

June 5, 1928.

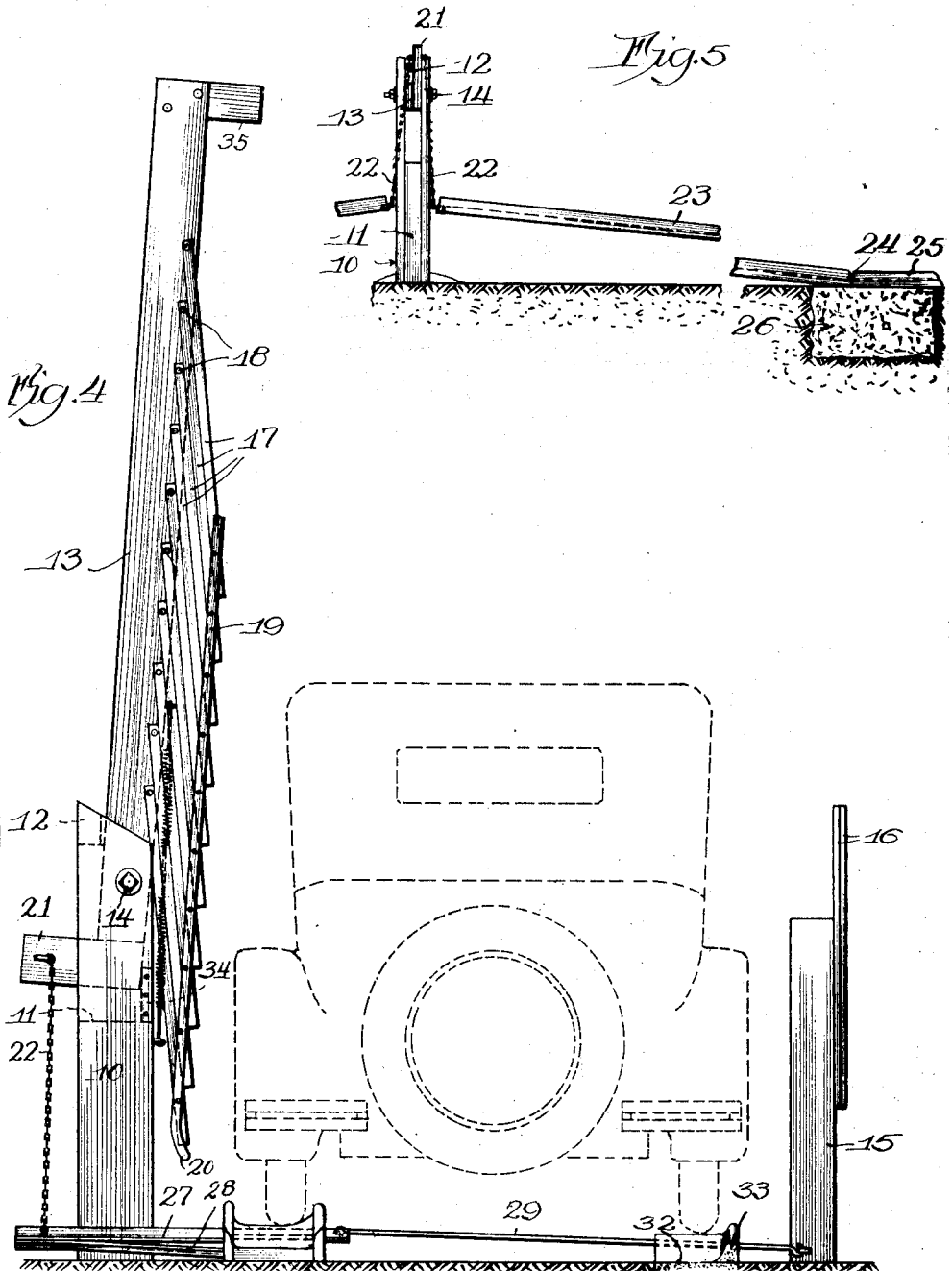
1,672,723

N. A. McCLARY

VEHICLE ACTUATED GATE

Filed Sept. 17, 1927

2 Sheets-Sheet 2



Witness:
Chas. R. Bursh

Inventor,
Nelson A. McClary
George Ogden Jones, Atty

UNITED STATES PATENT OFFICE.

NELSON A. McCLARY, OF EMPIRE, MICHIGAN.

VEHICLE-ACTUATED GATE.

Application filed September 17, 1927. Serial No. 220,167.

My invention relates to improvement in vehicle operated gates and more particularly to a fence gate automatically opened and closed by an automobile.

