A. WILLIAMSON.

AUTOMATIC GATE.

APPLICATION FILED NOV. 19, 1914.

1,152,999.

Patented Sept. 7, 1915.

2 SHEETS—SHEET 1.

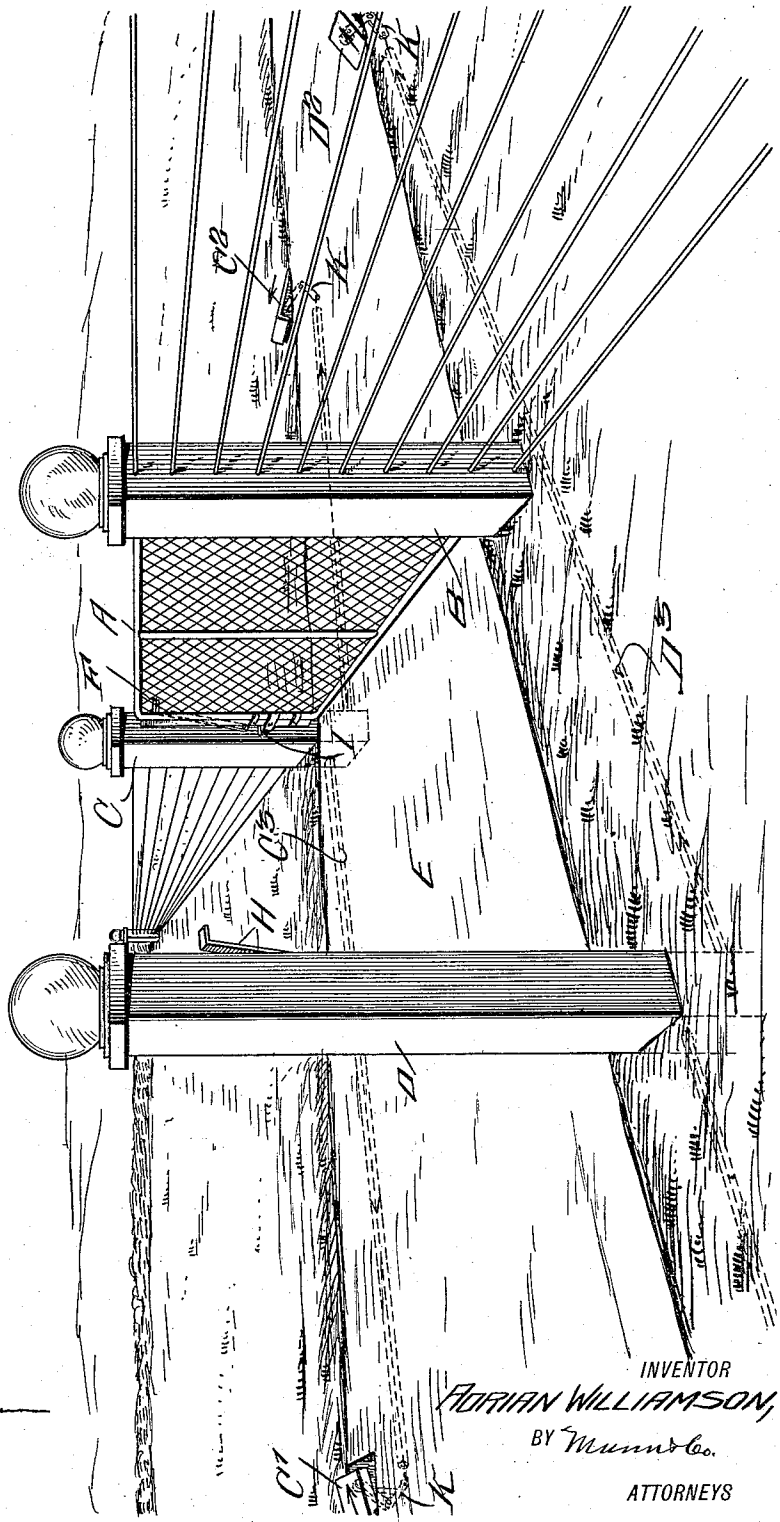


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

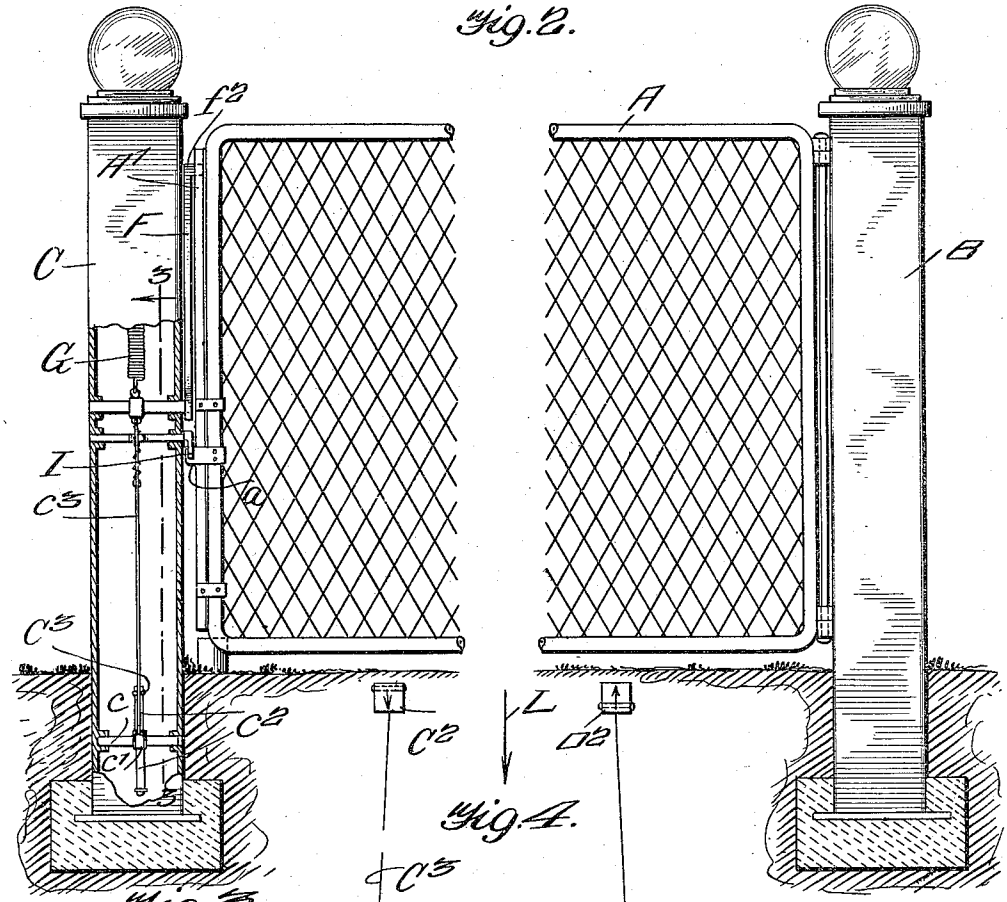


Fig. 4.

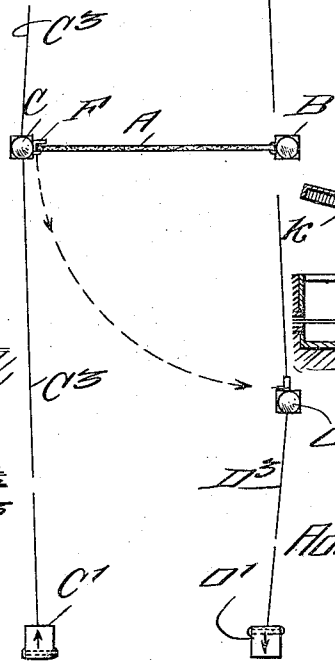


Fig. 3.

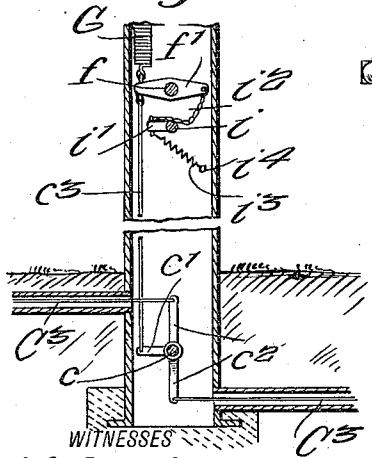
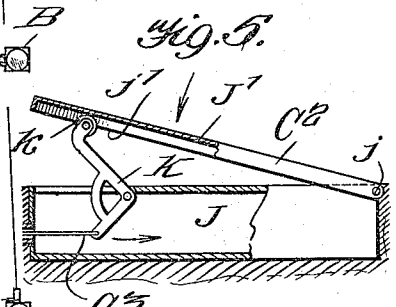


Fig. 5.



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ADRIAN WILLIAMSON, OF MONTICELLO, ARKANSAS.

AUTOMATIC GATE.

1,152,999. Specification of Letters Patent. Patented Sept. 7, 1915.

