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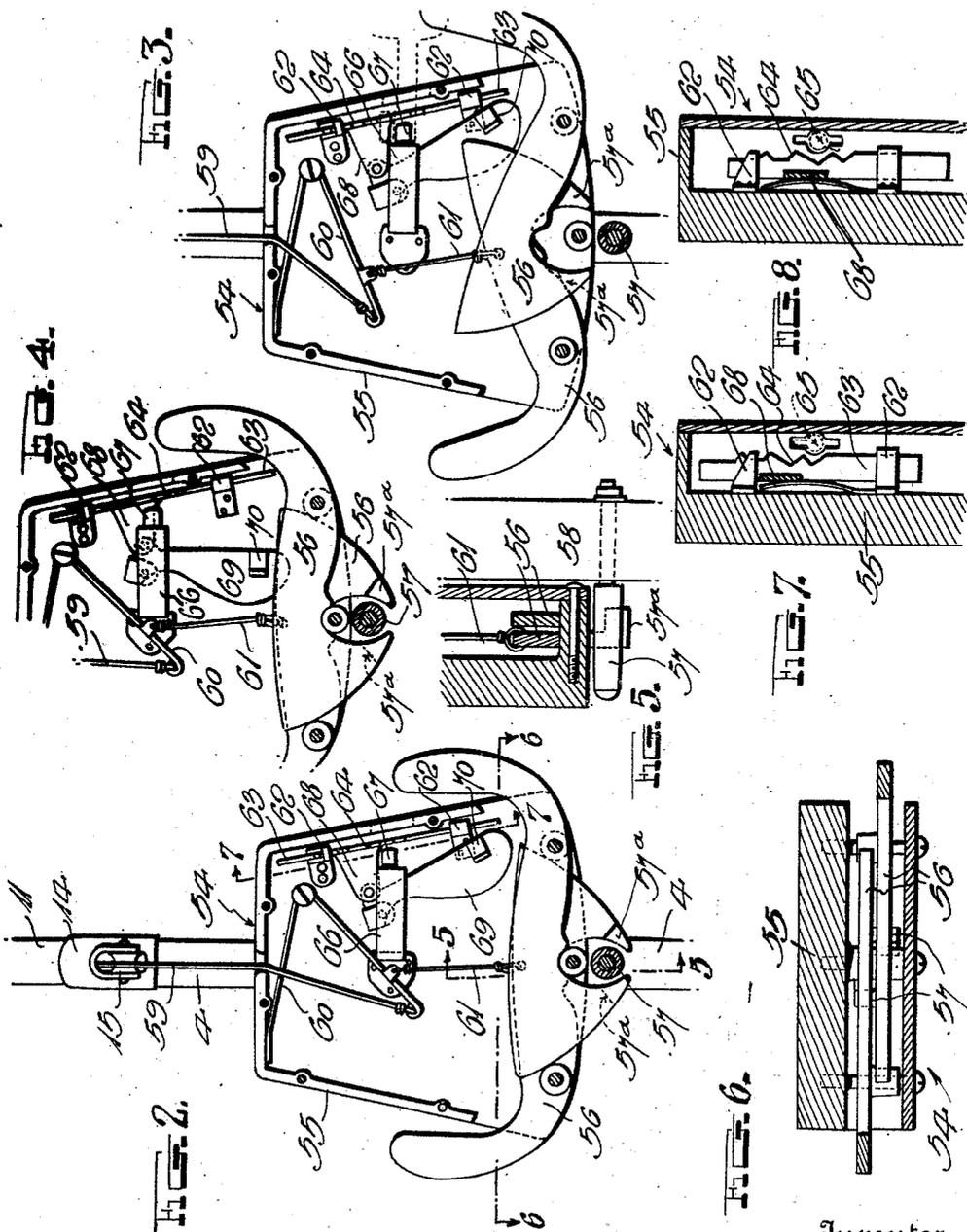
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GATE LATCH

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UNITED STATES PATENT OFFICE.

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GATE LATCH.

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To all whom it may concern:

Be it known that I, MATTI LEHTONEN, a citizen of the United States, residing at Chisholm, in the county of Saint Louis and State of Minnesota, have invented certain new and useful Improvements in Gate Latches; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improved latching and locking mechanism for farm or other gates of the type which extend across a road and having means whereby the latching mechanism is released and the gate swung open by drivers without alighting from the vehicle.

