C. W. PACKWOOD.

ELECTRICAL SIGNAL GATE.

APPLICATION FILED JAN. 13, 1920.

1,366,131.

Patented Jan. 18, 1921.

3 SHEETS—SHEET 1.

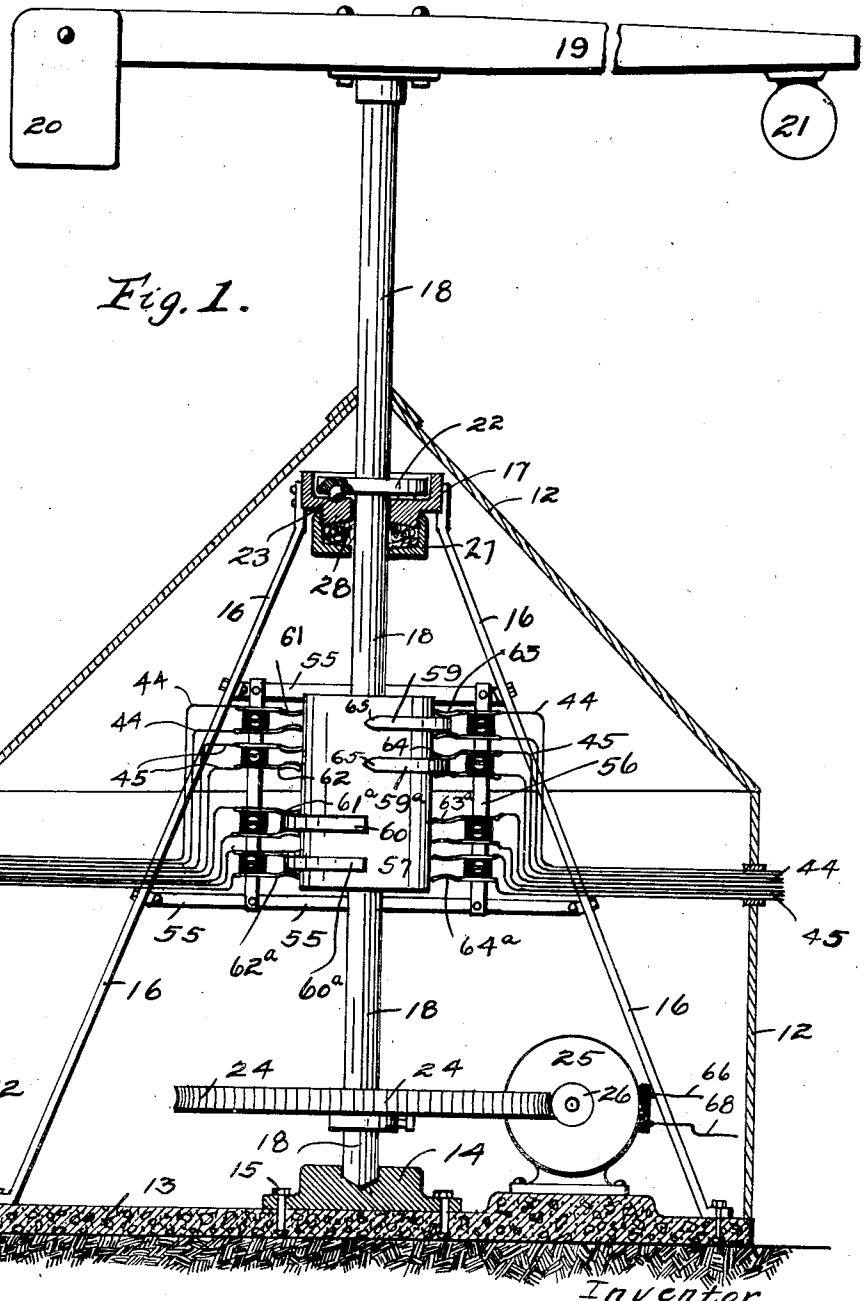


Fig. 1.

Witness.
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3 SHEETS—SHEET 2.

