Cow stanchion apparatus having a fixed support structure that carries a plurality of pairs of like double release stanchion bars which simultaneously swing towards and away from one another to control movement of cattle relative to such apparatus.
DOUBLE-RELEASE BAR FOR A COW STANCHION APPARATUS

BACKGROUND OF THE INVENTION

[0001] The present invention relates to cattle stanchion apparatus and more particularly to an improved cattle stanchion apparatus utilizing double-release stanchion bars. Prior cattle stanchion apparatus have utilized single release stanchion bars for controlling movement of cattle in and out of such stanchion apparatus. Examples of such prior cattle stanchion apparatus are shown in Albers U.S. Pat. Nos. 4,037,566; 4,051,813; 4,185,592; 4,476,815; and 4,495,897. See also Hatfield U.S. Pat. No. 4,867,105 and DaSilveira U.S. Pat. No. 4,930,452.

SUMMARY OF THE INVENTION

[0002] The improved cattle stanchion apparatus of the present invention utilizes a plurality of pairs of like pivoted release stanchion bars in place of the pivoted single release stanchion bars employed in prior art cattle stanchion apparatus. The double-release stanchion bar arrangement of the present invention permits a shorter travel of the release stanchion bars for locking up the cattle, provides a more positive locking up of the cattle, requires half the effort to lock up the cattle, provides a wider opening for the cattle, and allows bulls to enter the stanchion apparatus, rather than solely cows. Additionally, the cattle stanchion apparatus of the present invention allows for greater cow comfort, and applies less stress to the cows, resulting in increased milk production.

[0003] Other objects and advantages of the present invention will become apparent from consideration of the following detailed description taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] FIG. 1 is a front elevational view of a double-release cattle stanchion bar apparatus of the present invention showing the release stanchion bars thereof ready to move into a cattle feeding position;

[0005] FIG. 2 is a broken front elevational view of the apparatus of FIG. 1 showing the release stanchion bars in a cattle feeding position;

[0006] FIG. 3 is a top plan view taken in enlarged scale along line 3-3 of FIG. 2;

[0007] FIG. 4 is a vertical sectional view taken in further enlarged scale along line 4-4 of FIG. 3;

[0008] FIG. 5 is a vertical sectional view taken along line 5-5 of FIG. 4;

[0009] FIGS. 6, 7 and 8 are a partial front elevational views showing the parts of the cattle stanchion apparatus arranged to permit training of younger cows;

[0010] FIG. 9 is a vertical sectional view taken along line 9-9 of FIG. 8;

[0011] FIG. 10 is a vertical sectional view taken in enlarged scale along line 10-10 of FIG. 7;

[0012] FIG. 11 is a broken vertical sectional view taken in further enlarged scale along line 11-11 of FIG. 10;

[0013] FIGS. 12 and 13 are partial front elevational views of the apparatus of FIG. 1 showing the stanchion release bars in a locked position and in an unlocked position, respectively;

[0014] FIGS. 14, 15 and 16 show the operation of the release stanchion bars latching means employed in the cattle stanchion apparatus of the present invention;

[0015] FIG. 17 is a vertical sectional view taken in enlarged scale along line 17-17 of FIG. 14;

[0016] FIG. 18 is a vertical sectional view taken along line 18-18 of FIG. 1;

[0017] FIG. 19 is a broken front elevational view of the upper end of a release stanchion bar showing a noise deadening feature of the cattle stanchion apparatus of the present invention; and

[0018] FIG. 20 is a cross sectional view taken in enlarged scale along line 20-20 of FIG. 1.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

[0019] Referring to the drawings, there is shown a double-release cattle stanchion bar apparatus embodying the present invention. Such apparatus includes a fixed support structure S, which includes top and bottom rails 32 and 34 respectively, shown fixed to an end post 36 and a plurality of intermediate posts 37. A plurality of double release stanchion bar assemblies A are spaced along the length of the top and bottom rails. Each assembly includes a pair of stanchion release bars 40, 42 of like construction and mirror images of one another. The intermediate portions of each stanchion release bar is pivotally connected to the intermediate portion of a fixed release stanchion carrier bar 44, 46. The intermediate portions of the fixed release stanchion carrier bars extend out of the vertical position towards one another. With this arrangement, the stanchion release bars 40, 42 can swing simultaneously towards and away from one another in accordance with the operation of a release stanchion control mechanism C that includes a latch bracket L secured to the upper end of each stanchion release bar, a horizontal positioning rod R rotatably carried by the top rail 32, and a plurality of latch heads L secured to the top rail 32 intermediate the stanchion release bar assemblies A. It should be understood that the space between the stanchion release bars 40, 42 defines a cattle head-receiving opening O.

