S. J. TSENES.

CROSSING GATE.

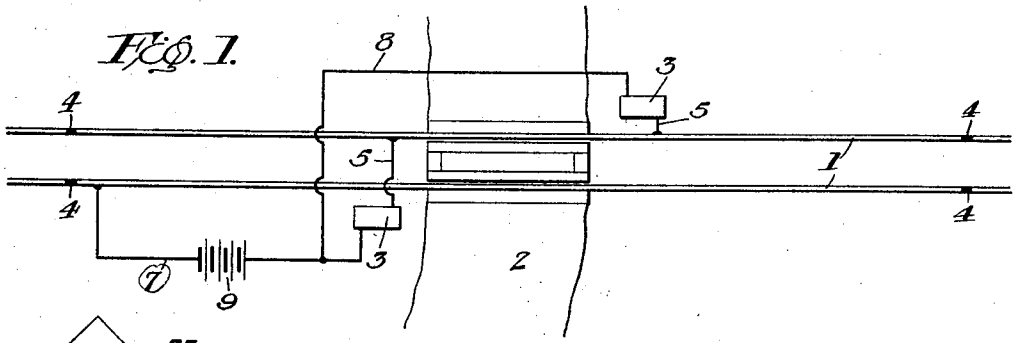
APPLICATION FILED MAR. 29, 1921.

1,388,674.

Patented Aug. 23, 1921.

2 SHEETS—SHEET 1.

FIG. 1.



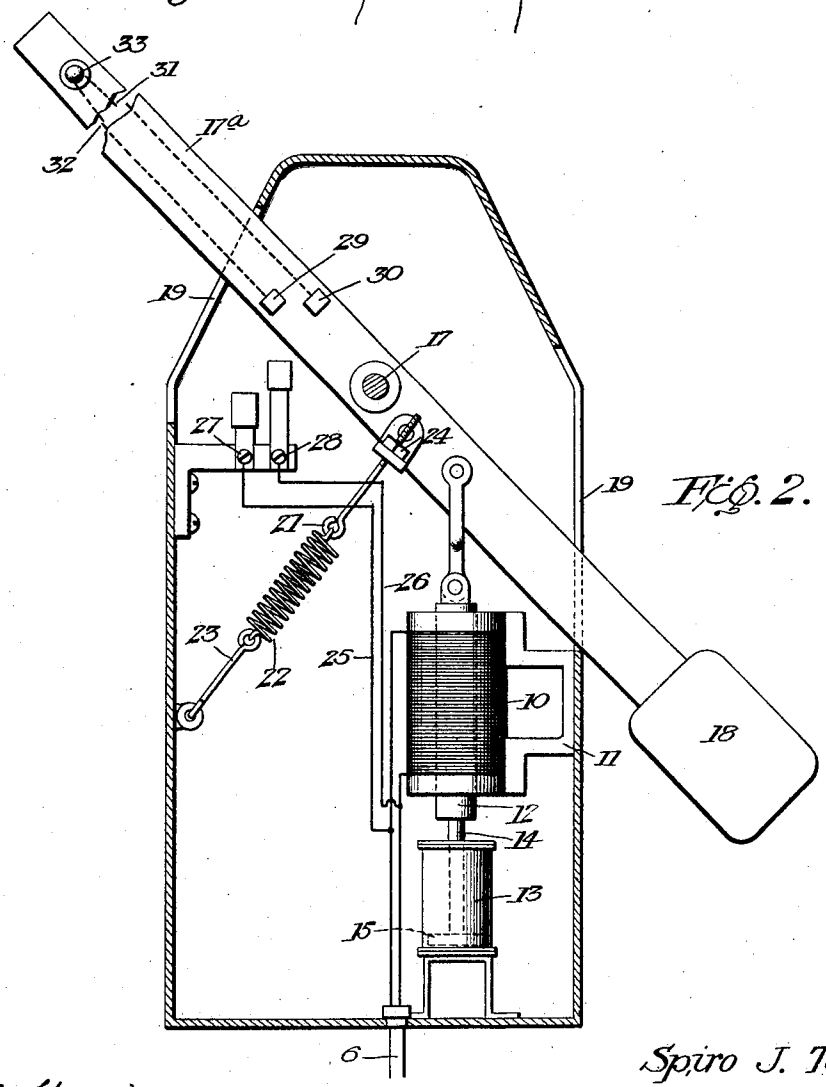


FIG. 2.

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2 SHEETS—SHEET 2.

FIG. 3.

