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AUTOMATIC GATE.
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JOSEPH L. MANLOVE, OF MILTON, INDIANA.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOSEPH L. MANLOVE, a citizen of the United States, residing at Milton, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Automatic Gates, of which the following is a specification.

My invention relates to that class of swinging gates which may be opened and closed either by trip-rods, that are moved by trips placed to be engaged by the wheel of a vehicle, or by hand-pulls located at a suitable distance from the gate; and my invention consists in the construction of the gate-supporting devices and catches used in connection therewith, as will be hereinafter set forth.

In the accompanying drawings, Figure 1 is a perspective view of the gate and its fittings. Fig. 2 is a detail plan view showing the fittings attached to the gate-supporting post and to the gate, the parts being positioned as when the gate is closed. Fig. 3 is a similar view showing the gate moved off of its vertical and horizontal center prior to the commencement of its opening or closing movement. Fig. 4 is a side elevation of the elbow that connects the upper horizontal bar of the gate to the front vertical bar, such elbow having a projecting lug or latch. Fig. 5 is a detail view of a hand-operated gate-opening device that may be used in connection with the wheel-actuated trips or independent thereof. Fig. 6 is a front view of a part of the catch-supporting post, showing a catch and a stop attached thereto, the lugs or latches that project from the gate or its elbows being shown in section; and Fig. 7 is a detail view of one of the catches that are attached to the back post for holding the gate open.

A gate supported by the fittings shown may be opened by the trips which are placed to be moved by the wheel of a vehicle as it approaches the gate, the other trip that is subsequently engaged by the wheel closing the gate after the vehicle has passed the gateway. The gate may also be provided with hand-pulls for opening and closing the gate, for it is only necessary to turn the gate-supporting bar that operates to first raise the gate to release it from its retaining-catches, the bar and fittings throwing the gate off of its vertical center, so that it will swing either open or shut.

The gate-frame A is preferably made up of

horizontal and vertical tubes, which are connected by elbows *a*, *b*, *c*, and *d*, the elbows *c* and *d* having projecting lugs or rigid latches *c'* and *d'*, that engage catches attached to the posts B and B'. The main gate-post C carries brackets *e* and *f*, such brackets having through the horizontal projecting portion circular openings through which the bar D is passed. The upper end of the bar D above the bracket *e* is key-ended or squared and has fast upon its squared portion an arm or link *g*, and to the lower end of the bar D below the bracket *f* there is attached a plate or double-crank arm *h*, to which the trip-rods are attached. The vertically-supported bar D above the lower bracket *f* has fast thereon yoke-bearings *i*, the vertical members of the yoke-bearings being maintained to be disposed at right angles to the link or arm *g*, and the plate or double-crank arm *h* is secured to the bar to be held at an angle of forty-five degrees with respect to both the arm or link *g* and the vertical members of the yoke-bearing. The angular relation of the fittings *g*, *h*, and *i* upon the bar D, to which a turning movement is given to open or shut the gate, materially simplifies the construction and does away with movable parts on the turning-bar.

The lower end of the elbow *a* bears upon the outer end of the arm or link *g* about the circular opening therethrough, and the rear bar or tube of the gate-frame is passed through the opening in such arm or link, so that the weight of the gate will practically be carried by the arm, and to the lower portion of the bar or tube there is attached a yoke or forked plate *k*, provided with a central recess *k'* of the same circumference as the bar D, against which the recessed part of the yoke bears, and on each side of the central recess are smaller recesses *k''*, in which lie the vertical members of the yoke-bearing when the gate is either open or shut. The yoke or forked plate has projecting side members with parallel inner faces that are spaced about the same distance apart as the outer faces of the vertical members of the yoke-bearings. This construction admits of the gate being opened by hand, while the bar D is held against a turning movement. Thus in opening the gate by hand it is only necessary to lift its front end, when it may be opened, the gate when released closing automatically.