[0020] More particularly, the end posts 36 and intermediate posts 37 are securely attached at their lower ends to a support surface 47. Straps 49 connect the top and bottom rails to the posts. Auxiliary posts 50 are rigidly affixed as by welding outwardly of each release stanchion carrier bar 44, 45. The intermediate portion of the stanchion release bars are pivotally attached to the intermediate portion of its respective stanchion release carrier bar 44, 46 by a U-shaped bracket 52 having its bifurcated ends connected by a pivot bolt 54. The upper end of each stanchion release bar 40, 42 includes a latch bracket L of bifurcated construction as shown particularly in FIGS. 8 and 9. A horizontal latch pin 55 extends between the bifurcated upper ends of each locking bracket L, while a second horizontal stop pin 57 extends below the sides of each bracket below top rail 32. Stop pin 57 includes a coating of sound deadening material such as rubber or nylon 57a. This arrangement permits the
latching brackets L, and accordingly the stanchion release bars 40, 42 to freely pivot along the top rail 32 during certain operations of the cattle stanchion apparatus of the present invention.

[0021] As shown particularly in FIGS. 2, 3, 4 and 17, each latch head L includes a pair of mirror-image flaps 58 and 60 pivotally connected at their proximate ends by pivot bolts 62 and 64 to a bifurcated support strap 66 having its lower end affixed as by welding to the top rail 32 above the mid-section of the stanchion release bar assemblies A. The lower ends of each latch head flap 58 and 60 are formed with an upwardly extending slot 68, 69, which selectively receive the latch pins 55, 56 of the latch brackets L. As shown particularly in FIG. 8, the proximate sides of slots 68, 69 extend below the remote sides of the slots to define an abutment surface 68a and 69a. The flaps 58 and 60 of the latch heads pivot between a lower latched position and a raised unlatched position under the control of horizontal positioner rod R which is rotationally carried by a main end support bearing 70 and intermediate spacer bearings 71 attached at their lower ends to the upper surface of the top rail 32. The positioner rod R is provided with pairs of flap lifting pins 72, 74 in vertical alignment with the intermediate portion of each of the flaps. As shown in FIGS. 8, 9, and 17, each lifting pin includes a major length 75 and a minor length 76. It should be noted that the stanchion release bars 40, 42 are provided at their lower ends with weights 78 that automatically bias such bars to their spaced-together locked position of FIG. 13.

[0022] In the operation of the aforesaid cattle stanchion apparatus, in FIG. 1 the parts thereof are shown in a cattle feeding position where cattle (not shown) are free to move into and out of each head-receiving opening O. At this time the latch brackets L can slide along the top rail 32 since the flap lifting pins 72, 74 are arranged vertically out of the path of the latch pins 55, 56 of the latch brackets. This results from the fact that the positioner rod R is disposed in its position of FIGS. 1, 4, and 5 wherein the flap lifting pins 72, 74 extend upwardly, in which position such pins have lifted the free ends of the flaps out of the path of the latch pins 55, 56. The cattle can then insert their heads into the upper portion of the opening O and move their heads downwardly to a feeding position as the upper ends of the stanchion release bars 40, 42 swing simultaneously one another under the pressure applied by the cattle's neck, as indicated in dotted outline in FIG. 2.

[0023] It has been found that the use of two stanchion release bars, rather than a single stanchion release bar provides a wider space between the lower position of the bars providing increased cow comfort during feeding. Should a cattle fall there is a reduced chance of choking because of such wider space. The wider space can accept the neck of a bull. Also, it requires less effort for the cattle to urge the double stanchion release bars apart than to effect swinging of a single stanchion bar.

[0024] Referring now to FIGS. 6-9, positioner rod R has been rotated by handle 78 to dispose lifting pins 72, 74 with their minor lengths 76 pointed downwardly. As shown in FIG. 8, the upper ends of the stanchion release bars 40, 42 can swing towards one another until latch pins 55, 56 engage abutment surface 68a, 69a of flaps 58 and 60. Such abutment prevents the stanchion release bars' lower portions from swinging into a normal wide cattle feeding position, since a cattle's head is blocked from extending into such opening, as indicated in dotted outline in FIG. 7. This position of the stanchion release bars permit the training of cattle in using the cattle stanchion apparatus.

[0025] Referring now to FIGS. 12-15, when the positioner rod R is rotated to a horizontal position, the lifting pins 72, 74 are moved away from the flaps 58, 60 permitting such flaps to pivot downwardly to their lower positions. Accordingly, when weights 78 cause the upper portion of the stanchion release bars to automatically swing towards one another from their position of FIG. 12 to that of FIG. 13, the latch pins 55, 56 will snap into flap notches 68, 69 thereby locking such bars into a cattle locked-in or locked-out position. When an operator wishes to return the stanchion release bars 40, 42 to a cattle release position he can return positioner rod R to its position where lifting pins 72, 74 extend upwardly to raise the flaps 58, 60 and thereby free the latch pins from notches 68 and 69.

