

[54] GATE LATCH

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[51] Int. Cl. E05c 5/00

[58] Field of Search..... 292/67, 68, 216,
292/230, 218, 238, 58, 207; 70/135, 139

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[57]

ABSTRACT

A gate latch mountable for rocking and axially sliding movement on the end bar of gate frame or on a fence post. A pin extends from opposite sides of the bar or post and the latch is provided with an internal recess having oppositely positioned pockets. The pin extensions are received in said recess for movement therein. When the pin extensions are disposed in the pockets, the latch is in locked position preventing opening of the gate. Upon moving the latch upwardly, the pockets are caused to clear the pin extension so that the latch may be rocked clockwise or counterclockwise to open the gate. A key operated locking element is provided to lock the latch against unauthorized operation.

4 Claims, 17 Drawing Figures

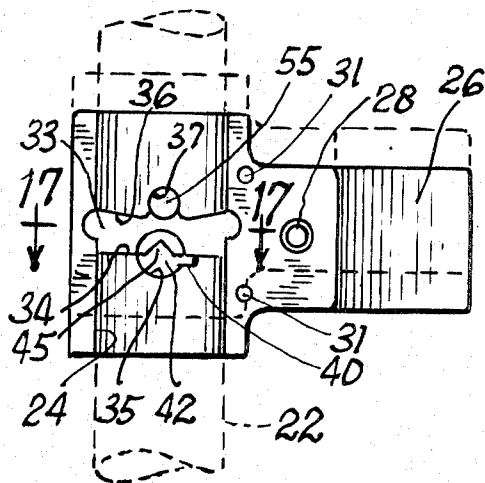


FIG. 1

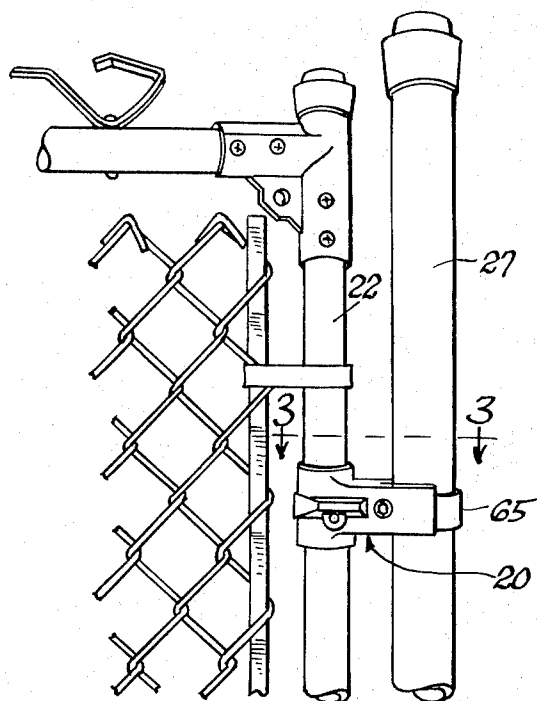


FIG. 2

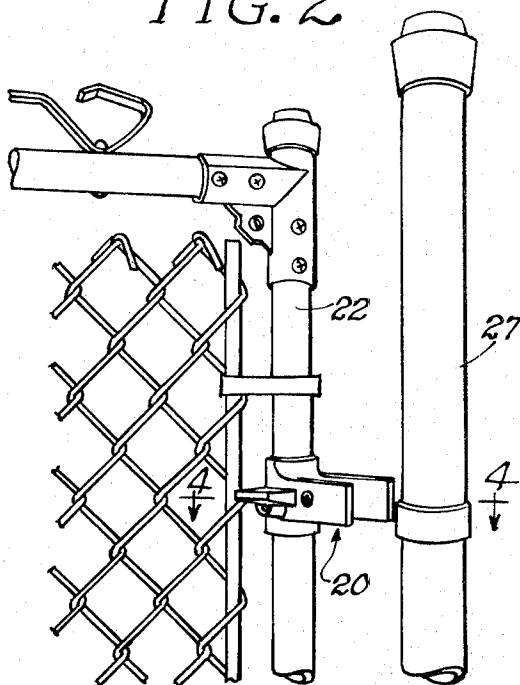


FIG. 3

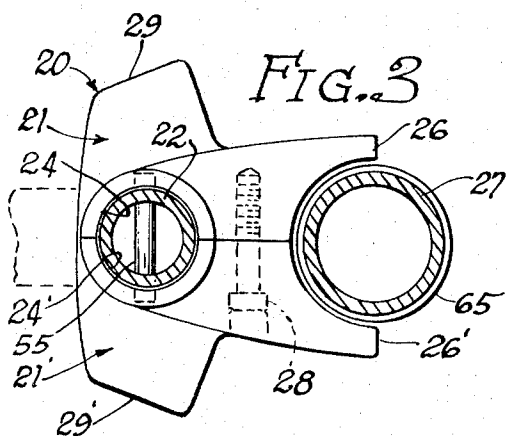


FIG. 4

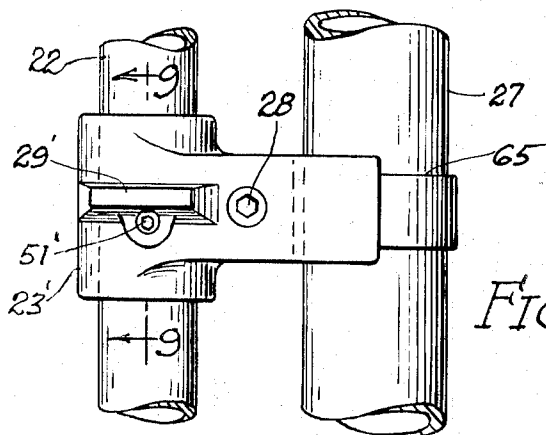
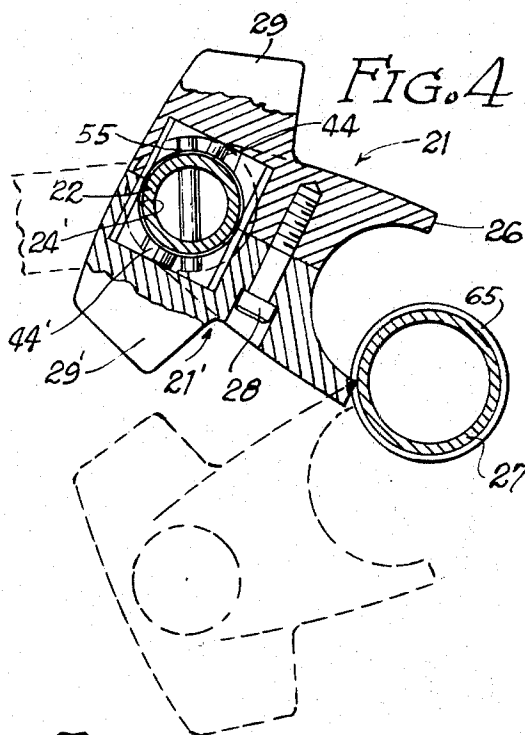
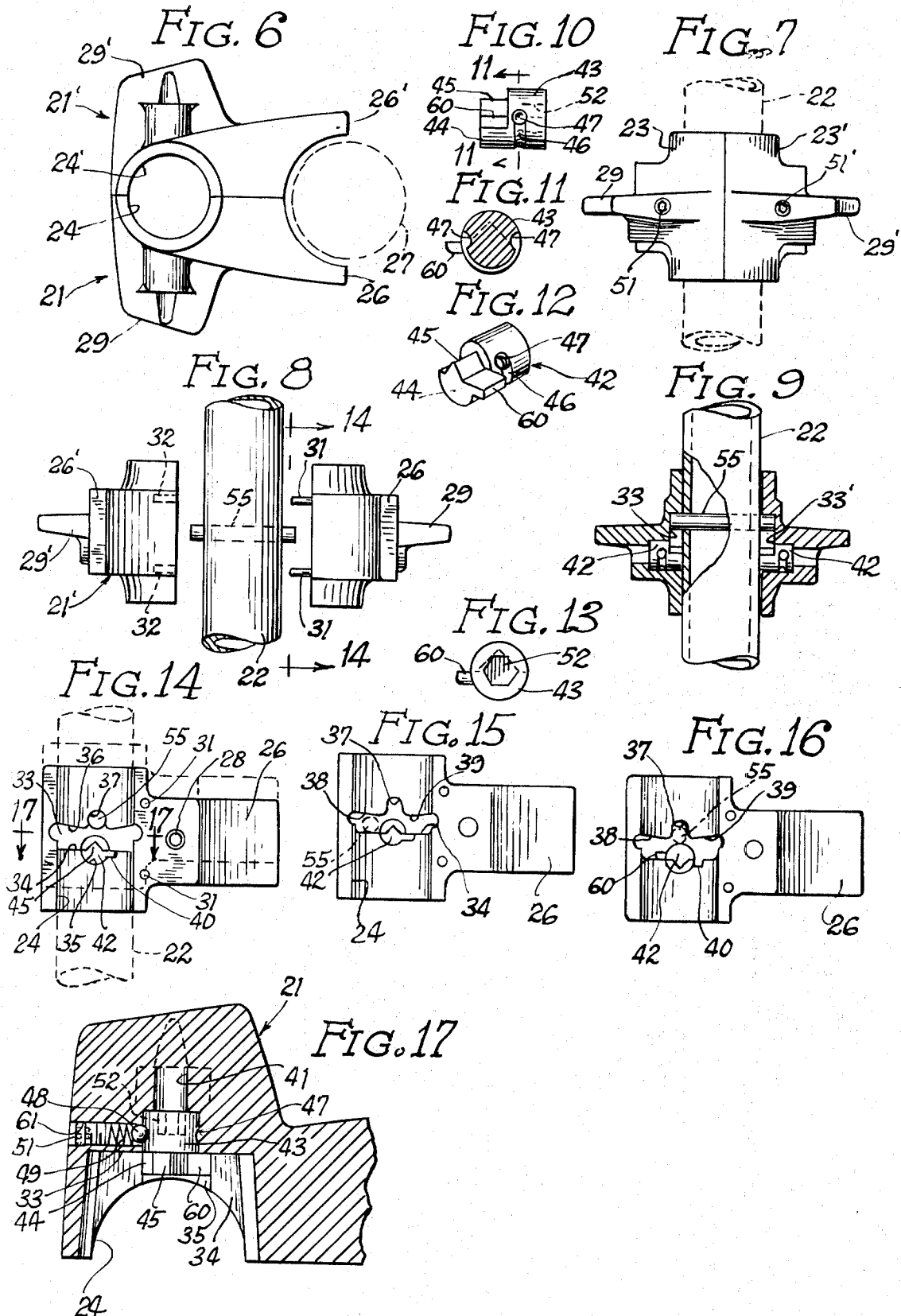


FIG. 5

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GATE LATCH

BACKGROUND OF THE INVENTION

The present invention relates to a gate latch which is particularly adapted for the style of gate which may be swung in either direction. The gate latch is substantially automatic in operation to stop the movement of the gate when at its closed position, regardless of from which side the gate is pushed shut and to positively lock it in such position until manually released by a simple manipulation.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide an improved gate latch which is mounted on the end bar of a gate frame for cooperation with a stationary post and which will securely and automatically lock the gate against opening, but which is easily controlled to unlock the gate.

Another object of this invention is the provision of a gate latch having a key operated locking element for preventing unauthorized opening of the gate.

