June 11, 1940. F. W. GRISWOLD 2,203,988

RAILWAY CROSSING SIGNAL

Filed July 9, 1936 4 Sheets-Sheet 1

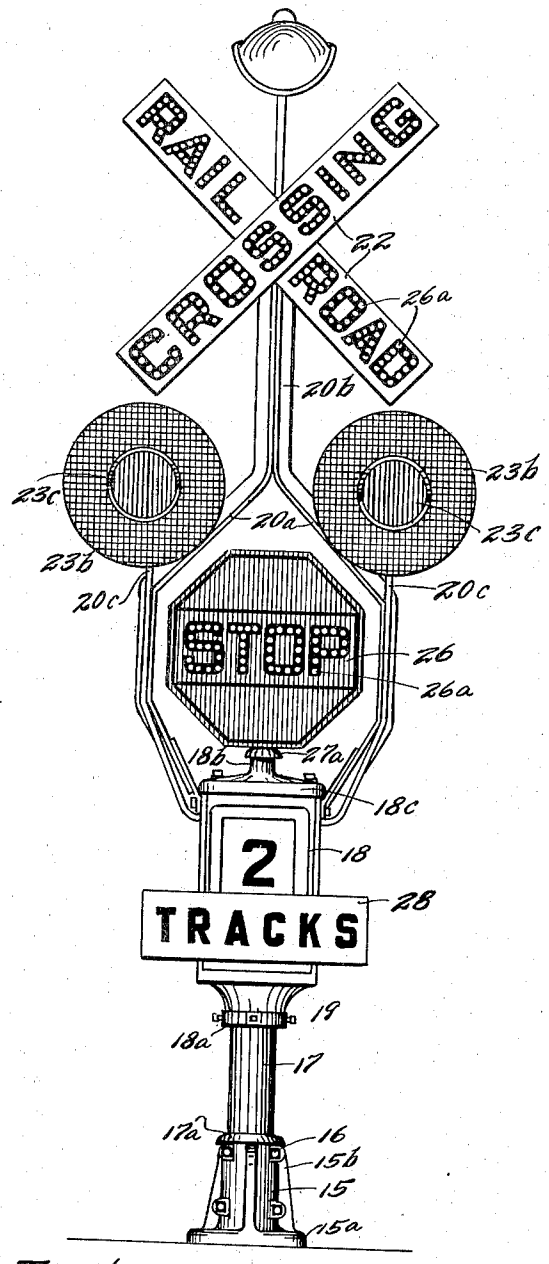


Fig. 1.

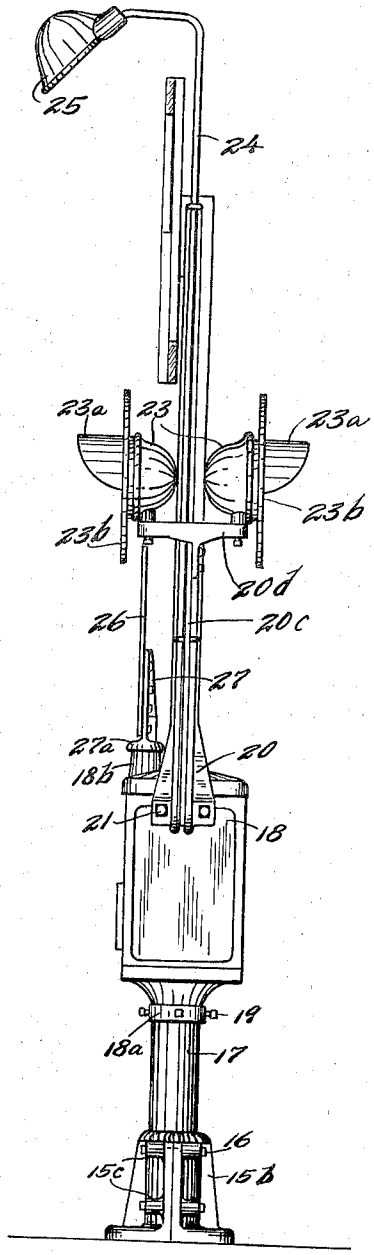


Fig. 2.

