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Patented Sept. 13, 1898.

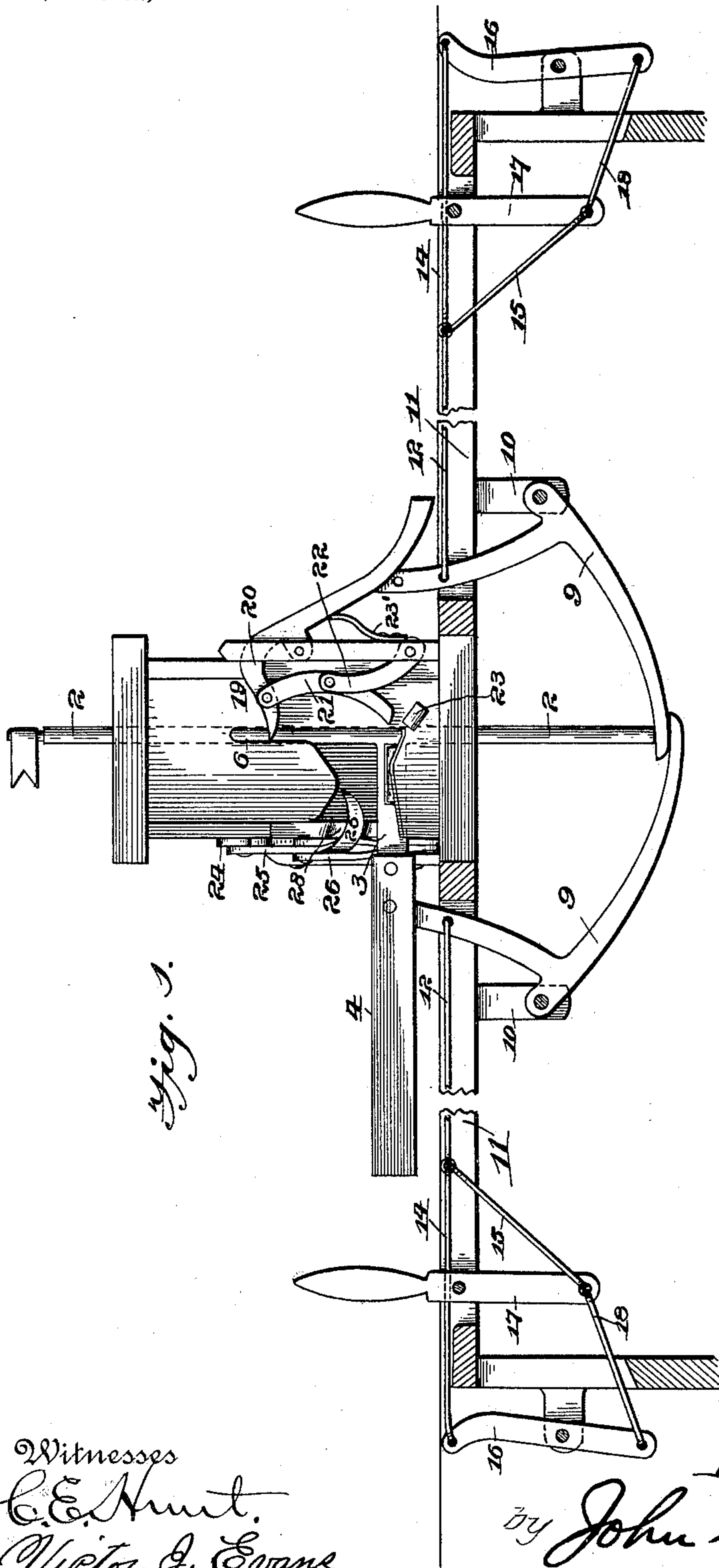
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AUTOMATIC GATE FOR RAILWAY CROSSINGS.

(Application filed July 2, 1897.)

(No Model.)

