United States Patent [19]

McGimpsey

[11] **3,783,446**

[45] **Jan. 1, 1974**

[54] **TRAFFIC CONTROL SYSTEM**

[76] Inventor: **John W. McGimpsey,** 83 Oakdene Ave., Teaneck, N.J. 07666

[22] Filed: **Dec. 9, 1971**

[21] Appl. No.: **206,274**

[52] **U.S. Cl.** ..... **340/31 R**
[51] **Int. Cl.** **G08g 1/02**
[58] **Field of Search** ..... 340/31 R, 38 R, 35, 340/41, 22, 31 A, 38 L

[56] **References Cited**

UNITED STATES PATENTS

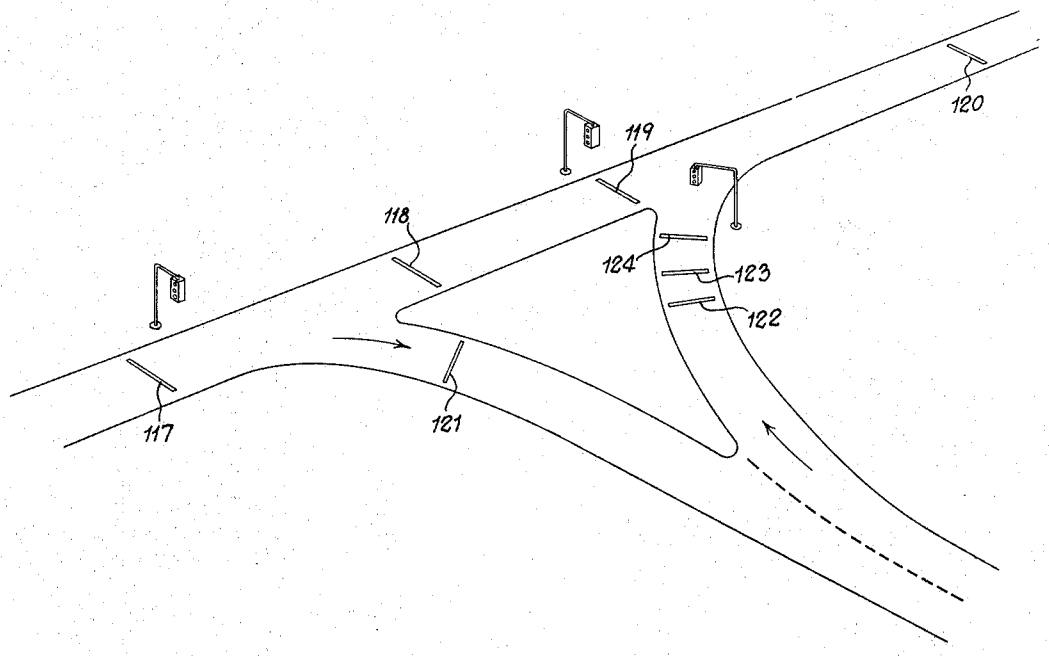
3,618,003	11/1971	Marshall	340/31 R
3,593,262	7/1971	Spencer	340/36
3,588,805	6/1971	Davin	340/31 R
3,275,984	9/1966	Barker	340/31 R

Primary Examiner—Kathleen H. Claffy
Assistant Examiner—Randall P. Myers
Attorney—Reno A. Del Ben

[57] **ABSTRACT**

A traffic control and warning system for the control of traffic characterized by a series of traffic lights selectively operated through relays which are operated by switches located in the roadway and which switches are tripped by the wheels of a vehicle. Provision is made for warning drivers when a vehicle stalls in the roadway.