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RAILWAY CROSSING SIGNAL

Filed July 9, 1936 4 Sheets-Sheet 2

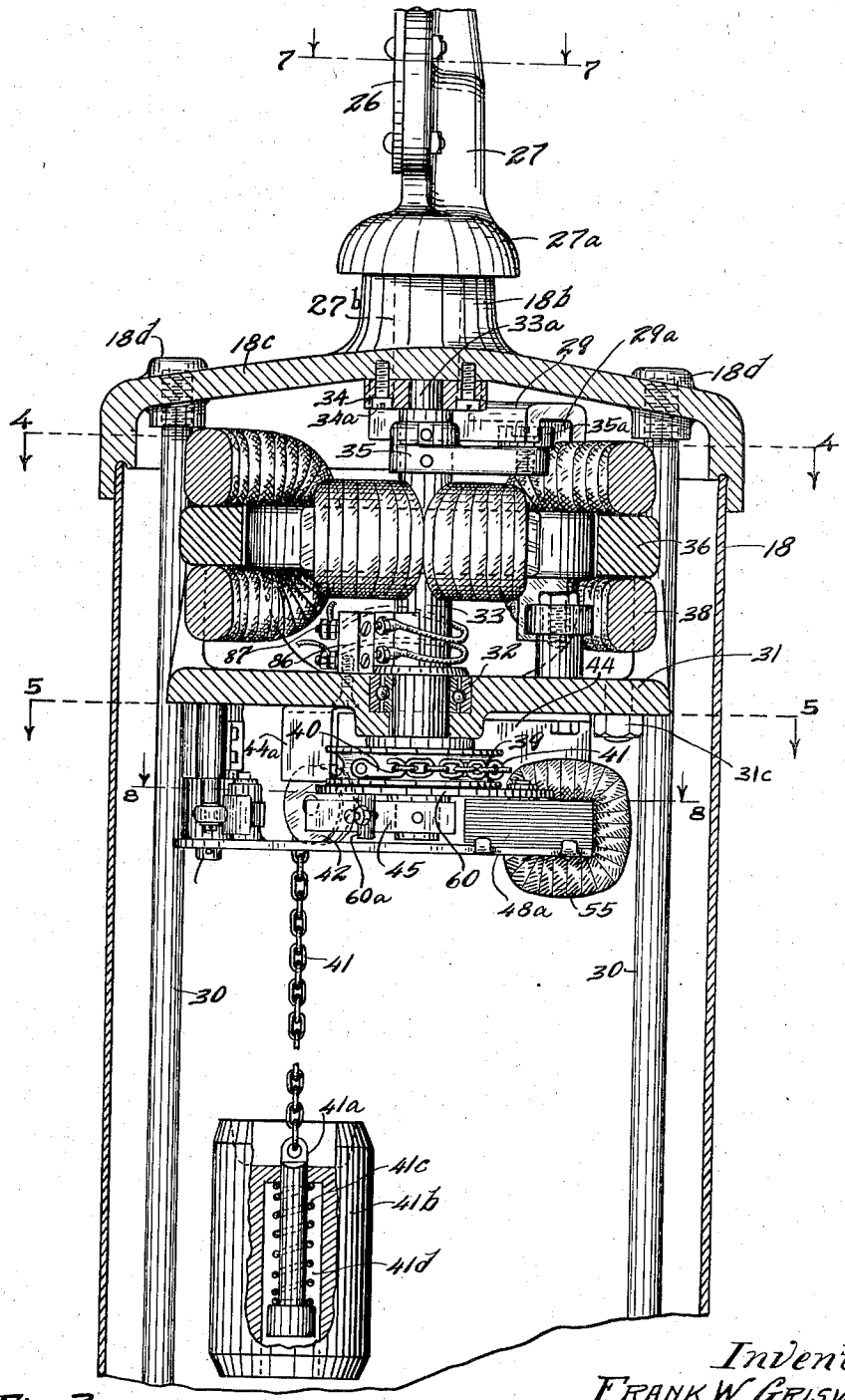


Fig. 3.

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RAILWAY CROSSING SIGNAL

Filed July 9, 1936 4 Sheets-Sheet 3

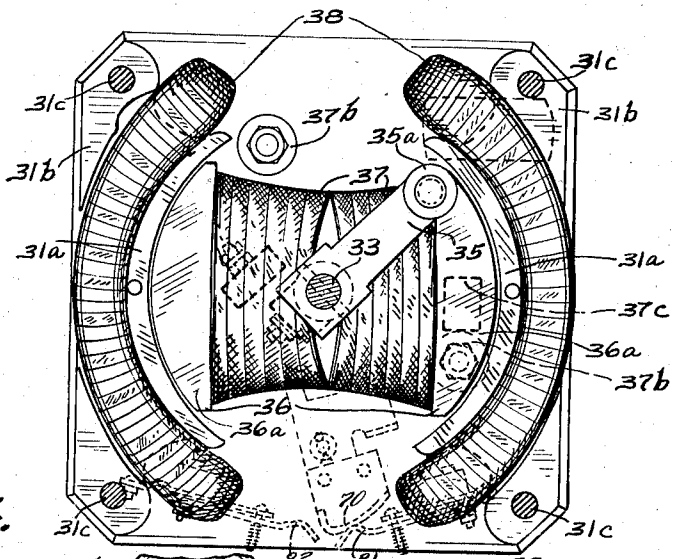


Fig. 4.

