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- [54] **TRANSLATING GATE LATCH**
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292/110, 114, 136, 145, 246; 16/140, 147,
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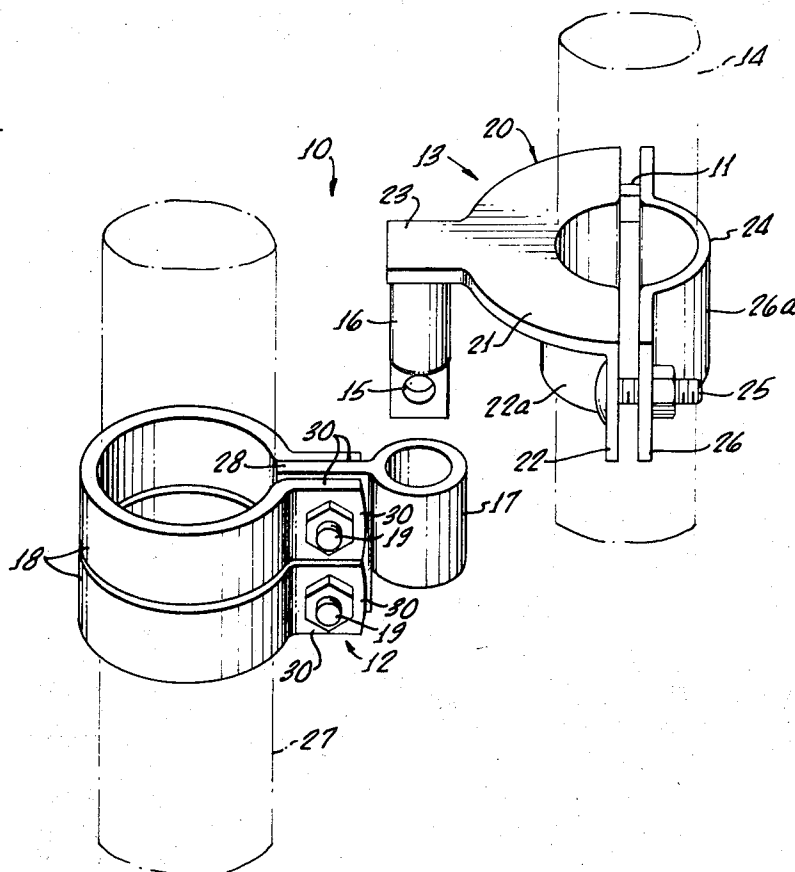