4 Claims, 5 Drawing Figures



PATENTED JAN 1 1974

3,783,446

SHEET 1 OF 3

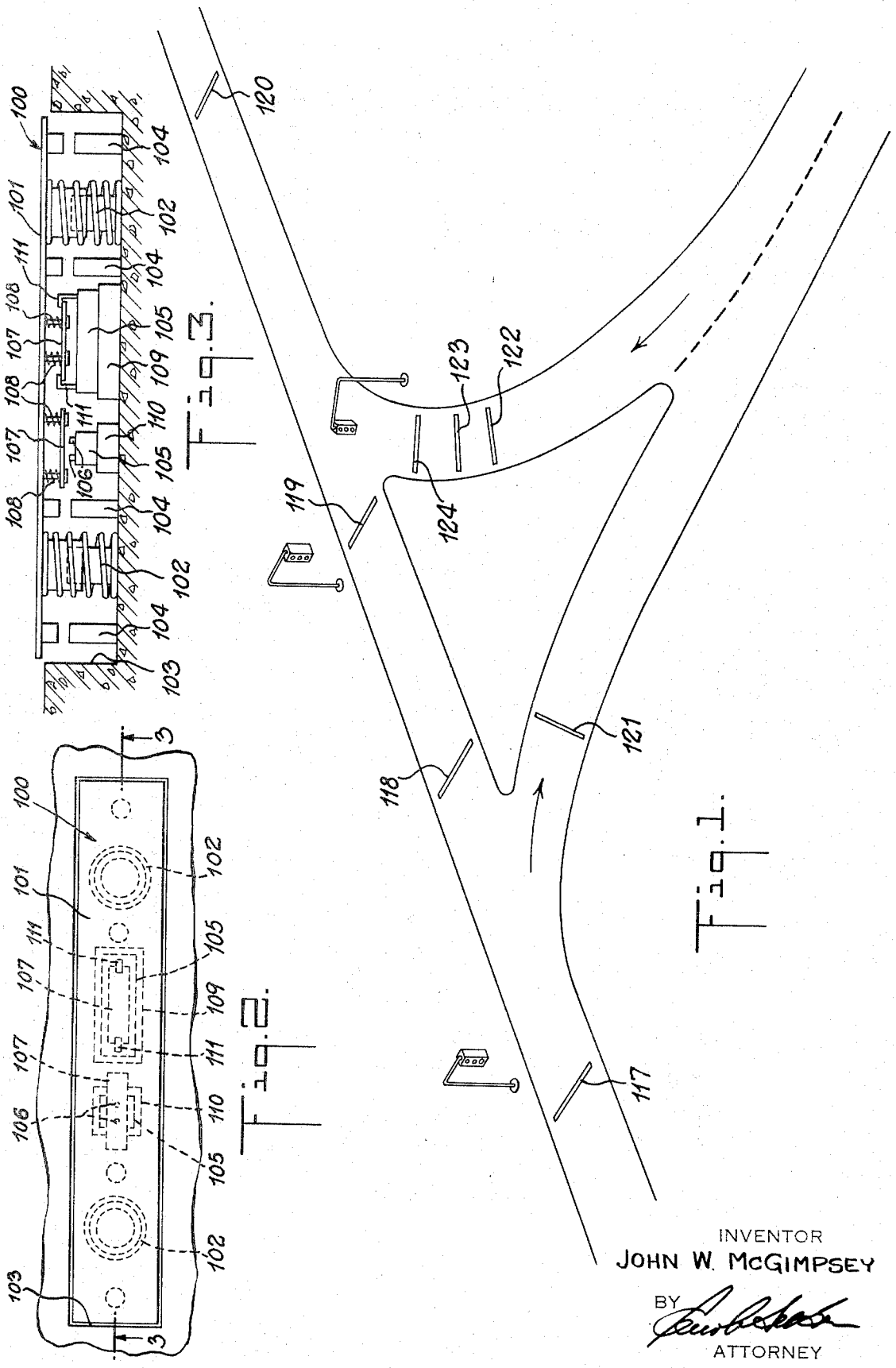


Fig. 3.

Fig. 2.

Fig. 1.