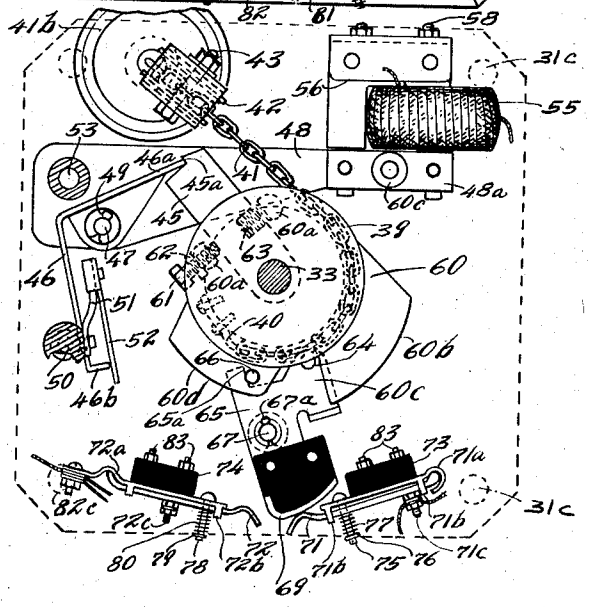


Fig. 5.

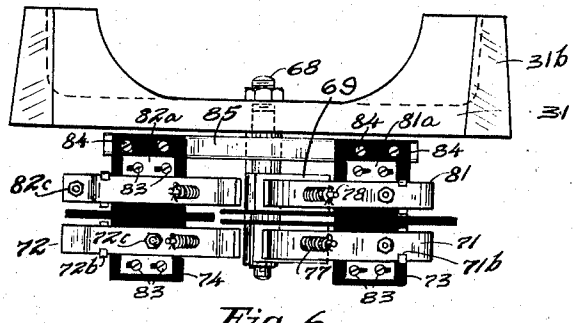


Fig. 6.

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RAILWAY CROSSING SIGNAL

Filed July 9, 1936 4 Sheets-Sheet 4

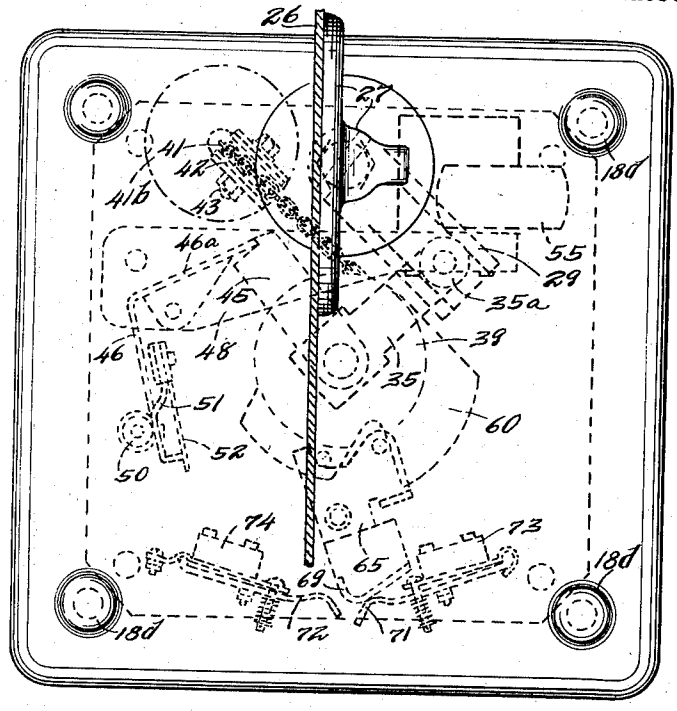


Fig. 7.

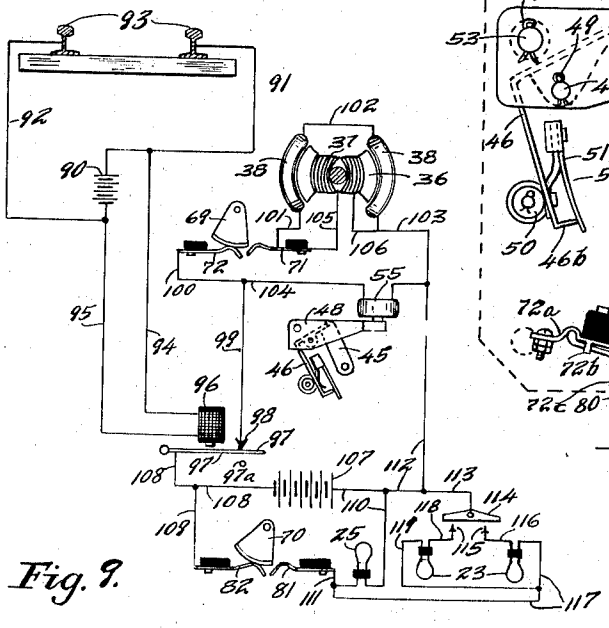


Fig. 9.