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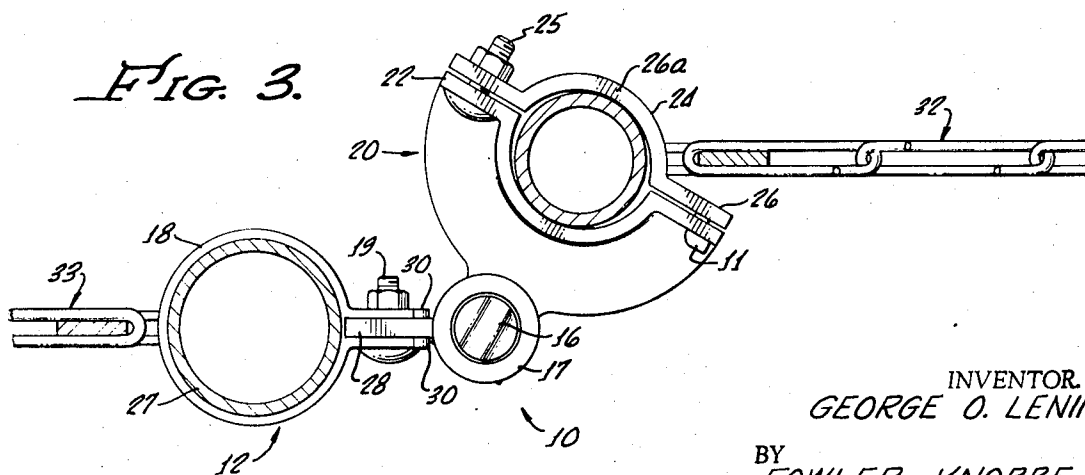
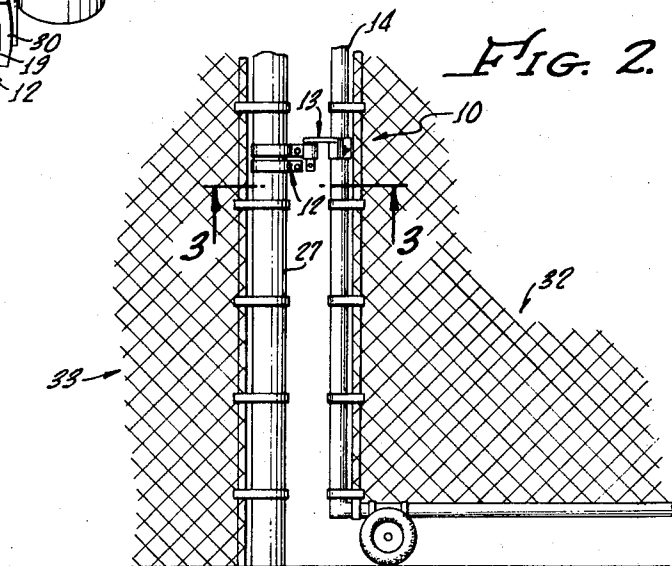
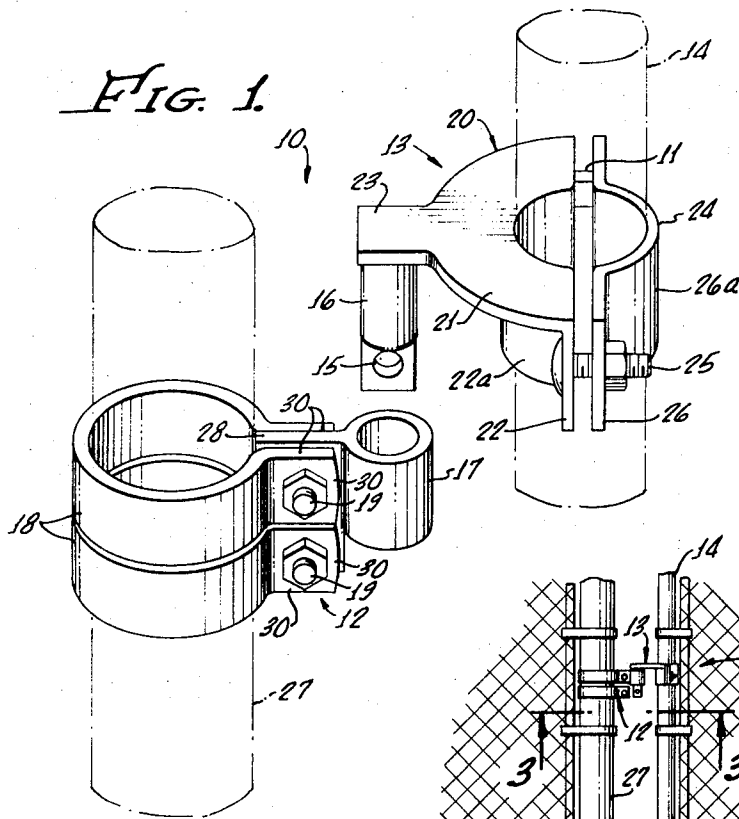
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[57] **ABSTRACT**