2 Sheets--Sheet 1.



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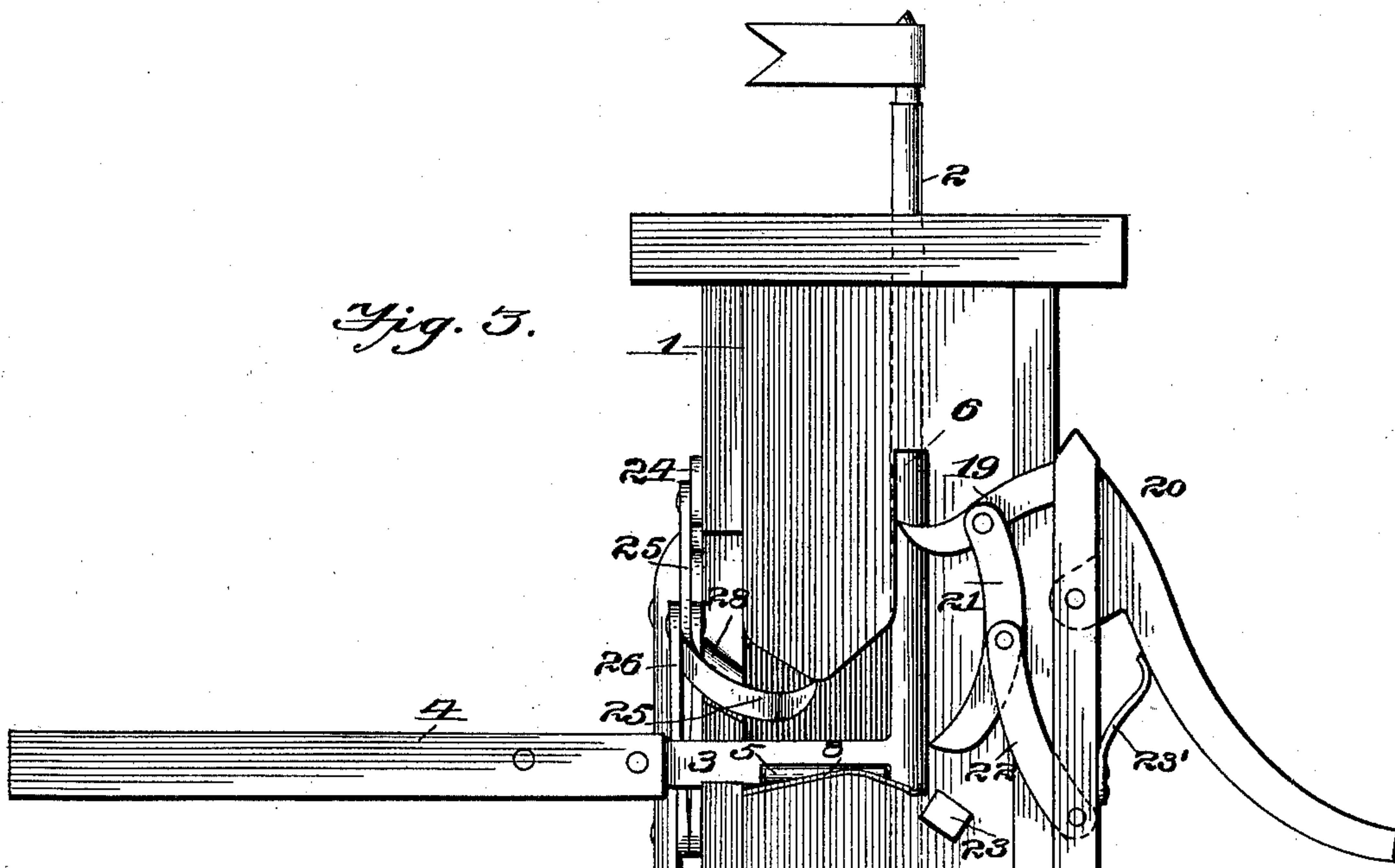