Devices of this kind, as heretofore constructed, have involved in some cases a lever or arm projecting from the ground, adapted to be depressed by the vehicle passing over it for the purpose of operating the gate, but in such cases the actuating force is applied for such a short interval of time that the gate would operate too abruptly with heavy motor vehicles, as distinguished from the lighter horse drawn vehicles of an earlier period.

In other cases the gates have involved pulleys, ropes and counter weights, or operating parts located below the ground level, most of which are not practical when used on a farm as ropes deteriorate rapidly and if counterweights or other parts are sunk in the ground, the mechanism becomes inoperative in freezing weather, unless suitable drainage for the pits is provided which makes the cost of such installation prohibitive.

The general object of the present invention is to provide a practical vehicle operated gate in which the actuating force is applied over a substantial interval of time without slowing down the vehicle to an unnecessary extent, and to provide one in which none of the actuating mechanism is located below the ground level and one having no counter weights or pulleys or complicated parts which may get out of order or wear out easily.

In the accompanying drawings I have illustrated one embodiment of my invention.

Fig. 1 is a front elevation of the gate.

Fig. 2 is a plan view thereof.

Fig. 3 is a side elevation of an end post.

Fig. 4 is a front elevation of the gate in open position, and.

Fig. 5 is a side elevation of said gate.

A post 10 is embedded in the ground, and in the present case consists of a pair of spaced apart wooden uprights which may, for example, be three by eight inches, with suitable filler members 11, 12. The main gate member 13 is pivoted to the post, at 14, near one end, with its other end normally resting on the top of a second post 15, the upright end of which is provided with a pair of converging guide members 16 which guide said horizontal member as it swings from its open or nearly vertical position

to its closed or horizontal position. This horizontal member has a plurality of depending vertical bars 17 hinged thereto in any suitable manner, as by bolts 18 whereby said bars hang downwardly and tend to fold against each other when the gate is in elevated position, as shown in Fig. 4. The lower ends of said bars 17 are connected, preferably to a transverse spacing bar 19, which has an extension 20 at its end made preferably of metal, the other end being near the post 15. Said transverse bar maintains the spacing of the vertical bars, in any position of the horizontal member 13, and when the gate is closed prevents cattle from pushing the individual bars aside or as a whole to any extent. The downward extension 20 clears the post 10 as the gate swings upward to enable the bars 17 to fold closely together.

At the left hand end of the horizontal gate member 13, as shown in Fig. 1, is a vertical extension or elbow 21, to which a pair of chains 22 or other tension members are connected, either chain serving to open the gate when drawn downwardly.

The mechanism for exerting this downward pull consists of a pair of runways 23, one on each side of the gate, said runways having preferably the form of a trough hinged at 24 to a short extension trough 25, the latter being solidly mounted at the ground level, preferably on a concrete block 26 imbedded in the earth. This rigid mounting is desirable to minimize the tendency of the runway to twist, as hereinafter explained. Each runway is preferably inclined upwardly very gradually toward the gate from its hinge and at its upper end it is provided with a rigid frame extending toward the chain. This frame may consist of a pair of converging angle irons 27, 28, to which the chain 22 is attached. As an automobile is driven slowly toward the gate, the front and rear wheels on one side run along the track or runway, gradually depressing the same and thus pulling downwardly on the chain and raising the gate. As the force applied to the chain is offset from the center line of the runway there is a turning moment tending to twist the runway, which twisting moment is resisted by the hinges 24. A tie-rod 29 having a universal joint at each end is connected with the upper end of the runway and the lower end of the post 15. This tie-rod insures an up and down movement of the free end of

the runway in substantially a vertical plane whereas otherwise said end would tend to swing to one side beneath the point at which the chain is secured to the extension 21 and thus subject the hinges to a very great side stress tending to tear them loose.

As the gate ascends, its movement is accelerated due to the increasing leverage by the weight of the vehicle, and in order to prevent a heavy blow against the main post due to the sudden cessation of the upward swing, I provide one or more coiled springs 30 secured to suitable links 31 attached at one end of the series to the horizontal member 13 and at the other end to the vertical post 10. These springs are relaxed under normal conditions as shown in Fig. 1, but are extended as the gate completes its upward swing, thereby cushioning its upward movement and also maintaining the necessary tension on the gate to insure a prompt closing thereof as the vehicle is passing off of the second one of the two runways 23. It will be understood of course that the gate may be actuated by a vehicle approaching from either side. A concrete block 32 having a curb 33 projecting therefrom, may be set in the ground at a suitable distance from each runway 25 to aid in guiding the vehicle onto said runway. This concrete block may be extended to the gate if desired to form a fixed runway parallel to the movable runway 23, or it may be very short, corresponding in length to the short runway 25, or the concrete block 26. These auxiliary fixed runways, where they extend to the gate in alignment with each other, terminate at the same, leaving a space or channel between their adjacent ends and directly under said gate, in which the tie-rod is received when the inclined runways 23 are depressed by the weight of the automobile.

