United States Patent

Ray

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[54] MULTIPLE LOCKING MECHANISM FOR A COMMON LATCH MEANS FOR A CLOSURE

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[52] **U.S. Cl.**.....**292/304**, 70/263, 70/417, 292/205, 292/227, 292/341.17

[51] **Int. Cl.**.....**E05b 15/02**, E05c 3/22, E05c 19/00

[58] **Field of Search**.....292/148, 205, 221, 227, 304, 292/341.17, 346, DIG. 37; 70/263, 337, 417, DIG. 17, DIG. 42, DIG. 63

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[57] **ABSTRACT**

A series of independently lockable and operable latch operating means on a concealed latch mechanism for closure member such as a gate, door and the like facilitating opening of the latter upon removal of a single lock confined within a jamb post of an opening although all other locks are secured and including suitable covering and guard means for the concealed latch mechanism to prevent unlocking of the closure member other than by persons authorized and licensed to a particular lock receiving portion of a multiple locking mechanism therefor.

10 Claims, 10 Drawing Figures

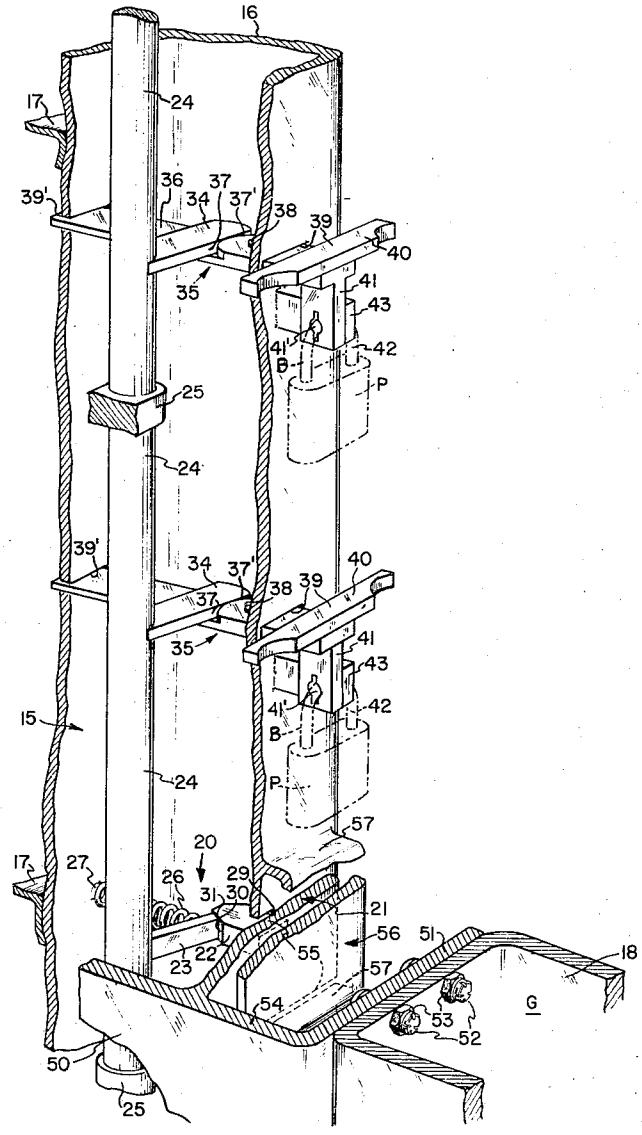


FIG. 6

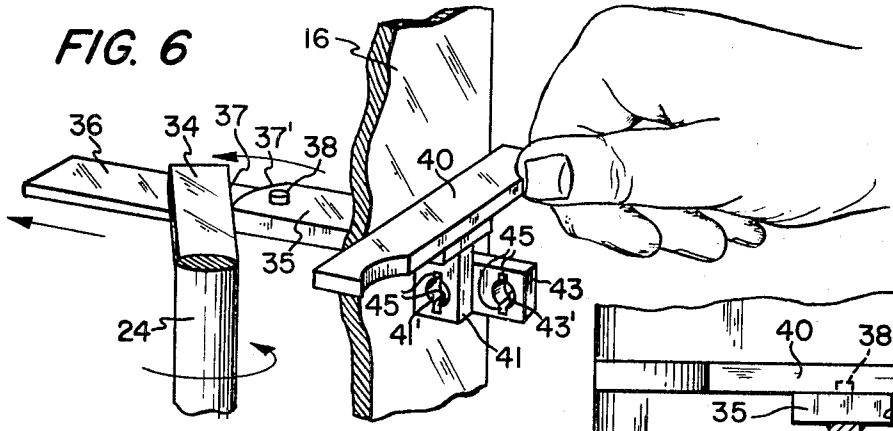


FIG. 7

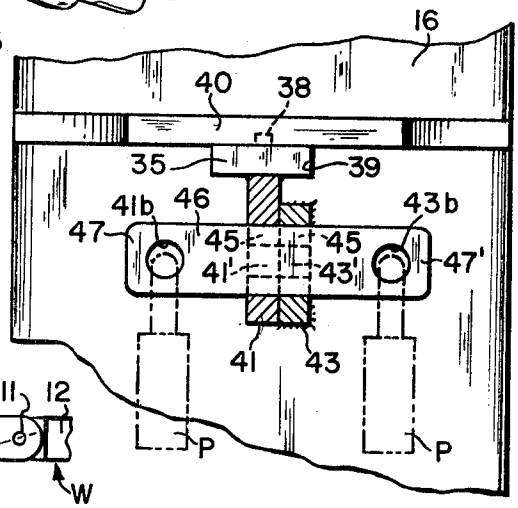
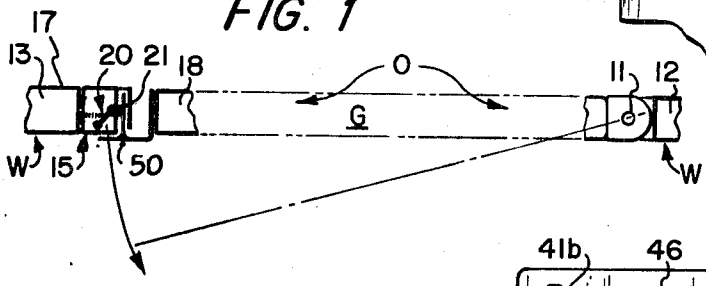


