

(No Model.)

3 Sheets—Sheet 1.

F. A. CURTIS.
AUTOMATIC RAILWAY GATE.

No. 491,472.

Patented Feb. 7, 1893.

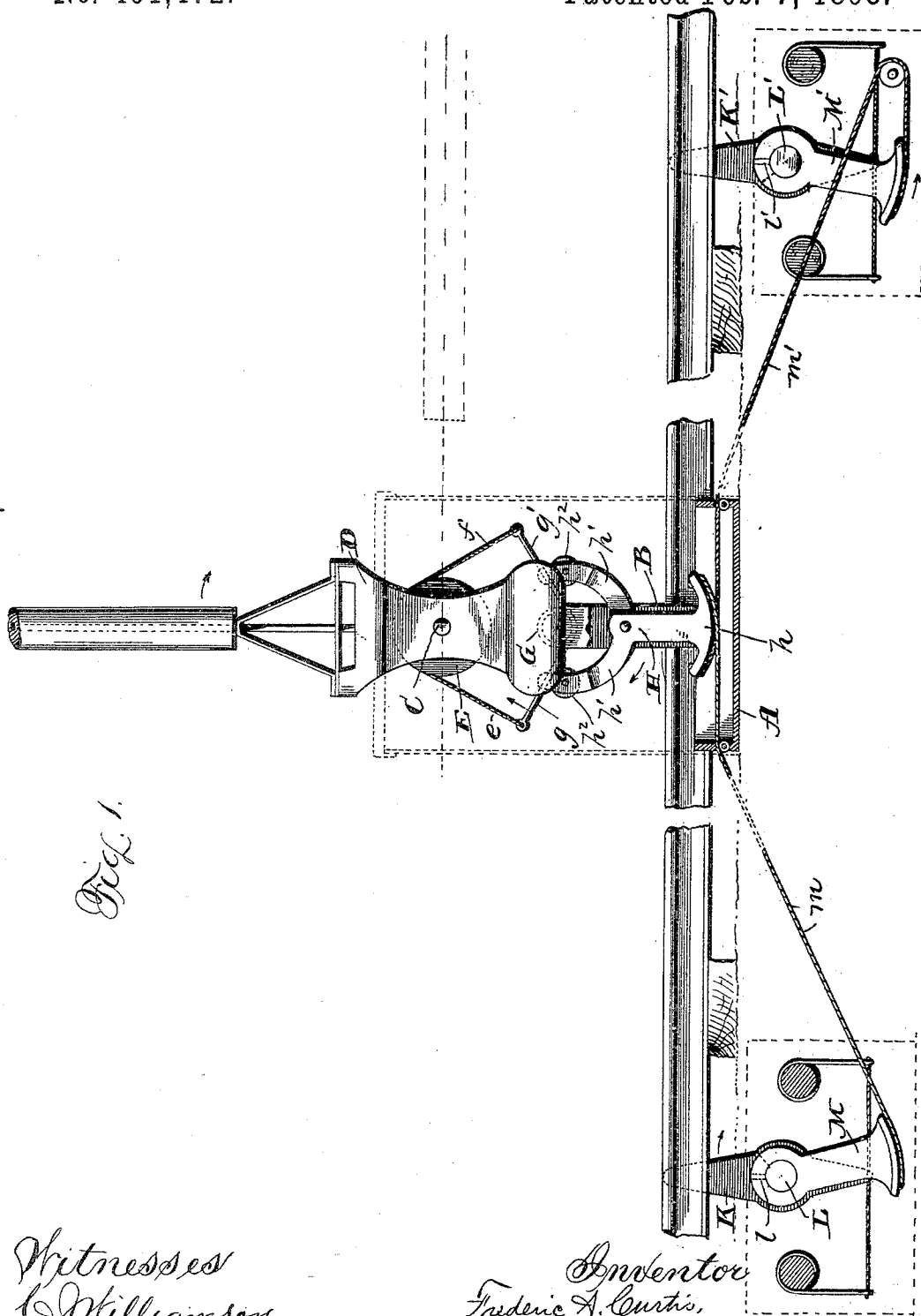


Fig. 1.

