United States Patent

Meyer

[15] **3,697,106**

[45] **Oct. 10, 1972**

[54] **LIVESTOCK GATE LATCH**

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[22] Filed: **Feb. 8, 1971**

[21] Appl. No.: **113,231**

[52] **U.S. Cl.** **292/175,** 292/162, 292/244, 292/340, 292/DIG. 13

[51] **Int. Cl.**.....**E05c 1/04,** E05b 15/02

[58] **Field of Search**.....292/145, 146, 147, 148, 149, 292/150, 151, 156, 175, 162, 244, 340, DIG. 13; 70/462, DIG. 58, DIG. 66

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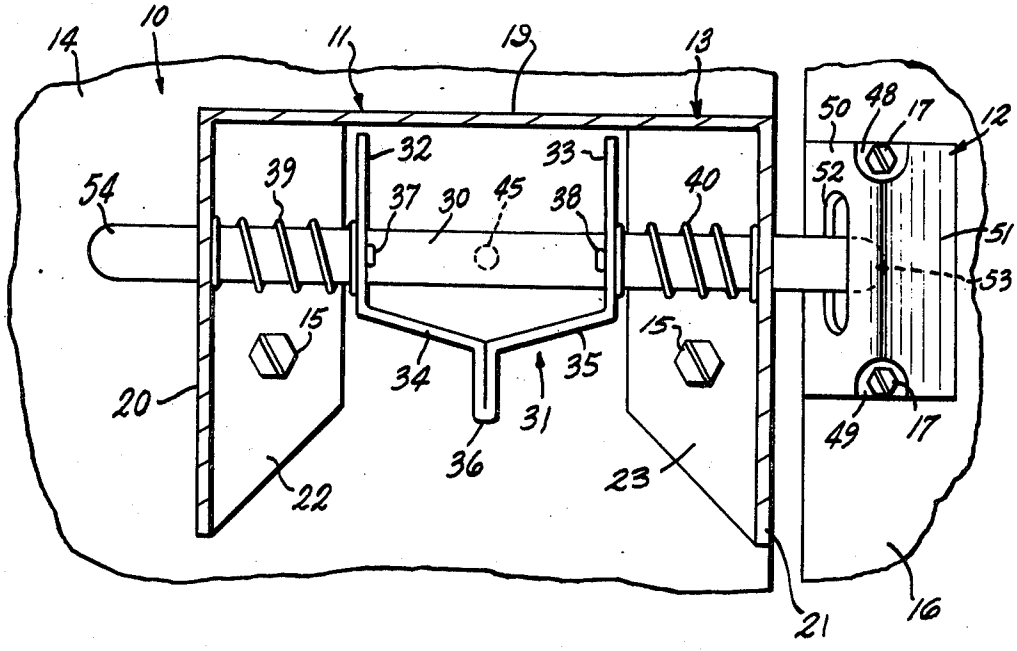
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[57] **ABSTRACT**

A latch is provided for use on gates to be particularly utilized on livestock enclosures. The latch comprises in combination a latching member and a keeper. The latching member comprises a housing having a latching bolt slidably mounted therein and spring loaded in extended position. A bracket is affixed to the bolt terminating in a finger hold, the bracket and finger hold being entirely recessed within the housing to prevent actuation by animals contained within the enclosure. In an improved version, both ends of the bolt extend out of the housing and the bolt is spring biased to a median position. The bolt may be moved in either direction from the center position by grasping the finger hold, thereby permitting the latch to be used either for right-hand opening or left-hand opening doors.