FIG. 1



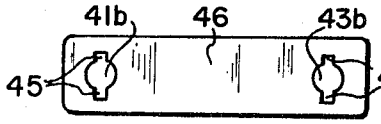


FIG. 8

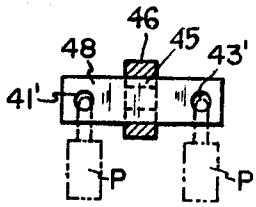


FIG. 9

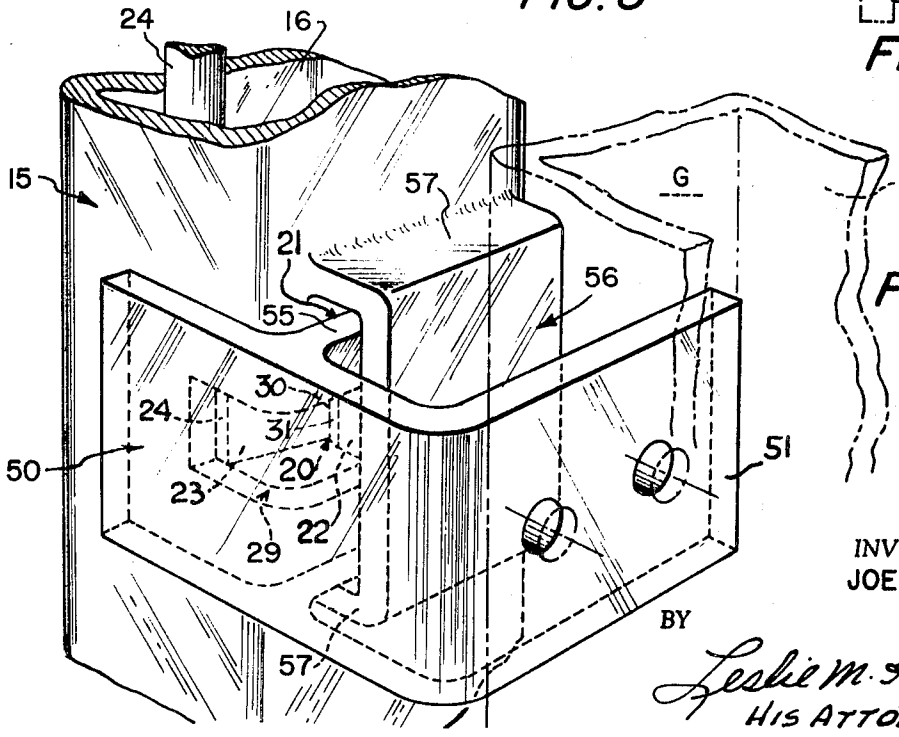


FIG. 10

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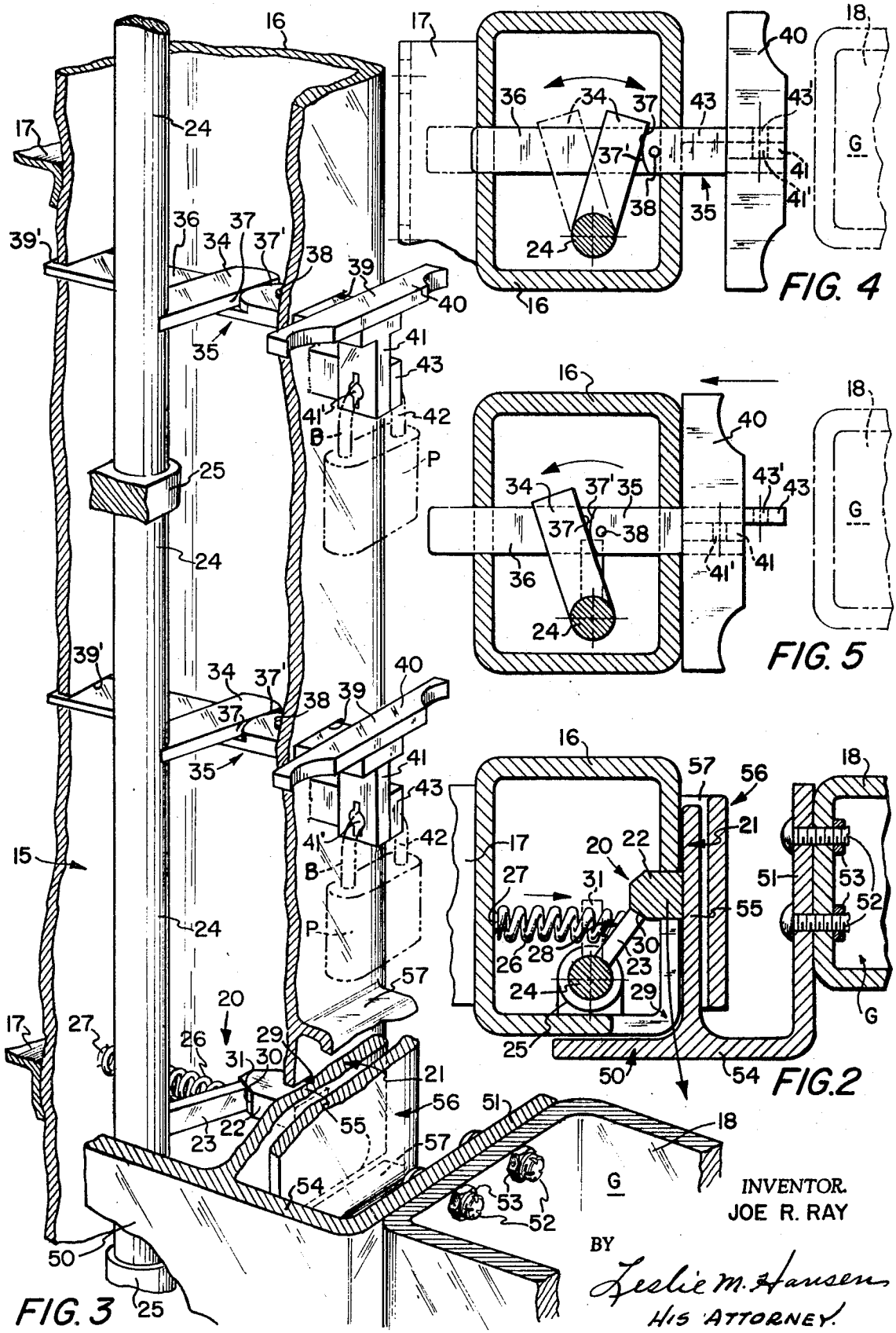