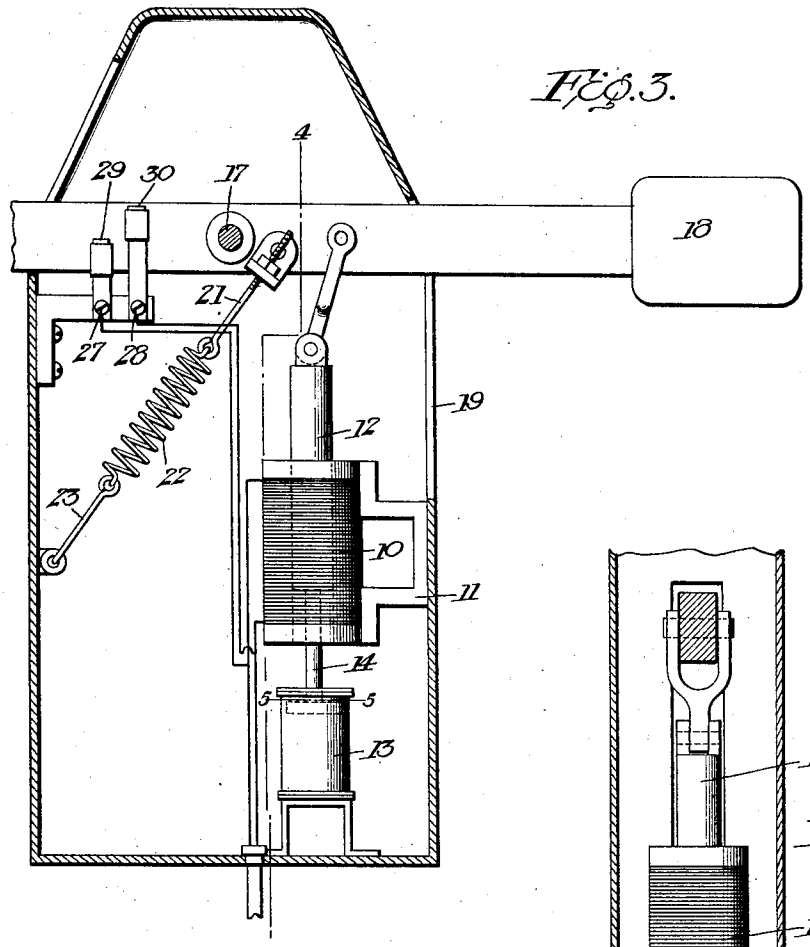


FIG. 4.

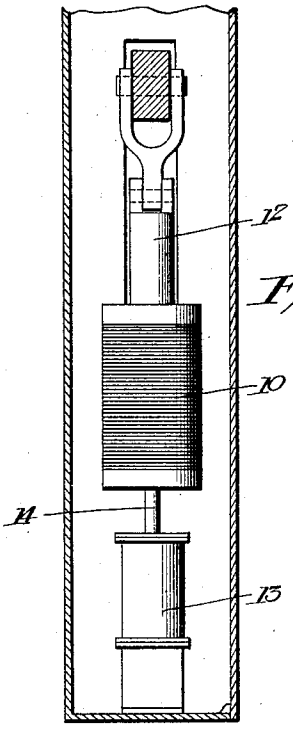
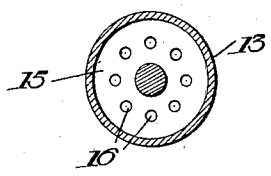


FIG. 5.



Witness: G. F. Baker.

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UNITED STATES PATENT OFFICE.

SPIRO J. TSENES, OF ST. LOUIS, MISSOURI.

CROSSING-GATE.

1,388,674. Specification of Letters Patent. Patented Aug. 23, 1921.

Application filed March 29, 1921. Serial No. 456,728.

To all whom it may concern:

Be it known that I, SPIRO J. TSENES, a citizen of the United States, residing at St. Louis, in the county of St. Louis City and State of Missouri, have invented new and useful Improvements in Crossing-Gates, of which the following is a specification.

My present invention has reference to obstruction gates for railway crossings.

My object is to provide such gates with electrically actuated control means whereby the gates will be lowered when a train approaches the crossing and raised after the train has passed the crossing.

A further object is to produce electric operating means for automatically raising and lowering the gates at a railway crossing, which includes a lamp that is lighted when the gates are lowering whereby persons will be warned that a train is approaching the crossing before and after the gates are in obstructing position.

A further object is to produce a means for automatically operating a railway gate which can be attached to the crossing gates of the ordinary construction.

Other objects and advantages will present themselves as the nature of the invention is better understood, reference being had to the drawings which accompany and which form part of this specification.

In the drawings:—

Figure 1 is a plan view of a portion of a railway system showing the gates at a crossing and showing in diagram the electric circuits.

Fig. 2 is a greatly enlarged sectional view through one of the gate casings, the gate being in its elevated position.

Fig. 3 is a similar view but showing the gate lowered.

Fig. 4 is a transverse sectional view approximately on the line 4—4 of Fig. 3.

Fig. 5 is a sectional view approximately on the line 5—5 of Fig. 3.