INVENTOR
JOHN W. McGIMPSEY

BY

ATTORNEY

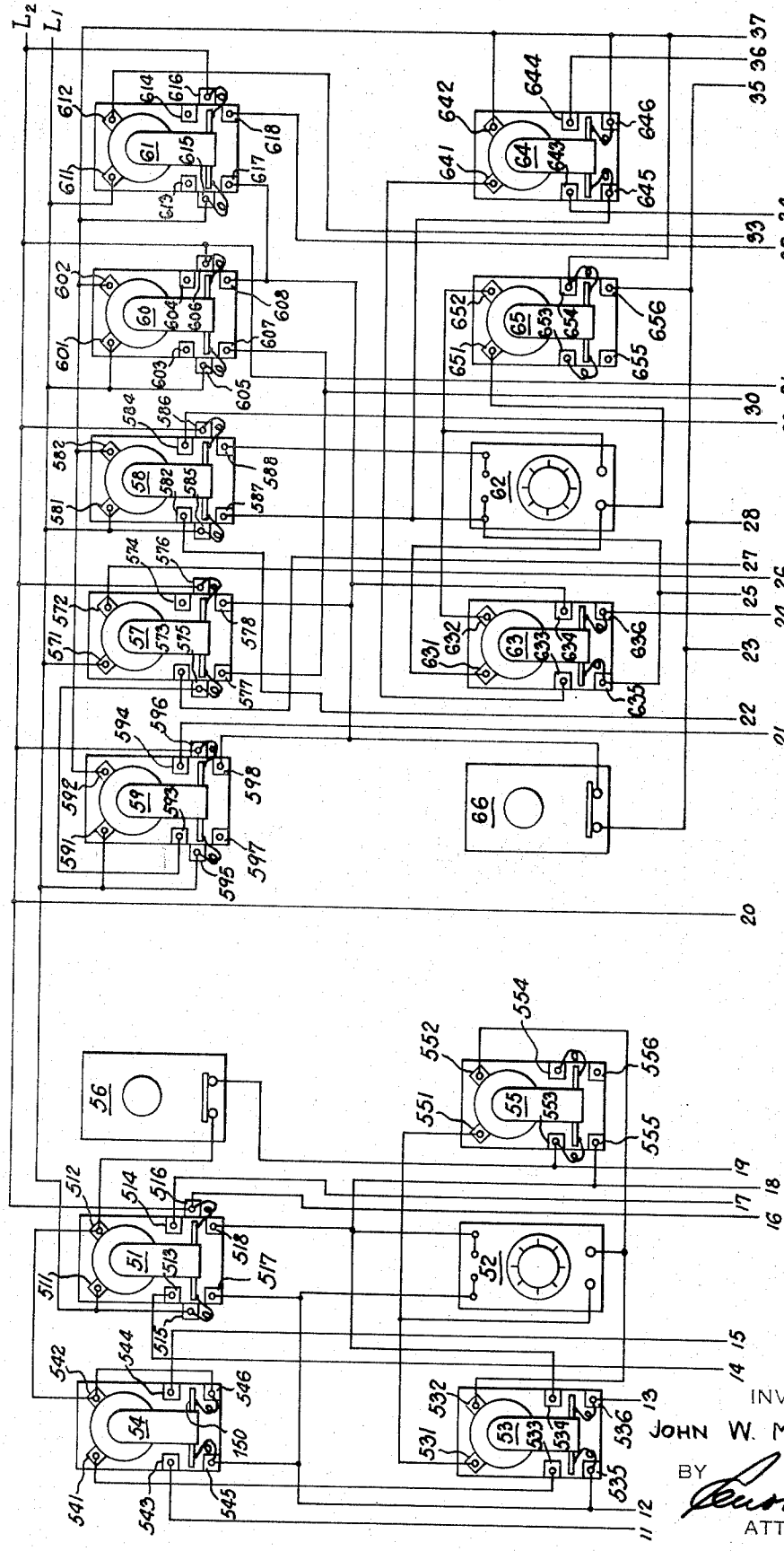


Fig. 4.