Fig 2

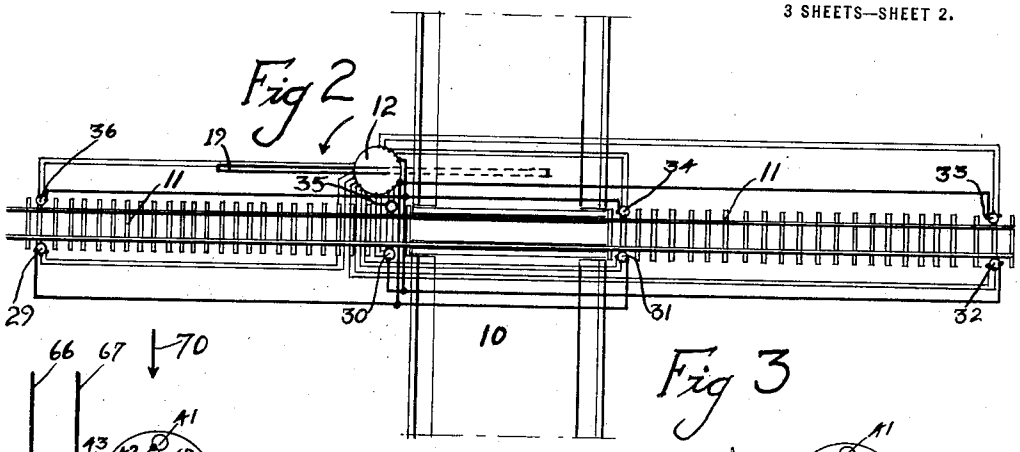
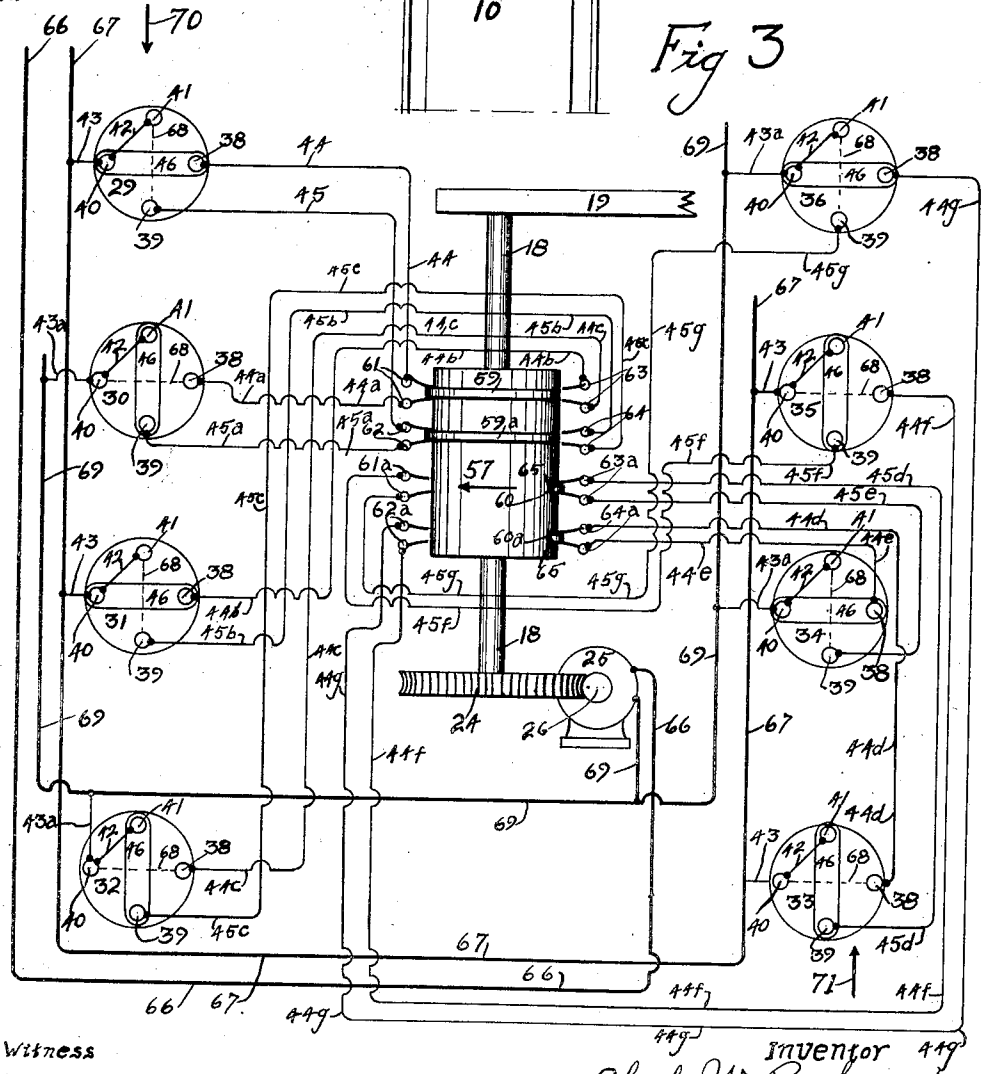


Fig 3



Witness

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3 SHEETS—SHEET 3.

Fig. 4.