A rotatably adjustable rolling gate latch which eliminates the need to bring a translating gate into precise alignment with a fence post when it is desired to latch the gate.

3 Claims, 3 Drawing Figures





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TRANSLATING GATE LATCH

BACKGROUND OF THE INVENTION

Because of their ruggedness, durability, and low price, chain link fences have found great acceptance since their initial introduction to the marketplace. Industry has been quick to capitalize on the many inherent advantages afforded by the unique structure, and now uses chain link fencing almost exclusively for many applications.

Often where chain link and other types of fence are used in industrial applications, provision is made for gates wide enough to accommodate large trucks and construction vehicles. The gates so employed are necessarily very heavy due to their length and rigidity, and are therefore constructed many times with mechanisms to allow the gates to open by translation rather than by rotation about a hinge. The most common such mechanisms are rollers and wheels which engage either the supporting pavement or a portion of the adjoining stationary fence to form what is commonly termed a rolling gate.

Whereas most closure devices exhibit motion in only one direction, translating gates often exhibit motion in two directions or modes. For example, a dwelling window is typically constrained to move in only one direction, be that up-and-down or back-and-forth. Likewise, a swinging gate of the style used with decorative picket fences is typically hinged along a particular vertical axis, and therefore is only able to rotate about that axis. The swinging gate cannot be translated in the plane of the fence, and the window will not rotate.

The rolling gates made, for example, for use with chain link fences, can move to some degree in both of the above-described modes. The gates are commonly mounted on wheels so that they may be pulled across their respective openings to effect closure of a yard. This motion is analogous to that of the typical house window described above, except that the gates are not usually guided by structural members throughout their translation. The translating gates therefore also exhibit what may be characterized as rotational motion. That is, since the gates are not constrained to roll along any particular straight line when being pulled closed, they can be pulled along various lines of approach to the opposing fence post that are displaced from the straightest line of approach by small angles.

The weight of such translating gates often causes difficulty in latching and locking the gates because, with the latches currently available, it is necessary to translate the gate into precise interlocking position with a latch assembly on a stationary fence post. Several attempts may therefore be necessary before proper alignment and latching are achieved, since a slight lateral displacement between the gate and the corresponding fence post is often sufficient to prevent operation of such prior latches.

The problem is aggravated when it is desired to latch and lock a gate comprised of two separate translating gates which is latched where the two are brought together, since the two gates must be rolled along the same line of approach, and the alignment difficulties may be exaggerated.

Presently available translating gate latches also exhibit two other features that detract from their general usefulness. Often the receiver portion of the latch is disposed on the fence member such that the receptacle

portion extends perpendicular to the plane of the fence, and is therefore difficult to engage or disengage from one or another side of the fence. Present latches are also known that require the drilling of a plurality of holes during installation. This is time-consuming and therefore costly.

SUMMARY OF THE INVENTION

The present invention alleviates these shortcomings by providing a latch for translating gates that is effective even when the elements to be locked are not in precise alignment with each other. The latch of the present invention is also easily locked from either side of the fence; simply installed; and weatherproof.

The improved latch device comprises two members, both formed of a weather-resistant material, attached to a stationary fence post and the gate, respectively; each having a co-acting latching member, at least one of said latching members being adjustable in a direction perpendicular to the plane of said fence and gate. More particularly, the improved latch device comprises a female member or receiver rigidly secured to a stationary end fence post, and a male member or latch pin rotatably or slidably connected to the corresponding end post of the translating gate.

When the gate is to be locked, the end of the gate is translated into close-spaced relationship with the end fence post to which the receiver is secured. If the gate moves out of line with the fence during this translation, the lateral displacement caused thereby is automatically accounted for by the adjustability of one of the latch members, which is simply adjusted perpendicular to the plane of the fence and engaged with the corresponding latch member. Locking means may then be attached to prohibit disengagement of the latching members.

DESCRIPTION OF THE DRAWINGS

These, and other advantages of the present invention, are better understood with reference to the drawings, in which:

FIG. 1 is a detailed perspective view of the gate latch; FIG. 2 is an elevation view showing the gate latch of the present invention installed on a fence and in the latched position; and

FIG. 3 is a sectional view taken along lines 3—3 of FIG. 1, showing the adjustment means of the present device.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to FIG. 1, there is shown the preferred embodiment of the rolling gate latch of the present invention, indicated generally by reference numeral 10, and comprised of two main interconnecting latch members, each formed of rigid, galvanized steel: A receiver portion 12; and a latch pin portion 13.