When the gate is in uppermost position the elbow 21 swings downwardly between the two outside members 10 of the main post until it strikes the stop 34. As the gate descends, the free end thereof is guided into place by the diverging members 16, mounted on the other post 15. The arrangement is such that by approaching the gate slowly the weight of one-half the vehicle is applied gradually and over an extended interval of time to the runway, opening the gate with a smooth swinging movement devoid of jerks or sudden blows either at the beginning or end of said movement. As the front wheel of the vehicle leaves the end of the first trough 23, it passes immediately over onto the second trough, whereby the second trough aids in holding the gate open while the rear wheel of the vehicle passes from the first trough to the second.

As the vehicle passes beyond the gate, the latter begins its downward movement promptly but requires a substantial inter-

val of time for its completion as said movement is retarded by the weight of the vehicle, the effectiveness of which decreases as it moves toward the hinge at the distant end of the runway. As the horizontal member swings downwardly and comes to rest on top of the vertical post 15, no damage is caused by whatever impact results as it is applied directly to the top of the post. However, if desired, any suitable cushioning device, such for example as a dash-pot, may be used. The weight 35 at the right hand end of the horizontal member 13 may be fastened thereto at a variable distance from the end in whatever position is best suited to the closing of the gate, i. e. it may help to start its downward movement, although such weight is not essential. It is desirable, however, on light structures in which the springs 30 may be omitted. To enable the hinge to better resist the stress that is applied to it, the stationary part of it may be deeply imbedded in the concrete block.

Various changes may be made in the structure described herein without departing from the spirit of the invention as expressed in the appended claims.

What I claim is:

1. A vehicle operated gate comprising a post, a horizontal member pivoted thereto near one of its ends, bars depending therefrom, in substantially vertical position, a movable track member on which one of the wheels of a vehicle may run when approaching said horizontal member, thus gradually depressing the end of said track nearest said horizontal member, means connecting one end of said horizontal member with the adjacent end of said track member, to swing said horizontal member in a vertical plane about its pivotal support and means for cushioning the upward movement of said horizontal member.

2. A vehicle operated gate comprising a post, a barrier arranged to swing thereon, an inclined trough on which one of the wheels of a vehicle may run in approaching said gate, said trough being pivoted to a fixed support at its lower end and connected with said barrier at its upper end, and a tie member connected to the upper end of said trough and to a fixed support to guide the up and down movement of said end.

3. A vehicle operated gate comprising a post, a horizontal member pivoted thereto between its ends, a plurality of depending bars hinged to said horizontal member on one side of said post and constituting a barrier, a tension member depending from the other end of said horizontal member, an inclined runway hinged to a fixed support in the ground, a frame rigidly secured to the upper end of said runway and connected to the lower end of said tension member, whereby the weight of a vehicle on said

runway will raise said barrier to a nearly vertical position, and a spring connected to said horizontal member and to said post, whereby it is extended when said horizontal member approaches the upper limit of its movement to cushion said movement.

4. In a vehicle operated gate, a pair of vertical posts, a horizontal member pivoted to one of said posts near one of its ends, a plurality of bars hinged to and depending from said horizontal member between said posts to form a barrier, a horizontal bar near the lower end of said vertical bars to hold them in fixed relation, a runway hinged at one end and arranged to have its other end depressed by the weight of a vehicle, being connected to the projecting end of said horizontal member to raise said barrier, said horizontal bar having a downward extension at one end to clear the post to which said barrier is pivoted, during the upward movement.

5. A vehicle operated gate comprising a post, a horizontal member pivoted thereto near one of its ends, a movable track member on each side of said horizontal member on which one of the wheels of a vehicle may run when approaching said horizontal member, thus gradually depressing the end of

said track nearest said horizontal member, two vertical tension members each connecting one end of said horizontal member with a rigid lateral extension on the adjacent end of each of said track members to swing said horizontal member in a vertical plane about its pivotal support and means for cushioning the upward movement of said horizontal member.

6. A vehicle operated gate comprising a post, a horizontal member pivoted thereto near one of its ends, a movable track member on which one of the wheels of a vehicle may run when approaching said horizontal member, thus gradually depressing the end of said track nearest said horizontal member, means connecting one end of said horizontal member with the adjacent end of said track member to swing said horizontal member in a vertical plane about its pivotal support, means for cushioning the upward movement of said horizontal member and a curb spaced from the end of said track remote from said horizontal member for guiding the wheels of a vehicle onto said track.

In testimony whereof, I have subscribed my name.

NELSON A. McCLARY.