4. As described in the aforementioned patent application, a button 96 on the handle 62, when depressed enables the rope 76 to be released from between the drum 56 and the idler 72 and enables the rope 76 to be moved in a direction opposite to that shown by the arrow in FIG. 4. Alternatively, a rope can be entirely removed from the winch mechanism 52 and replaced with a different rope should it be desired.

It should be understood that the foregoing description relates to a conventional calf delivery where the chain legs 84 and 86 are fastened to the front feet of the calf. It should be understood that the adjustability and the movement of the winch enable other arrangements to be provided wherein it is necessary to manipulate the calf for correct delivery. In such instances it may be desirable, for example, to secure only one or both of the legs 84 or 86 to one of the feet so that the calf is delivered at a slight angle through the pelvic area of the cow. Typically, this arrangement can occur when the

calf is to broad through the shoulders for a normal delivery and, therefore, one leg must be pulled ahead of the other leg to help offset the difficulty in delivery. Other arrangements of course are possible within the scope of the invention.

While the invention has been described and illustrated for use with calves the extractor can be used with other animals as well. The bracing member 24 and support rod 34 are made of chrome-plated steel for rigidity as well as enabling sterilization thereof.

I claim:

1. A calf extraction mechanism comprising a combination:

a bracing member of generally U-shaped configuration and defined by a base having an arm extending from opposite ends of said base in a first direction, said bracing member being of generally planar cross-sectional configuration;

a support rod having a first end extending from the center of the bracing member at a right angle at the junction thereof and in a second direction generally opposite from said first direction to a second free end;

a winch secured to said support rod intermediate said support rod ends including pivotal means, a drum and an idler roller;

gripping surfaces positioned on said support rod on opposite sides of said winch member;

means for applying rotary forces to revolve said drum and simultaneously varying the spacing between said idler roller and said drum;

a rope slidably movable between said idler roller and said drum and removable from said winch when said rotary forces are removed from said drum; and a chain member secured to one end of said rope.

2. A calf extraction mechanism in accordance with claim 1 wherein a structural support rib is positioned along the length of said bracing member base in said second direction and in a plane perpendicular to the plane of said base.

3. A calf extraction mechanism in accordance with claim 1 wherein said bracing member is made of chrome enabling sterilization thereof.

4. A calf extraction mechanism in accordance with claim 1 wherein said chain member is made of steel.

5. A calf extraction mechanism in accordance with claim 1 wherein one of said gripping surfaces is positioned on one end of said support rod.

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