9 Claims, 4 Drawing Figures



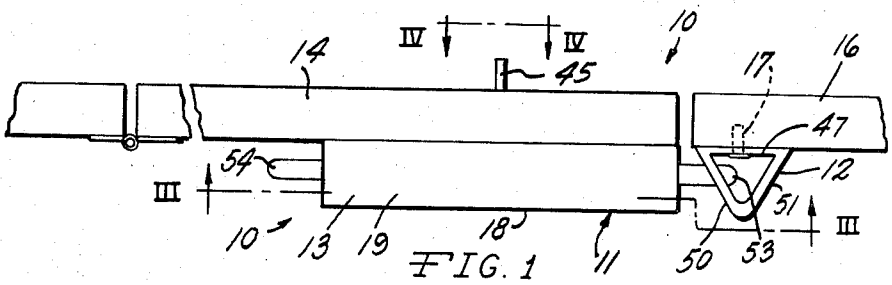


FIG. 1

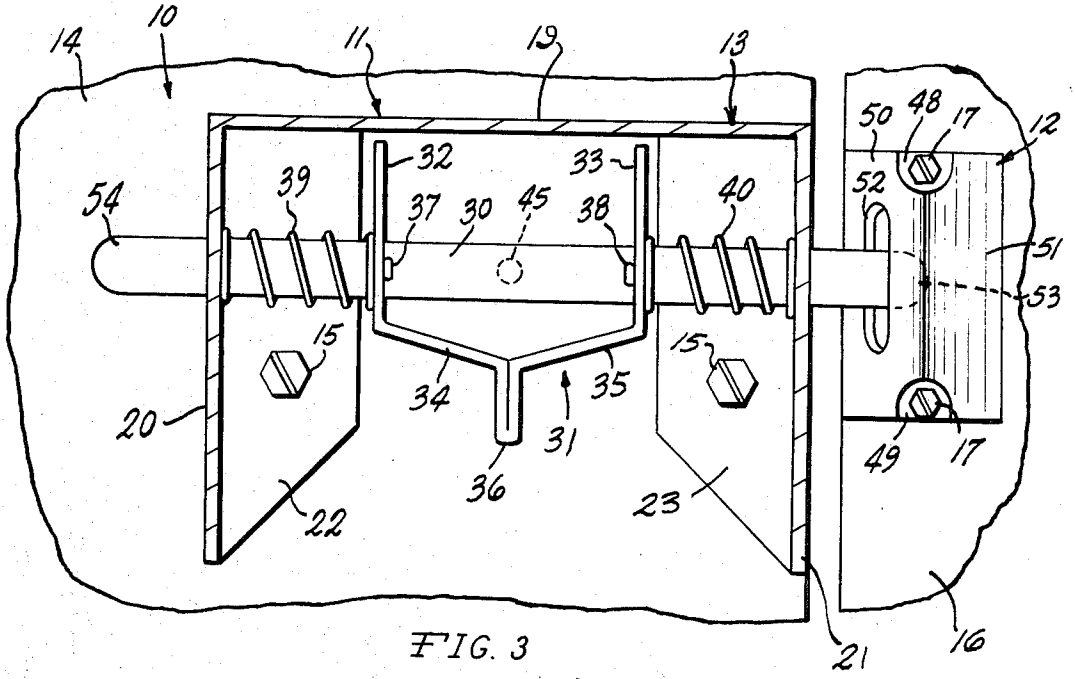


FIG. 3

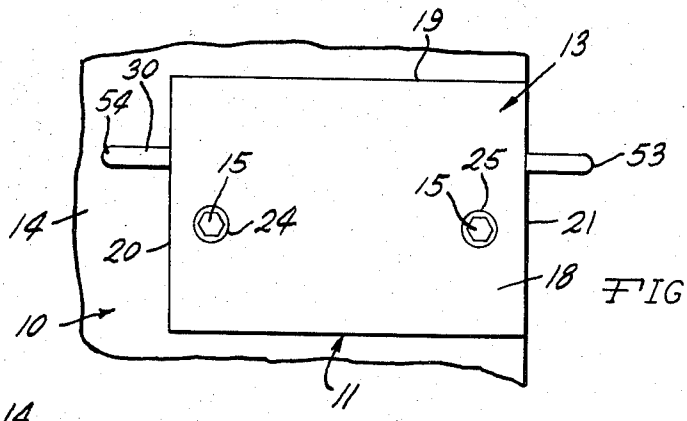


FIG. 2

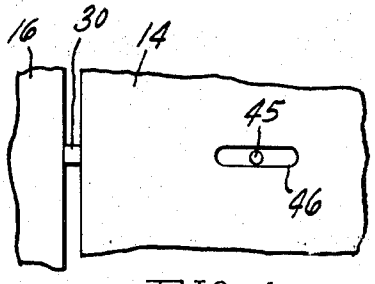


FIG. 4

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LIVESTOCK GATE LATCH

BACKGROUND OF THE INVENTION

Common door or gate latches have not proven to be satisfactory for use on gates used with enclosures such as barns or enclosed fences used to restrain domestic animals. It has been found that such latches can be actuated by engagement of the bolt mechanism by the nose, shoulder, hip, or foot of the animal, thereby releasing the door or gate of the enclosure in which they are restrained. Some latches have been disclosed in the prior art which are designed to avoid this problem. However, they are generally quite intricate and expensive to manufacture.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide a door and gate latch for use on gates mounted on enclosures for livestock which are so designed that they cannot be actuated by the animals restrained within the enclosure.