FIG. 3

FIG. 4

FIG. 5

FIG. 2

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MULTIPLE LOCKING MECHANISM FOR A COMMON LATCH MEANS FOR A CLOSURE

BACKGROUND

This invention relates to latching means for a hinged closure medium and more particularly to a multiple system of locking means therefor operation of any one of which facilitates the unlatching of the single latching means.

The present invention is particularly adapted for use on a gate within woven wire fencing usually employed in storage areas, pasture land and the like. The multiple locking system is employed in communal property to which many owners, lessees and or users are entitled to ingress and egress. In such an arrangement each party entitled to such use has his own lock and key and is required to keep the gate locked against unauthorized or unlicensed persons.

Heretofore it has been the practice to lock such gate means by the use of a chain or links thereof connectable by the bow of a padlock. When several persons authorized to use the gateway apply their locks, the bows of their several padlocks become like links in the chain. Consequently, when one person opens his lock to release the chain from the gate he has to handle all of the other padlocks in the chain as well. This becomes quite unwieldy and difficult especially since he must first remove the chain of padlocks in order to open the gate and after passing through the gateway must again thread the chain and all the padlocks therein through the gate and gate post in order to relock the gate.

STATEMENT OF INVENTION

It is an object of the present invention to alleviate the foregoing problems and to provide a mechanism having a single latching means lockable by a plurality of locks and operable upon removal of any one lock therefrom. This object further contemplates the lockability of such mechanism once the gate is open and the conditioning of the latching means for relocking of the gate upon the mere closing thereof. In other words, all of the separate locking means unite to lock the mechanism against unauthorized unlatching of the gate, yet any one lock when opened and removed serves to render the mechanism operable to unlatch the latching means.

More particularly it is an object of this invention to provide a latching means within a gate post or jamb with spring means normally urging the latching means into striking position of a bolt carried by the gate for latching the same against opening of the gate. The invention further contemplate the mounting of such latching means on a common shaft journaled within the gate post and having lever means at different levels each operatively associated with a separate manually operable and lockable slide bar slidably mounted transversely of the gate post any one of which enables independent and partial rotation of the shaft and latching means against the action of its spring means to thereby release the bolt on the gate to enable opening of the latter.

The present invention has a still further object to provide such slide bars with means for receiving, one, two or more independently operable padlocks, the unlocking and removal of any one of which release such slide bar for manual operation to swing the lever means connected thereto and the common shaft for releasing the latching means from latched engagement with the bolt on the gate.

It is yet another object to provide a guard means over the latching area of the latching means to prevent illegal operation thereof.

These and other objects and advantages of the present invention will become apparent in the following description and claims in the light of the accompanying two sheets of drawings in which:

FIG. 1 is a plan of a gate through a fence or enclosure having the united latch operating means embodying the present invention;

FIG. 2 is an enlarged horizontal section of a portion of FIG. 1 between the gate and latching means in the gate post thereof;

FIG. 3 is a fragmentary perspective view of the latching means and gate post partly broken away to illustrate the multiple slide bars and a portion of the gate;

FIG. 4 is a horizontal section through one of the multiple slide bars of FIG. 3;

FIG. 5 is similar to FIG. 4 showing the slide bar in unlocked position;

FIG. 6 is a perspective illustration of the slide bar manually pressed into latch releasing position as in FIG. 5;

FIG. 7 is an elevational view looking toward one slide bar and showing a double lock feature;

FIG. 8 is a double lock plate adapted for use as in FIG. 7;

FIG. 9 is an additional double lock adapted to fit the double lock plate of FIG. 8; and

FIG. 10 is a fragmentary perspective view of an interlocking cover between the gate and latching means of the present invention.