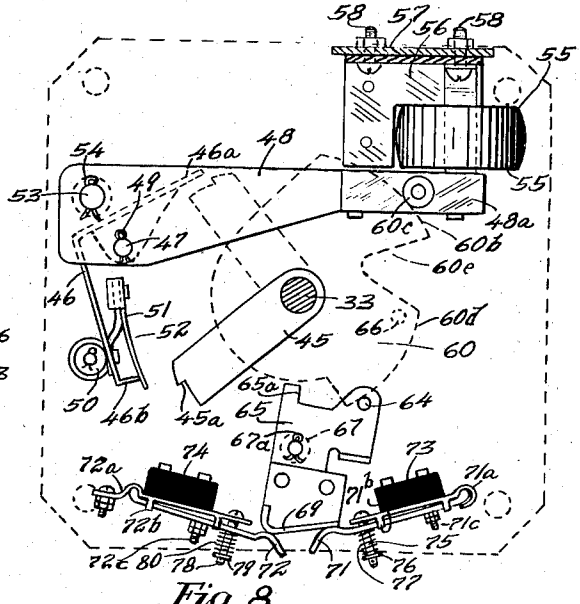


Fig. 8.

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Patented June 11, 1940 2,203,988

UNITED STATES PATENT OFFICE

2,203,988

RAILWAY CROSSING SIGNAL

Frank W. Griswold, Minneapolis, Minn.

Application July 9, 1936, Serial No. 89,749

7 Claims. (Cl. 177—329)

This invention relates to a signal device and while the device may have various applications, it is particularly designed for use at railway crossings where a thoroughfare crosses a railway. It is desirable at such crossings to have an automatic signal which will be turned to stop position when a train is approaching and which will be turned to non-stop position when the train has left the vicinity of the crossing. It is also desirable and convenient to have such a signal electrically operated and to have a minimum of current used, particularly when the signal is in non-stop position. It is also desirable to have the signal operated with simple mechanism.

It is an object of this invention, therefore, to provide a signal having simple and efficient means for moving it to non-stop position when there is no train adjacent the crossing and to hold it in such position.

It is another object of the invention to provide a railway signal adapted for use at railway crossings having a signal member adapted to be turned to stop and non-stop positions, said signal member being turned to non-stop position by a plurality of electro-magnets acting upon an armature preferably having a winding thereon.

It is a further object of the invention to provide a railway signal of simple and efficient design having electro-magnetic means for operating it to cause it to assume non-stop position, a simple and efficient holding means for holding it in said position, a releasing means and gravity-actuated means for operating it to cause it to assume stop position.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings, in which like reference characters refer to similar parts throughout the several views and in which—

Fig. 1 is a view in front elevation of the signal;

Fig. 2 is a view in side elevation of the signal;

Fig. 3 is a partial view in vertical section through the casing and operating mechanism for the signal;

Fig. 4 is a horizontal section taken on line 4—4 of Fig. 3 as indicated by the arrows;

Fig. 5 is a horizontal section taken on line 5—5 of Fig. 3 as indicated by the arrows;

Fig. 6 is a view in side elevation as seen from the lower side of Fig. 5;

Fig. 7 is a partial horizontal section taken substantially on line 7—7 of Fig. 3 as indicated by the arrows, some parts being omitted and others shown in dotted lines;

Fig. 8 is a somewhat diagrammatic view representing in part a horizontal section taken substantially on line 8—8 of Fig. 3 as indicated by the arrows; and

Fig. 9 is a wiring diagram for the signal.

Referring to the drawings, a signal is shown comprising a base member 15. This member is shown as a casting having a cylindrical body with a bottom flange 15*a* and opposite flanges 15*b* extending from its top downwardly and outwardly to adjacent the edge of flange 15*a*. Said base member preferably is formed of two portions and these are connected by headed and nutted bolts 16 extending through bosses 15*c* on member 15. A standard or support 17 is embraced by base member 15 and upstands therefrom, said standard having a collar 17*a* resting upon the top of base member 15. A casing 18 is supported at the top of standard 17, the same having a collar 18*a* at its bottom having a plurality of radially extending set screws 19 therein engaging standard 17. Standard 18 is preferably provided at one side with a door giving access to the interior thereof. Brackets 20 are bolted to the sides of casing 18 by bolts 21, which brackets extend outwardly and are formed as angle irons extending vertically in parallel relation, the same having upper portions 20*a* converging to form a central standard 20*b*. Crossed bars 22 are supported at the upper end of portion 20*b*, said bars being crossed at their central portions substantially at right angles and having thereon respectively the words "Railroad crossing." Bracket portions 20*c* extend vertically from the side portions of brackets 20 to which are bolted the brackets 20*d*, the same extending horizontally to each side of bracket 20. Lamps 23 are supported at the ends of brackets 20*d*, said lamps facing forwardly and rearwardly respectively and having shields or reflectors 23*a* at their upper portions. Annular plates 23*b* surround the forward portions of said lamps and reflectors 23*a*. The faces of plates 23*b* are of some dark color and while various colors may be used, in the embodiment of the invention illustrated they are shown as being black. The lenses 23*c* of lamps 23 are preferably red as indicated. A rod or bracket 24 extends from portion 20*b* upwardly in the rear of bars 22 and forwardly centrally between the same and has a lamp 25 secured thereto positioned at an angle so as to illuminate the bars 22.