INVENTOR
JOHN W. McGIMPSEY
BY
ATTORNEY

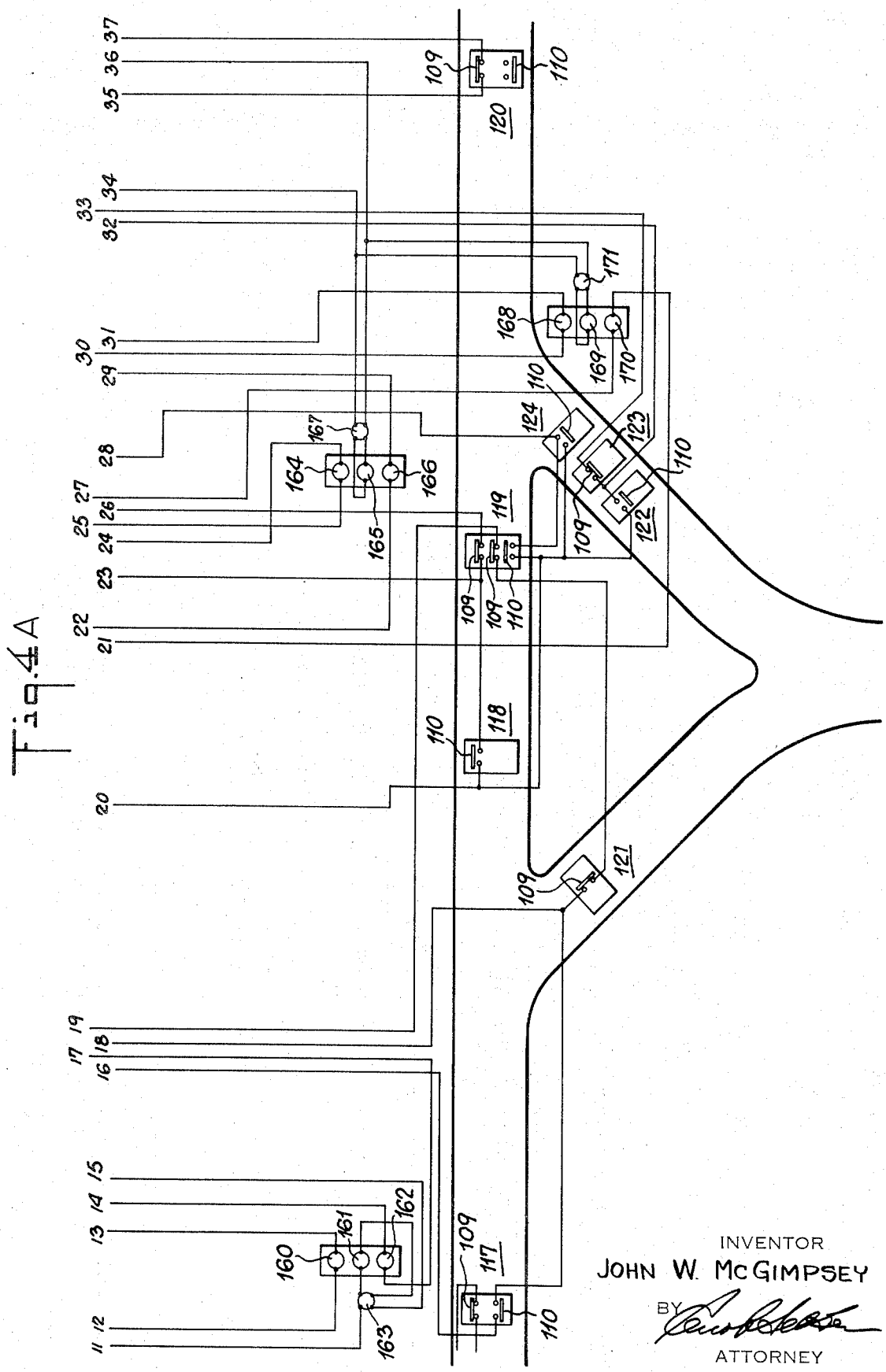


Fig. 4A

INVENTOR
JOHN W. McGIMPSEY
BY
ATTORNEY

TRAFFIC CONTROL SYSTEM

This invention deals with traffic control devices, and in particular with switching mechanisms for controlling traffic and the speed of traffic along various portions of a route, with particular emphasis on the control of traffic where vision is obscured, such as by heavy fog.

In the past, it has frequently been necessary on high-speed roads, such as turnpikes, to close said roads or take other drastic action to prevent accidents and multiple-car collisions. Various attempts have been made to alleviate the fog-conditions, which attempts have gone so far as to the installation of fans in attempts to blow-off the fog from the roadway. The methods which have been tried have generally been ineffective and costly.

The present invention attempts a solution of this problem by providing a traffic signal system operated by pads or contact bars installed in the roadway along those sections of the roadway persistently troubled by fog problems or other problems of obscured vision, whereby a driver may be warned when a car is either immediately in front of the driver or else has stalled on the roadway.

One of the objects of this invention is to provide a warning signal system for fogbound roadways whereby traffic can be effectively and easily controlled.

Another object of this invention is to provide a signal system which will let a driver known what to do without actually seeing what is ahead of him.

Still another object of this invention is to provide a signal system which will automatically alert a driver to expect an emergency situation ahead of him so that the driver can take appropriate action in advance.

Another object of the invention is to prevent vehicles from riding too close together and warning vehicles when a vehicle is stopped by reason of a malfunction on fogbound roads.

These and other objects of the invention will appear from time to time as these specifications proceed and with reference to the accompanying drawings, wherein:

FIG. 1 is a view of a typical road interchange, showing a portion of the invention in place.

FIG. 2 is a plan view of a contact bar assembly, part of the invention.

FIG. 3 is a cross-sectional view of the contact bar assembly of FIG. 2, taken on the plane 3—3 of FIG. 2.

FIG. 4 is a schematic diagram of a portion of the wiring circuitry of the invention; indicating the various relays of the invention and the connections thereto.

FIG. 4A is a schematic diagram of a portion of the wiring circuitry of the invention, and is an extension of the schematic diagram of FIG. 4, lines numbered 11 through 37 of FIG. 4A being continuations respectively, of lines numbered 11 through 37 of FIG. 4, and indicating the connections of the various relays to stop lights and road contact bars.

Referring to the drawings in which the same numerals are used for the identical or similar parts in the various drawings:

Generally the invention is designed primarily to provide a warning signal system for fogbound turnpikes and thruways, and for this purpose contact bar assemblies, 100, are installed in the roadway and include electrical contacts for controlling relays which control spotlights.

The contact bar assemblies, designated generally by the numeral 100, typically comprise a contact bar, 101,

which installed substantially level with a roadway, springs, 102, installed in a cavity 103 in the roadbed under the contact bar 101 and which support the contact bar, mating rigid supports 104 provided on the contact bar 101 and in the cavity 103, which will support the contact bar 101 when the springs 102 have been depressed a predetermined distance and at least one momentary contact switch 105 installed in the cavity 103 and operated by the depression of the contact bar 101. There are two types of momentary contact switches 105 a momentary open, normally closed momentary contact switch, 109, and a momentary close, normally open momentary contact switch, 110. A momentary close, normally open momentary contact switch, 110, comprises at least two electrical contacts 106 installed in the cavity 103 and attached by suitable leads to the various relays of the invention and a bus bar 107 insulatedly supported on springs 108 above said electrical contacts, the vertical distance between the bus bar 107 and the electrical contacts 106 being less than the mating portions of the rigid supports 104 so that depressing the contact bar 101 will cause the bus bar 107 to make contact with the electrical contacts 106, closing one and opening the other circuit between the electrical contacts 106. A momentary open, normally closed momentary contact switch, 109, comprises at least two electrical contacts 111 installed in the cavity 103 and attached by suitable leads to the various relays of the invention and a bus bar 107 supported on springs 108. The ends of the electrical contacts 111 are formed so that they extend above the bus bar 107 and make contact with same where the contact bar 101 is not depressed. The bus bar 107 is supported in such a manner that it will break contact with the electrical contacts 111 when the contact bar 101 is depressed.

In the various drawings, specific contact bar assemblies and their various parts are designated by the numerals 117, 118, 119, 120, 121, 122, 123, and 124.

On a section of roadway not including an intersection when a contact bar is depressed by the weight of a vehicle, a momentary contact switch in the contact bar assembly is closed and energizes a relay which puts on a red light at the station associated with this contact bar assembly and at the same time breaking contact for a red light at the previous station and putting on a green light at this previous station. These stations can be spaced apart according to the best safety rules.