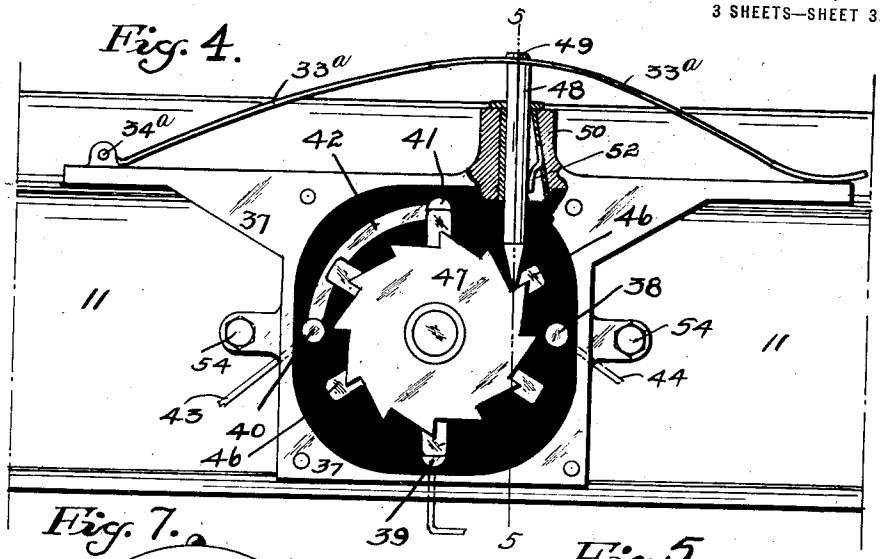


Fig. 7.

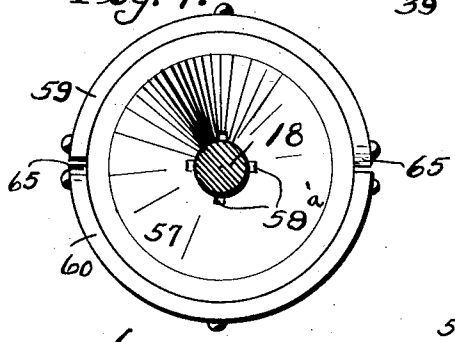


Fig. 5.

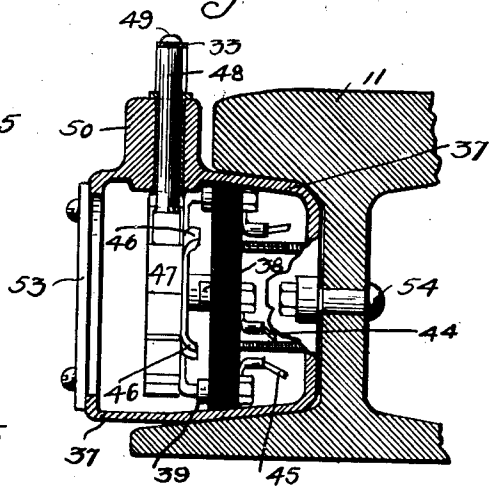


Fig. 6.

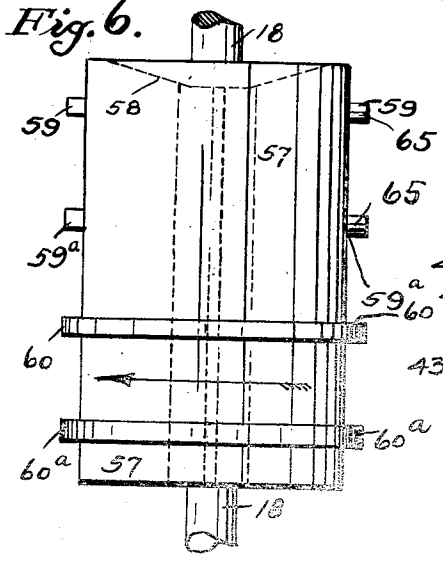
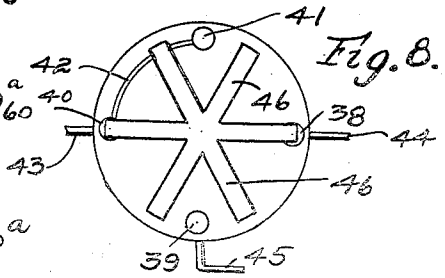


Fig. 8.



Inventor:
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Witness
J. Weber.

By Orwig & Bain Attorney

UNITED STATES PATENT OFFICE.

CHARLES W. PACKWOOD, OF FORT DODGE, IOWA, ASSIGNOR OF FOUR-TWENTIETHS TO F. O. SMOKSTAD, OF CLEAR LAKE, IOWA, AND TWO-TWENTIETHS TO JOSIE HYDE, ONE-TWENTIETH TO J. G. PORTER, ONE-TWENTIETH TO HOLGER ANDERSON, ONE-TWENTIETH TO ROSS M. DALBEY, AND ONE-TWENTIETH TO G. B. NETTLES, ALL OF FORT DODGE, IOWA.

ELECTRICAL SIGNAL-GATE.

1,366,131. Specification of Letters Patent. Patented Jan. 18, 1921.

Application filed January 13, 1920. Serial No. 351,183.

To all whom it may concern:

Be it known that I, CHARLES W. PACKWOOD, a citizen of the United States, and a resident of Fort Dodge, in the county of Webster and State of Iowa, have invented a certain new and useful Electrical Signal-Gate, of which the following is a specification.

The object of my invention is to provide a signal gate adapted to be placed adjacent to a railroad and highway crossing or intersection, and provided with suitable mechanism adapted to be acted upon by a passing train for causing the gate to be moved across the highway and held there until after the train has passed the intersection, and then to be moved to inoperative position.

Still a further object is to provide a signal gate having a member adapted to extend across the highway while the train is passing, the gate member being provided with a suitable light or other means for warning the public that a train is approaching.