GENERAL DESCRIPTION

Referring to FIG. 1 a gate G is shown pivotally mounted at one end on a hinge pin 11 by a post 12 in a fence W forming one jamb of an opening O in the fence. The opposite post 13 of the opening in the fence W has the latch and locking mechanism 15 of the present invention secured thereto and forming the other jamb of the opening O in the fence.

DETAILED DESCRIPTION

Referring now to FIGS. 2 and 3 the latch and locking mechanism 15 comprises generally a hollow metal tube 16 preferably of rectangular cross section secured to the post 13 and spaced therefrom slightly by lateral brackets 17 for reasons later to be made apparent. The metal tube 16 extends vertically substantially the entire heighth of the fence W in spaced relation to a similar hollow metal tube edge 18 at the unhinged side of the gate G for reasons also later to be made apparent.

A one way latching means 20 is provided between the tube 16 on the jamb post 13 and an extension 21 on the tubular edge 18 of the gate G for striking engagement by a bolt 22 secured to the extension 21. The latching means 20 comprises a keeper arm 23 which extends radially from a rod 24 pivotally mounted within the tube 16 on suitable bearings 25 along the length of the rod 24. The keeper arm 23 is normally urged into a position to be struck by the bolt 22 by a compression spring 26. This spring 26 has one end anchored on a knob 27 welded to the internal wall of the tube 16 and its opposite end encircling a knob 28 formed on the keeper arm 23. The keeper arm 23 is limited against movement by the spring 26 beyond a desired angular condition illustrated in FIGS. 2 and 3 by means later to be explained in connection with the locking feature of the mechanism 15.

As best seen in FIGS. 1 and 2 the bolt 22 is adapted to swing in an arcuate path about the axis of the hinge pin 11. For this reason the tube 16 has a slot 29 formed therethrough sufficiently to allow passage of the bolt 22 into and out of striking relation to the keeper arm 23. By this arrangement when the gate G is open and swung toward closed condition the bolt 22 strikes the keeper arm 23 and cammingly urges the latter out of the way against the action of the spring 26. The bolt 22 has a beveled edge 30 which clears the end 31 of the keeper arm when the bolt engages the back edge 31 of the slot 29 in the tube 16. Thus the keeper arm 23 is disposed in abutting relation to the bolt 22 and the gate thereby latched against opening until the keeper arm is swung out of abutting relation to the bolt.

Means for swinging the keeper arm 23 out of latching engagement with the bolt 22 comprises any one of a number of arms 34 engaged by slide bars 35 (FIGS. 3 through 6) arranged for sliding movement across the tubular member 16 in alignment with the fence W. These slide bars 35 are identical in structure and therefore like reference numerals apply to like parts thereof.

Each slide bar 35 consists of a flat metal bar recessed as at 36 on one of its faces to receive a lever arm 34 which is secured to the rod 24 to extend radially therefrom. The arm 34 has that edge 37 thereof opposite the spring urged side of the rod 24 disposed to engage a shoulder 37' formed on the slide bar 35. It should here be noted that the slide bar 35 has a stop pin 38 extending therefrom and disposed to engage the adjacent inner wall of the tube 16. These pins 38 limits swinging movement of any one of the lever arms 34 by action of the spring 26 of the keeper arm 23 and serves to limit movement of the latter beyond its bolt striking disposition as illustrated in FIGS. 2 and 3. The slide bar 35 is arranged to slide in slots 39–39' formed in opposite walls of the tube 16. These slots 39–39' are preferably arranged to dispose the slide bars in a plane lengthwise of the fence W and either above or below the arc of swing of the keeper arm 23 of the latching means 15.