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To all whom it may concern:

Be it known that I, ADRIAN WILLIAMSON, a citizen of the United States, and a resident of Monticello, in the county of Drew and State of Arkansas, have invented an Improvement in Automatic Gates, of which the following is a specification.

My present invention relates generally to automatic gates and more particularly to that type of gate which is designed to be operated by road-side mechanism depressible under the weight of vehicles and pedestrians so as to both open and close the gate when passing the same in either direction.

The various objects of my invention reside in, and the advantages result from, the particular construction, arrangement and operation of the several parts to be now described with reference to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view illustrating the several parts of my invention, the gate being shown closed. Fig. 2 is a sectional side elevation of the entire gate-way, parts thereof being broken away in order to better illustrate the operating mechanism. Fig. 3 is a vertical section through the lower portion of the latch post, taken substantially on line 3—3 of Fig. 2. Fig. 4 is a diagrammatic plan illustrating the relative arrangement of the gate, its several posts and the road-side actuating mechanism, and Fig. 5 is a sectional detail elevation of one of the track-side operating mechanisms partly broken away.

Referring now to these figures it will be seen that I provide a gate A hinged to a hinge post B to swing between the latch post C and the stop post D, the former being upon the relatively opposite side of the roadway E from the hinge post B and the latter being on the same side of the road and spaced from the hinge post the same distance as the latch post C.

The road-side actuating mechanisms are arranged in pairs at the sides of the roadway E upon opposite sides of the gateway and suitably remote therefrom, the mechanisms C′ and C² upon the said side of the roadway E having connections with the latch post C for releasing and moving the gate A therefrom and the mechanisms D′ and D² on the opposite side of the roadway E having connections with the post D to release and move the gate A from the stop post D.

Within the lower portions of the latch and stop posts C and D are mounted certain parts and connections which are identical so that a description of the parts and connections of latch post C will suffice to give a clear understanding of both. As will be seen by reference to Figs. 2 and 3 the post carries an internal lower transverse shaft *c* which is provided at this end with a lateral arm *c′* and with upright and depending arcs C² to the latter of which are secured the flexible connections C³ leading from the road-side mechanisms C′ and C². Within the latch post C which is hollow and similar in construction to the stop post D, shaft *c* has its lateral arm *c′* connected by a vertical connecting rod *c*³ with one end of an arm *f′* intermediately secured upon a transverse shaft *f*, transversely journaled through the post at a distance above the shaft *c* and having an exteriorly projecting end to which is secured the lower end of on upright arm F, the upper angular extremity *f*² of which is adapted for engagement with the upper free end portion of a spring strap A′, the lower portion of which is secured to the outer free side of the gate A. The same end of the shaft arm *f′* is connected to the lower end of a retractile coil spring G, the upper end of which is suitably anchored within the upper portion of the post C.

As thus far described, the posts C and D are identical in construction and arrangement, the latter having a gate moving arm H, as seen in Fig. 1, which is internally connected and controlled in the same manner as described in connection with the gate moving arm F of the post C. The latch post C is also provided with a transversely journaled shaft *i*, one end of which projects exteriorly and carries a swinging latch member I for engagement with the latch piece *a* of the gate. This shaft *i* has an intermediate laterally extending crank arm *i′* within the post, the end of which is connected by an upwardly extending chain *i*² to the other end of the intermediately connected crank arm *f′*, and to which end of crank arm *i′* is also connected the downwardly extending spring *i*³ the lower end of which is anchored within the post as at *i*⁴. The stop post D also has a latch member similar to the latch

post C inasmuch as it is desirable that the gate be latched in open as well as closed position. Thus when the connections C^3 of the stop post are pulled so as to lower the shaft arm c', the gate moving arm F engages the upright spring strap A', and forces the upper free portion of this strap some distance in the direction toward which the gate is to be moved, and before the latch I is released. The latch then releases due to the pull of the chain i^2 and the gate is forced smoothly but rapidly in the direction in which it is to be moved, by the combined force of the recoiling spring strap and the direct sweep of the arm F against the said spring strap. Due to this construction the gate is given practically the same force of movement where the vehicle passes slowly over the particular actuating mechanism as when passing swiftly thereover. It will be noted that the latch I is released against the tension of spring i^3 and that this spring permits movement of the said latch to again engage the gate, without movement of the remaining parts, particularly as the connection between the lateral arms i' and the end of arm f', is a flexible one. After each actuation of the gate, the operating parts within either the stop or latch post are similarly returned to normal position, as shown in Figs. 2 and 3, by virtue of the retractile coil spring G before mentioned.