A sign plate 26 is provided which has a wide

and arrestive face portion and a narrow edge of non-arrestive appearance. While sign 26 might be of various shapes, in the embodiment of the invention illustrated it is shown as of octagon shape having sides parallel to the sides of brackets 20, the corners of said sign at its upper side being substantially parallel to the converging portions 20a respectively of brackets 20. While sign 26 might be of various colors, it preferably is yellow and the same has the word "Stop" extending horizontally across its central portion. The letters of this word "Stop" and the letters of the legend "Railroad crossing" on bars 22 preferably have small circular reflecting buttons 26a. A bracket 27 is bolted to one side of sign 26, the same having a collar 27a extending over a boss 18b forming part of and projecting upwardly from the top of the cover 18c for the casing 18. Bracket 27 has a shaft 27b extending downwardly through boss 18b and journaled therein. A "2 Tracks" sign 28 is placed on the front of casing 18 as shown in Figs. 1 and 2. The shaft 27b projecting downwardly from bracket 27 has secured to its lower end an arm 29 having a slot 29a in its lower side substantially rectangular in cross section. Casing 18 has therein a frame comprising four rods 30 extending adjacent the corners thereof, the upper ends of which are threaded in bosses 18d on the cover 18c. A plate 31 forming part of said frame is supported on rods 30 and has therein a ball bearing 32. A shaft 33 is journaled in bearing 32, the same extending through the central hub of plate 31 and said shaft has a reduced portion 33a at its upper end journaled in a block or bracket 34 secured to the cover 18c by screws 34a. An arm 35 is secured to shaft 33 below bearing 34 and has a roller 35a mounted thereon disposed in the slot 29a. Shaft 33 has secured thereto between bearings 32 and 34, an iron armature 36, having segmental end portions 36a and a reduced central portion about which is wound a coil 37. Rollers 37b are mounted on plate 31, adapted to be engaged by a stop lug 37c on armature 37. Plate 31 has spaced portions 31a and 31b upstanding therefrom at each side secured by bolts 31c forming a channel therebetween in which are disposed electro-magnetic coils 38 of arcuate form. Coils 37 and 38 are energized at certain times, causing armature 36 to assume the position shown in Fig. 4. A pulley or drum 39 having a grooved periphery is secured to shaft 33 immediately below plate 31 to which is secured a hook 40. A chain 41 has its end link engaging hook 40 and extends around pulley 39, said chain extending downwardly over grooved pulley 42, the periphery of which is in horizontal alinement with the periphery of pulley 39. Pulley 42 is journaled on a stud 43 supported in a bracket 44 depending from plate 31, which bracket has a lug 44a acting as a guide for chain 41. Chain 41 has its other end secured to a stud 41a slidable through a weight 41b, said stud having an enlarged lower end forming a shoulder and being surrounded by a compression spring 41c, one end of which engages said shoulder and the other end of which engages the top of a recess 41d formed in weight 41b, in which recess stud 41a is disposed. Shaft 33 has secured thereto below pulley 39 an arm 45 having a notch in its outer end forming a shoulder 45a thereon. Shoulder 45a is adapted to engage with the end of an arm 46a of an angle bracket 46 pivotally mounted on a vertical stud 47 upstanding from a swinging arm 48. Stud 47 has split keys 49 extending therethrough at one side of arm 48 and at one side of bracket 46. A stud 50 projects downwardly from plate 31 and the same has a small bracket 51 secured to one side thereof, which bracket has secured thereto a sear or leaf spring 52, one end of which projects freely from bracket 51. Bracket 46 has an arm extending at an angle thereto somewhat larger than a right angle, the same having an end 46b bent substantially at a right angle, the end of which is adapted to engage spring 52. Arm 48 is mounted for swinging movement about a stud 53 depending from plate 31 and is held thereon by the split key 54. Arm 48 has adjacent its free end a block 48a forming an armature adapted to engage and be attracted by an electro-magnet 55 mounted on a bracket 56 secured to a bracket 57 by the headed and nutted bolts 58, bracket 57 being secured to plate 31. A can 60 is secured to shaft 33 between pulley 39 and arm 45. Said cam has spaced lugs 60a depending therefrom, through one of which extends a set screw 61 having a jamb nut thereon, the end of said set screw projecting from one side of lug 60a and engaging one side of arm 45. The opposite side of said arm has a recess formed therein in which is seated a coiled compression spring 63, one end of which projects from said recess and engages the other lug 60a. Spring 63 is of considerable strength. With said construction the angular position of arm 45 can be varied somewhat by manipulation of set screw 61. Cam 60 has a peripheral portion 60b adapted at times to engage a roller 60c mounted on arm 48. Said cam has another peripheral portion 60d which is adapted to engage a pin 64 projecting from a switch member 65. Cam 60 has a recess 60e between portions 60b and 60d and a pin 66 projects upwardly from said cam adjacent one end of portion 60d. Pin 66 is adapted at times to engage with a surface or shoulder 65a formed on switch member 65. Switch member 65 is pivotally mounted on a pin 67 depending from plate 31, the same being held thereon by a split key 67a. Switch member 65 carries an upper contact member 69 and a lower contact member 70. Switch member 69 is adapted to connect switch contacts 71 and 72 carried on insulation blocks 73 and 74 respectively. The contact member 71 is mounted in a holder 71a, the same being bent at one end to form a semi-cylindrical socket in which the enlarged end of member 71 is seated and swingable. Member 71a has arms or clips 71b extending over the sides of member 71. A headed pin 75 has its head engaging the remote side of member 71a and extends through member 71, the same having a washer 76 adjacent its end held thereon in any suitable manner as by a pin extending through member 75. A coiled compression spring 77 surrounds pin 75 between washer 76 and member 71 so that the free end of member 71 may yield somewhat against the tension of spring 77. Contact member 71 is provided with a binding post 71c. Contact member 72 is mounted in a holder 72a having a curved socket portion in which one end of member 72 is disposed. Holder 72a has clips 72b extending over the sides of member 72 and a headed pin 78 has its head engaging the remote side of holder 72a and extends through the same and through member 72, the same having a washer 79 held thereon in any suitable manner. A coiled compression spring 80 surrounds pin 78 between washer 79 and member 72 so that the latter is yieldable away from holder