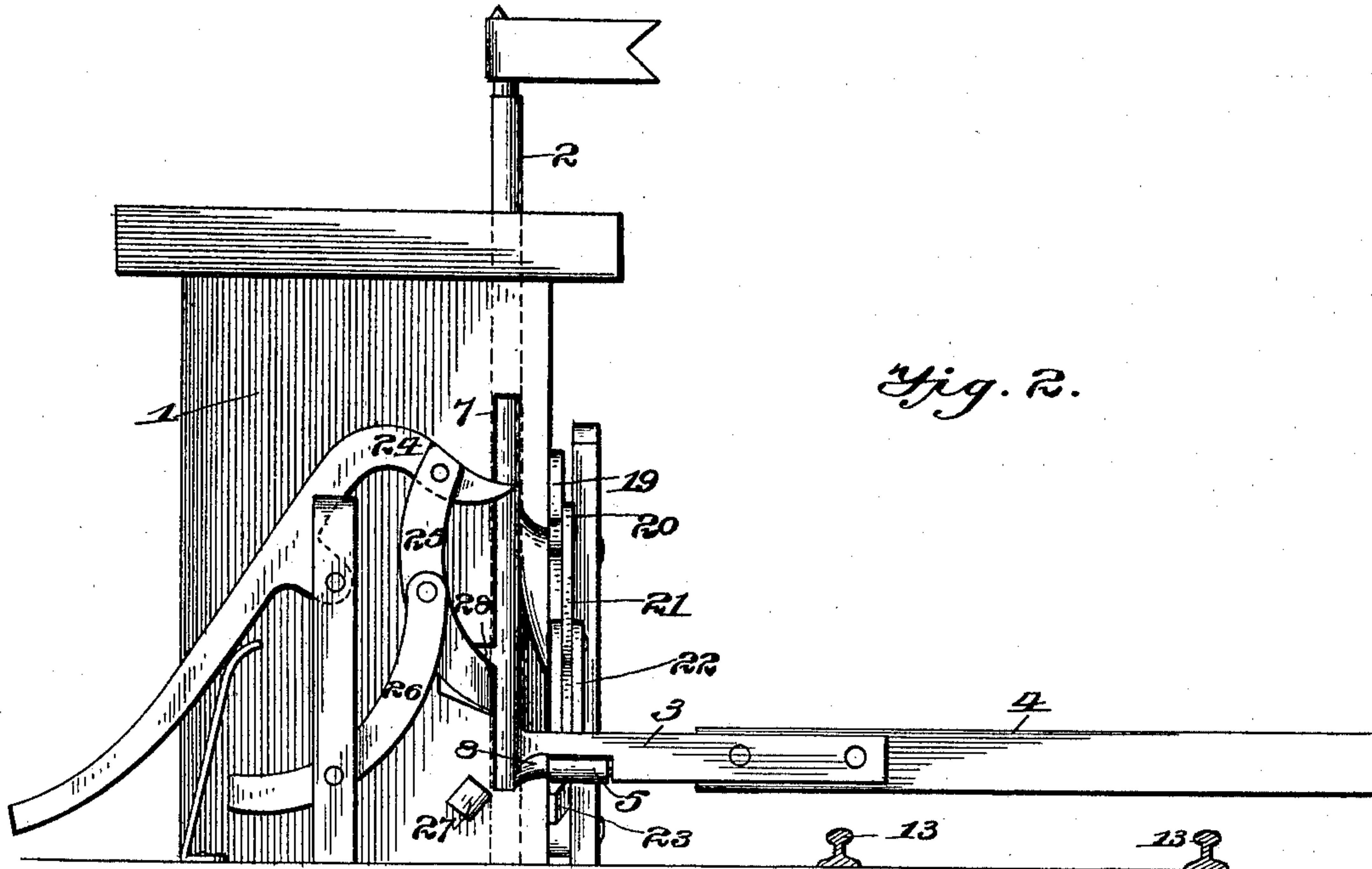
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UNITED STATES PATENT OFFICE.