It will thus be understood that through the simple and effective means shown and described, I am enabled to open and close the gate without the necessity of carrying any of the operating parts upon the gate itself and that I am enabled to inclose these operating parts within the latch and stop posts for the sake of appearance as well as for the effective protection of these parts. In this connection it is to be noted that it is only necessary that the gate moving arms and the latch members project exteriorly.

Each of the road-side actuating mechanisms one of which is shown in detail in Fig. 5, includes a box J, embedded at the side of the road so that its top is substantially flush with the surface thereof, and provided with a cover J' hinged thereto at one end as at j, said cover being preferably of sheet metal and provided with flanged sides j' for purposes of added strength. Within the box thus disposed is pivoted a bell crank lever K, the upper free end of which carries a roller k in engagement with the under surfaces of the cover J' and to the lower end of which is secured one of the flexible connections C^3 and D^3. Thus with reference to Fig. 4, a vehicle or pedestrian approaching in the direction of the arrow L and with the gate in closed position as shown in this figure, depresses the inclined hinged cover of the mechanism C^2 so as to release the free side of the gate A from the latch post C and swing the same to the stop post D, in the manner before described and after proceeding through the gateway thus opened, depresses the hinged cover of the mechanism D' in order to swing the gate again to closed position. The same operation takes place if approach is made from the opposite direction by first depressing the hinged cover of mechanism C' and, after passage through the opened gateway, depressing the hinged cover of the mechanism D^2 to again close the gate.

An automatic gate constructed as I have shown and described may be quickly and easily erected, will be highly effective in its use for the purposes outlined, and will be strong and durable in addition to the fact that it is capable of use in connection with gates of various sizes and construction and permits of the use of the various types of posts.

I claim:—

1. The combination with a swinging gate, of a spring strap secured at one end thereto, a post at the free side of the gate, a shaft journaled transversely through the post and projecting exteriorly thereof through its side adjacent the side of the gate, an arm secured at its lower end to the said projecting shaft, and projecting upright along the said post side, the said arm having an upper angular extremity for engagement with the free portion of the said spring strap, and road-side means remote from the post and having connections with the said shaft and extending within the post whereby to rock the shaft and swing the said upright arm in order to move the free side of the gate away from the said post.

2. The combination with a swinging gate, a spring strap secured at one end to the free side of the gate, a post having a pair of transverse shafts journaled therethrough and provided with exteriorly projecting ends one above the other adjacent the free side of the gate, an upright arm secured at its lower end to the projecting end of the upper shaft and extending vertically along one side of the post and provided with an angular extremity at its upper end adapted to engage the free end portion of the said gate strap, a latch piece secured to the projecting end of the lower shaft for engagement with the gate, said last named shaft having a lateral arm within the post and a spring connected to and depending from the said arm and secured at its lower end to the post, an arm intermediately secured to the upper shaft within the post, a chain connecting one end of the last-mentioned arm to the arm of the lower shaft, and road-side means remote from the post and having flexible connections with the other end of the arm of the upper shaft whereby to simultaneously release the latch member from the gate

and swing the upright arm to move the gate away from the post, the latch member being movable, through the flexible connections of its shaft arm, independent of movement of the said upright arm and its shaft when engaging the gate.

3. The combination with a swinging gate, having a spring strap at one side of a post having a latch for engagement with the free side of the gate, a gate moving member carried by the post and movable to engage said gate strap and swing the gate away from the post before the latch is released, means located remote from the post and having connections with said gate moving member for moving the same, and connections between the latch and the said gate moving member whereby to release the former after initial movement of the latter.

4. The combination with a swinging gate, having a spring strap at its free side, of a post having a spring controlled latch for engagement with the said free side of the gate, a gate moving member carried by the post and movable to engage said spring strap before the latch is released, means located remote from the post and having connections with said gate moving member for moving the same, and connections between the latch and the said gate moving member whereby to release the former during movement of the latter, said last named connections being flexible whereby the latch may move upon engagement of the gate therewith, independent of the gate moving member.

5. The combination with a swinging gate, of a post having a latch for engagement with the free side of the gate, a gate moving arm carried also by the said post and having a swinging movement with respect thereto, road-side means remote from the post and having connections for swinging said gate moving arm and disengaging the latch during such swinging movement of the said gate moving arm, and elastic means carried by the gate whereby to permit limited relative movement of the gate moving arm previous to the release of the latch.

6. The combination with a swinging gate, of a post having a latch for engagement with the free side of the gate, a gate moving arm carried also by the said post for swinging the gate away from the post when the latch is released, road-side means remote from, and on relatively opposite sides of, the post, and each having connections therewith for disengaging the latch and swinging said gate moving arm and a movable spring member carried by the gate and with which said gate moving arm engages.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."