

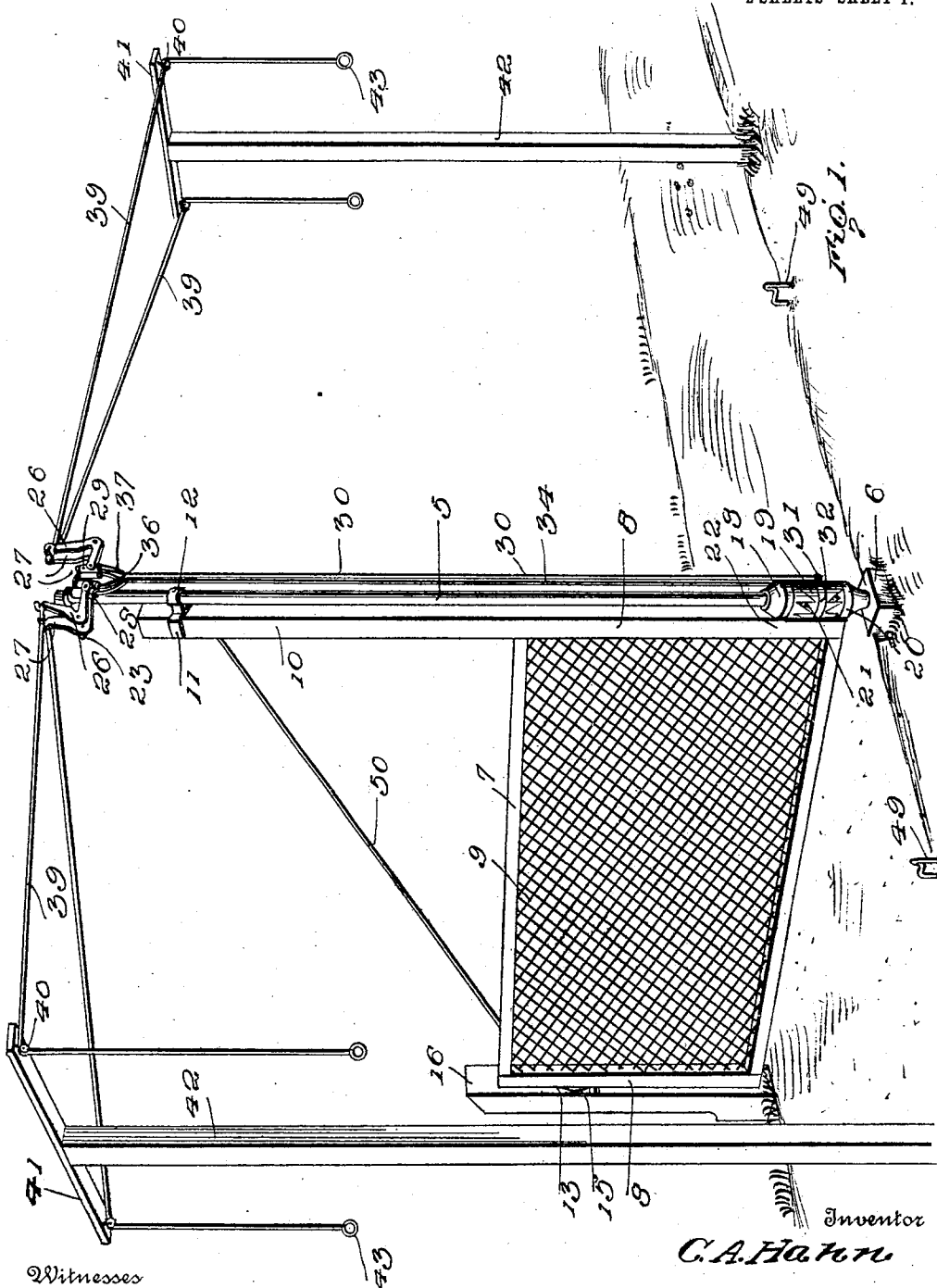
C. A. HAHN.
AUTOMATIC GATE.

APPLICATION FILED OCT. 28, 1909.

Patented Aug. 30, 1910.

2 SHEETS—SHEET 1.

968,846.