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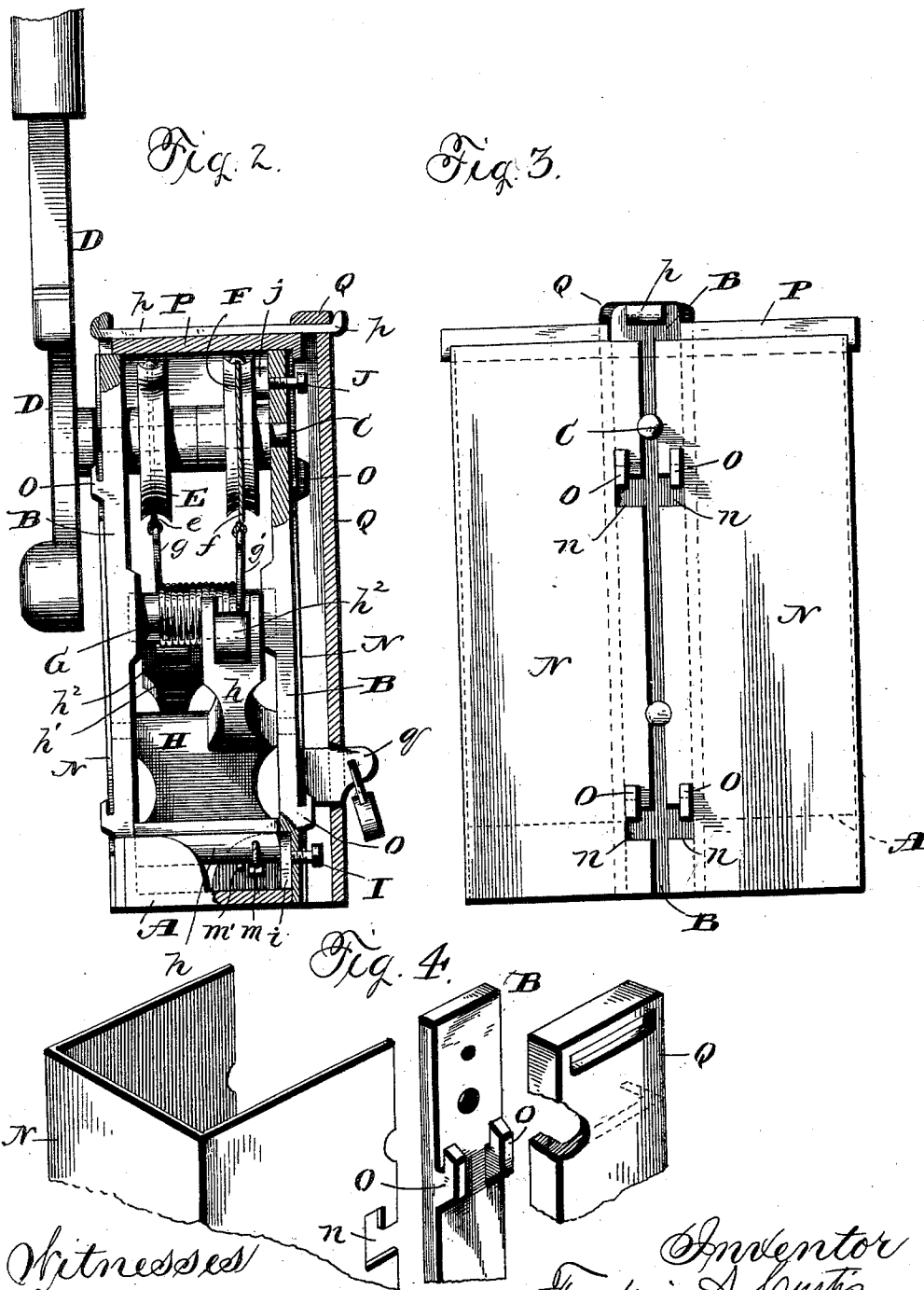
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(No Model.)

3 Sheets—Sheet 3.

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Fig. 5.

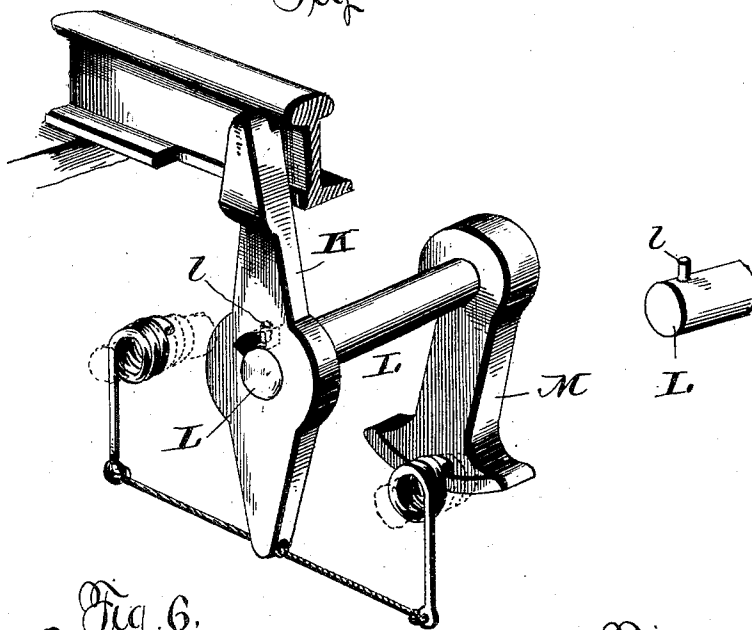


Fig. 6.