The latch pin portion 13, in turn, comprises two sections. The interconnecting or latching portion, which is formed as a latch pin 16 is a generally vertical cylindrical member which is dependent from and integrally formed with a front ring member 20. This front ring member 20 comprises a generally horizontal, arcuate, flat plate 21 integrally formed with a vertical flange 22 and an offset tab 23. The vertical flange 22 includes a semi-cylindrical portion 22a which forms one half of the wall of a vertical cylindrical aperture, as described

below. This front ring member 20 mates with a rear ring member 24. The rear ring member 24 comprises a vertical flange 26 which includes a semicylindrical portion 26a which forms the second half of the wall of the vertical cylindrical aperture. This flange 26 is connected to the flange 22 by means of a bolt 25 and interlocking tab 11 on the flange 26 which locks within a slot in the flange 22, such that the complete assembly forms a vertical cylindrical aperture which has an inside diameter which is always greater than the outside diameter of a vertical rolling gate member or post 14 at one extremity of the gate 32 (to which the latch pin portion 13 is to be attached). Thus, the latch pin portion 13 is free to rotate about or slide vertically on the post 14 even when the bolt 25 is fully secured. Rotation about the post 14, which is an axis remote from that of the latch pin 13, produces the lateral movement of the latch pin 13 needed for latch adjustment as explained below.

The receiver portion 12 includes an interconnecting or latching portion, which is formed as a receiver 17, in the form of a hollow vertical cylinder having an inside diameter which will receive the latch pin 16. Formed integrally with receiver 17 is a generally vertical, flat plate 28, attached to the outside circumference of the receiver 17 along a line running the entire vertical length of the receiver 17. The receiver 17 is secured snugly to the vertical fence member or post 27 at one extremity of the fence 33 by means of a pair of circular metal bands 18, which are attached to the flat plate 28 by bolts 19. The circular bands 18 are fashioned from galvanized steel into a generally circular shape. An opening is provided in the circular bands 18, at which point the circular bands 18 are provided with integrally formed securing tabs 30. The securing tabs 30 are disposed perpendicular to the outside circumferential surface of the circular bands 18. The inside diameter of the circular bands 18 is such that when the bolts 19 are fully tightened, the circular bands 18 are secured to the fence post tightly enough to prevent any sliding or rotating movement about the fence post 27.

Referring now to FIG. 2, in which the present rolling gate latch is shown in the installed position, it may be seen that the latch pin portion 13 is positioned relative to the receiver portion 12 such that the latch pin 16 is engaged in the receiver 17. The latch pin 16 is of a suitable length with respect to the height of the receiver 17 that a significant portion of its length, namely that containing a hole 15, protrudes below the bottom of the receiver 17 by an amount sufficient to allow insertion of any well known locking means through the latch pin 16.

Referring to FIG. 3, the method of using the latch of the present invention to alleviate problems due to imprecise alignment between the rolling gate post 14 and the fence post 27 will be explained. When it is desired to secure a fence opening, an operator rolls or pushes a translating gate 32 across the opening. By guiding the leading edge of the gate—demarcated by the vertical gate post 14—as it is propelled, the operator is able to bring the gate post 14 into a close-spaced, albeit imprecise, relationship with the vertical fence post 27, such as depicted in FIG. 3. Though the gate 32 is slightly out of alignment with the fence 33, latching is still possible with the improved latch of the present invention.

The operator grasps the latch pin portion 13 and moves it, both by sliding and rotating it relative to the

gate post 14, until it is in such a position relative to the receiver portion 12 that the latch pin 16 is directly above the receiver 17. The latch pin 16 is then engaged in the receiver 17 by lowering the latch pin portion 13 vertically on the gate post 14. Any suitable locking means may then be used in conjunction with the hole 15 to prevent unintentional or unwanted disengagement of the latch 10.