72a against the tension of spring 80. Contact member 72 is provided with a binding post 72c. Contact member 70 is adapted to connect contact members 81 and contact members 82. These are mounted in holders 81a and 82a such as already described for contact members 71 and 72. Holders 71a, 72a, 81a and 82a have flat portions engaging the blocks 73 and 74 provided with elongated slots through which pass the securing screws 83. Holder 82a is provided with a binding post 82c. The blocks 73 and 74 are secured by screws 84 to a bracket 85 carried on stud 68.

A block 86 is shown in Fig. 3 secured to plate 31 and equipped with binding posts 87 for receiving the conductors or conducting current to coil 37.

In Fig. 9 a wiring diagram is shown including a battery or source of current 90 from the poles of which conductors 91 and 92 extend respectively to the rails 93 of the railway track adjacent the signal. Conductors 94 and 95 extend respectively from conductors 91 and 92 to an electro-magnet coil 96. Coil 96 is adapted to attract, when energized, a swinging armature 97 and hold it in engagement with a contact 98 to which extends a conductor 99. Conductor 99 is connected to a conductor 100, which in turn is connected to contact member 72. Swinging contact member 69 is shown as is also contact member 71. A conductor 101 extends from conductor 71 to one end of one electro-magnet winding 38. A conductor 102 extends from the other end of electro-magnet winding 38 to one end of the other electro-magnet winding 38. A conductor 103 extends from one end of the latter winding 38 to electro-magnet winding 55. A conductor 104 extends from winding 55 to conductor 99. A conductor 105 also extends from contact 71 to one end of winding or coil and another conductor 106 extends from the other end of this coil to conductor 103. The swinging arm 48 is shown as is also the locking member 46 and arm 45.

Another battery or source of current 107 is shown for the signal circuits proper. A conductor 108 extends from one end or pole of battery 107 to armature 97. A conductor 109 extends from conductor 108 to contact member 82. Swinging contact member 70 is shown adapted to connect contact members 82 and 81. A conductor 110 extends from one end of battery 107 to lamp 25 and a short conductor 111 extends from lamp 25 to contact member 81. A conductor 112 extends from conductor 110 to conductor 103. A conductor 113 extends from conductor 112 to an oscillating flasher contact 114. Contact 114 is adapted alternately to engage contacts 115. A conductor 116 extends from one contact 115 to one lamp 23 and a conductor 117 extends from the other side of this lamp to contact member 81 through conductor 111. A conductor 118 extends from the other contact 115 to the other lamp 23 and a conductor 119 extends from this latter lamp to conductor 117.