The principal object of the invention is to provide a novel construction of latching mechanism releasable by the driver of a vehicle without alighting and immediately prior to the opening of the gate and also operable by a pedestrian and which will automatically fasten the gate when swung to a closed position.

Another object is to provide means for locking the latching mechanism when in latched position.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same:

Figure 1 is a perspective view of a gate and lock operating means constructed in accordance with this invention, the same being shown in use.

Figure 2 is an enlarged elevational view of the improved lock for the main gate showing the cover plate removed to disclose the internal mechanism.

Figure 3 is a view like Fig. 2 showing the position of parts when the pull-cable is actuated to open the gate.

Figure 4 is a similar view showing the position of parts when locked.

Figure 5 is a detail section taken on the line 5—5 of Fig. 2.

Figures 6 and 7 are detail sections taken on the lines 6—6 and 7—7 respectively of Fig. 2.

Figure 8 is a view like Fig. 7 showing the position of the slide when the levers are locked.

Referring to the drawings wherein the preferred embodiment of the invention is

illustrated in detail, it will be seen that the numeral 1 designates generally a horizontally swinging gate which is formed from a plurality of tubular members connected together by couplings. Specifically described, the horizontal tubes or members of the gate designated by the numerals 2 are connected together at their ends by vertical pipes 3 and 4 respectively. Intermediate the end-pipes are other spaced pipes which constitute mounting means or supports for an auxiliary gate 6 to be used by pedestrians. A plurality of comparatively short horizontally spaced wires 7 extend between the parts 3, 4 and 5 as clearly shown in the drawings to complete the body portion of the gate. Although it is not essential, this gate is so constructed as to include reinforcing and bracing means. In carrying this out, I simply secure vertical pipes 8 to the intermediate couplings 9 of the gate and these pipes themselves are connected with couplings 10 and 10^a to which inclined or diagonal pipes 11 are connected. The last named pipes constitute braces and the coupling 10^a has one of its extensions flattened or constructed as indicated at 12 to accommodate small pulleys 13 which serve a purpose to be hereinafter described. By referring to the forward or free end of the gate, it will be seen that a special coupling 14 is provided to permit connection of the various pipes and to accommodate another pulley 15.

The improved gate is pivotally mounted on brackets 16 secured to a comparatively high post 17 having a cross-piece 18 on its upper end. A pivot pin 19 passes through the bearings 20 and through the aforesaid brackets 16 and serves to connect the gate with the post 17. Coiled springs 21 surround the pivot pin 19 and have their end portions 22 bearing against the post 17 and their opposite end portions extended in parallelism with the ends just described and connected with gate-closing levers 24. Each lever is pivoted between its ends on the pin 19 and the upper one bears at one end against one side of the post whereas the lower one bears at the same end against the opposite sides of the post, the opposite ends of these fingers similarly engaging the rear vertical pipe of the main gate. It is obvious that this construction serves to automatically close the gate and it will be noted that the spring-actuated levers operate entirely sepa-

rate and independent of each other. For instance, the upper lever serves to move the gate in one direction and is automatically rendered ineffective as soon as the gate reaches its closed position and the remaining lever serves to move the gate in an opposite direction and likewise become ineffective at a predetermined time. To enable the invention to be clearly understood, we will assume that the gate is moved toward the right-hand side. In so doing, the upper spring-closing lever is swung on its pivot in such a way as to move the end 23 away from the post. At this time, the lower spring-lever is not affected. Due to the fact that the coiled spring 21 is so associated with this post and spring-lever as to act on the latter, it will be seen that as soon as the gate is released, the spring will function to exert pressure on the lever and the latter will automatically close the gate. As soon as the end 23 comes into engagement with the post, further movement of the lever under consideration will be stopped. It may therefore be stated that the lever fails to operate after the gate assumes a predetermined position during its closing operation. If the gate is swung in an opposite direction, the lower spring-controlled lever operates to automatically close the gate after the latter is released. A sleeve or the like 25 surrounds the intermediate portion of this pivot pin and spaces the two coiled springs apart.