Still a further object is to provide an electrically controlled signal gate having a series of switch mechanisms spaced adjacent to the railroad track and adapted to be acted upon by the passing train for making an electrical circuit to the motor for causing the device to operate; the switch mechanisms being so arranged that when the train strikes the first one it will cause a circuit to be made, and when it strikes the second switch mechanism the circuit will be broken.

With these and other objects in view my invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 shows a central, sectional view through my device, the gate member being broken in order to best illustrate the construction.

Fig. 2 shows a top or plan view of a railroad intersection with my device shown in inoperative position.

Fig. 3 shows an electrical diagrammatic view of the wiring system.

Fig. 4 shows a side elevation of the switch mechanism attached to the track, and the plunger device for operating the switch.

Fig. 5 shows a vertical, central, sectional view through the switch mechanism, taken on the line 5—5 of Fig. 4.

Fig. 6 shows a detail, side elevation of the drum member having the circuit breaking contact bands thereon.

Fig. 7 shows a top elevation of the same.

Fig. 8 shows a detail view of the switch showing the switch arms and contact points.

In the accompanying drawings, I have used the reference numeral 10 to indicate generally the ordinary highway passing over the tracks or rails 11.

Placed in one of the corners where the highway and railroad tracks intersect is my improved signal device.

My electrical signal device comprises a casing member 12 and a base preferably of concrete 13.

Fixed to the base member 13 is a bearing 14, which is suitably fastened to the base 13 by means of bolts 15.

Mounted within the casing 12 and fixed to the base 13 is the frame member 16. The frame member 16 supports an upper bearing 17.

Mounted in the bearings 14 and 17 and extended upwardly through the casing 12 is a vertical shaft 18.

Fixed to the upper end of the shaft 18 is a signal gate member 19, which is provided on its shorter end with a balancing weight member 20.

Fixed to the portion of the gate member 19 that is adapted to extend across the highway is a light 21. The light 21 is suitably wired, so that it is lighted only when the gate member is swung across the highway and in operative position.

A suitable switch, not shown in the drawings, may be provided for making it possible to have the light lighted only in the night, and to be turned out during the day when it is not needed.

Between the ends of the shaft 18, I provide a flange 22, which is fixed to the shaft 18.

The flange 22 rests upon the bearing member 17. This provides a rigid bearing member for the shaft 18.

Mounted in the bearing 17 and below the flange 22, I provide ball races 23. This makes it possible to rotate the shaft 18 with the least amount of resistance.

Fixed near the lower end of the shaft 18 is the worm wheel 24.

Mounted on the base 13 is the motor 25. The motor is provided with the worm 26, which is designed to mesh with the worm wheel 24 on the shaft 18.

From the construction of the parts just described, it will be seen that when the motor is in operation, the shaft 18 will rotate and then swing the gate member around, the worm and worm wheel making it possible to hold the gate against movement, while standing in inoperative or operative position, thereby always holding the gate bar 14 in the correct position.

Fixed to the underside of the bearing 17 is the packing nut 27, and the packing 28, which prevents any of the oil, which is placed in the bearing 17, from leaking out.

It will be seen from the foregoing, that it is necessary to have the motor operate only when it is desired to move the gate member into operative position, and then operate again for moving the gate member to its inoperative position.

To accomplish this I provide electrical switch mechanisms 29, 30, 31 and 32 for trains moving in one direction and switch members 33, 34, 35 and 36 for trains moving in the opposite direction. The switch mechanisms 29 and 30 are adapted to be placed adjacent to the track or rail and are spaced approximately six hundred feet apart.

The switch 30 is placed close to the intersection of the road.

The switches 31 and 32 are also placed adjacent to the track or rail and are spaced approximately six hundred feet apart. The switch 31 in this case is placed close to the intersection.

The switches 29 and 30 are what are commonly known as two-way switches; that is, either switch member may be operated and will cause a circuit to be made, or after a circuit has been made the operation of either of the switches will cause a circuit to be broken.

The switches which are adapted to be actuated or operated by the passing train are provided with a resilient member 33^a. The member 33^a is pivoted at one end at 34^a and is curved upwardly from its pivot to its center, and then downwardly, the extreme upper portion of the member 33^a being slightly above the upper edge of the rail 11. This is best illustrated in Figs. 4 and 5 of the drawings.

By providing suitable mechanism on the engine, when the engine passes over the track, it will strike the upper portion of the resilient member 33^a and force it downwardly and thus cause the switch to operate.

The operation of the switch will be hereinafter more fully set forth.

The switch 29 is placed about six hundred feet from the intersection, which gives the signal gate device plenty of time to get into operative position before the train reaches the crossing.

In order to have the signal gate move from inoperative position, that is the position shown in Fig. 2 of the drawings, to operative position, shown by dotted lines in Fig. 2, it is necessary to provide some circuit breaking mechanism for causing the motor to stop exactly when the signal gate has moved to its operative position, regardless of the speed of the train advancing.

