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GATE LATCH

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FIG. 1.

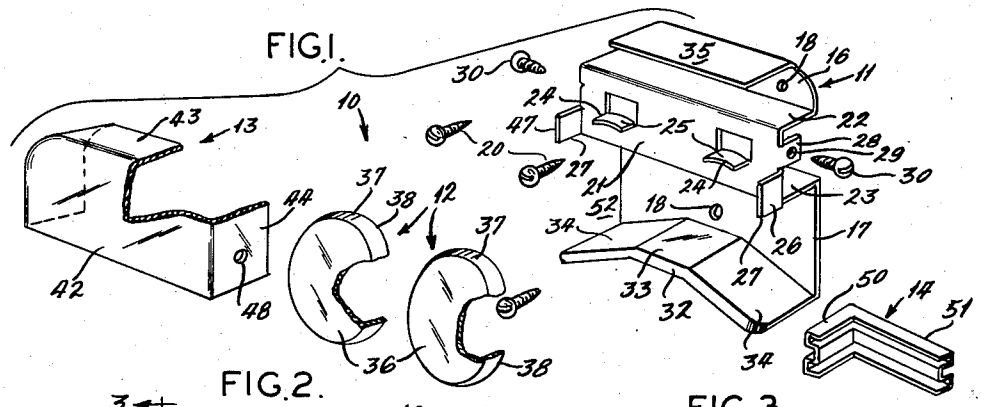


FIG. 2.

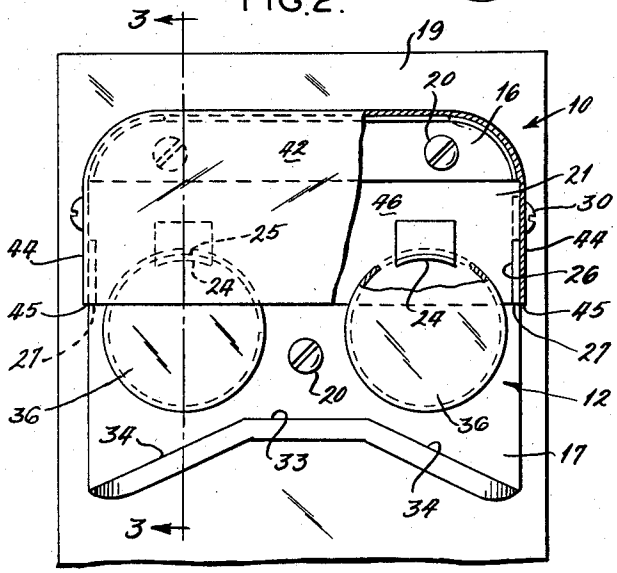


FIG. 3.

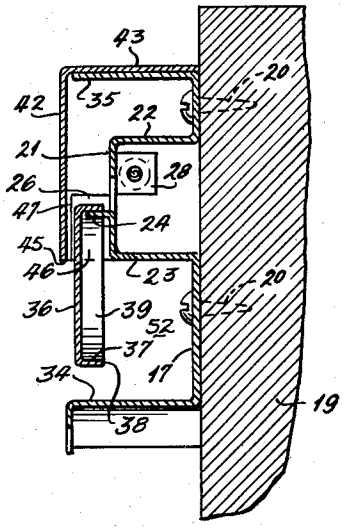
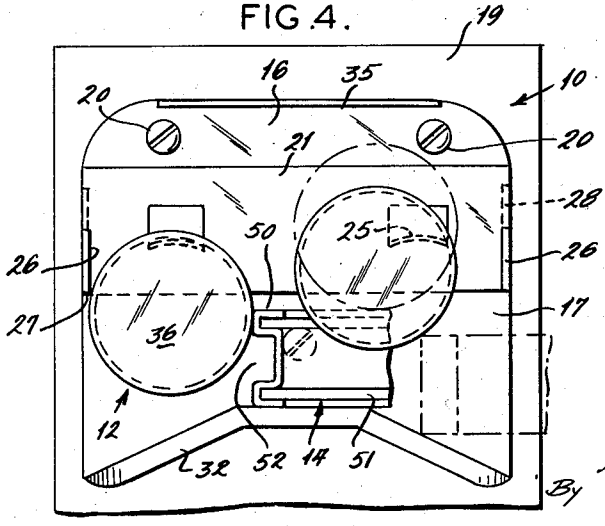


FIG. 4.



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GATE LATCH

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1 Claim. (Cl. 292—299)

This invention relates generally to gate latches and more particularly to improvements in latches of the type having spaced latch rings adapted to automatically receive a projecting latch bar of a gate therebetween for releasably maintaining the gate in closed position.

In the past many gate latches have been devised for slidable or swingable gates or doors, but none of them has been entirely satisfactory. Most of these prior art latches have employed a large number of parts making manufacture and assembly expensive. These parts have also been formed of heavy gauge material inasmuch as large forces are normally exerted on the latch bar, the latch rings and the casing or ring retainer. Accordingly, gate latches heretofore have been large heavy devices, which are awkward to install and expensive to repair.

