HIP CLAMP AND LIFTING FRAME FOR BOVINE QUADRUPEDS

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Filed: Apr. 11, 1973

Appl. No.: 350,066

U.S. Cl. ............................................ 119/100, 119/102
Int. Cl. ........................................... A61d 3/00
Field of Search ............................. 119/100, 102; 269/247

References Cited

UNITED STATES PATENTS
1,411,578 4/1922 Munger 269/247
2,909,153 10/1959 McKinley et al. 119/100
2,942,575 6/1960 Boyd et al. 119/100
3,085,553 4/1963 Anderson 119/100

FOREIGN PATENTS OR APPLICATIONS
321,091 5/1920 Germany 268/247

ABSTRACT
A pair of large and small diameter elongated tubular members including a first pair of relatively telescoped ends. The other pair of ends of the tubular members include laterally outwardly projecting rounded open frames disposed in planes generally normal to the longitudinal center lines of the tubular members and the frames project outwardly of corresponding sides of the tubular members. The telescoped end of the small tubular member includes structure defining a central threaded bore opening endwise outwardly of the small tubular member and the free end of the outer tubular member includes end wall defining structure having a threaded bore formed therethrough. An elongated screw member includes a first end journaled through the end wall defining structure of the outer tubular member against axial shifting relative thereto. The other end of the screw member is threadedly engaged in the threaded bore and rotation of the screw member will thereby cause extension and retraction of the telescoped tubular members to thus move the frames away from each other and toward each other. The frames are designed for embracedly and clampingly engaging the haunch bones of a bovine quadruped whereby to secure an assemblage to the quadruped which may be lifted to thus lift the rear legs up of the quadruped free of the ground.

3 Claims, 4 Drawing Figures
HIP CLAMP AND LIFTING FRAME FOR BOVINE QUADRUPEDS

The lifting frame of the instant invention has been designed primarily to provide an apparatus by which the rear of a bovine quadruped may be lifted into standing position, or above the ground.

There are many instances wherein it is necessary or at least extremely desirable to support at least a major portion of the weight of the rear of a bovine quadruped. In some instances cows which are afflicted with paralysis after calving or which are "down" for some other reason may be lifted to standing position by clamping a lift device over the haunch bones of the quadruped.

Many different types of clamping structures have been heretofore designed for this purpose. However, most of these previous clamping devices have either been of a type exerting clamping pressure proportional to the weight of the animal being lifted and which therefore may exert excessive clamping pressure or of a type wherein controlled clamping pressure may be used but which is extremely difficult to be properly engaged with a "down" bovine quadruped.

The hip clamp and lifting frame of the instant invention has been designed to allow a precise clamping action to be applied and to enable the clamp to be readily engaged with a "down" bovine quadruped.

The main object of this invention is to provide a hip clamp and lifting frame for bovine quadrupeds that may be readily utilized in raising the rear portions of an associated animal to a standing position or with the legs of the animal lifted clear of the ground.

Another object of this invention is to provide a hip clamp and lifting frame in accordance with the preceding objects and including structure by which a controlled clamping action may be applied by the clamp and lifting frame on the associated animal.

A still further object of this invention is to provide a lifting device constructed in a manner whereby it may be readily clamping engaged with a "down" animal preparatory to lifting the animal to a standing position.

Another important object of this invention is to provide a hip clamp and lifting frame in accordance with the preceding objects and of construction enabling even inexperienced persons to properly lift an animal into standing position.

A final object of this invention to be specifically enumerated herein is to provide a hip clamp and lifting frame in accordance with the preceding objects and which will conform to conventional forms of manufacture, be of simple construction and easy to use so as to provide a device that will be economically feasible, long lasting and relatively trouble free in operation.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout.

FIG. 1 is a rear elevational view of a "down" cow with the clamp and lifting frame of the instant invention operatively associated with the cow preparatory to lifting the cow to a standing position, the standing position of the cow and corresponding position of the clamp and lift frame being illustrated in phantom lines; FIG. 2 is an elevational view of the hip clamp and lifting frame as seen from the right side of FIG. 1; FIG. 3 is an enlarged fragmentary vertical sectional view taken substantially upon the plane indicated by the section line 3—3 of FIG. 2; and FIG. 4 is a fragmentary vertical sectional view taken substantially upon the plane indicated by the section line 4—4 of FIG. 3.