The only way a red light will go off is by a vehicle depressing a contact bar on the road at the next station ahead of this red light. When this happens this red light changes to a green light allowing traffic to move to the next station.

According to this system, all vehicles would be spaced equally far apart unless a vehicle would choose to go past a red light. If all vehicles travel at the same speed each light will go green as the various vehicles reach contact bars. If, on the other hand, the speeds are different, the red lights will stop traffic, being controlled by the speed of the vehicle that is ahead. The system can be turned on when fog appears, and can be shut off during periods of normal visibility. An audible signal can be installed in conjunction with the visible signals.

When a light does not change from red to green within a specified period of time, such as would occur when a vehicle became disabled, a time delay switch

which is incorporated in the circuitry changes the red light to a blinker light, thereby allowing traffic to proceed while warning of a possible obstruction ahead. A manual reset is provided to put the system back into normal operation when the obstruction has been eliminated.

At a section of roadway which includes an intersection a contact bar assembly No. **118** is installed at a predetermined distance from a side road entry and when a vehicle on the main road depresses the contact bar **101** of contact bar assembly No. **118** in the main road the side road red light is put on, stopping side road traffic.

When a vehicle on the main road hits the contact bar **101** of contact bar assembly No. **119** at the intersection, it will cancel this red light **168** and put a green light **162** on the preceding station and a red light **168** on the side road, and it also puts red light **164** on.

When a vehicle approaches the main road from the side road it will depress the contact bar **101** of contact bar assembly No. **122,** energizing by-pass relay No. **61,** and will prevent the main road red light No. **164** from going off due to a vehicle on the main road depressing contact bar **101** of contact bar assembly No. **120.** At the same time the side road red light **168** will go off and the side road green light **170** will go on, allowing the vehicle on the side road to enter the main road. The side road vehicle then passes over the stop line, which is located between contact bar assemblies No. **122** and No. **123,** and will depress bar **101** of contact bar assembly **123,** and in so doing cuts the power to coil of bypass relay No. **61.** The vehicle entering then proceeds to contact bar assembly No. **124** which, when its contact bar **101** is depressed, will put on red light **164** and **168.**

When the vehicle leaves the main road to get off on side road it will depress the contact bar **101** of contact bar assembly **121** on the side road which will cancel red light **160** and put on green light **162** at the preceding station.

Referring now to FIGS. **4** and **4A,** switch No. **52** and No. **62** are time delay relay switches. Switches No. **56** and No. **66** are normally closed push-button switches which can be momentarily opened to reset certain relays, as hereinafter indicated.

Relays No. **51, 57, 58, 59, 60,** and **61** are double pole double throw relays, having respectively, terminals **511** and **512, 571,** and **572, 581** and **582, 591** and **592, 601** and **602, 611** and **612** connected to the opposite sides of their respective coils. The contact bar, **150,** of each respective relay is in the position where the conductors of the respective contact bar makes contact, respectively with terminals **513** and **514, 573** and **574, 583** and **584, 593** and **594, 603** and **604,** and **613** and **614,** of the respective relay with which the contact bar is associated when the respective coil is not energized.

Relays No. **53, 54, 63** and **64** are double pole-single throw relays of the normally closed circuit type, having, respectively, terminals **531** and **532, 541** and **542, 631** and **632,** and **641** and **642** connected to opposite sides of their respective coils. The contact bars, **150,** of the relays are positioned so that they make contact, respectively, with terminals **533** and **534, 543** and **544, 633** and **634,** and **643** and **644** when the coil is not energized.

Relays No. **55** and **65** are double-pole single throw relays of the normally open circuit type, having, respectively, terminals **551** and **552,** and **651** and **652** connected to opposite sides of their respective coils. The contact bars, **150,** of the relays are positioned so that they do not make contact, respectively, with terminals **555** and **556,** and **655** and **656,** when the coil is not energized.

Lines designated L1 and L2 are opposite sides of a source of electrical power, the side designated L1 being preferably the ground side, while the side designated L2 is preferably the "hot" side.

The operation of the relays is as follows:

When the contact bar **101** of the contact bar assembly No. **117** in the main road is depressed by the weight of a vehicle the normally open momentary contact switch **109** of contact bar assembly **117** is closed allowing current to flow from power line L2 to the normally closed momentary contact switch **109** in contact bar assembly **121** and then to one of the normally closed momentary contact switch **109** in contact bar assembly **119** and then to the normally closed push button station **56** and then through to one side of relay **51** energizing the coil of relay **51.** The movable contact bar **150** of the relay of which the two poles are connected to power lines **61** and **62** respectively through terminals **515** and **516,** are put in contact by the energized coil with the two terminals **517** and **518** allowing current to flow in the red light **160** and allowing current to flow in time delay relay **52.** In the event that the vehicle does not reach contact bar assembly **119** due to a malfunction, at a set time the time delay relay **52** will energize the coil of relay **53** causing the cancellation of the main road red light **160** and cancelling relay **54.** When relay **54** is not energized the time delay switch puts current into the blinker light flasher **163** which in turn causes the yellow light **161** to flash continuously. The blinker light flasher **163** will stay on until cancelled by opening the normally closed push button switch **56,** which will also cause the red and green lights to operate in a normal mode. Relay **55** which is also energized by time delay relay **52** by-passes normally closed momentary contact switch **109** of the contact bar assembly **119** preventing the opening of this circuit and putting on green light **162** while the blinker light flasher is in service.