The gate member 19 always swings across the railroad track as indicated by the arrow in Fig. 2. The gate comes into full operative position in plenty of time, before the train passes the intersection or crossing, to be out of the way of the train.

When the train strikes the switch member 30, it merely changes the position of the switches 29 and 30, relative to each other, so that when the next train passes and operates the switch member 29 first, the switch member 30 will be in such position that a circuit will be made.

From the foregoing, it will be understood that after the train has operated the switch members 29 and 30, the gate will be left in its operative position; that is the position shown by dotted lines in Fig. 2, and it is now necessary to move the gate back to its original or inoperative position, and for this purpose the switches 31 and 32 are used, the switch member 31 merely making the circuit. After a circuit has been made and the motor operated sufficiently to move the gate member back to its original or inoperative position, then the circuit breaking device comes into operation and breaks the circuit independently of the position of the switches 31 and 32. After the circuit has been broken the train then operates the last switch 32 and places it in such position that when the next train passes and actuates the switch member 31 a circuit will be made.

Placed on the other side of the track are the switches 33, 34, 35, and 36. These switches are adapted to operate only when the train is moving in the opposite direction from the movement heretofore described. The switches work in pairs, switches 29 and 30 causing a circuit to be made for moving the gate to operative position, and switches 31 and 32 for making the connection to move the gate back to its inoperative position.

If, at the crossing, a double track system

is had, then the switches 33, 34, 35 and 36 are placed on the set of tracks upon which the train passes in just one given direction.

The switch mechanisms are provided with a casing 37, and each switch member is provided with contact points 38, 39, 40 and 41. The contact points 40 and 41 are wired together with what is commonly known as a dead or trunk wire.

Each switch is provided with the switch arms 46. The switch arms 46 are so adapted that two of them will always contact with two of the contact points of the switch when the switch arm is moved only one-twelfth of a revolution.

Fixed to the switch arm 46 is a ratchet device 47. In mesh with the teeth of the ratchet device 47 is the plunger member or operating rod 48. The upper edge of the operating rod is secured to the resilient member 33^a by means of the rivet 49. The resilient member 33^a is provided with a slot through which the rivet 49 extends, which permits some play when the member 33^a is moved downwardly.

The casing member 37 of the switches is provided with an upwardly extending portion 50. The plunger rod 48 extends through an opening in the member 50. The opening is considerably enlarged at its lower end so as to permit slight pivotal movement of the rod 48, when it is pushed downwardly.

A spring 52 is fixed in the openings and adapted to yieldingly hold the plunger 48 in mesh with the ratchet 47.

In the parts just described, it will be seen that when the train strikes the member 33 it will cause the plunger rod 48 to move downwardly and thus rotate the ratchet device, which is fixed to the switch arms, one-twelfth of a revolution, and move the switch arms in such position that they will contact with the two succeeding contact points.

The resilient member 33^a will immediately withdraw the plunger rod just as soon as the train has passed over it.

The casing 37 is provided with a proper closure member 53. Each switch mechanism or member is fixed to the rail 11 by means of the bolts 54 which extend through the rail.

I will now describe the device for automatically breaking the motor circuit after the gate member has been swung to operative position, and then for breaking the circuit after the gate member is moved from operative to inoperative position.

Mounted on the frame members 16 are the cross frame members 55. Fixed to the frames 55 are the vertical supports or brackets 56. Mounted on the shaft 18 and adapted to rotate with it is the insulated drum member 57. The drum member 57 is provided with a cup-shaped opening in its upper end, which is best shown by the dotted lines 58 in Fig. 6 of the drawings.

Grooves 58^a are provided in the drum 57 adjacent to the shaft 18, so that any oil which may drip or run along the shaft will be received in the cup-shaped opening 58, and then pass into the grooves 58^a and down the shafts without passing out over the outer edge of the drum member 57.

Fixed on the drum member 57 are the contact bands 59, 59^a, 60 and 60^a. The bands are semi-circular and are placed on opposite sides of the drum 57; that is the bands 59 and 59^a are placed upon one-half of the drum, while the bands 60 and 60^a are on the opposite side.

Fixed on one of the vertical brackets 56 are the contact springs 61, 61^a, 62 and 62^a. The contact springs just referred to are shown on the left-hand side of the drawing in Fig. 1.

Fixed on the opposite side of the drum and on the bracket 56 are the contact springs 63, 63^a, 64 and 64^a.

The forward end of the contact bands are pointed at 65, so that when the drum is rotated the pointed ends 65 will come between the two parts of the contact springs.

A power or main wire 66 leads direct from the source of energy to the motor 25, while a wire 67 leads from the source of energy and is connected to the switches 29, 31, 33 and 35 by means of the short wire 43. This is illustrated in Fig. 3 of the drawings, which shows a diagrammatic view of the electrical connections.

The short wire 43 is connected to the contact points 40 of the four switches heretofore mentioned.

I have shown the switch arms 46 of all of the switch mechanisms in solid lines in the position they are originally in before the train has acted upon any of the switch mechanisms. The dotted lines 68 show the position of the switch arms 46 after they have been actuated or operated by the passing train.