It is another object to provide a latch of the type described which is strong and which will provide reliable operation over extended periods of time.

It is still an additional object to provide a door latch which is relatively inexpensive and not unduly complicated to construct.

It is still another object to provide a latch of the type described which is adapted to be mounted on either right hand- or left hand-doors or gates without further modification.

It is a still further object to provide a latch of the type described which is not only inoperable by farm animals, but may also be operated from the opposite side of a door or the like, which is especially advantageous where the latching assembly is on a door which completely closes the door opening.

Still further objects and advantages of the invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, consists of the gate or door latch herein fully described and particularly pointed out in the claims, the annexed drawing and the following description setting forth in detail an embodiment of the invention, such embodiment illustrating, however, but one of the various ways in which the principle of the invention may be used.

BRIEF DESCRIPTION OF THE DRAWING

In the annexed drawing:

FIG. 1 is a top plan view of the latch of the present invention shown mounted on a gate.

FIG. 2 is a side elevational view of the latching member of the invention.

FIG. 3 is a cross-sectional view taken at the line III—III of FIG. 1, looking in the direction of the arrows; and

FIG. 4 is a rear elevational view taken at the line IV—IV of FIG. 1, looking in the direction of the arrows.

DESCRIPTION OF THE SPECIFIC EMBODIMENT

Referring more particularly to FIGS. 1 and 2, the latch 10 of the present invention is shown comprising a latching member 11 and a keeper 12. The latching member 11 comprises a housing 13 mounted on a gate

14 by means of bolts or screws 15. The keeper 12 is affixed to the gate receiving frame 16 by means of bolts or screws 17. Alternatively, the keeper may be in the form of a simple staple and it is intended that the drawing be considered to diagrammatically illustrate same.

Referring more particularly to FIGS. 1, 2 and 3, the housing 13 is shown in greater detail and comprises a front wall 18, an upper wall 19, side walls 20 and 21 and rear flanges 22 and 23. The bolts or screws 15 extend through apertures (not shown) provided in the flanges 22 and 23. Apertures 24 and 25 are preferably provided in the front wall 18 to facilitate insertion of the bolts 15.

As shown in detail, particularly in FIG. 3, a latching bolt 30 is slidably mounted in apertures (not shown) provided in the side walls 20 and 21. An actuating bracket 31 is mounted on the bolt 30, in the form of a yoke having spaced apart vertically extending arms 32 and 33, laterally extending arms 34 and 35, and a finger-engaging tab or hold 36. The latching bolt 30 extends through apertures (not shown) provided in the vertically extending arms 32 and 33. The bracket 31 is restrained axially with respect to the bolt 30 by means of retaining pins 37 and 38, such as cotter pins, affixed in apertures provided in the bolt 30. Helical compression springs 39 and 40 bias the bracket 31 and bolt 30 to a centrally located normally at rest position. As shown particularly in FIGS. 1, 3 and 4, a lug 45 is preferably affixed in an aperture provided in the latching bolt 30 and extends through a slot 46 provided in the gate or door 14, to permit the latch to be opened from the side of the gate opposite that upon which the latch is mounted. This lug 45 is especially desirable where the door or gate 14 completely closes the opening in which it fits, and prevents reaching over same to operate latching member 11.

As shown in FIGS. 1 and 3, the keeper 12 is in the form of a substantially triangular tube segment having a rear wall 47 provided with apertures through which the anchoring screws 17 extend into the gate receiving frame 16. Recesses 48 and 49 are preferably provided at the ends of the keeper 12 to facilitate the insertion of the screws 17. The keeper 12 additionally has a proximal wall 50 and a distal wall 51. A keeper slot 52 is provided in the proximal wall 50 which receives and retains the end of the bolt 30 which may have a rounded or tapered end to facilitate latching. The proximal wall is preferably inclined, so that as the gate is closed, the end 53 of the bolt engages the proximal surface 50 and is forced to recede until the keeper slot 52 is engaged, the compression spring 39 then forces the bolt end 53 to extend into and through the slot 52, thereby latching the gate.