When the vehicle does not have a malfunction it will continue on to contact bar assembly **118** closing switch **110** of bar assembly **118.** Current from power line L2 will go through said switch **110** of contact bar assembly **118** and then through the normally closed momentary contact switch **109** of contact bar assembly **119** to terminal **572** of relay **57** energizing the coil and putting on side road red light **168.** When the vehicle depresses bar **101** of contact bar assembly **119** it will open momentary contact switch **109** coming from the contact bar assembly **118** circuit, cancelling current relay **57** and cutting off power to side road red light **168.** The normally closed momentary contact switch **109** of contact bar assembly **119** coming from the contact bar assembly **121** circuit will open, cancelling current to terminal **512** of the coil of relay **51** which relay **51** will cancel red light **160** at contact bar assembly **117,** cutting power to time delay relay **52** which cancels relay **53,** relay **54** and relay **55.** Green light **162** will be on at bar **117** when relay **51** is not energized.

The normally open momentary contact switch **110** of contact bar assembly **119** when depressed will close, allowing current to flow through the normally closed momentary contact switch **109** of contact bar assembly

120 to terminals 642 and 646 of relay 64 to terminal 602 of relay 60, putting on side road red light 168, to terminal 582 of relay 58, putting contact bar 150 of relay 58 in contact with the terminals of relay 58 which puts on red light at bar 119 and puts time delay relay 62 in service. This circuit from normally open momentary contact switch 110 of contact bar assembly 119 also permits current to flow through the L2 line side of relay 59 which cancels side road green light 170. Relays 53 and 55 which are maintaining circuits are supplied power by time delay relay 52. Relays 63, 64, and 65 are supplied power by time delay relay 62. When a vehicle reaches contact bar assembly 120 a normally closed momentary contact switch 109 will open, cutting power to relays 58, 59, and 60, putting on green lights 166 on main road and 170 on side road entry. When a vehicle coming from side road entry depresses bar 101 of contact bar assembly 122 the normally open momentary contact switch 110 closes allowing current to flow through the normally closed momentary contact switch 109 of contact bar assembly 123 to terminal 612 of relay 61, which bypasses normally closed momentary contact switch 109 at contact bar assembly 120 preventing opening of circuit when contact bar 101 of contact bar assembly 120 is depressed, so that red light 164 and green light 170 will remain on allowing side road vehicle to proceed on to main road. If a vehicle fails to reach contact bar assembly 120 due to malfunction the time delay relay 62 at a set time will allow current to flow into terminal 652 of relay 65 permitting bypassing of the normally closed momentary contact switch 109 of contact bar assembly 120 preventing green lights 166 and 170 from coming on. At the same time relay 62 will allow current to flow into terminals 632 of relay 63 energizing the coil. Relay 62 when energized will open the circuit to the main road red light 164 and open circuit to relay 64 putting on blinker light flashers 167 and 171 which will cause yellow lights 165 and 169 respectively to flash continuously. When the disabled vehicle is removed, a normally closed push button 66 is provided which can be pushed, cancelling blinker light flashers 167 and 171 and putting red and green light system into normal service again.

When a vehicle chooses to exit at a side road it will depress a contact bar in the exit road such as contact bar 101 of contract bar assembly 121, which will open circuit from switch 110 of contract bar assembly 117 to switch 109 of contact bar assembly 119 cancelling current to relay 51 and putting on green light 162 at contact bar assembly 117.

The switch 110 of contact bar assembly 120 is connected to the subsequent contact bar assembly which is identical to contact bar assembly 117. The switch 109 of contact bar assembly 117 is connected to a switch similar to switch 110 of contact bar assembly 120, in the preceding contact bar assembly. In this manner a series of these stages can be provided along the main roadway.

The time delay relay is preferably of the type which provides for a variable time delay and which can be set for a time delay which is anywhere within its range. It is possible that when the timer operates at one station, the set time on the preceding station may be the same and so on to the other preceding stations, putting all these stations on blinker lights assuming that all these stations are on red lights. If any are on green lights there is no problem. To avoid this the time setting can be arranged so that there would be a difference of a few seconds between each station. This could be done in groups of five or ten stations so that there would not be too long a time delay between a large group of stations.

The time delay relays may be wired to a monitored centrally located indicator panel, wired in parallel with the various yellow lights, to aid authorities in determining the location of possible problems in traffic.

Considering now the operation of the system during its different phases:

When there is no traffic in a typical stage or approaching the stage from the immediately preceding stage, the coils of the various relays are not energized, and electrical current flows from line L2 to terminal 516, thence to terminal 514, along line 17 to green light 162, illuminating same, thence along line 14 to terminal 513, thence to terminal 515 which is grounded to line L1. At the same time electrical current flows from line L2 to terminal 596, thence to terminal 594, then along line 21 to green light 170, illuminating same, thence along line 27 to terminal 573 thence to terminal 575 thence to terminal 593, thence to terminal 595 which is grounded to line L1. At the same time electrical current flows from line L2 to terminal 586 thence to terminal 584 thence along line 29 to green light 166, illuminating same, thence along line 22 to terminal 582 thence to terminal 585 which is grounded to line L1, thus all traffic lights are green in the particular stage.