I have shown the wire 69, which has one end connected with the motor 25. The wire 69 is connected to the switches 30, 32, 34 and 36 by means of the short wire 43^a. The short wire 43^a is fixed to the contact points 40 of the four last mentioned switch mechanisms.

In order to have a circuit made to operate the motor it is necessary for some communication between the wire 67, which leads from the source of energy, and the wire 69. This is done through the switch mechanisms and the automatic circuit breaker, which will hereinafter be described in detail.

Leading from the contact point 38 of the switch 29 is the wire 44, which has one end

fixed to the upper contact spring 61. Wired between the lower contact spring 61 and the contact point 38 of the switch 30 is the wire 44a. The wire 45 is wired to the contact point 39 of the switch 29 and to the upper contact spring 62. A wire 45a operatively connects the contact point 39 of the switch 30 with the lower contact spring 62. A wire 44b connects the contact point 38 of the switch 31 with the upper contact spring 63. The wire 45b connects the contact point 39 of the switch 31 with the upper contact spring 64. The contact point 38 of the switch mechanism 32 is wired to the lower contact spring 63 by means of the wire 44c. The contact point 39 of the switch mechanism 32 is wired to the lower contact spring 64 by means of the wire 45c.

The four switch mechanisms 29, 30, 31 and 32 just described are adapted to operate the gate mechanism when the train is passing in the direction indicated by the arrow 70, as shown in Fig. 3 of the drawings.

Assuming that the gate mechanism is in its inoperative position and the switch mechanisms 29, 30, 31 and 32 are in the position shown in solid lines in Fig. 3 of the drawings, then no circuit will be formed, because the energy transmitted through the wire 67 will pass through the wire 43 to the contact point 40, thence through the switch arm 46 over to the contact point 38. From the contact point 38 it will pass through the wire 44 to the upper contact spring 61.

The contact band 59 will serve as a transmitter for transmitting the current from the upper contact spring 61 to the lower contact spring 61. The current will then pass through the wire 44a to the contact point 38 of the switch 30. The contact point 38 of the switch 30 not being in communication with any of the other contact points will prevent the current from communicating with the wire 69.

It will be understood that in order to operate the motor, it is necessary for some communication between the wire 67 and the wire 69.

In order to make a circuit, it is necessary for the switch arms 46 to be in the same position; that is it is necessary for the switch arm 46, to contact the contact points 41 and 39 of both the switches 29 and 30 in order to have a circuit.

If the train coming in the direction indicated by the arrow 70 strikes the switch 29, it causes the switch arm 46 to be moved to the position indicated by the dotted lines 68. When the switch 29 is in the position indicated by the line 68, and the switch 30 is in the position, as shown in the drawings in Fig. 3, it will then be seen that current will be transmitted from the wire 67 to the contact point 40 by the short wire 43, through the dead wire 42 to the contact point 40 and to the contact point 39 through the switch arm. The wire 45 will then carry the current to the upper contact spring 62. The contact band 59a will transmit the current to the lower contact spring 62 through the wire 45a to the contact point 39 of the switch 30.

The current will pass through the switch arm to the contact point 41 and thence to the contact point 40 through the dead wire 42. The short wire 43a will cause the current to be transmitted from the contact point 40 to the wire 69, which will cause the circuit to be made.

As soon as the circuit is made, the motor will operate the shaft 18, which carries the contact bands. The rotation of the contact band 59a substantially one hundred and eighty degrees will cause the band 59a to disengage the upper and lower contact spring 62.

As soon as the band 59a has disengaged the contact springs 62, the circuit will be broken, regardless of the position of the switch mechanisms 29 and 30. The automatic circuit breaker merely temporarily opens the circuit and causes the motor to stop when the gate has been swung from inoperative to operative position.

As the train continues to advance it strikes the switch 30 and moves the switch arm 46 from the position shown in solid lines to the position indicated by the dotted lines 68. When in this position, it will be seen that no circuit could be made, regardless of the position of the contact bands.

In order to more clearly explain my device, I will follow the electrical current, when the switches 29 and 30 are in the position indicated by the dotted lines 68.

The current will pass through the wire 43 through the dead wire 42 and thence through the switch arm as indicated by the dotted lines 68 to the contact point 39 of the switch 29. From the contact point 39, the current will pass through the wire 45 to the upper contact spring 62.

It will be seen that the contact band 59a has been moved substantially a half revolution and will not cause any communication between the upper and lower contact springs 62, which will prevent the circuit from being made; but even if the contact band 59a is still in engagement with the contact springs 62 and transmits the current through the wire 45a and to the contact point 39, it will be broken by the switch mechanism 30, because the switch arm is in the position indicated by the dotted lines 68.

From the construction of the parts just described, it will be seen that the automatic circuit breaker merely temporarily opens the circuit after the gate has been moved to

a certain predetermined position, while the switch mechanisms permanently disconnect the circuit until they are operated again.