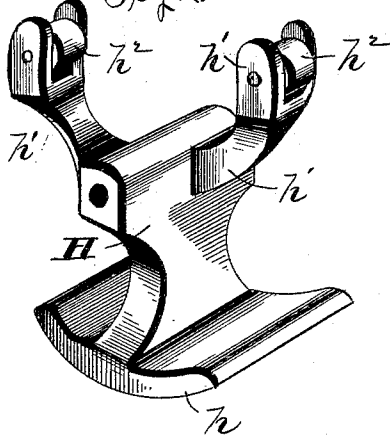


Fig. 8.

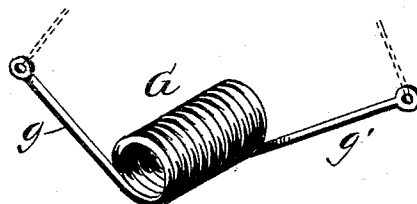
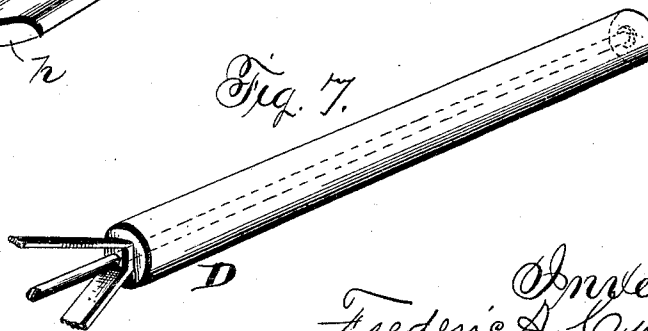


Fig. 7.



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UNITED STATES PATENT OFFICE.

FREDERIC A. CURTIS, OF MUSKEGON, MICHIGAN, ASSIGNOR OF TWO-THIRDS TO PATRICK J. CONNELL, SIMON O'DAY, JAMES D. SHERIDAN, AND FRANCIS X. VEVIA, OF SAME PLACE, AND ASHLEY B. CURTIS, OF IRON RIVER, WISCONSIN.

AUTOMATIC RAILWAY-GATE.

SPECIFICATION forming part of Letters Patent No. 491,472, dated February 7, 1893.

Application filed March 31, 1892. Renewed January 16, 1893. Serial No. 458,624. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC A. CURTIS, a citizen of the United States, residing at Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Automatic Railway-Gates; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to railroad gates, and especially to that class in which the gate is automatically projected across the road or crossing by the approaching train and automatically returned to a normal position by the said train at or about the time it passes the said road or crossing.

The improvement consists in the novel features and the peculiar construction and combination of the parts which will be hereinafter more fully described and which are shown in the annexed drawings, in which,

Figure 1, is a side view of a gate, the actuating mechanism therefor, and a portion of a track, showing the relative disposition of the parts, the supports for the parts being removed to obviate confusion. Fig. 2, is a front view of the gate support, the rear half of the housing being removed to show the operating parts attached to the said support, parts of the latter being broken away to show the tension devices which are provided to control the movements of the gate and the bifurcated lever. Fig. 3, is a side view of the gate support showing the instrumentalities for connecting the halves of the housing thereto, the gate being removed. Fig. 4, is a perspective view of a portion of the casing and the support. Fig. 5, is a detail view of the trip and the shaft on which the said trip is mounted and free to have a limited movement, showing the pin provided on the shaft and the recess in the trip for the pin to work in. Fig. 6, is a detail view of the bifurcated lever detached from the other actuating mechanism. Fig. 7

is a detail view of the outer end of the gate showing the metal cylinder. Fig. 8, is a view of the spring which is operated on by the bifurcated lever.

It will be understood that there will be two sets of gates and two trips for each gate, one gate and its actuating trips being operated by the train going in one direction, the other gate and trip being actuated by the train moving in the opposite direction. For the sake of clearness only one gate and the trips connected therewith is illustrated and referred to hereinafter.

The support for the gate is composed of the base A and standards B rising from the sides of the base. The shaft C journaled in the upper ends of the standards B, has the gate D secured to a projecting end and is provided with grooved pulleys E and F which are held so as to revolve with the said shaft. The coil spring G mounted on a cross bar between the standards B, and having spring arms *g* and *g'* which are disposed at about right angles to each other, has connection with the pulleys E and F by means of ropes or chains *e* and *f* which are connected at their ends with the respective arms, *g* and *g'* and the pulleys E and F.