An object of the present invention is to provide a gate latch for automatically latching a swingable gate in closed position, the gate being adapted to be unlatched quickly and easily from either side. The latch is also adapted for use with sliding gates.

Another object is to provide a gate latch which is simple of construction, having a minimum of parts, and light-weight but sturdy to withstand the forces exerted thereon by the swinging or sliding gate.

These and still other objects and advantages will become apparent hereinafter.

Briefly, the present invention comprises a gate latch including a mounting member having a rearward attaching wall and a forward supporting wall, the latter wall having tab means formed therefrom, latch means carried by the tab means, and retaining means secured to the mounting means including a wall spaced from the supporting wall but in position to maintain the latch elements in free sliding position on the tabs.

The invention also consists in the parts and in the combinations and arrangements of parts hereinafter described and claimed. In the accompanying drawings which form a part of this specification and wherein like numerals refer to like parts wherever they occur:

Fig. 1 is an exploded perspective view, partly broken away, showing the details of a gate latch embodying the present invention,

Fig. 2 is a front elevational view, partly broken away, of the assembled gate latch,

Fig. 3 is a cross sectional view taken substantially along line 3—3 of Fig. 2, and

Fig. 4 is a front elevational view of the gate latch with the retaining means removed to show the positions of the latch elements in response to movement of the latch bar thereagainst.

Referring now to the drawings, it will be seen that a gate latch 10 embodying the present invention includes a mounting member 11, latch members 12, a retaining member 13 and a latch bar 14.

The mounting member 11 includes coplanar upper and lower rearward mounting walls 16 and 17, respectively, having openings 18 for securing the mounting member to a vertical surface of a gate post 19 or the

like with screws 20. Of course, other means may be provided for securing the mounting member 11 to the post 19. The mounting member 11 also includes a forward supporting wall 21 secured to, but spaced from the mounting walls 16 and 17 by upper and lower transverse walls 22 and 23, respectively. A pair of spaced tabs 24 are struck out from the supporting wall 21 intermediate its ends to provide horizontal projections for supporting the latch members 12, the upper surface 25 of each of the tabs 24 being arcuate to form a complementary fit with the latch member 12 positioned thereon. A forwardly extending abutment flange or lug 26 is connected to each end of the supporting wall 21, the lower edges 27 of the lugs 26 being positioned on a plane below tabs 24 for limiting sideways or longitudinal rocking movement of the latch members 12 on the tabs 24, as will become apparent hereinafter. A rearwardly extending fastening flange or lug 28 is also connected to each end of the supporting wall 21, the fastening lugs 28 having threaded openings 29 for receiving screws 30 so that the retaining member 13 and the mounting member 11 may be releasably secured together. The lower margin of the lower mounting wall 17 is provided with a forwardly extending guide plate 32 having a central portion 33 and side portions 34 forming canted ramps to the central portion. The central portion 33 is positioned intermediate the latch members 12 and may serve as a support or rest for the latch bar 14 under circumstances to be described hereinafter. The upper edge of the upper mounting wall 16 is provided with a forwardly extending flap 35 adapted to support and position the retaining member 13 on the mounting member 11.

In the present form of the invention, a pair of latch members 12 are provided, one being positioned on each of the supporting tabs 24. Each of the latch members 12 comprises a substantially circular disc 36 having an annular peripheral side wall or ring 37 integrally attached thereto, the side wall 37 being substantially normal to the plane of the disc 36 and having a free edge 38. The depth of the recess 39 defined by the disc and side wall of each latch member 12 is slightly greater than the length of the supporting tabs 24. Accordingly, the latch members 12 may be positioned over the tabs 24 with the free edges 38 in sliding contact with the supporting wall 21. As seen hereinbefore, the upper surface 25 of the tabs 24 is curved so that the side wall 37 of the latch members 12 will have a complementary fit therewith whereby the latch members 12 will depend from the tabs 24 in spaced relation with the abutment lugs 26. The curve of the tabs 24 also assists in resisting any bending forces exerted thereon during operation of the gate latch 10.

The retaining member or cover 13 includes a forward plate or wall 42, a top wall 43 and end walls 44, all of which are integrally connected to provide a sturdy construction. As shown best in Figs. 2 and 3, the cover 13 is adapted to be positioned on the mounting member 11 so that the top wall 43 is supported on the flap 35 and the front and end walls 42 and 44 extend downwardly and encase the upper portion of the mounting member. The lower edge 45 of the front and end walls 42 and 44 is on substantially the same horizontal plane as the lower transverse wall 23 and the lower edge 27 of the abutment lugs 26. The front wall 42 of the cover 13 is spaced from the supporting wall 21 of the mounting member 11 a predetermined distance as at 46, which distance is greater than the depth of the recesses 39 of the latch members 12 to provide for free vertical movement of the latch members between the walls 21 and 42. It is apparent that the front wall 42 is also spaced from the free edges of the tabs 24 and the discs 36 of the latch members 12 are received therein. However, the

space between the front wall **12** and the free edges of the tabs **24** is smaller than the axial extent of the side walls **37** of the latch members so that the latch members are retained in position on the tabs **24**. The abutment lugs **26**, in addition to supporting and reinforcing the end walls **44** of the cover **13**, have forward edges **47** adjacent to the inside surface of the front wall **42**. Accordingly, the front wall **42** is supported to withstand any bending forces that would reduce the space **46** and restrict the movement of the latch members **12** therein. The end walls **44** of the cover **13** are provided with openings **48**, which register with the openings **29** in the fastening lugs **28**. The metal screws **30** are received through the openings **29** and **48** for securing the mounting member **11** and cover **13** together.