Witnesses

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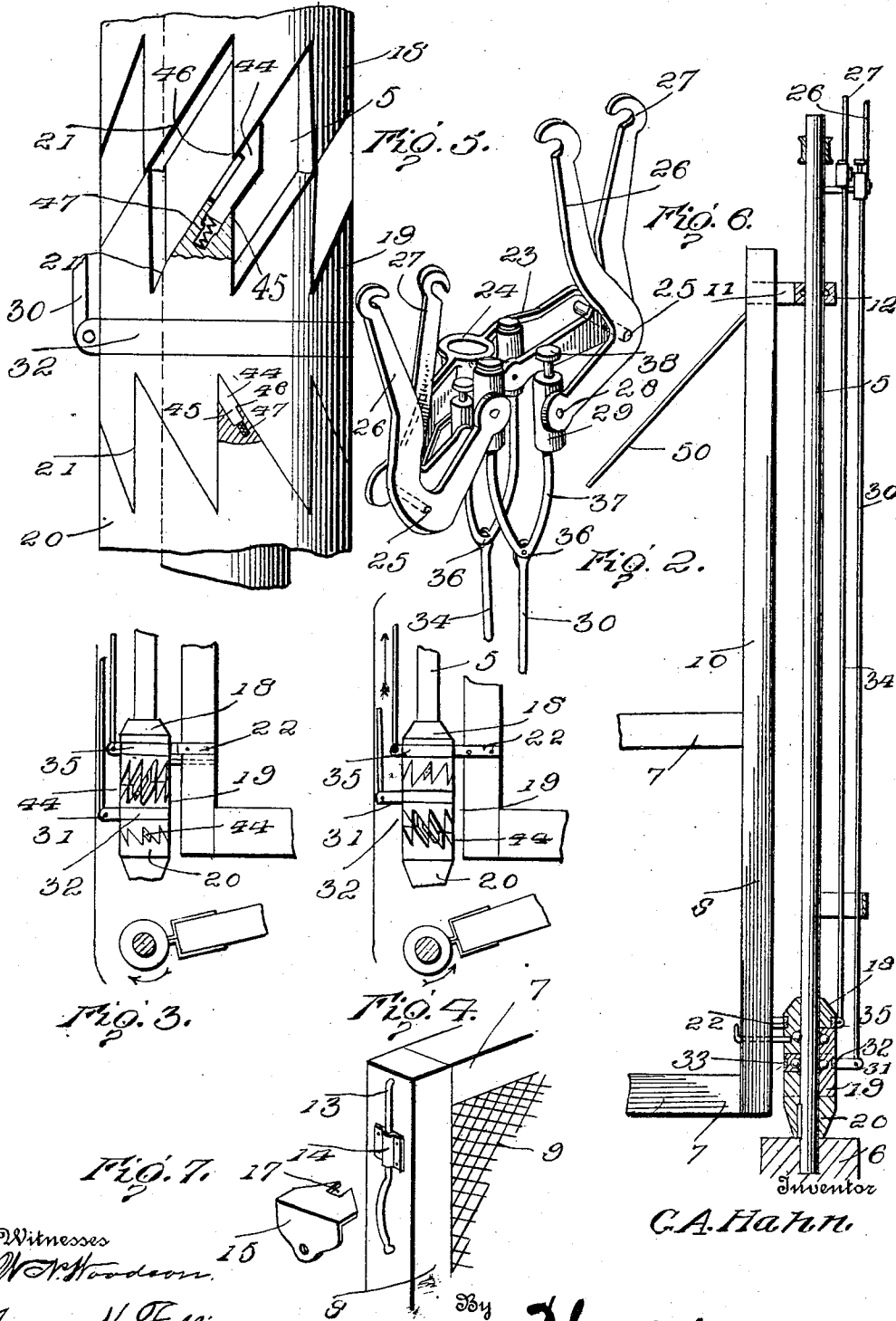
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UNITED STATES PATENT OFFICE.

CHESTER A. HAHN, OF COLLEGEVIEW, NEBRASKA.

AUTOMATIC GATE.

968,846.

Specification of Letters Patent.

Patented Aug. 30, 1910.

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To all whom it may concern:

Be it known that I, CHESTER A. HAHN, citizen of the United States, residing at Collegeview, in the county of Lancaster and State of Nebraska, have invented certain new and useful Improvements in Automatic Gates, of which the following is a specification.