Referring now more specifically to the drawings the numeral 10 generally designates a "down" cow in FIG. 1 including opposite side haunch bone 12. In order to lift the cow 10 from the "down" position illustrated in solid lines in FIG. 1 a hip clamp and lifting frame referred to in general by the reference numeral 14 is provided. The hip clamp and lifting frame includes a pair of large and small diameter elongated tubular members 16 and 18 including relatively telescoped end portions 20 and 22, respectively. As can best be seen from FIG. 4 of the drawings the tubular members 16 and 18 are rectangular in cross-section. Further, from FIG. 3 it may be seen that the outer end of the small tubular member 18 includes an end wall 24 and that the corresponding outer end of the tubular member 16 includes a similar end wall 26 through which a diametrically reduced end portion 28 of a screw member 30 is journaled against axial shifting. The outer end of the screw member has a bifurcated mount 32 of a crank 34 pivotally secured thereto as at 36 and a plurality of thrust washers 38 are disposed on the diametrically reduced end portion 28 between the outer surface of the end wall 26 and the bifurcated mount 32.

The remote ends of the tubular members 16 and 18 include rounded open frames 40 and 42 each including convergent generally straight leg portions 44 and 46 whose terminal ends are secured, as by welding, to adjacent sides of the corresponding tubular member. In addition, each of the frames 40 and 42 includes a resilient tubular covering 48 and it may be seen from FIG. 3 of the drawings that the frames 40 and 42 project outwardly from corresponding sides of the tubular members 16 and 18 and are disposed in planes generally normal to the longitudinal center lines of the tubular members 16 and 18. Also, each frame 40 and 42 includes a pair of diagonal braces 50 secured between the corresponding legs 44 and 46 and the same sides of the tubular members 16 and 18 to which the legs 44 and 46 of the frames are secured.

The corners of the tubular members 16 and 18 remote from the frames 40 and 42 include anchor eyes 54 and 56 to which corresponding ends of a pair of link chain sections 58 and 60 are secured. The other ends of the link chain sections 58 and 60 are anchored to a lifting eye 62 with which a lifting hook 64 may be engaged.

In operation, and with attention invited more specifically to FIG. 1 of the drawings, the hip clamp and lifting frame 14 is positioned adjacent the "down" cow in the manner illustrated in FIG. 1 and the frame 42 is worked in beneath the lower haunch bone while the frame 40 is positioned over the upper haunch bone 12. Then, the crank 34 may be turned so as to rotate the screw member 30 and cause the frames 40 and 42 to move toward each other in order to clampingly engage the haunch bones 12 of the cow 10. After the clamp and lifting frame has been securely clamped to the rear of the cow 10 the lifting hook 64 may be engaged with the lifting rings 62 in order to gently lift the cow 10 from the
"down" position illustrated in solid lines in FIG. 1 to the upright position illustrated in phantom lines in FIG. 1.

From FIG. 1 of the drawings it may be seen that the crank 34 may be pivoted from the operative positions A and B thereof to an inoperative folded position C. In this manner, the overall length of the clamp and the lifting frame 14 is maintained at a minimum, and in fact the haunch bone 12 of the cow 10 project outwardly beyond the opposite ends of the clamp and the lifting frame 14. Therefore, the clamp and the lifting frame 14 may be readily passed through any doorway of sufficient width to enable the cow 10 to pass therethrough and with the clamp and the lifting frame in operative association with the cow and supporting the rear of the cow in an upright position.

Due to the non-circular configuration of the tubular members 16 and 18, relative rotation of the tubular members about their longitudinal axes is prevented. Also, the braces 50 are clearly positioned whereby they will not interfere with fitting the hip clamp and lifting frame to a "down" animal.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed as new is as follows;

1. A pair of generally straight leg portions having inner and outer ends, the leg portions of each frame being disposed at generally right angles relative to said tubular members and each other and having their inner convergent ends abutted against and secured to adjacent sides of the corresponding tubular member, the outer ends of each pair of leg portions being interconnected by an integral curved portion closing the outer end of the corresponding frame, at least the curved portion of each frame being enclosed within a resilient tubular covering, the telescoped end of said small diameter tubular member including means defining a central threaded bore opening endwise outwardly of said small tubular member, the free end of said outer tubular member including end wall means, an elongated screw member including a first end journaled through said end wall means against axial shifting relative to said outer tubular member, the other end of said screw member being threadedly engaged in said threaded bore, the terminal end of said first end of said screw member projecting endwise outwardly beyond the free end of said outer tubular member and including torque input means, a lifting bridle having opposite ends and a center lifting ring, the opposite ends of said lifting bridle being anchored to corresponding corner portions of the remote ends of said inner and outer tubular members on the sides thereof opposite from said frames, each of said frames including a pair of diagonal braces secured to and extending between said adjacent sides of the corresponding tubular member and the corresponding leg portions at points spaced therealong from the tubular member.

2. The combination of claim 1 wherein said torque input means comprises a crank.

3. The combination of claim 2 wherein said crank is pivotally supported from said terminal end of said screw member and is foldable into a position extending along said outer tubular member.

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