In operation when no train is in the vicinity of the crossing the signal will be disposed with the edge of plate 26 directed toward the highway so that said plate will be at right angles to the position shown in Figs. 1 and 2. Plate 26 then extends substantially parallel to the highway and the face thereof is not visible to traffic approaching the railway crossing. At this time the electro-magnet 96 shown in Fig. 9 is energized and armature 97 is held against contact 98. Electro-magnet 55 is energized, the circuit therefor passing from battery 107 through conductor 108, armature 97, contact 98, conductor 99, conductor 104, through said magnet, conductor 103 and conductor 112 to battery 107. Arm 45 has its shoulder 45a engaged with one end of arm 46a of locking member 46 as shown in Fig. 5. Magnet 55 is holding armature 48a thereagainst. The weight 41b is acting by gravity to pull on chain 41, tending to rotate shaft 33 and turn the signal to stop position or the position shown in Figs. 1 and 2. Since the effort exerted by arm 45 is directed at one side of the pivot 53 of arm 48, the weight is exerting a turning movement on arm 48 but at a very disadvantageous angle. Said arm cannot turn because magnet 55 is holding armature 48a. Shaft 33 cannot turn because arm 45 is engaging arm 46a. The signal is thus locked in non-stop position and as stated is under stress of weight 41b to move to stop position. Magnet 55 takes very little current as it has a high resistance winding. When a train approaches the crossing, rails 93 are connected by the locomotive and cars and battery 90 is short circuited. Sufficient current does not then flow to magnet 96 to hold armature 97 and it drops down against the stop 97a. This opens the circuit through magnet 55 so that armature 48a is no longer held. The stress on shaft 33 and arm 45 now swings arm 48 in a clockwise direction about its pivot 53. As it thus swings the terminal 46b of arm 46 is moved against spring 52 and member 46 is swung in a counter-clockwise direction about its pivot 47. Arm 46a is swung away from shoulder 45a, as shown in dotted lines in Fig. 8, so that arm 45 is released. The weight 41b which is quite heavy now turns shaft 33 and arm 35 acts on arm 29 through roller 35a to swing sign 26 ninety degrees to the stop position shown in Figs. 1 and 2. The face of sign 26 now faces the highway and traffic is warned that a train is approaching. As shaft 33 revolves in a counter-clockwise direction, peripheral portion 60b of cam 60 soon engages roller 60c and arm 48 is held in position with armature 48a adjacent magnet 55. As cam 60 turns, one side of recess 60e engages pin 64 and this swings switch member 65 in a clockwise direction about its pivot 67 and contact member 69 connects contact members 71 and 72. Peripheral portion 60d engages pin 64 and holds switch member 65 in connecting position as shown in Fig. 8. When contact members 71 and 72 are connected, part of a circuit is completed through the coils 37 and 38, this circuit extending through conductors 99, 100, contact members 72, 69 and 71 and through conductors 101, 105, 102, 106, 103 and 112 to battery 107. However, the circuit is open at contact 98 and armature 97. When the signal is in stop position contact member 70 is also swung with contact member 65, the same being connected and contact members 81 and 82 are connected. A circuit is now closed through lamp 25 which, referring to Fig. 9, can be traced from battery 107, through conductor 108, conductors 109, contact members 82, 70 and 81, conductor 111, lamp 25 and conductor 110 to battery 107. Lamps 23 are alternately illuminated and extinguished by operation of flasher member 114. The circuits for these lamps can be traced from battery 107, conductor 110, conductor 112, conductor 113, member 114, contact 115, conductor 116, lamp 23, conductor 117, conductor 111, contact members 81, 70 and 82, conductor 109 and conductor 108 to battery 107. The circuit for the other light will pass through

from flasher member 114, contact 115, conductor 118, lamp 23 and conductor 119 to conductor 117 and thence to battery 107 as already described.

The signal is thus in stop position with lamps 23 flashing and the bars or sign 22 illuminated. A very conspicuous warning is thus given traffic on the highway to stop.

When the train leaves the vicinity of the crossing the short circuit caused by connection of rails 93 is removed and current again flows to magnet 96 and armature 97 is attracted. A circuit is now closed through the windings 38 and 37 and armature 36 which, while the signal was in stop position, had its segmental portions 36*a* at 90 degrees from the showing in Fig. 4 or between the ends of coils 38, is now attracted and quickly moved to the position shown in Fig. 4. This turns shaft 33 in a clockwise direction as shown in Figs. 5 and 8, pulley 39 is turned and chain 41 is wound up on pulley 39 moving over pulley 42 and weight 41*b* is again raised. As cam 60 swings with shaft 33, pin 66 engages the side or surface 65*a* of switch member 65 and said member is swung in a counter-clockwise direction about its pivot 67 so that contact members 69 and 70 are swung to disconnect contact members 71 and 72 and contact members 81 and 82. When this occurs the circuit through the magnet coils 38 and through the armature coil 37 is broken and armature 36 remains in the position shown in Fig. 4. When armature 97 was attracted it engaged contact member 98 and the circuit was again closed through magnet 55 and the latter energized. Armature 48*a* is again held and arm 45 moves into position to engage the end of arm 46*a*. The signal has now again been moved to non-stop position. When contact member 70 was swung to disconnect contact members 81 and 82, lamps 23 and 25 were extinguished and the signal was no longer illuminated. When the descent of weight 41*d* is stopped by lug 37*c* engaging the stop 37*b* on plate 31 spring 41*c* cushions the shock. Lug 37*c* engages the other stop 37*b* to stop armature 36 when the signal is moved to non-stop position.

From the above description it is seen that applicant has provided a very simple and very efficient structure of railway signal. The magnet coils 38 exert great force on armature 36 and act quickly to turn shaft 33 and place the signal in non-stop position after the train has left the vicinity of the crossings. While the signal is being held in non-stop position very little current is used. When the signal plate or sign 26 is in its two positions arms 35 and 29 are disposed substantially at right angles so that the signal cannot be turned by force applied to sign plate 26. The use of the magnet coils 38 and armature 36 eliminates the necessity for a regular electrical motor and the necessity for reduction gearing between shaft 33 and such a motor. A very compact structure is thus produced and one that operates with great certainty and precision. The signal has been amply demonstrated in actual practice and found to be very successful and efficient.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts, without departing from the scope of applicant's invention, which generally stated, consists in a device capable of carrying out the objects above set forth in the parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:

1. A railway signal having in combination, a signal member adapted to be turned to stop and non-stop positions, means for moving said signal to non-stop position including a shaft, a member carried by said shaft, a swinging arm having a locking means for engaging said member to hold said shaft in position when said signal is in non-stop position, an electro-magnet for holding said arm in position with said means engaged, said arm carrying an armature for said electro-magnet, said shaft being disposed to swing said arm away from said electro-magnet at a disadvantageous leverage so that when said armature is engaged with said electro-magnet said arm will be easily held thereby and means on said shaft for moving and holding said arm adjacent said electro-magnet when said signal moves to stop position.