The latch 10 may be utilized with gates which swing in the opposite direction from that of the gate shown in the drawing. To do so, it is merely necessary to invert the keeper 12 and to mount the keeper and latching member on the other side of the gate so that the latching bolt end 54 engages the keeper in like manner to that described above. Thus the preferred form of the latch is adapted for use with either a right hand- or left hand-opening gate.

Although the present latch has been shown and described in the embodiment in which it is adapted to be mounted on either a right hand- or left hand-swing

door, the structure could be modified so that only one end of the bolt extends from the housing. The latch would then require that it be used with a gate which swings in the proper direction. The keeper **12** may be provided in any of a large variety of different structures and shapes. If desired, the proximal wall may be made perpendicular to the surface upon which it is mounted. It would then be necessary to either manually retract the latch bolt when the gate was being closed or else taper the end of the bolt so that same would be actuated when brought into contact with keeper **12**.

The latch of the present invention has a number of advantages over those of the prior art. The entire bolt actuating mechanism such as the bracket **31** is recessed within the housing **13**. Consequently it cannot be actuated as a result of an animal's rubbing his nose or leg or other parts of this body against the latch. On the other hand, the finger tab or hold **36** can be readily grasped by the fingers of a person and actuated. The latch is also exceptionally strong and positively acting. It is relatively inexpensive to produce and requires only readily available materials. Additionally, in the embodiment shown, it can be utilized in conjunction with either a right hand- or left hand-opening gate.

While but one form of the invention has been shown and described, other forms within the spirit and scope of the invention will now be apparent to those skilled in the art. Therefore, the embodiment shown in the drawing is to be considered as merely setting forth the invention for illustrative purposes, and is not intended to limit the scope of the invention herein described and shown. Also directional terms such as "bottom," "back," "right," and "left" have been used to facilitate explaining and claiming the invention in the position shown in the drawing and are not to be considered as further limiting the invention.

Other modes of applying the principle of my invention may be employed, instead of the one explained, change being made as regards the apparatus herein disclosed, provided the features stated by any of the following claims or the equivalent of such stated features be employed.

I therefore particularly point out and distinctly claim as my invention:

1. An animal-proof latch comprising:

A. a latching member comprising

1. a housing having a main wall, side walls, and a top wall,
2. means for affixing said housing to a surface,
3. a latching bolt slidably mounted in apertures provided in said side walls of said housing and having both ends of said bolt extending out of same,
4. spring means biasing said latching bolt to a central position and arranged to permit either end of said latching bolt to be forcibly retracted,
5. actuating means mounted on said bolt having finger-engaging means, said actuating means and said finger-engaging means being completely recessed within said housing,
6. an opening at the bottom of said housing permitting an operator's fingers to be extended therein for actuating said bolt; and

B. keeper means adapted to be affixed to a surface, and having an opening, on its side adjacent said latch, adapted to engage and retain an end of said latching bolt.

2. An animal-proof latch according to claim **1**, wherein said bolt actuating means comprising a yoke having spaced-apart arms and apertures provided in said arms through which said bolt passes, means substantially restraining said arms on said bolt for movement corresponding to axial movement of the latter, and a pair of helical compression springs biasing said bolt to a centrally located rest position.

3. An animal-proof latch according to claim **1**, wherein a lug is affixed to said bolt and is positioned to extend rearwardly from said housing, whereby said bolt may be actuated from the side of said gate opposite to that on which said latch is mounted.

4. An animal-proof latch according to claim **1**, having a pair of flanges on the back of said housing and extending from said side walls and having apertures provided therein for mounting said housing on a surface.

5. An animal-proof latch according to claim **4**, wherein said pair of flanges are inturned toward each other and apertures are provided in the front wall of said housing to provide access for inserting screws for mounting said housing on a surface.

6. An animal-proof latch according to claim **1**, wherein said keeper is in the shape of a tubular section having a slot in one wall thereof adapted to receive and retain an end of said latching bolt.

7. An animal-proof latch according to claim **6**, wherein the wall containing said slot is inclined, whereby when the gate on which said latching member is mounted is closed, an end of said latching bolt is engaged and forcibly retracted until said bolt end engages said slot.

8. An animal-proof latch according to claim **6**, wherein said keeper is provided with an aperture at each end adapted to receive mounting screws.

9. An animal-proof latch according to claim **8**, wherein the upper portion of said keeper is provided with recesses to permit access to said mounting screws.

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