Still another object of this invention is the provision of a gate latch which may be locked against inadvertent release and which is not operable by a small child or animal desired to be confined in an enclosure by the gate.

A further object of this invention is the provision of a gate latch in which the latch mechanism is enclosed so that it is protected against the weather.

Still a further object of this invention is the provision of a gate latch which is simple and durable in construction and efficient in operation.

Other and further objects of this invention are attained by the provision of a latch having a body portion mountable on a swinging gate and having a recess in which is received the opposite ends of a pin passed through the end bar of the gate frame on which the latch is arranged to rock. A U-shaped fork or yoke extends from the body portion of the latch and is adapted to embrace a fence post adjacent the end bar. A key operated cam locks the latch against movement to prevent unauthorized opening of the gate.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front perspective view of a gate latch, in accordance with my invention, as shown applied to the end bar of a gate frame and embracing a fence post, corresponding to the closed position of the gate.

FIG. 2 is a similar view showing the gate in partially open position.

FIG. 3 is a cross-sectional view, on an enlarged scale, taken substantially on line 3—3 of FIG. 1.

FIG. 4 is a cross-sectional view, on an enlarged scale, taken substantially on line 4—4 of FIG. 2.

FIG. 5 is a side elevational view of the gate latch, in accordance with my invention.

FIG. 6 is a bottom plan view thereof.

FIG. 7 is a rear end elevational view thereof.

FIG. 8 is a front end elevational view of the latch, in exploded relation.

FIG. 9 is a cross-sectional view taken substantially on line 9—9 of FIG. 5.

FIG. 10 is a side elevational view of a detail.

FIG. 11 is a cross-sectional view taken substantially on line 11—11 of FIG. 10.

FIG. 12 is a front perspective view of the detail illustrated in FIGS. 10 and 11.

FIG. 13 is a front end elevational view of the detail illustrated in FIGS. 10 to 12.

FIG. 14 is an elevational view taken substantially on line 14—14 of FIG. 8.

FIGS. 15 and 16 are views similar to FIG. 14 showing the parts in different operative positions, and

FIG. 17 is a cross-sectional view, on an enlarged scale, taken substantially on line 17—17 of FIG. 14.

BRIEF DESCRIPTION OF A PREFERRED EMBODIMENT

In the construction shown in the drawings, the latch 20 for a conventional wire gate comprises a pair of complementary die cast metal sections 21 and 21' arranged to be mounted on the end bar 22 of a gate frame. Since the parts are structurally allochirally related, only one section will be described and similar primed numerals will be employed to identify corresponding parts on the complementary section.

Each section 21 includes a body portion 23 having a semi-cylindrical hollow 24 to provide an inside diameter large enough to encompass one-half of the end bar 22 of a conventional gate frame. The two sections, when secured together, as will be presently explained, are arranged for both sliding and rotational movement on the end bar 22 of the gate frame. Each section 21 includes an integral jaw 26 or yoke element. Said sections when in assembled relation provide a U-shaped fork or yoke to embrace an adjacent fence post 27. As illustrated in FIGS. 3 and 4, the sections 21 and 21' are transversely drilled, only one of which is tapped to receive a bolt 28 which secures the two sections in assembled relation. The section 21 includes an integral wing 29 extending sidewardly and intended to be manually engaged, as will be hereinafter explained.

As seen in FIG. 8, one of the sections 21', on its inner face, is provided with a pair of pins 31 which are intended to register with corresponding apertures 32 provided in the complementary section 21 so as to insure accurate registration of the parts in assembly.

The section 21 is provided with a recess 33, shaped substantially as illustrated in FIGS. 14 through 17. The lower wall 34 of the recess extends fully across the width of the semi-circular hollow 24 and includes a median arcuate depression 35 and an adjacent step portion 40. The upper wall 36 of the recess 33 provides a surface having a contour, as illustrated, with a median pocket 37 and oppositely directed slightly upwardly inclined shoulders 38 and 39. The body section 21 is provided with a stepped bore 41 intersecting the recess 33, the lower part of the enlarged portion of the bore 41 being in registration with the arcuate depression 35.