2. A railway signal having in combination, a signal member adapted to be turned to stop and non-stop positions, means for moving said signal to non-stop position including a shaft, a second member carried by said shaft and rotatable therewith, an electro-magnet, an arm pivoted adjacent one end to swing about an axis spaced from said shaft, said arm having an armature adjacent its other end adapted to engage said electro-magnet, a locking means carried by said arm comprising an angle arm pivoted thereto, one end of which engages said second member to hold said signal in non-stop position, a third member engaged by the other end of said angle arm to swing the same upon movement of said swinging arm and release said second member for permitting it to swing past said arm and to permit said signal member to be moved to stop position.

3. A railway signal member having in combination, a casing, a signal member mounted above said casing for movement to stop and non-stop positions, means for moving said signal to non-stop position including a shaft, a locking arm secured to said shaft, means for varying the angular position of said arm, a swinging arm pivoted to swing about an axis spaced laterally from said shaft, an armature carried by said swinging arm, an electro-magnet engaged by said armature, a locking member of angular form swingingly mounted on said swinging arm adjacent the pivoted end of the same one end of said member being adapted to engage said locking arm to hold said signal in non-stop position, a member engaged by the other end of said locking member and adapted to move the same to release said locking arm upon movement of said swinging arm away from said electro-magnet and means for energizing said electro-magnet when said signal member is in non-stop position and de-energizing the same when said signal member is to move to stop position.

4. A railway signal having in combination, a signal member adapted to be turned to stop and non-stop positions, means for moving said signal to non-stop position including a shaft, a member carried by said shaft, an electro-magnet, an arm pivoted adjacent one end to swing about an axis spaced from said shaft, said arm having an armature adjacent its other end adapted to engage said electro-magnet, a movable locking means carried by said arm adapted to engage said member when said signal is in non-stop position with said armature engaging said electro-magnet, said shaft and member being disposed to swing said arm away from said electro-magnet at a disadvantageous leverage so that when said armature is engaged with said electro-magnet said arm

will be easily held thereby, a cam on said shaft engaging said arm shortly after said locking means is released upon said signal member moving to stop position to move and maintain said armature close to said electro-magnet.

5. A railway signal device having in combination, a casing having a plate-like top cover portion, a plate supported within said casing and spaced below said cover portion, a magnet coil bracket upstanding from said plate, a pair of electric magnet coils on said bracket, said coils being spaced from each other, a vertical shaft journaled in said plate and in said cover portion, a signal member mounted above said casing and operatively connected to said shaft so as to oscillate in unison with it, an armature carried centrally on said shaft above said plate and disposed between said coils, so that, when energized said signal will be moved to non-stop position, means supported from the lower side of said plate for holding said signal in non-stop position after said coils are de-energized, and means secured to said shaft tending to turn the same to move said signal to stop position so that said signal will move to stop position when said holding means becomes inoperative.

6. A railway signal device having in combination, a casing having a plate-like top cover portion, a plate supported within said casing and spaced below said cover portion, a magnet coil bracket upstanding from said plate, a pair of electric magnet coils on said bracket, said coils being spaced from each other, a vertical shaft journaled in said plate and in said cover portion, a signal member mounted above said casing and operatively connected to said shaft so as to oscillate in unison with it, an armature carried centrally on said shaft above said plate and disposed between said coils, so that, when energized said signal will be moved to non-stop position, means supported from the lower side of said plate for holding said signal in non-stop position after said coils are de-energized, said shaft extending through said plate and means secured to said shaft adjacent the lower side of said plate tending to turn said shaft to move said signal to stop position so that said signal will move to stop position when said holding means becomes inoperative.

7. A railway signal device having in combination, a casing having a plate-like top cover portion, a plate supported within said casing and spaced below said cover portion, a magnet coil bracket upstanding from said plate, a pair of electric magnet coils on said bracket, said coils being spaced from each other, a vertical shaft journaled in said plate and in said cover portion, a signal member mounted above said casing and operatively connected to said shaft so as to oscillate in unison with it, an armature carried centrally on said shaft above said plate and disposed between said coils, so that, when energized said signal will be moved to non-stop position, said shaft extending through said plate, a pulley secured to said shaft adjacent the lower side of said plate, means secured to said pulley tending to turn the same and said shaft to move said signal to stop position, said shaft extending below said pulley, an arm secured to said shaft below said pulley and means supported from the underside of said plate engaging said arm for holding said signal in non-stop position after said coils are deenergized whereby said signal will move to stop position when said last mentioned means becomes inoperative.

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