[0026] It is also possible for the operator to manually raise individual flaps 55, 56 to release an individual cattle, as for example, a downed cow.

[0027] Various modifications and changes can be made with respect to the foregoing detailed description without departing from the scope of the following claims.

I claim:

1. Cattle stanchion apparatus for controlling movement of cattle relative to such apparatus, said cattle stanchion apparatus comprising:

a fixed support structure;

a plurality of pairs of release stanchion assemblies supported by the fixed structure along the length of the fixed structure;

each pair of release stanchion assemblies including a release stanchion bar pivotally connected at its intermediate position for simultaneous swinging movement towards and away from one another;

the space between such base defining a cattle head receiving opening; and

control means interposed between the fixed structure and the stanchion release bars to control the swinging movement of such bars.

2. Cattle stanchion apparatus as set forth in claim 1, wherein the stanchion release bars are weighted to automatically assume a position in which the upper ends of such bars are spaced apart.

3. Cattle stanchion apparatus as set forth in claim 1, wherein the lower portion of the stanchion release bars are weighted to cause such bars to automatically assume a position wherein the upper ends of such bars are spaced apart.

4. Cattle stanchion apparatus as set forth in claim 1, wherein the control means include a latch bracket on the upper portion of each stanchion release bar selectively engageable with a latch head disposed on the upper portion of the fixed structure, and a positioner rod carried by the upper portion of the fixed structure to effect engagement and disengagement between the latch bracket and the latch head.

5. Cattle stanchion apparatus as set forth in claim 2, wherein the control means include a latch bracket on the
upper portion of each stanchion release bar selectively engageable with a latch head disposed on the upper portion of the fixed structure, and a positioner rod carried by the upper portion of the fixed structure to affect engagement and disengagement between the latch bracket and the latch head.

6. Cattle stanchion apparatus as set forth in claim 4, wherein each latch arm is formed with a lock notch and is movable relative to its respective release bar latch bracket, each release bar latch bracket includes a pin arranged in the path of a lock notch, and the latch arms are each operatively connected to a positioner rod movably secured to the upper portion of the fixed structure that selectively moves the latch arms towards and away from each release bar pin to selectively engage and release the pins relative to the notches.

7. Cattle stanchion apparatus as set forth in claim 5, wherein each latch arm is formed with a lock notch and is movable relative to its respective release bar latch bracket, each release bar latch bracket includes a pin arranged in the path of a lock notch, and the latch arms are each operatively connected to a positioner rod movably secured to the upper portion of the fixed structure that selectively moves the latch arms towards and away from each release bar pin to selectively engage and release the pins relative to the notches.

8. Cattle stanchion apparatus for controlling movement of cattle relative to such apparatus, said cattle stanchion apparatus comprising:

- a fixed support structure;
- a plurality of pairs of release stanchion assemblies supported by the fixed structure along the length of the fixed structure;
- each pair of release stanchion assemblies including a release stanchion bar pivotally connected at its intermediate position for simultaneous swinging movement towards and away from one another;
- a latch bracket on the upper portion of each stanchion release bar formed with a latch pin;
- the space between such base defining a cattle head receiving opening;
- latch heads on the fixed structure, each disposed above the mid-section of each of the release stanchion assemblies;
- a pair of pivotal flaps pivotally supported by each latch head, each of the flaps being formed with an abutment surface and a locking slot; and
- a positioner rod horizontally rotatably carried by the fixed structure and having flap lifting pins arranged engageable with the flaps to raise and lower the flaps whereby the latch pins of the stanchion release bar are movable into and out of engagement with the flap abutment surface and the locking slot to control the swinging movement of the stanchion release bars.

9. Cattle stanchion apparatus for controlling movement of cattle relative to such apparatus, said cattle stanchion apparatus comprising:

- a fixed support structure;
- a plurality of pairs of release stanchion assemblies supported by the fixed structure along the length of the fixed structure;
- each pair of release stanchion assemblies including a release stanchion bar pivotally connected at its intermediate position for simultaneous swinging movement towards and away from one another;
- the fixed support structure including a plurality of pairs of fixed release stanchion carrier bars, each carrier bar being spaced remote from its respective stanchion release bar with its intermediate portion extending out of the vertical towards the other fixed release carrier bar;
- the space between such base defining a cattle head receiving opening; and
- control means interposed between the fixed structure and the stanchion release bars to control the swinging movement of such bars.

10. Cattle stanchion apparatus as set forth in claim 9, wherein the lower portion of the stanchion release bars are weighted to cause such bars to automatically assume a position wherein the upper ends of such bars are spaced apart.

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