Referring now to the means for simultaneously unlocking and moving the gate to open position from a distance on opposite sides of the fence, it will be seen that I simply employ two cables 26 trained over pulleys 27 mounted on suitable supports 28. Hand-grips 29 are secured to the ends of the cables and the intermediate portions of the latter are wrapped around drums 30 mounted on the upper side of the cross-piece 18 adjacent the opposite ends thereof. The two cables are connected together at the point where they pass through the enlarged part of the coupling 10^a as indicated at 31 (see Fig. 1) and the single cable passes through the aforesaid bracing pipe 11, the free end thereof passing over the pulley 15 and being connected with a locking means to be hereinafter described. With this arrangement, it will be seen that by grasping one of the hand-grips and exerting a pull, the locking means for the gate will be rendered ineffective and the gate swung to open position in the ordinary way. It is desirable after the gate is swung to open position, to hold it in such position and I provide novel means for accomplishing this end, which is preferably in the form of headed latches 32 pivoted on brackets 33 secured to the cross-piece 18, the heads of these latches being designed to engage a shoulder or the like 34 carried by

one of the aforesaid pipes 8. These latches are gravity-lowered and in order to move them to position for releasing the gate to permit it to assume a closed position, I employ small bell-crank trips 35 having one arm engaged with the latch, additional pull-cords or cables 36 being connected with the other arm, for the purpose of lifting the latches as is obvious. The last named pull-cords are also equipped with hand-grips 29 and pass-over pulleys 27 which are provided on the aforesaid support 28.

As before indicated, a special lock is employed in connection with the main gate for holding the latter closed and preventing unauthorized persons from opening it. To enable a clear understanding of the preferred form of lock to be had, I direct attention to Figs. 2 to 6 inclusive. The lock is generally indicated by the numeral 54 and generally speaking, it includes a suitable housing 55 having arranged therein a pair of hand-operated pivoted latches 56 having their inner ends disposed in overlapping relation and provided with jaws designed to grip a suitable keeper 57 on the post 58. By carefully examining the jaws, it will be seen that they are equipped with laterally disposed lugs 57^a which are designed to engage the under edges of the latches. With this arrangement, it will be seen that when one latch is moved, the lug which it carries will be brought into engagement with the remaining latch so as to simultaneously operate the last named latch. It may be conveniently stated here that the manually operated cable which is here indicated by the numeral 59 has connection with one of the latches through the medium of a substantially V-shaped resilient member 60 and a short piece of cord or the like 61. It is therefore obvious that when either one of the aforesaid cables 26 are pulled, the cable 59 will also be moved in a manner to lift one of the latches 56. Consequently, the latches will be disengaged from the keeper 57 and further pull on these cables will open the gate. The inherent resiliency of the member 60 serves to automatically return the parts to the position shown in Fig. 2 with the latches in their normal locking position.

While it is not essential, I prefer to utilize key-controlled means for preventing movement of the latches. As clearly shown in the figures under consideration, there are spaced guides 62 arranged inside of the lock housing and a slide 63 operates through these guides, the slide being equipped with an irregular edge 64 with which the head of a key 65 is designed to co-act for the purpose of imparting sliding movement thereto. The casing is formed with a key-hole to permit insertion and removal of the key and a stationary supporting member 66

having a reduced end 67 is arranged in the casing for supporting the key in proper position to act on the slide. This slide is equipped with a laterally disposed ear 68 having connection with a tumbler 69 and this tumbler is provided with a laterally directed portion 70 which, when in the position shown in Fig. 4, overlies the upper edges of the latches and prevents them from being moved around their pivots. Consequently, the gate cannot be opened until the slide assumes the position indicated in Fig. 7, in which position, it will serve to swing the tumbler 69 to the position shown in Fig. 2. In this position, the laterally directed parts of the tumbler will not interfere with free movement of the latches.

A careful consideration of the description in connection with the drawings will probably be sufficient to enable persons to understand the invention and the manner in which it operates. However, a brief review of the operation may well be mentioned here. To this end, and assuming that a vehicle is approaching the gate from the left, it will be seen that in order to open it, it will only be necessary for the driver to grasp the hand-grip 29 and to exert a downward pull. In so doing, the cable will be shortened to an extent to lift the latch to which it is connected, consequently permitting the gate and causing it to swing in a direction away from the vehicle to a position at right angles with respect to the post 17. As soon as it assumes this position, the latch 32 will automatically engage the shoulder 34 and maintain the gate in this position until the vehicle has passed. When the driver approaches the supporting structure 28, he may reach and grasp the hand-grip 29 controlling the latch-cable 36, thus imparting movement to the bell-crank trip in such a manner as to elevate and disengage the latch from the shoulder. The aforesaid spring-actuated levers 24 now come into play for automatically returning the gate to closed position. In practice, the hand-grips for the cables may be varied in design and color to enable them to be clearly distinguished. As the gate assumes its closed position, the latches automatically re-engage the keeper 57 and the gate is again locked and is so held until operated by this manual means or by hand.