Assuming now that the train has actuated the switch mechanisms 29 and 30 and the gate is across the rod or in operative position, it is then necessary for the gate to swing back to its inoperative position.

To accomplish this the switch mechanism 31 is used to make the circuit, while the switch 32 permanently breaks the circuit.

The current will be transmitted from the main wire 67 to the contact point 40 of the switch 31 through the short wire 43.

It will be understood that the train has now operated upon the switch 31 and has moved the switch arm to the position indicated by the dotted line 68.

The current will pass from the contact point 40 to the contact point 41 through the dead wire 42 and thence to the contact point 39 to the switch arm, as indicated by the dotted lines 68. The wire 45^b will transmit the current from the contact point 39 of the switch 31 to the upper contact spring 64. The contact band 59^a has now been moved by the operation of the switches 29 and 30, from the position shown in solid lines in Fig. 3 one-half of a revolution or in other words, the point 65 of the contact band 59^a has just engaged the upper and lower contact springs 64.

The current will then pass from the upper contact spring 64 through the contact band 59^a and to the lower contact spring 64. From this point, power will be transmitted through the wire 45^c to the contact point 39 of the switch 32. From the contact point 39, power will be transmitted to the contact point 41 by the switch arm 46, and thence to the main wire 69 to the dead wire 42 and the short wire 43^a. When in this position, the circuit will be made and the motor will operate until the temporary or automatic circuit breaker will operate; that is, just as soon as the rear end of the contact band 59^a has become disconnected from the contact springs 64, the circuit will then temporarily be disconnected.

Then the operation of the switch mechanism 32 by the passing train will throw the switch arm 46 to the position indicated by the dotted lines 68. This will permanently disconnect the circuit.

After the train, passing in the direction indicated by the arrow 70, has operated all of the switch mechanisms 29, 30, 31 and 32, the switch arms of each switch will be in the position indicated by the dotted lines 68.

When a second train passes in the direction indicated by the arrow 70, the switch arm 46 will be thrown from the position shown in dotted lines 68 to the position shown in solid lines on the switch 29.

The power will then be transmitted through the wire 44 and through the contact springs 61 by means of the contact band 59. From the contact springs 61, the power will be transmitted through the switch 30 by means of the wire 44^a. The switch 30 is connected to the main wire 69 by means of the short wire 43^a. The rotation of the drum 57 will cause the rear end of the contact band 59 to disengage the contact spring 61, thus temporarily disconnecting the circuit. As soon as the train strikes the switch 30, it will cause the switch arm to be moved from the position indicated by the dotted lines 68 to the position shown in solid lines, which will means that the circuit will be permanently disconnected.

The operation of the switch 31 will again make the circuit for moving the gate from operative position to inoperative position, the contact band 59 temporarily disconnecting the circuit and the operation of the switch mechanism 32 permanently disconnecting the circuit.

For trains passing in the direction indicated by the arrow 71 in Fig. 3 of the drawings, the switch mechanisms 33, 34, 35 and 36 are provided.

All of the contact points 40 and 41 of the four switches, just mentioned, are wired together by the dead wire 42. The switches 33 and 35 have their contact points 40 wired to the main wire 67, while the contact points 40 of the switches 34 and 36 are wired to the main wire 69 by means of the short wire 43^a.

The contact point 38 of the switch 33 is wired to the upper contact spring 64^a by means of the wire 44^d. The contact point 39 of the switch 33 is wired to the upper contact spring 63^a by means of the wire 45^d. The contact point 38 of the switch 34 is wired to the lower contact spring 64^a by means of the wire 44^e; while the contact point 39 of the switch 34 is wired to the lower contact spring 63^a by means of the wire 45^e. The contact point 38 of the switch 35 is wired to the lower contact spring 62^a by means of the wire 44^f. The contact point 39 of the switch 35 is wired to the upper contact spring 61^a. The contact point 38 of the switch 36 is wired to the upper contact spring 62^a by means of the wire 44^g; while the contact point 39 of the switch 36 is wired to the lower contact spring 61^a by means of the wire 45^g.

When the switch mechanisms 33, 34, 35 and 36 have their switch arms 46 in the position shown in solid lines in Fig. 3 of the drawings, no circuit will be made. But when the train advances in the direction indicated by the arrow 71 in Fig. 3 of the drawings, the striking of the switch mechanism 33 will move the switch arm to the position indi-

cated by the dotted lines 68. The current will then be transmitted from the wire 67 through the short wire 43 to the dotted lines 68 and thence to the wire 44^d. From the wire 44^d it will communicate with the upper contact spring 64^a.

The current will pass through the contact band 60^a and thence to the lower contact spring 64^a. From the lower contact spring 64^a, the current will pass through the wire 44^e to the contact point 38 of the switch 34. It will then pass through the switch arm 46, as shown in solid lines, to the contact point 40 and through the short wire 43^a to the main wire 69, which communicates with the motor 25 and forms a circuit. Just as soon as the band 60^a has rotated a half-revolution, the spring clips 64^a become disconnected temporarily breaking the circuit, then as the train advances in the direction last mentioned, it will operate the switch mechanism 34, throwing the switch arm 46 to the position indicated by the dotted lines 68.