The latch bar **14** is adapted to be secured to a gate or door (not shown) in position to swing or slide with the gate into locked relationship with the latch members **12** when the gate is closed. The latch bar **14** is L-shaped and includes a free end leg **50** and a mounting leg **51**, the latch bar being constructed of light gauge corrugated metal to form a light but strong bar. The latch bar **14** is secured to a sliding gate (not shown) in the position shown in Figs. 1 and 4 with the leg **50** normal to the mounting wall **17** and the leg **51** parallel therewith, the recess **52** (defined by the lower transverse wall **23**, the lower mounting wall **17** and the guide plate **32**) being provided to receive the mounting leg **51** therein so that the latch bar is positioned between the latch members **12** and the wall **17**. Therefore, the latch bar cannot be accidentally displaced from locked condition with the latch members **12**. The latch bar **14** is rigidly attached to the gate in position to slide or swing into locking engagement with the latch members **12** above the center portion **33** of the guide plate **32**. However, it may be desired to provide limited vertical movement of the latch bar **14**, and in such case the guide plate **32** is provided for directing the latch bar **14** into locking position between the latch members **12** and preventing the latch bar **14** from dropping below this locking position. When the latch bar **14** is secured to a swinging gate, the leg **50** is positioned in the recess **52** parallel with the wall **17** and the mounting leg **51** extends outwardly normal thereto. The free end leg **50** is thus positioned between the wall **17** and one of the latch members **12**.

Referring to Fig. 4 for the description of the operation, the latch bar **14** swings or slides with the gate while moving toward closed position relative to the gate post **19**. As the latch bar **14** enters the recess **52**, one of the legs **50** or **51** contacts the adjacent latch member **12** causing it to slide or pivot upwardly in the space **46** between the front wall **42** of the cover **13** and the supporting wall **21**. The latch member **12** will swing toward the center of the mounting member **11** about the tab **24** until the latch bar **14** has passed the center of the raised latch member or into position between the latch members whereby the raised latch member **12** is permitted to fall gravitationally back into depending position on the tab **24**. Further movement of the latch bar **14** (to the left in Fig. 4) into contact with the other latch member **12** will cause this member to move into abutting relation with the lower edge **27** of the abutment lug **26**, it being apparent from Figs. 2 and 4 that the centers of the latch members **12** are positioned below the lower edges **27** of the abutment lugs whereby vertical sliding movement of a latch member **12** after contact with the abutment lug therefor will be effectively prevented. The latch bar **14** is thus retained between the latch members **12**, both of which are pendant and will contact the abutment member **26** adjacent thereto if the latch bar **14** is moved toward gate opening position. The gate is opened by manually raising one of the latch members **12** into the space **46** and moving the latch bar **14** away from the still pendant latch member.

It is now apparent that the latch bar **14** is releasably locked between two normally depending latch members **12** to maintain a gate in closed position. The latch members **12** are raised automatically by the latch bar **14** to permit locking and then return gravitationally to pendant position. It is also apparent that the present gate latch **10** is constructed of light weight material and is reinforced to withstand heavy forces applied thereto. Obviously, the disc portions **36** of the latch members **12** adapt them to withstand far greater forces than if they were formed as a simple ring inasmuch as the disc forms a web of material in the plane of the load or between the latch bar **14** and the abutment lug **26**, the latch member **12** being channel-shaped in cross-section as shown in Fig. 3. In addition, the disc portions **36** of the latch members **12** provide shields for the rings or side walls **37** whereby foreign matter cannot collect in the rings and prevent the free sliding movement of the latch members **12** on the tabs **24**. The abutment lugs **26** support and are supported by the cover **13**. Because of the minimum number of parts, the gate latch **10** is quickly and economically manufactured and assembled.

This specification is intended to cover all changes and modifications of the example of the gate latch herein chosen for the purposes of disclosure, which do not constitute departures from the spirit and scope of the present invention.

What we claim is:

A gate latch comprising a mounting member adapted to be secured to a gate post, said mounting member having a supporting wall with spaced tabs projecting therefrom, said tabs having free edges, stop lugs connected to the ends of the supporting wall and projecting therefrom in the same direction as said tabs; retaining means encasing said supporting wall of said mounting member, said retaining means having a wall in spaced relationship with said supporting wall and the free edges of said tabs; and a pair of latch members each of which includes a disc wall positioned in the space between the wall of said retaining means and the free edge of one of said tabs, and an annular axially extending side wall connected to the periphery of each disc wall and positioned in circumscribing relation with one of said tabs, said latch members being slidable relative to said tabs and the axial extent of said latch member side walls being greater than the distance between the wall of said retaining means and the free edges of said tabs whereby the latch member side walls are adapted to abut the tabs to normally support the latch members thereon.

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