When a car approaches the stage, it passes over contact bar assembly 117 causing switch 110 of contact bar assembly 117 to momentarily close, resulting in electrical power from line L2 flowing from terminal 516 along line 16, through switch 110 of contact bar assembly 117 to switch 109 of contact bar assembly 121, thence to switch 109 of contact bar assembly 119, thence along line 19 to terminal 553 thence to switch 56 thence to terminal 512, energizing the coil of relay 51, thence to terminal 542 and terminal 546. At the same time power flows from terminal 553 to terminal 555 and along line 18 to switch 109 of contact bar assembly 121, resulting in the coil of relay 51 being kept energized. The energizing of relay 51 starts the timer 52, since electrical power now flows from terminal 516 to terminal 518 and then to timer 52. The power flowing out of terminal 518 also flows to terminal 534, thence to terminal 536 and to red light 160, energizing same immediately behind the car passing over contact bar assembly 117, thence to terminal 517, thence to terminal 515 which is grounded to line L1. At the same time relay 54 is energized, since terminal 541 is grounded through terminals 533, 534, and 517. If the car does not proceed to one of the next contact bar assemblies, the timer will, after a predetermined time interval, energize the coils of relays 53 and 54, breaking the connections to red light 160, and de-energizing relay 54, causing electrical power from terminal 546 to flow to terminal 544, thence along line 15 to blinker flasher 163, which will send intermittent power to yellow light 161, energizing same, which blinker flasher 163 and yellow light 161 are grounded by means of line 11, and terminals 543, 517, and 515 to line L1.

If the car exits at the ramp, it will pass over contact bar 121, breaking the electrical connection through switch 109 of contact bar 121, which will result in the breaking of the electrical connection to the coil of relay 51, causing electrical power to flow from line L2

through terminal **516**, thence to terminal **514**, then along line **17** to green light **162**, energizing same, thence along line **14** to terminal **513**, thence to terminal **515** which is grounded to line **L1**, and at the same time de-energizing either light **160** or light **161**, whichever was energized in the manner previously indicated.

If, instead of exiting, the car continues to contact bar assembly **118**, it will momentarily close switch **110** of contact bar assembly **118**. This will cause electrical power to flow from line **L2**, through switch **110** of contact bar assembly **118**, through switch **109** of contact bar assembly **119** which is connected to switch **110** of contact bar assembly **118**, along line **26** to terminal **572**, energizing the coil of relay **57** and causing electrical power to flow from line L2 along line **31** to red light **168**, illuminating same, thence along line **30** to terminal **577**, thence to terminal **575** which is connected to terminal **593** and which is grounded to line L1 through terminal **595**, at the same time stopping the flow of electrical power to green light **170**. As the car continues, it will pass over contact bar assembly **119**, momentarily opening switch **109** and closing switch **110**, allowing electrical power to flow from line L2 along line **20**, through switch **110** of contact bar assembly **119**, along line **28** and line **35** to switch **109** of contact bar assembly **120**, along line **37** to terminals **602** and **582**, energizing the coils of relays **60** and **58**. This allows electrical power to flow from line L2 through terminal **606**, through terminal **608** to terminal **634** to red light **164**, illuminating same directly behind the car, then along line **24** to terminal **636** which is not connected electrically to terminal **634**, then to terminal **608** which is grounded through terminal **606** to line L2. At the same time electrical power flows from line L2, along line **31** to red light **168**, illuminating same, then along line **30** to terminal **607** which is now connected electrically to grounded terminal **605**. At the same time the flow of electrical power to green lights **166** and **170** is interrupted. Meanwhile the electrical power which had been flowing through switch **109** of contact bar assembly **119** has been momentarily interrupted, causing the coil of relay **51** to be de-energized, resulting in the flow of electrical power from line L2 through terminal **516**, then to terminal **514**, along line **17** to green light **162**, illuminating same, then along line **14** through terminal **513**, to grounded terminal **515**, at the same time interrupting the flow of electrical power to red light **160**. As the car continues it will pass over contact bar assembly **120**, momentarily opening switch **109** of contact bar assembly **120**. This interrupts the flow of electrical power which comes from line L2 through terminals **596**, then through terminal **598**, through push button switch **66** to contact bar assembly **120**, and thus de-energizing the coils of relays **58** and **59**, resulting in electrical power flowing from line L2 through terminal **586**, then through terminal **584**, along line **29** to green light **166**, illuminating same, then along line **22**, through terminal **582**, then through terminal **585** to ground line **L1**, while at the same time electrical power flows from line L2 by way of terminal **596**, then terminal **594**, then line **21** to green light **170**, illuminating same, then along line **27**, then terminal **573**, then terminal **575**, then terminal **593** to terminal **595** which is grounded, and at the same time the flow of electrical power to red lights **164** and **168** is interrupted.