A locking element 42, as illustrated in FIGS. 10 through 13, includes a cylindrical portion 43, a semi-cylindrical portion 44, a triangular portion 45 and a wing portion 60. The cylindrical portion 43 is rotatably received in the enlarged portion of the bore 41 and the semi-cylindrical portion 44 is received in the arcuate depression 35 with the wing 60 arranged to engage the step 40. The periphery of the cylindrical portion 43 is provided with a semi-annular groove 46 having a detent socket 47 at each end. As seen in FIG. 17, the body portion 21 is provided with an opening 61 in registration with the groove 46 to receive a ball-bearing detent 48 which is biased by a spring 49 retained by a screw 51. A hexagonal socket 52 is provided in the end of the cylindrical portion 43, the socket being in registration

with the reduced portion of the stepped bore 41. A suitable hexagonal key, not shown, may be inserted into the bore 41 to engage the socket 52 for rotating the locking element 42, as will be hereinafter explained.

The latch of my invention is intended to be mounted on the end bar 22 of a gate frame or on an end post 27 of a fence. In each case, the end bar or post is drilled diametrically to receive a pin 55 which is passed through the drilled openings so that it projects a like distance from opposite sides. The sections 21 and 21' are then assembled in the manner illustrated in FIGS. 8 and 9, with the opposite projecting ends of the pin 55 being received in respective recesses 33 and 33'. In the closed position of the latch, as illustrated in FIGS. 1, 3 and 5, wherein the jaws 26 and 26' embrace the fence post 27, the opposite projecting ends of the pin 55 are received in the pockets 37, as shown in FIG. 14. The weight of the latch is sufficient to retain the pockets, 37, 37' in engagement with respective ends of the pin 55 so that the latch is prevented from rocking about the axis of the end bar 22. Thus, the gate is maintained in locked position.

In order to effect opening of the gate in one direction or another, one of the wings 29 or 29' is manually engaged to slide upwardly substantially from the solid line to the dotted line position illustrated in FIG. 14, wherein the pocket 37 is moved upwardly and the pin is caused to be in registration with the main portion of the recess 33. In such relationship, the latch may be rocked approximately 45°, either clockwise or counter-clockwise, as illustrated in FIG. 4, depending upon the direction in which the gate is to be opened. The solid lines in FIG. 4 illustrate the position assumed by the latch in relation to the gate and fence post when the gate is opened in a counter-clockwise direction. The broken lines in FIG. 4 illustrate the position assumed by the latch when opening the gate in a counter-clockwise direction. It will be understood that when the latch is manually elevated, as above described, the gate may be pushed or pulled and, in either case, pressure against the gate will effect rocking of the latch in a respective direction. When the ends of the pin 55 are clear of the pockets 37 and 37' and as soon as the shoulders 38, 38' or 39, 39' are engaged by the respective ends of pin 55, the latch may be released, since it is completely supported on the pin. The inclined shoulders 38, 38' and 39, 39' serve to retain the latch in one of the positions illustrated in FIG. 4 corresponding to the open positions of the gate.

In order to lock the gate, it is merely necessary to push the gate to closed position and, in such movement, the jaw 26 which is disposed in trailing relation to its complementary counter part is caused to engage the fence post 27 and to effect rocking of the latch to the closed position illustrated in FIG. 3 wherein both jaws are caused to embrace the fence post, it being understood that the jaw 26 in leading position will clear the fence post.