This invention relates to automatic gates and has for its object to provide a strong, durable and thoroughly efficient gate of this character, the construction of which is such that the same may be opened or closed from either side of a roadway.

A further object is to provide a swinging gate, the hinge of which is formed of a plurality of sections having interengaging faces, said sections being so arranged that when the upper section is disengaged from the intermediate section, the gate may be swung in one direction and when the intermediate section is disengaged from the lower section, the gate may be swung in the opposite direction.

A still further object is generally to improve this class of devices so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a perspective view of an automatic gate constructed in accordance with my invention; Fig. 2 is a detail vertical sectional view of the same; Fig. 3 is a side elevation of the hinge member showing the upper section thereof partially elevated preparatory to swinging the gate in one direction, a detail horizontal sectional view of the standard being shown immediately below the same; Fig. 4 is a detail side elevation showing the intermediate hinge section partially disengaged from the lower hinge section preparatory to swinging the gate in the opposite direction, a detail transverse section of the gate being shown immediately below the same; Fig. 5 is an enlarged detail

side view partly in section of the hinge member showing the upper section thereof partially separated from the intermediate section; Fig. 6 is a detail perspective view of the operating levers; Fig. 7 is a detail perspective view of the free end of the gate showing the construction of the spring latch.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The gate comprises an upright or standard 5 disposed on one side of the roadway and having its lower end secured in any suitable manner to a supporting block or base 6, the latter being embedded in the ground, as shown. Pivotaly mounted for swinging movement on the standard 5, is the gate proper, the latter being preferably formed of gas pipe or angle iron and having its longitudinal bars 7 and end bars 8 connected by iron bars or woven mesh wire 9. The rear end bar 8 is extended vertically above the upper longitudinal bar 7 to form an extension 10, to the upper end of which is fastened a bracket 11 having its intermediate portion formed with a circular socket 12 for the reception of the standard 5, there being anti-friction balls interposed between the socket 12 and standard 5 to reduce friction between the parts. Mounted on the front or short bar 8 of the gate, is a spring latch 13 having its upper end rigidly secured to the bar 8 and its lower end extended through a suitable keeper 14 and spaced from the adjacent face of the bar 8 for engagement with a catch or keeper 15. The catch or keeper 15 is fastened in any suitable manner to a stop post 16 and is provided with a square recess 17 adapted to receive the free end of the latch 13 for the purpose of locking the gate in closed position when the gate is swung laterally either to the right or to the left.

Mounted on the standard 5 at the lower portion thereof, is a hinge, the latter being preferably formed in three sections 18, 19 and 20 having interengaging faces or teeth 21, forming in effect a clutch. The upper section 18 of the hinge is loosely mounted on the standard 5 and is rigidly secured to the adjacent end bar 8 of the gate by means of strap irons 22, while the intermediate section 19 is loosely mounted on the standard 5 and is provided with oppositely disposed

teeth for engagement with the teeth on the upper and lower members 18 and 20, as shown, the lower section 20 being keyed or otherwise rigidly secured to said standard.

5 Secured to the upper end of the standard 5, is a horizontally disposed arm 23 having a central socket 24 for the reception of the standard 5 and provided with oppositely disposed laterally extending pins 25 on each 10 of which is pivotally mounted for tilting movement a pair of operating levers 26 and 27. The operating members 26 and 27 are preferably in the form of bell crank levers, to the short arms of which are pivotally 15 mounted at 28, tubular guiding members or sleeves 29. Extending from one pair of operating levers 26, is a rod or cable 30, the lower end of which is pivotally connected at 31 to a sleeve or collar 32 loosely mounted 20 in a seating recess 33 in the intermediate hinge section 19. A similar connecting rod 34 forms a connection between the opposite pair of levers 27 and a similar collar 35 mounted in a seating recess in the upper 25 hinge section 18. Pivotally mounted at 36 to the connecting rods 30 and 34, are relatively short rod sections 37, the latter being slidably mounted in the adjacent sleeves 29 and provided with terminal heads 38 to prevent said rods from being withdrawn from 30 the sleeves when a tilting movement is imparted to the operating levers. Fastened to the long arms of each set of levers 26 and 27, are operating cords or cables 39, which latter 35 extend over rollers or pulleys 40 depending from cross bars 41 mounted on the upper ends of the adjacent uprights or posts 42. The cords or cables 39 terminate in finger pieces 43, by pulling which, the operator 40 may open or close the gate from either side of a roadway.