If a car approaches the main highway from the entry ramp, it will first pass over contact bar assembly **122**, momentarily closing switch **110** of contact bar assembly **122**. This will cause electrical power to flow momentarily from line L2 along line **20** through switch **110** of contact bar assembly **122** to switch **109** of contact bar assembly **123** and along line **33** to terminal **612** energizing the coil of relay **61** and causing contacts **615** and **617** to be electrically connected and contacts **616** and **618** to be electrically connected through the bus bar of relay **61** and locked in place by the flow of electrical power from line L2 through terminal **616**, then through terminal **618**, along line **32** through switch **109** of contact bar assembly **123**, along line **33** to terminal **612** of the coil of relay **61**, the other terminal **611** of the coil of relay **61** being grounded to line **L1**. When the car reaches contact bar assembly **123**, switch **109** of contact bar assembly **123** is momentarily opened breaking the circuit through the coil of relay **61** and de-energizing same. When the car reaches contact bar assembly **124** it momentarily closes switch **110** of contact bar assembly **124** causing a circuit to be made from line L2 through switch **110** of contact bar assembly **124**, along line **28**, through switch **66**, through terminal **598**, to terminal **596**, and back to line L2, and causes electrical power to flow from said circuit at switch **66**, along line **35** through switch **109** of contact bar assembly **120** to terminals **582** and **592**, energizing the coils of relays **58** and **59**, and causing electrical current to flow from line L2 through terminal **586**, through terminal **588**, through time delay switch **62** to terminal **632**, energizing the coil of relay **63**, back through the ground side of time delay switch **62**, to terminal **587** and then to terminal **585**, which is grounded. This allows electrical current to flow from line L2 through red light **168**, illuminating same directly behind the car, along line **30** to terminal **577**, then to terminal **593**, then to terminal **595**, and then to ground line **L1**. At the same time electrical current flows from line L2 through terminal **596**, through terminal **598**, through terminal **634**, through terminal **636** to red light **164**, illuminating same, then back to ground along line **25**, terminal **587** and terminal **585**. Simultaneously, electrical power to green lights **166** and **170** is interrupted.

When the vehicle reaches contact bar assembly **120**, red lights **164** and **168** are extinguished and green lights **166** and **170** are illuminated as previously indicated.

The foregoing is a typical illustration of the flow of electricity through different portions of the circuits during various phases of operation of the invention.

I claim:

1. A traffic control system, for use in controlling traffic traveling along a uni-directional roadway having separate entrances and exits, comprising a series of traffic control zones, each of said zones comprising:

at least one entering detector for sensing the entrance of a vehicle into the zone;

at least one exiting detector for sensing the exiting of a vehicle from the zone;

at least one traffic signal installed at the entrance to said zone and at each entrance to the said roadway to control traffic travelling along said roadway and entering onto said roadway; each of said traffic signals being provided with a plurality of differently colored lights;

light controlling switch means operated by said entering and exiting detectors to control the lighting of said differently colored lights, said entering and exiting detectors being connected to said light con-

trolling switch means in such a manner as to control the lighting of the various lights located at the entrances to the zone and to the preceding zone, so that when a vehicle is detected entering the zone by an entering detector, its presence within the zone is indicated at the entrances to the zone, and when the vehicle is detected leaving the zone by an exiting detector, its absence from the zone is indicated at each entrance to the zone; and

timing means operating in conjunction with said light controlling switch means to activate lights at each entrance to a zone to indicate when a possible obstruction in the form of a stopped vehicle may be expected in the zone, said timing means being adapted to transmit a signal to activate warning lights at the entrances to a zone when a vehicle in the zone fails to pass from an entering detector to an exiting detector of the zone within a predetermined interval of time; and

an entering detector being provided at each entrance to the roadway to sense the approach of a vehicle at an entrance to the roadway and the traffic control system being adapted to control the same entry of the vehicle onto the roadway and to cause the lights at the entrances to the zone to indicate that the entering vehicle is in the zone associated with the roadway entrance.

2. A traffic control system as claimed in claim **1** wherein the entering detectors and the exiting detectors comprise pressure operated switching means which comprise a plurality of contact bar assemblies installed in cavities in said roadway and at the entrances and exits to said roadway, each of said contact bar assemblies comprising a contact bar mounted substantially level with the surface of the roadway and perpendicularly movable with respect to said surface of the roadway, rigid supports for limiting said perpendicular movement of said contact bar, spring means for supporting said contact bar substantially level with the roadway when there is no stress placed on said contact bar, and momentary contact switch means operated by the said perpendicular movement of said contact bar.

3. A traffic control system as claimed in claim **1** wherein the light controlling switch means to control the delivery of electrical power to said lights comprises a plurality of relays wired to said entering and exiting detectors.

4. A traffic control system as claimed in claim **1** wherein a flasher is provided which is operated by said timing means, which flasher provides electrical power to intermittently operate the lights used to warn about a possible obstruction, and manually operated reset means are provided which are adapted to by-pass the said timing means and to terminate the operation of the said warning lights.

* * * * *