Since probably the best results may be obtained with the construction and arrangement herein shown and described, this is taken as the preferred embodiment of the invention. However, I wish it to be understood that minor changes coming within the scope of the invention as claimed may be resorted to if desired.

I claim:

1. A gate latch comprising a housing, latches pivotally mounted within said hous-

ing and having keeper gripping portions arranged in overlapping relation, a pivoted tumbler arranged in said housing and having a portion co-operative with said latches for preventing movement thereof, and means for operating said tumbler. 70

2. A gate latch comprising a casing, latches pivoted in said casing and having keeper-gripping jaws, a tumbler pivotally mounted in said casing and having a laterally directed portion adapted to overlie adjacent edges of the latches to prevent pivotal movement thereof, and means actuated from the exterior of the casing for controlling said tumbler. 75 80

3. A gate latch comprising a casing, a pair of latches pivotally mounted within said casing and having jaws arranged in overlapping relation for gripping a keeper, a tumbler pivotally mounted in said casing and having a laterally directed portion adapted to overlie adjacent edges of said latches when in operative position, a vertically movable member arranged in said casing and having connection with said tumbler for moving it to operative and inoperative positions and means whereby said member is actuated from the outside of said casing. 85 90

4. A gate latch comprising a casing, a pair of latches pivotally mounted in the casing and having jaws arranged in overlapping relation for gripping a keeper, a tumbler pivoted in the casing and having a portion adapted for co-action with said latches for preventing pivotal movement thereof, a key-operated slide mounted for reciprocation in said casing, and a connection between said slide and said tumbler for actuating the latter. 95 100

5. A gate latch comprising a casing, a pair of latches pivotally mounted in said casing and having jaws arranged in overlapping relation for automatically gripping a keeper, a pivotally mounted tumbler arranged in said casing and having a portion co-operating with said latches for holding them against movement, guides mounted in said casing, a slide arranged in said guides, a connection between said slides and said tumbler for transmitting movement from the former to the latter and means whereby said slide is actuated from the outside of said casing. 105 110 115

6. A gate latch comprising a casing, latches pivotally mounted in said casing and having overlapping hook-shaped inner ends for gripping engagement with a keeper, offset lugs formed on said hook-shaped inner ends, said lugs projecting beneath and adapted to engage the underside of the adjacent portions of the opposite latch whereby the lifting of one latch will lift the other, and operating handles on the outer ends of said latches and projecting out of the opposite sides of said casing. 120 125 130

7. A gate latch comprising a casing, latches pivotally mounted in said casing and having overlapping hook-shaped inner ends for gripping engagement with a keeper, offset lugs formed on said hook-shaped inner ends, said lugs projecting beneath and adapted to engage the underside of the adjacent portions of the opposite latch whereby the lifting of one latch will lift the other, operating handles on the outer ends of said latches and projecting out of the opposite sides of said casing, and means whereby the inner ends of the latches are lifted from a distant point for disengaging the jaws from the keeper.

8. A gate latch comprising a casing, latches pivotally mounted in said casing and having overlapping hook-shaped inner ends for gripping engagement with a keeper, offset lugs formed on said hook-shaped inner ends, said lugs projecting beneath and adapted to engage the underside of the adjacent portions of the opposite latch whereby the lifting of one latch will lift the other, operating handles on the outer ends of said latches and projecting out of the opposite

sides of said casing, and spring-retracted means whereby the inner ends of the latches are lifted from a distant point for disengaging the jaws from the keeper.

9. A gate latch comprising a casing, latches pivotally mounted in said casing and having overlapping hook-shaped inner ends for gripping engagement with a keeper, offset lugs formed on said hook-shaped inner ends, said lugs projecting beneath and adapted to engage the underside of the adjacent portions of the opposite latch whereby the lifting of one latch will lift the other, operating handles on the outer ends of said latches and projecting out of the opposite sides of said casing, a spring arranged in said casing, a flexible connection between said spring and the inner end of one of said latches, and an operating element connected with said spring whereby the inner ends of the latches are lifted from a distant point for disengaging the jaws from the keeper.

In testimony whereof I have hereunto set my hand.

MATTI LEHTONEN.