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AUTOMATIC GATE FOR RAILWAY-CROSSINGS.

SPECIFICATION forming part of Letters Patent No. 610,837, dated September 13, 1898.

Application filed July 2, 1897. Serial No. 643,270. (No model.)

To all whom it may concern:

Be it known that I, HENRY VISSER, of Overisel, in the county of Allegan and State of Michigan, have invented certain new and useful Improvements in Automatic Gates for Railway-Crossings; and I do hereby 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 improvements in railway-crossing gates, the object of the same being to provide a gate of this character which will be automatically operated by a passing train approaching from either direction, the mechanism insuring the turning of the gate to a normally open position by the operation of the lever beyond the crossing.

With the above objects in view the invention consists more especially in the particular construction and combination of the parts, as hereinafter fully set forth, and specifically pointed out in the claims.

In the accompanying drawings, forming part of this specification, and wherein like numerals of reference refer to similar parts throughout the several views, Figure 1 is a sectional elevation showing a gate and operating mechanism therefor constructed in accordance with my invention. Fig. 2 is an elevation of the gate-post and the mechanism carried thereby on the side facing the crossing, the highway being open. Fig. 3 is a similar view of the side facing the railway-track, the highway being closed.

1 designates the supporting-frame for the gate, which is made up to form a box through which passes a rotatably-mounted vertically-movable gate-post 2, having an outwardly-projecting arm 3, to which the gate 4 is secured, the arm adjoining the post having a roller 5 at its under side for the purpose hereinafter set forth, the said roller being journaled in suitable bearings. One side of the supporting-frame is provided with a vertical slot 6, which communicates with a vertical slot 7 in the adjoining side of the said box or frame, the communication between said slots being at the lower part of the frame and presenting a curved track 8, as shown. The gate-post, which is vertically movable within the box-frame, extends through the base of

said frame and is engaged by elbow-levers 9, pivoted in suitable hangers 10, bolted to a sill-piece 11, the upper member of each lever being connected to a cable 12, which extends therefrom parallel with the track-rails 13 and branches into two sections 14 and 15, the upper section 14 being connected to a supplemental lever 16, while the lower section 15 of the cable is connected to the lower end of an operating-lever 17, the said operating-lever being also connected to the supplemental lever by a chain or cable 18. The supplemental lever 16 serves to connect the two sections 14 and 15 of the cable 12, so that upon the operation of the lever 17 in either direction said cable 12 will be retracted and the elbow-lever 9 elevated. The operating-levers 17 are located a considerable distance from the gate, upon each side thereof, to operate the same in advance of the approach of a train.

It will be observed that in its open position the gate extends across the track, and in order to bring the same at right angles or across the roadway the gate and its post are first raised to the limit of their upward movement and when lowered are guided to the inclined portions of the track by certain devices which I shall now proceed to describe.

Pivoted at one side of the slot 6 in the supporting box-frame for the gate is a sectional guide-rail 19, comprising the upper section 20, having a handle portion, which overbalances the curved inner end, to which is pivoted the second section 21, guided by a pivoted link or rod 22, which engages a stop 23 when the pivoted guide-rail is operated, as hereinafter described. The end of the upper part 20 of the sectional guide-rail is held normally across the upper end of the slot by means of a flat spring 23', with which the weighted end of said section contacts. A second sectional guide-rail is pivoted to one side of the slot 7, consisting of the upper pivoted section 24, whose upper inner end lies normally across the slot 7, having a handle portion which overbalances its inner end, the said inner end having the main rail-section 25 pivoted thereto and guided by a link 26, pivoted at its lower end in bearings at the side of the box-frame, the said link engaging a stop 27 to limit its downward movement. The main rail-section 25 is curved, as shown,

and when brought to its normal position lies within a recess 28.

In the complete operation of a railway-crossing gate constructed in accordance with my invention the throw of the operating-levers in either direction will elevate the gate to a position above the projecting end of the upper section of the guide-rail, and when the lever is released the said guide-rail will lead the gate to the inclined track, upon which it will ride to a position at right angles to or across the roadway, and after the train passes the crossing the throw of the other lever will cause a similar movement of the gate to return it to its initial position. It will be understood, of course, that the locomotive or engine of the train will be provided with a shoe or projection to strike and operate the levers and also that it is immaterial in which direction the train approaches the gate, as the levers when thrown in either direction will elevate the gate and the pivoted guide-rails act to move the same at right angles to its former position.

The operation of my improved gate specifically described is as follows, it being understood that the gate 4 is normally held in the position shown in Fig. 2 of the drawings, across the tracks: Upon the approach of the train in either direction the operating-lever 17 upon one side of the supporting-frame 1 is engaged by the shoe or projection on the train, the said lever being swung upon its pivot thereby, so as to withdraw the cable 12 and swing the elbow-lever 9, connected thereto. As said elbow-lever is turned upon its pivot the lower end thereof is raised, carrying with it the gate-post 2, elevating the latter until the arm 3 thereon passes up into the slot 6, above the projecting end of the guide-rail 19, which lies across said slot, the said guide-rail permitting the upward passage of the arm 3 by swinging against the action of the spring 23'. As the train passes on the projection thereon releases the lever 17 and allows the elbow-lever 9 to fall by gravity to its normal position. At the same time the gate 4 drops by gravity, depressing the inner projecting end of the rail 20 and forcing outwardly the second section 21 of the guide-rail, so that the latter lies across the slot 6 in an inclined direction. The further downward movement of said gate brings the roller 5 thereon in contact with the concaved edge of the section 21 and throws the gate 4 around into the position shown in Fig. 1 of the drawings. The train, passing beyond or to the other side of the supporting-frame 1, is brought into engagement, through the projection or shoe thereon, with the other operating-lever 17, upon the opposite side of the gate from the one heretofore referred to. As this operating-lever 17 is swung upon its pivot it acts, through the cable 12 and elbow-lever 9, to elevate the gate-post 2 in a manner heretofore described. The gate, being