Referring now to the drawings in detail, the rails of a track are indicated by the numeral 1, a road crossing the track by the numeral 2, and the gate casings disposed at the diagonally opposed corners of the crossing, by the numeral 3. The rails 1, at a suitable distance from each side of the crossing 2 are insulated, as at 4—4 from the remaining rails of the track. From one rail of the track there are conductors 5—5 leading into the casings 3. These conductors are arranged in suitable conduits 6, as are the second conductors 7 and 8 which also lead to the respective casings 3. The branch of the conductor 8 is connected to the conductor 7, and the conductor 7 is connected to a suitable source of electric energy indicated by the numeral 9. The conductors 7 and 5 which enter one of the casings 3, and the conductors 8 and 5 which enter the other casing are connected to the windings of solenoids 10 suitably supported, as at 11 in each of the casings 3. Movable through each of the solenoids 10 is a core 12. Supported below each of the solenoids 10 in each of the casings 3, is a cylindrical receptacle 13 that is closed at its top. To the lower end of each of the cores 12 there is attached a rod 14 that has on its lower end a plunger head 15. The plunger head is provided with apertures 15, and each of the receptacles 13 is filled with a comparatively heavy grade of oil.

The gates which are pivotally supported, as at 17, in each of the casings are indicated by the numeral 17^a respectively. Each gate has a weighted end 18, and the weight is designed to influence the gate to an upright or non-obstructing position. The gates play through slots 19 in the respective casings, and each gate is pivotally connected to the core 12 of each of the solenoids 10.

To assist in holding the gates in lowered position, I loosely attach to each of the gates, in the portion thereof received in each of the casings, a depending rod 21 to which is connected a coiled spring 22, the opposite end of the said spring being connected to a second rod 23. Preferably, the connecting means between the rods and spring are adjustable whereby the tension of the spring may be regulated. This means is broadly indicated by the numeral 24.

It will be apparent that a train entering the block provided between the insulations 4 will complete an electric circuit, energizing each of the solenoids 10, causing its core to be moved longitudinally and swinging the gate to a closed position. The movement of the gate in both the opening and closing positions is resisted by the buffer means provided by the perforated plunger 15 acting on the heavy liquid body in the receptacle 13, so that the gate will not be permitted to swing violently to either its opened or closed position. From the conductors which are connected to the solenoids there are branch

conductors 25 and 26 having terminals 27 and 28 which are in the path of engagement by contacts 29 and 30 respectively on the gate 17a. These contact members are connected to conductors 31 and 32 which are guided through the respective gates and which are connected to a lamp bulb 33. Thus after the gates have been partly lowered, the lamp will be lighted. If desired the device may be provided with an audible alarm which may be in normal broken electric circuit with a source of electricity, and the circuit may be completed when the gate is lowered. The lamp is lighted as long as the gates are in lowered position. When the cores are demagnetized, the weights will return the gates to normal non-obstructing position.

It is thought that the foregoing, when taken in connection with the drawings will clearly set forth the construction and operation of the improvement. It will be noted that the device is of an extremely simple nature and can be attached to weighted gates of the ordinary construction.

Having described the invention, I claim:—

1. In combination with rails insulated from other rails of a track to provide a block over which a rolling stock travels, and electric conductors connected to the rails in the block and in circuit with a source of electricity, of electro-responsive devices in said circuits, pivotally supported weight influenced gates, adjustable springs influencing the gates against their weighted means, means loosely connecting the gate with the electro-responsive means, and buffer means actuated by the electro-responsive means when the same is energized and influences the gates to closed position when a rolling stock travels in the block, and said buffer means also influencing the gates, against their weighted means for preventing the rapid swinging of the gates to their elevated positions.

2. In combination with rails insulated from other rails of a track to provide a block over which a rolling stock travels, and electric conductors connected to the rails in the block and in circuit with a source of electricity, of electro-responsive devices in said circuits, pivotally supported weight influenced gates, adjustable springs influencing the gates against their weighted means, means loosely connecting the gate with the electro-responsive means, and buffer means actuated by the electro-responsive means when the same is energized and influences the gates to closed position when a rolling stock travels in the block, and said buffer means also influencing the gates against their weighted means for preventing the rapid swinging of the gates to their elevated positions, and a lamp in the circuit lighted on the closing of the circuit.

3. In combination with rails insulated from other rails of a track to provide a block and electric conductors connected to the rails in the block and in circuit with a source of electricity, solenoids in said circuits, pivotally supported weight influenced gates above said solenoids, means loosely connecting the cores of the solenoids with the gates, spring means influencing the gates against their weighted means, a perforated plunger connected with the core of each solenoid, a receptacle containing a heavy liquid in which each plunger is received, and said circuits designed to be energized when a rolling stock enters the block.

In testimony whereof I affix my signature.

SPIRO J. TSENES.