If it is desired to lock the gate against unauthorized opening, with the gate in closed position, as illustrated in FIG. 3, a suitable key may be inserted through the bore 41 to engage in the socket 52 so that the locking element may be rotated from the normally open position illustrated in FIGS. 14 and 15 to the closed position illustrated in FIG. 16. In such position, it will be noted that the semi-circular portion 44 is disposed upwardly so as to block the full upward travel of the latch

thereby preventing the pin end 55 from being moved completely out of the pocket 37. Thus, the latch cannot be rocked about the end bar 22 and, accordingly, is maintained in locked position until the locking element 42 is again rocked to the normally open position illustrated in FIG. 14. In such open position the wing 60 rests on shoulder 40, thereby limiting the rotational movement of the locking element 42. It will be noted that each section 21 and 21' of the latch is provided with an independent locking element 42, 42' so that locking of the latch from either side of the gate may be conveniently effected. The spring biased ball detents 48, 48' retain each locking element 42, 42' in adjusted positions.

In order to reduce noise a band of suitable sound absorbing material 65 such as plastic, rubber or leather may be applied to the post 27 in the zone engaged by the jaws 26, 26' of the latch.

Various changes coming within the spirit of my invention may suggest themselves to those skilled in the arts; hence, I do not wish to be limited to the specific embodiment shown and described or uses mentioned but intend the same to be merely exemplary, the scope of my invention being limited only by the appended claims.

I claim:

1. In combination a moveable gate part and a fixed fence part, a gate latch carried by one part and arranged to detachably engage the other part, said gate latch comprising a body portion embracing one of said parts and rotatable and slidable relative thereto, said one part having at least one lateral projection, said body portion having an internal recess defined by a shoulder having at least one upwardly extending pocket, said projection being received in said recess and being engaged with said shoulder, said latch being locked against relative rotation when said projection is received in said pocket, said body portion having a bore formed therein intersecting said recess and aligned with said upwardly extending pocket and communicating with the exterior of said body portion, and including manually operable means to prevent movement of said projection out of said pocket so as to lock said latch against rotation, said manually operable means comprising a cylindrical portion rotatably received in said bore, a semi-cylindrical portion extending from said cylindrical portion and received in said recess, and a wing portion extending radially from said semi-cylindrical portion normally abutting a portion of a wall of said recess upon rotation of said cylindrical and semi-cylindrical portions, whereby upon rotation of said cylindrical and semi-cylindrical portions, said semi-cylindrical portion is disposed in blocking relation with said lateral projection to prevent movement of said projection out of said pocket.

2. In combination, a moveable gate part and a fixed fence part, a gate latch carried by one part and arranged to detachably engage the other part, said gate latch comprising a pair of allochiral complementary sections embracing one of said parts and rotatable and slidable relative thereto, said one part having a pair of diametrically opposed projections, each of said sections having an internal recess defined by a shoulder having an upwardly extending pocket, said projections being received in respective recesses and being engaged with respective shoulders, said latch being

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locked against relative rotation when said projections are received in respective pockets, said latch being rendered rotatable when elevated to move said pockets out of engagement with said projections, at least one of said sections having a bore formed therein intersecting said recess and aligned with said upwardly extending pocket and communicating with the exterior of said section, including manually operable means to prevent elevation of said latch so as to lock said latch against rotation, said manually operable means comprising a cylindrical portion rotatably received in said bore, a semi-cylindrical portion extending from said cylindrical portion and received in said recess of said section, and a wing portion extending radially from said semi-cylindrical portion normally abutting a portion of a wall of said recess of said section and adapted to abut another portion of a wall of said recess upon rotation of said cylindrical and semi-cylindrical portions, whereby

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upon rotation of said cylindrical and semi-cylindrical portions, said semi-cylindrical portion is disposed in blocking relation with one of said projections received in the pocket of said section to prevent movement of said projection out of said pocket so as to lock said latch against rotation.

3. The invention as defined in claim 2 in which said means are in duplicate, one being disposed in each of said sections, so as to be manually accessible from both sides of the gate.

4. The invention as defined in claim 2 including a groove disposed on the periphery of said cylindrical portion of said means and a spring biased detent disposed in said section laterally of said cylindrical portion adjacent said groove to maintain said manually operable means in an adjusted position.

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