The trips *n* *n'* and the trip-rods *m* and *m'*

are arranged in the usual manner, so that the gate will be opened and closed by a vehicle, and when the gate, as shown by Fig. 1, has the rod or bar D extended upward and is provided with arms *v v* and cross-bars *w w*, to which suitably-guided flexible connections are attached, as shown by Fig. 5, the gate may be opened by drawing downward upon hand-pulls attached to the ends of the cords or flexible connections, and it will be noted that the trips and the hand-pulls may be used together upon the same gate or they may be applied independently.

The back or stop post B', against which the gate strikes when opened, carries two similarly-constructed catches *o o*, which are fastened to the face of the post that is farthest from the gate-post C. The catches *o* each have horizontal projecting portions and coils *o'*, the ends of the coils extending inward and upward to provide inclined and resilient members, against which the lugs *c'* and *d'* of the elbows *c* and *d* abut when the gate is swung open, and in use the lugs will ride upon the resilient and inclined ends of the catches and after passing the ends will drop upon the horizontal parts to lie between the post and the coils, holding the gate open until the front end is lifted above the catches, when the gate will swing across the roadway.

The post B in line with the lug or latch of the elbow *d* has attached to the side that is nearest to the post C a plate *p*, such plate having a projecting portion with inclined sides, upon which the lug *d'* may ride before resting upon the flat central part of the plate. A part of the outward-projecting portion of the plate *p* is cut away to admit of the swinging of a stop-pin *r*, that is pivoted to a vertical portion of the plate *p*, and the pin may swing until arrested by one of the shoulders at the end of the recess. The end of the pivoted stop-pin *r* when against one of the shoulders will be vertical and when against the other shoulder it is inclined. When the gate is swung from an open to a closed position, the lug or latch *d'* on the lower front corner of the gate will ride upon the inclined part of the plate, and its movement will be arrested over the horizontal portion of the plate by the pin, and when the gate is opened by hand in an opposite direction from which it is opened by the trips or the hand-pulls the stop-pin will be inclined, so that the gate may be readily lifted over the pin when raised by the opening and closing mechanism.

The catch *c''* on the upper portion of the post B is placed to be engaged by the lug or latch *c'* of the elbow *c*, and this catch is made from a single piece of wire, a part thereof being shaped to lie against the face of the post,

to which it is secured by staples. This wire is bent upon itself to provide a pair of vertically-disposed coils, from which extend outward-projecting members, the ends of which are bent upward, such ends terminating so as to provide a space between them that is slightly wider than the lug *c'*. When the gate is closed, the lug or latch *c'* is positioned below the inclined ends and between the coils of the catch *c''*, the inner sides of the coils restraining swinging movement of the gate.

When the vertically-maintained bar D is given a partial rotation in its brackets, the link *g* and the yoke-bearings by engagement with the yoke places the gate out of vertical alinement or off of its center, the front end of the gate being lifted to release the lug or latch from the catch, so that the gate will swing open and against the stop-post and in engagement with the catches thereon. A reverse action of the bar will close the gate.

Having thus set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a swinging gate having a fixed stud that projects from the gate, means for lifting and inclining the gate, of a catch attached to one of the posts to be engaged by the stud such catch having a vertically-disposed coil and a part connected to and extending above the coil, for the purpose set forth.

2. In a swinging gate the combination with gate-operating means and a fixed stud attached to the front bar of the gate, of a catch attached to one of the gate-posts the catch having vertically-disposed coils and upward-inclined members which terminate above the coils, substantially as shown.

3. The combination with a swinging gate, means for operating the same and a projecting lug or latch which is fixedly attached to the gate, of a catch having a coil or resilient portion and beyond the coil or resilient part an inclined projecting part over which the latch will ride and then drop to be in line with the coil, substantially as set forth.

4. In combination with a swinging gate, means for operating the same to raise and incline the gate, and a fixed lug carried by the front bar of the gate, of a catch attached to one of the gate-posts such catch having a projecting portion and a vertically-disposed coil, an inclined terminal above the coil with which the lug is adapted to engage and then pass beyond such part to drop in line with the coil, substantially as set forth.

JOSEPH L. MANLOVE.

Witnesses:

LAFE CROSS,
CHARLES H. CALLAWAY.