For purposes of orientation the slot 39 is disposed on the gate side of the tubular member 16 where the slide bar 35 has a T shaped head or handle 40 formed thereon in the space between the tube 16 and the edge tube 18 of the gate G. The slide bar 35 also has a leg 41 secured thereto for extension downwardly therefrom. This leg 41 has two purposes, namely, first to provide a stop for limiting movement of the slide bar 35 beyond latch opening position as shown in FIG. 5 and secondly, and most importantly to provide one side of a bow receiving member of the locking means 42 for a padlock P.

The bow receiving members of the locking means 42 includes another arm member 43 similar to the leg member 41 but secured to the outside face of the tube 16. The arm member 43 extends from the tube 16 toward the gate edge tube 18 and in close proximity and sliding engagement with the leg 41 which is movable with the slide bar 35.

The locking means 42 comprises a pair of bores 41' and 43' formed in the leg 41 and arm 43, respectively, so as to register with each other when the slide bar 35 is fully retracted. In other words, when the stop pin 38 on the particular slide bar 35 engages the inner wall of the tube 16. By this arrangement a particular slide bar 35 can be locked against sliding movement by the bow B of a padlock P extending through the registered bores 41'–43' of the leg and arm 41 and 43 of the locking means 42.

It will be appreciated that a generous number of slide bars 35 and lever arms 34 may be employed throughout the length of the tubular member 16.

It should here be noted that although each of the several slide bars 35 are locked in the manner above explained, the unlocking of any one bar releases the latter for sliding movement to unlatch the gate G. For this reason a person authorized to use the gateway need not bother handling all of the padlocks as heretofore required.

If for some reason the number of persons authorized to use the gateway exceeds the number of slide bars 35, any one of the latter can be conditioned to the use of any one of two padlocks in the manner as shown in FIG. 7. This is accomplished by forming diametrically opposed recesses 45 in each of the registrable bores 41'–43' of the leg 41 and arm 43 so as to receive a strap 46 (FIG. 7). The strap 46 has its ends 47–47' equally extending from the leg 41 and arm 43 and provided with bores 41*b*, 43*b* to receive the bow B of padlocks P. This will double the number of available lock receiving spaces for additional authorized users of the gateway. By providing the strap 46 with recessed bores as illustrated in FIG. 8 so that each end thereof can receive a reduced strap 48 as shown in FIG. 9 the capacity of users and lock spaces is again doubled. In either case any one padlock P when removed from its respective bores 41'–43' or 41*b*–43*b* will permit removal of the cross strap 48 or 45 and ultimately the leg 41 and 43 to release the slide bar 35 for unlatching of the gate G. At all events the entire locking mechanism can be locked up while the gate G is open to allow vehicles to pass through after which closing of the gate results in relatching of the bolt 22 behind the keeper arm 23 until the latter is again unlocked.

For security against illegal release of the latch mechanism a cover plate 50 carried by the extension 21 on the gate G overlays the slot 29 in such a manner as to prevent any tool to be inserted therethrough when the gate is locked. This cover plate 50 as best seen in FIGS. 2, 3 and 10 is in the form of an F lying on its side such that its cap 51 can be secured to the edge tube 18 of the gate G. This may be done by welding or bolts 52 as shown having nuts 53 on the inside of the tube 18 threaded to the bolts 52 and the latter peened to prevent unthreading. The shaped cover 50 is secured to the gate tube 18 such that the leg 54 of the F completely covers the slot 29 on the outer side of the tubular member 16. The mid-bar 55 of the F shaped cover 50 thus is disposed to cover that portion of the slot 29 on the gate side of the tubular member 16. It is this mid-bar 55 of the F shaped cover 50 that constitutes the extension 21 from which the bolt 22 extends into the slot 29. The bolt 22 is therefore vulnerable to being cut off by a hacksaw blade inserted between the mid-bar 55 and the tube 16 (see FIG. 2). For this reason and for further security a U shaped guard 56 is provided on the gate side of the tubular member 16 in overlying relation to that portion of the slot 29 formed therein. The U shaped guard 56 as seen in FIGS. 2, 3 and 10 has its shortened legs 57 disposed to straddle the mid-bar 55, i.e. the extension 21 of the cover plate 50, the legs 57 being welded to the tubular member 16. The guard 56 thus provides a narrow housing 58 adapted to receive the mid-bar 55 and to prevent the insertion of a hacksaw blade between the latter and the tube 16 when the gate G is closed.