In order to impart a swinging movement to the gate, suitable spring pressed pawls 44 are provided, one of said pawls being mount- 45 ed for sliding movement in a recess 45 in the active face of the intermediate hinge section 19 and a similar pawl being mounted in a recess formed in the active face of the lower hinge section 20, there being stop 50 shoulders 46 formed on the pawls 44 for the purpose of limiting the inward movement thereof. Interposed between each pawl 44 and the end of the recess 45, is a coil spring 47 which serves to force the pawl 44 out- 55 wardly beneath the adjacent tooth 21 when the active faces of the hinge members are separated, said pawl serving to direct the teeth on one member into engagement with different teeth on the mating member, the inclined faces of the teeth causing a partial 60 rotation of the gate when said hinge members are brought together.

When the hinge sections are brought together, the teeth at the active faces of the 65 sections will bear against the free ends of

the pawls and press the latter inwardly against the tension of the springs 47 so as to house the pawls within the recesses 45 and thus permit the active faces of the hinge sections to contact with each other.

If it is desired to swing the gate to the 70 right, the operator exerts a longitudinal pull on the finger piece 43 which tilts the adjacent lever 27 and through the medium of the rod 34, disengages the teeth of the upper 75 hinge section 18 from the teeth of the intermediate section 19 and at the same time elevates the gate so as to disengage the latch 13 from the keeper 15. As soon as the upper section 18 is disengaged from the 80 intermediate section 19, the spring 47 of the pawl 44 on the intermediate section will force said pawl beneath the adjacent tooth on the upper section and thus direct the teeth on said upper section into engagement 85 with different teeth on the intermediate section, with the result that when the finger-piece 43 is released the inclined faces of the teeth will cause a partial rotation of said gate, a suitable stop 49 being provided for 90 limiting the swinging movement thereof. When the finger piece 43 on the opposite side of the gate is operated, the lever 26 will be tilted so as to cause the rod 30 to 95 elevate the sections 18 and 19 and consequently disengage the latch from its keeper 15. As soon as the lower active face of the intermediate section 18 clears the teeth on the lower section 20, the spring 47 will 100 force the pawl 44 carried by the lower section 20 beneath the adjacent tooth on the intermediate section 19 and cause the teeth on said intermediate section to engage different teeth on the lower section, thus to rotate 105 said intermediate section together with the upper section 18 and gate in the opposite direction until the latter contacts with a corresponding stop 49.

It is obvious that the gate may be opened or closed by exerting a longitudinal pull on 110 the finger pieces 43 on either side of the gate, and that when the gate is in engagement with either stop 48 or 49, said gate may be quickly closed by repeating the operation above set forth. 115

Attention is here called to the fact that by making the hinge in sections and providing said sections with interengaging faces, said hinge serves to assist in locking the gate in either opened or closed position. 120

A diagonally disposed brace 50 is preferably interposed between the upper bar 9 of the gate and the extension 10 for the purpose of reinforcing and strengthening said gate when the latter is moved to open and 125 closed position. Suitable anti-friction balls are also preferably carried by the hinge sections 18 and 19 for bearing against the standard 5 for reducing friction between the parts. 130

Having thus described the invention, what is claimed as new is:

1. A device of the class described including a standard, a vertically movable gate mounted to swing in a horizontal plane on said standard, a hinge mounted on the standard and including a plurality of interengaging sections, one of which is connected with the gate, means for elevating the gate to disengage said hinge sections, and means for imparting an initial swinging movement to the gate when said sections are brought together.

2. A device of the class described including a standard, a vertically movable gate mounted to swing in a horizontal plane on said standard, a hinge including a plurality of interengaging sections, one of which is connected with the gate, means for locking the gate in closed position, means operatively connected with the hinge sections for simultaneously disengaging said sections and elevating the gate to release the locking means, and means for imparting an initial swinging movement to the gate when said sections are brought together.

3. A device of the class described including a standard, a vertically movable gate mounted to swing in a horizontal plane on said standard, a hinge mounted on the standard and including a plurality of interengaging sections, one of which is connected with the gate, means for locking the gate in closed position, means for elevating the gate to release the locking means and disengage the hinge sections, and a spring pressed pawl carried by one of the hinge sections and adapted to engage an adjacent hinge section when said sections are separated, thereby to rotate one of said sections and impart an initial swinging movement to the gate when the sections are brought together.