When the switches 33 and 34 and their switch arms are in the position indicated by the dotted lines 68, the circuit will be permanently disconnected.

The advancing train then operates the switch 35 and throws the switch arm from the position shown in solid lines to the position shown in the dotted lines 68 in Fig. 3 of the drawings.

Energy will be transmitted to the main wire 67 through short wire 43 through the dotted lines 68 to the contact point 38. From the contact point 38, it will pass through the wire 44^f into the lower contact springs 62^a. The contact band 60^a has been moved to position, where it will engage the contact springs 62^a, due to the operation of the first switch 33. The current will then pass through the contact band 60^a and to the upper contact spring 62^a; through the wire 44^g to the contact point 38 of the switch 36.

The current will then pass through the switch arm to the contact point 40 and through the short wire 43^a to the main wire 69. The circuit will then be made.

The operation of the switch 36 caused by the advancing train, throws the arm in the position indicated by the dotted lines 68, which permanently disconnects the circuit.

After all of the switches 33, 34, 35 and 36 have their switch arms in the position indicated by the dotted lines 68, the next train passing in that direction will operate them and cause the circuit to be made through the contact band 60. Then when the next train passes over the switches just referred to, the automatic circuit breaker will be effected through the contact band 60^a and so on.

By making the contact bands substantially cover a half of the circumference of the drum, it will be seen that as soon as the shaft 18 has been rotated the half revolution, that the contact bands will become disengaged from the contact springs, which are forming the circuit and cause the circuit to be broken.

As soon as the circuit is broken, the gate 19 will stop, because the motor circuit 25 is open, the worm wheel 24 and the worm 26 tending to prevent any further swinging movement of the gate without the operation of the motor.

By my device, I am able to perfectly control the operation of the gate member by electricity, and only operate the motor when it is actually necessary to swing the gate to any one of its positions.

The advantages of my device will be clearly seen from the foregoing description, and the device is adapted to be so operated that it will work under all conditions and will work accurately at all times.

Another advantage of my device is that it will automatically be thrown into operative position, and then automatically moved back to its original inoperative position, and held there until the device is to be used the next time.

By a device of this kind much of the danger of railroad crossings is eliminated, especially upon country highways, where it is sometimes impossible to see whether a train is coming down the track or not.

By this device the gate member would be placed across the highway long before the train approached, and give the public on the highway plenty of warning that it would be dangerous to cross the track under the circumstances.

Just as soon as the train has passed, then the device will be moved automatically to its inoperative position, and the public can then pass over the tracks without any danger.

Some changes may be made in the construction and arrangement of the parts of my improved device without departing from the essential features and purposes of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents, which may be reasonably included within their scope.

I claim as my invention:

1. In a device of the class described, a frame member mounted within a casing, a shaft journaled in said frame, and having one end extended through said casing, a gate member fixed to said shaft and adapted to rotate with the shaft, a motor mounted in said casing, a worm wheel on said shaft adapted to mesh with a worm gear fixed to said motor, an electrical switch mechanism adapted to be acted upon by a passing train for making an electrical circuit to the motor, means independent of said last described

mechanism for breaking the electrical circuit at some predetermined position of the shaft, said last means comprising a drum, having semi-circular contact bands thereon, that are adapted to disengage and break the circuit during the rotation of the shaft, and thereby stop the further operation of the motor until a new electrical circuit is made.

2. In a device of the class described, a frame member mounted within a casing, a shaft journaled in said frame and having one end extended through said casing, a gate member fixed to said shaft and adapted to rotate with the shaft, a motor mounted in said casing and a worm wheel fixed to said shaft and adapted to mesh with a worm gear on said motor, a drum member having semi-circular contact bands thereon fixed to said shaft, contact points fixed to the frame and adapted to engage said bands during a portion of the rotation of said shaft, an electrical switch mechanism electrically connected with said contact points and said motor, and adapted to be actuated by a passing train for causing an electrical circuit to be made, whereby said shaft will be rotated until the contact bands and contact points become disengaged, whereby said circuit will be broken and the motor stop.

3. In a signal device for railroad crossings, a frame member having a shaft journaled therein, a gate member fixed to said shaft and extended at right-angles thereto, said shaft forming a pivot for swinging said gate member into and out of operative position, a worm wheel fixed on said shaft, a motor having a worm fixed thereon and adapted to mesh with said worm wheel, a plurality of switch mechanisms fixed adjacent to the track and adapted to be tripped by a passing train, said mechanism being electrically connected with said motor, half of said switch mechanisms being designed to cause the motor to operate, the remaining switch mechanisms being designed to cause the first half of said mechanisms to be in such position that they will be ready to cause a circuit made when again operated by a passing train, and means for stopping the operation of the motor independent of the position of any of said switch mechanisms, said last means comprising a drum fixed on said shaft, having semi-circular contact bands thereon that are adapted to disengage from contact springs, and break the circuit, and thereby stop the further operation of the motor.

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