located beneath the slot 7, however, is forced up in said slot until the projecting arm 3 thereon passes above the upper inner end of the rail-section 24. When the train releases the operating-lever 17, said post 2 and the gate carried thereby are permitted to fall by gravity. As it does so it forces downwardly the inner upper end of the rail-section 24, which throws outwardly the main rail-section 25, which latter, being brought in contact with the roller 5 on said gate, throws the latter around into its normal position beneath the slot 6, as shown in Fig. 2 of the drawings. It will thus be seen that the operation of the gate, both in opening the same upon the approach of the train and in closing the same after it has passed, is entirely automatic.

The gate in its normal position presents a stock-gate and upon the approach of a train will be moved across the roadway to form a crossing-gate. The upper end of the vertically-movable gate-post is provided with a signal which when the gate is being operated will give notice of the fact, and, if desired, the said post could be made to ring a bell or sound an alarm at the commencement of the operation of the same.

A railway-gate constructed as herein shown and described is not only entirely automatic in its operation, but also possesses the additional advantage of being cheap in construction and effective in performing the purposes for which it is intended.

Having thus described my invention, it will be understood that certain immaterial changes or modifications in the construction of the parts could be made without materially affecting or sacrificing the advantages of the invention, and therefore I wish to be understood as not limiting myself to what is herein particularly shown, but wish to reserve the right to make such modifications and changes as may be within the spirit and scope of my claims.

I claim—

1. A railway-gate for the purposes set forth, comprising a rotatably-mounted vertically-movable post to which the gate is connected, means for raising the gate and post operated by an approaching train, and pivoted guide-rails which act to move the gate at right angles to its former position, substantially as shown and described.

2. A railway-gate for the purposes set forth, comprising a vertically-movable gate-post carrying the gate, levers engaging the lower end of the gate-post, and operating-levers connected to the aforesaid levers; together with pivoted guide-rails consisting of curved sections, the upper one of which is automatically moved beneath the gate when the latter is elevated, substantially as shown and described.

3. In a railway-gate for the purposes set forth, the combination with the box-frame having slots which communicate with each

other at their lower ends presenting inclined tracks, of a vertically-movable gate-post carrying the gate, means for elevating the gate, and curved guide-rails at the sides of the slots, each guide-rail comprising two sections pivoted to each other and to a support, one of the sections having a counterbalancing-weight, substantially as shown and described.

4. In a railway-gate for the purposes set forth, the combination of a box-frame having vertical slots communicating with each other at their lower ends, presenting inclined tracks, of a gate vertically movable within the box-frame and projecting beyond the same through the slots, means for elevating the gate from both sides of the same, and curved guide-rails located adjoining the slots, each guide-rail being made up of two sections pivoted to each other and to a link, one of the sections having a counterbalancing-weight; together with springs for returning the sections to a normal position against the action of the counterbalancing-weight, the guide-

rail adjoining one of the slots being curved inward, substantially as shown and described. 25

5. In a railway-gate for the purposes set forth, the combination with the box-frame, of a vertically-movable gate supported therein, elbow-levers engaging the lower end of the gate-post, operating-levers connected to the elbow-levers by cables, and a supplemental lever for each operating-lever, said supplemental lever being connected at one end directly to the cable which extends from the elbow-levers and at its opposite end to the operating-lever; together with guide-rails upon which the gate rides when released, substantially as shown and described. 30 35

In testimony whereof I have signed this specification in the presence of two subscribing witnesses. 40

HENRY VISSER.

Witnesses:

J. DEN HERDER,
C. J. DEN HERDER.