The bifurcated lever H is journaled between the standards B midway of its ends and is provided at its lower end with a segment head *h*. The bifurcated portions *h'* curve upward on opposite sides of the spring G and are notched in their upper ends to receive anti-friction rollers *h''* which receive the arms *g* and *g'*. The segment head *h* is about as wide as the distance between the standards B, and its edges are parallel. To prevent the too rapid movement of the lever H and the gate D and hold the latter in the proper position until actuated by positive means, tension or break mechanism is provided. The plate *i* located in the recess in the side of the base A is pressed against an edge of the segment head *h* by set screw I which passes through one of the standards. By a proper adjustment of the set screw I the plate *i* will be forced against the segment head with a greater or less degree of pressure as may be

required. A similar plate *j* and set screw *J* are provided to create a tension on the gate, the plate *j* being arranged to bear against a side of the pulley *E*. The set screw *J* is let

5 into a standard *B*.
The trip *K* located at a proper distance from the gate and adapted to be struck by the train, preferably by a truck wheel, is mounted on a shaft *L* on which it is free to
10 turn to a limited degree, thereby permitting the trip to be returned to a normal position after setting the gate without affecting the latter. This is effected by recessing the trip
15 *k* and providing the shaft with a pin *l* to work in the said recess. The arm *M* at the other end of the shaft *L* is connected by cable *m* with the segment head *h* of lever *H*. A similar trip *K'*, located contiguous to the gate and mounted on shaft *L'*, has connection with the
20 segment head through the shaft *L'*, arm *M'* and cable *m'*.

As the train approaches the road or crossing, it strikes the trip *K* and sets the gate, and as it passes the said road or crossing, it operates the trip *K'* and returns the gate to a normal position. The trips will be suitably housed to protect them from ice and snow and the cables will pass through pipes laid in the ground. The gate support will also be
30 appropriately housed, preferably by a casing which is made in halves as *N*. Each half is made of stout sheet metal and is provided in its opposing edges, near each end, with return notches *n* which receive L-shaped lugs
35 On the standards *B*, thereby serving to secure the parts of the casing to the said gate support. The cap *P* for closing the upper end of the casing is provided with a cross bar *p*, one end of which is constructed to engage with
40 one of the standards *B*, the latter having a loop through which the said end of the cross-bar projects. The lock bar *Q* is engaged with the extended end of the cross bar and is arranged parallel with the contiguous standard
45 *B* to which it is fastened at its lower end by being passed over a projection *q* through which is passed a padlock. By the construction of housing just described, access can be readily had to the gate support for repairs or
50 other purposes.

The large metal cylinder composing the outer portion of the gate, is provided to permit the escape of a wagon should the latter be caught under the gate. This cylinder will
55 turn and permit the escape of the wagon and prevent injury thereto.

Having thus described my invention, what I claim to be new and desire to secure by Letters Patent, is:—

60 1. The combination of a shaft carrying a gate arm; a spring having two arms reversely connected to said shaft; a bifurcated lever,

the arms of which engage the spring arms, and means whereby the said lever will be actuated by a passing train, substantially as 65 described.

2. The combination of a shaft carrying a gate arm; pulleys mounted on said shaft; a spring having arms connected with said pulleys; a bifurcated lever, the arms of which 70 engage the spring arms, and means whereby said lever will be actuated by a passing train.

3. The combination of a shaft carrying a gate, pulleys mounted on the said shaft; a spring having spring arms; cables connecting 75 the spring arms with the pulleys, and a bifurcated lever having its bifurcated portions extending on opposite sides of said spring and notched in their upper ends and provided with rollers which receive the said 80 arms, substantially as shown and described.

4. The combination with a support; a shaft journaled in the support and carrying a gate, and a pulley on said shaft, of a tension device, consisting of a plate, and a set screw 85 passing through the support and adapted to force said plate with a greater or less degree of pressure against the said pulley, substantially as shown and described.

5. The combination with a shaft constructed 90 to carry a gate, and a lever adapted to operate the said shaft and having a segment head, of a tension or brake device consisting of a plate to press against the said segment head, and a set screw to regulate the degree 95 of pressure of the said plate on the segment head, substantially as set forth.

6. A gate-mast having on its outer end a cylindrical sleeve adapted to rotate freely thereon, substantially as shown and described. 100

7. The combination with the railroad gate support having lugs projecting therefrom, of a casing made in halves and having return notches in its edges to receive the said lugs, substantially as shown and for the purposes 105 specified.

8. The combination with a gate support having lugs projecting therefrom, and a casing made in halves and having return notches in its edges to receive the said lugs, of a cap 110 plate to close the top of the casing, having a cross bar, one end of the cross bar engaging with the support, and a lock bar engaging with the opposite end of the said cross bar and adapted to have its lower end locked by 115 padlock to a projection near the lower end of said support, substantially as shown and described.

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

FREDERIC A. CURTIS.

Witnesses:

J. H. SAUTTER,
WILLIAM GREEN.