4. A device of the class described including a standard, a vertically movable gate mounted to swing in a horizontal plane on the standard, a hinge including a plurality of separable sections having interengaging faces, one of said sections being secured to the gate and another section rigidly secured to the standard, the intermediate section being loosely mounted on the standard and movable into and out of engagement with the adjacent sections, means for locking the gate in closed position, means for elevating the gate to disengage the locking means and to separate the hinge sections, and means carried by one of said hinge sections and adapted to engage an adjacent hinge section for rotating said adjacent section thereby to impart an initial movement to the gate in either direction when the hinge sections are brought together.

5. A device of the class described including a standard, a vertically movable gate mounted to swing in a horizontal plane on

said standard, means for locking the gate in closed position, a hinge including a plurality of superposed sections having their abutting faces provided with interengaging faces, one of said sections being secured to the gate, means for elevating the gate to disengage the locking means and simultaneously separate some of said sections, and a spring pressed pawl carried by one hinge section and adapted to engage the adjacent hinge section for rotating said adjacent hinge section and imparting an initial swinging movement of said gate when said sections are brought together.

6. A device of the class described including a standard, a vertically movable gate mounted to swing in a horizontal plane on said standard, a hinge including a plurality of sections having their abutting faces provided with interengaging faces, one of said hinge sections being operatively connected with the gate, means for disengaging the upper hinge section from the intermediate hinge section to permit the gate to move laterally in one direction, and other means for disengaging the intermediate section from the lower section to permit the gate to swing in the opposite direction.

7. A device of the class described including a standard, a vertically movable gate mounted to swing in a horizontal plane on said standard, a hinge including a plurality of superposed sections having interengaging faces, one of said hinge sections being secured to the gate and another to the standard, a bracket secured to the upper end of the standard, a plurality of sets of bell crank levers pivotally mounted on the bracket, a connection between one of the bell crank levers of each set and the intermediate hinge section, a connection between one of the bell crank levers of each set and the upper hinge section, and means operatively connected with all of said bell crank levers for tilting the latter to separate the hinge sections, thereby to permit lateral swinging movement of the gate.

8. A device of the class described including a standard, a vertically movable gate mounted to swing in a horizontal plane on said standard, a hinge including a plurality of sections having interengaging faces, one of said hinge sections being connected with the gate, a cross arm secured to the upper end of the standard, a plurality of sets of bell crank levers pivotally mounted on the opposite ends of the cross arm, a connection between said bell crank levers and some of the hinge sections, operating cables secured to the bell crank levers for tilting the latter to separate the hinge sections, and means for imparting an initial swinging movement to the gate in either direction when said hinge sections are brought together.

9. A device of the class described includ-

ing a standard, a vertically movable gate
mounted to swing in a horizontal plane on
said standard, a hinge including a plurality
of sections having interengaging faces, one
5 of said hinge sections being operatively con-
nected with the gate, a cross arm secured to
the upper end of the standard, a plurality of
sets of bell crank levers pivotally mounted
on the opposite ends of the cross arm, a
10 guiding sleeve pivotally mounted on the
short arm of each bell crank lever, rods con-
nected with the upper and intermediate
hinge sections, short rod sections pivotally
connected with said rods and extending
15 through the sleeves of the adjacent levers,
and operating cables connected with the
long arms of the bell crank levers.

10. A device of the class described includ-
ing a standard, a vertically movable gate
20 mounted to swing in a horizontal plane on
said standard, a hinge including a plurality

of sections having interengaging faces, one
of said hinge sections being secured to the
gate and two of the sections provided with
annular seating grooves, collars loosely 25
mounted in the seating grooves, a cross arm
secured to the upper end of the standard, a
plurality of sets of bell crank levers pivot-
ally mounted on the cross arm, guiding
sleeves pivotally mounted on the short arms 30
of the bell crank levers, operating cords
connected with the long arms of said levers,
and rods secured to the collars and having
their upper ends bifurcated and extending
through the adjacent guiding sleeves. 35

In testimony whereof I affix my signature
in presence of two witnesses.

CHESTER A. HAHN. [L. s.]

Witnesses:

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