The effectiveness and ease of operation of the present device depends in part upon the hollow cylindrical aperture formed by the mating of semi-cylindrical portions 22a and 26a of vertical flanges 22 and 26, respectively. The interaction between the vertical gate post 14 and the close-fitting cylindrical aperture insures that the cylindrical aperture maintains a substantially vertical attitude at all times, thus further insuring that the offset tab 23 is maintained in a substantially horizontal attitude. Maximum efficiency of operation is obtained when the offset tab 23 is thus horizontally disposed, since the latch may be engaged more easily and since the amount of gate alignment imprecision which may be tolerated is a direct function of the horizontal distance between the vertical axis of the latch pin 16 and the gate post 14. In fact, it is possible to increase the operating range of the present latch by lengthening the offset tab 23 and thereby causing the latch pin 16 to be disposed at a correspondingly greater distance from the gate post 14. Such an increase, however, necessarily increases the distance between the gate post 14 and fence post 27 when the gate is latched.

Installation of the present rolling gate latch requires only the tightening of three bolts to affect attachment. No drilling or machining of any kind is necessary. When installing the gate latch, however, it is wise, but strictly necessary, for the latch to be attached with the nuts facing the inside of an enclosure to be locked, thus adding yet another degree of security. This does not affect the easy operation of the latch—from either side of the fence—which, it should be emphasized, makes it possible for the gate to be locked or unlocked regardless of the position of the operator.

It is contemplated that the gate latch of the present invention may be used, for the reasons set forth above, with equal facility on either single- or double-rolling gates.

I claim:

1. A latch for use in securing a translating gate in a closed position to block an opening in a fence by coupling a first vertical member at an extremity of said gate to a second vertical member at an extremity of said fence, said gate being susceptible to lateral misalignment from said opening in said fence when said gate is closed, comprising:

- a. a first interconnecting latch member mounted on one of said first and second vertical members;
- b. a second interconnecting latch member, adapted to interconnect with said first interconnecting latch member, mounted on the other of said vertical members; and
- c. means for laterally adjusting at least one of said first and second interconnecting members relative to the other of said first and second interconnecting members so that said gate may be secured when said first vertical member is misaligned laterally from said second vertical member, wherein said means for laterally adjusting comprises a hollow vertical cylinder having an inside diameter large

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enough to slidably and rotatably receive said one of said first and second vertical members, said one of said first and second interconnecting members being attached to the circumference of said cylinder, so as to allow rotation of said one of said first and second interconnecting members about one of said first and second vertical members.

2. A latch member, designed to interconnect with a second latch member to couple together a pair of vertical members and thereby lock a translating gate, said latch member allowing said interconnection when said pair of vertical members are misaligned, comprising:

- a. an interconnecting portion, designed to interconnect with said second latch member; and
- b. means for mounting said interconnecting portion to one of said pair of vertical members, said mounting means comprising a hollow vertical cylinder attached to said interconnecting portion, the inside diameter of said cylinder being large enough to loosely receive said one of said pair of vertical members so as to allow adjustment of said interconnecting portion relative said one of said pair of vertical members in a direction normal to the plane of said translating gate by allowing a rotation about

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the axis of said one of said pair of vertical members.

3. A latching mechanism for a translating gate on a fence, said latching mechanism having two interconnectable members, one of which is connected to a first vertical member which is a part of said fence and the other of which is connected to a second vertical member which is a part of said gate, at least one of said interconnectable members comprising:

- a. a latching portion, designed to interconnect with the other one of said interconnectable members; and
- b. means for mounting said latching portion to rotate about the axis of the one of said first and second vertical members to which said one of said interconnectable members is connected, said mounting means comprising a hollow vertical cylinder having an inside diameter large enough to slidably receive said one of said first and second vertical members so as to provide adjustment of said latching portion in a direction perpendicular to the plane of said fence.

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