Having thus described the multiple locking means for a single or common latching mechanism in specific detail, it will be appreciated that the same may be susceptible to variations, alterations and/or modifications without departing from the spirit or scope of my invention therein as defined in the following claims.

What I claim as new and desire to protect by Letters Patent is:

1. A multiple locking mechanism for a single latching means for a gate, door and the like having one edge hingedly mounted on a jamb member and having a latch bolt extending from its opposite edge toward a second jamb member of a gateway in an enclosure comprising in combination:

a. a tubular housing mounted parallel to and on such second jamb member and having a slot formed therein in the zone of swing of the bolt on the gate when the latter is moved between open and closed condition relative to the gateway;

b. a rod pivotally mounted in parallel relation to and within said tubular housing;

c. a keeper arm mounted on and extending radially from said rod in the plane of swing of the bolt by the gate into and out of the slot in said tubular housing;

d. spring means within said tubular housing for urging said keeper arm toward the slot in said housing for striking relation to the bolt when the gate is moved into closed condition and into latched engagement with the bolt when the gate is closed;

e. a plurality of lever arms mounted in spaced relation along the length of said rod and extending radially therefrom within said tubular housing; and

f. a plurality of lockable slide bars mounted for sliding movement across said tubular housing and each independently engaging a respective one of said lever arms for swinging the latter, the rod and said keeper arm against the action of said spring means upon manual operation of such slide bar to thereby release the bolt on the gate from latched engagement with said keeper arm.

2. The multiple locking mechanism in accordance with that of claim 1 including a cover plate secured to the said opposite edge of the gate in the region of the bolt thereon for covering the slot formed in said tubular housing against illegal manipulation of said keeper arm in the latter when the gate is closed.

3. The multiple locking mechanism as in claim 2 in which each of said slide bars has a stop means thereon for engaging

the internal wall of the tubular housing and limiting swinging movement of the lever arms, said rod and the keeper arm beyond bolt striking and latching relation to the bolt.

4. The multiple locking mechanism as called for in claim 3 in which each of said slide bars have a head portion extending from said tubular housing and between the latter and the opposite edge of the gate and the combination therewith of:

a. a leg portion on said head portion provided with a bore; and b. an arm portion secured to and extending from said tubular housing adjacent said leg portion and having a bore registerable with the bore in said leg portion for receiving the bow of a padlock for locking said slide bar against movement across said tubular housing.

5. The multiple locking mechanism in accordance with that of claim 4 in which each of said slide bars is urged toward the gate by action of the respective lever arm, rod and spring means for registering the bore in the leg portions of said slide bar with the bore in the arm portion associated therewith for the receipt of the bow of a padlock.

6. The multiple locking mechanism in accordance with that of claim 5 in which the leg portion of each slide bar serves to engage the tubular housing upon manual operation of said slide bar to thereby limit sliding movement of the latter and swinging movement of the related lever arm, the rod and said keeper arm just beyond non-striking relation relative to the bolt on the gate.

7. The multiple locking mechanism in accordance with that of claim 6 including a cross strap insertable through the registered bores in said leg portion and arm portion, and a bore adjacent each end of said cross strap for receiving the bow of padlocks on each side of said leg portion and arm portion.

8. The multiple locking mechanism in accordance with that of claim 7 in which the cover plate secured to said opposite edge of the gate is an F shape having a head portion secured to such edge of the gate and a leg portion extending therefrom for flat engagement against the open side of said tubular housing in the region of the slot formed therein to overly and cover the slot.

9. The multiple locking mechanism in accordance with that of claim 8 in which said F shaped cover has a mid-bar extending from the leg portion of said cover to support the bolt on the gate and overly and cover the slot in said tubular housing on that side thereof facing the gate.

10. The multiple locking mechanism in accordance with that of claim 9 including a U shaped guard having its legs disposed to receive and embrace the mid-bar of said F shaped cover and secured to the gate side of said tubular housing to receive the mid-bar between the latter and the bight portion of said U shaped guard.

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