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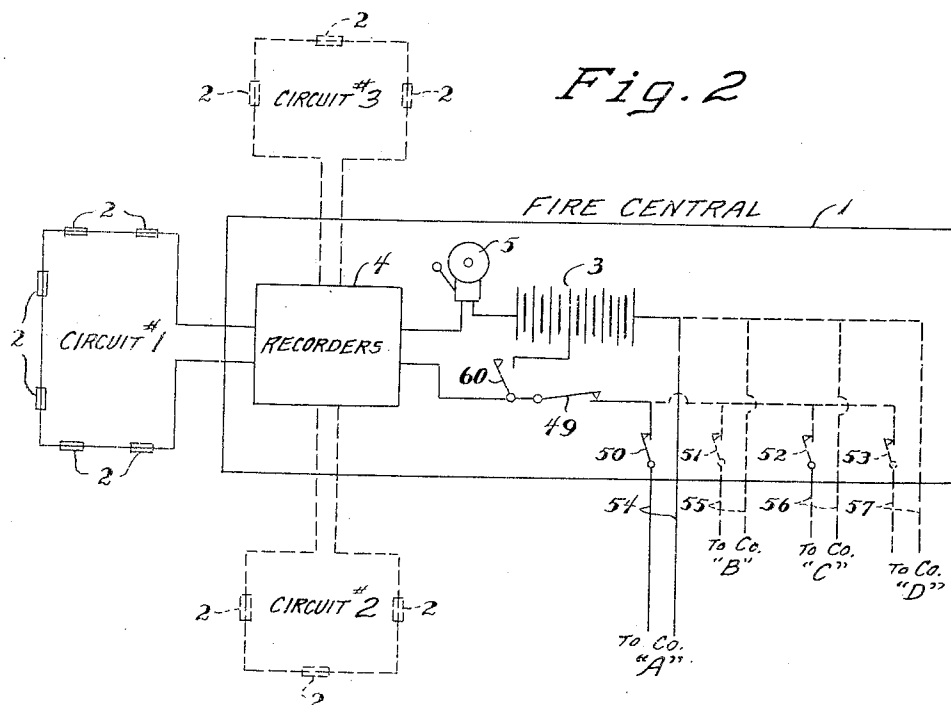
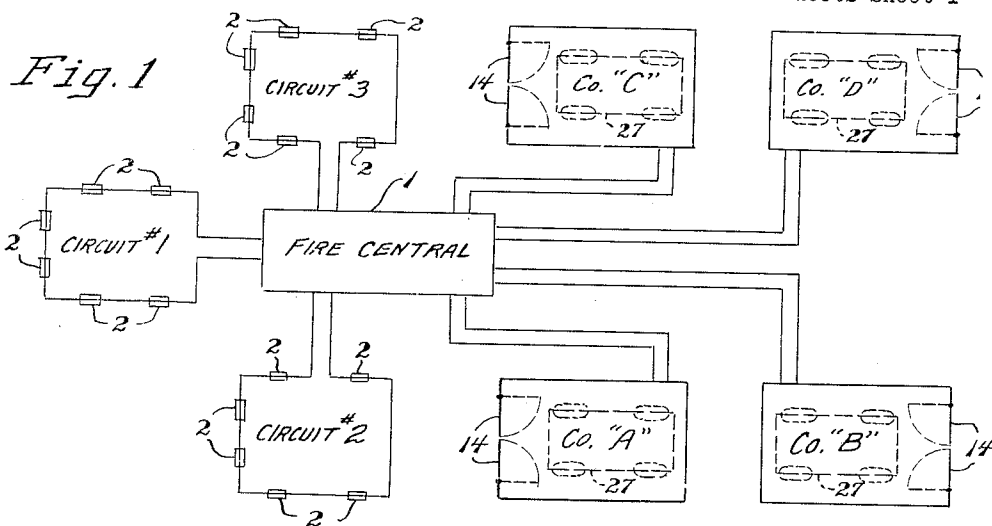
G. E. LUKE

2,098,549

EMERGENCY ALARM AND MOTOR STARTING SYSTEM

Filed Nov. 25, 1935

2 Sheets-Sheet 1



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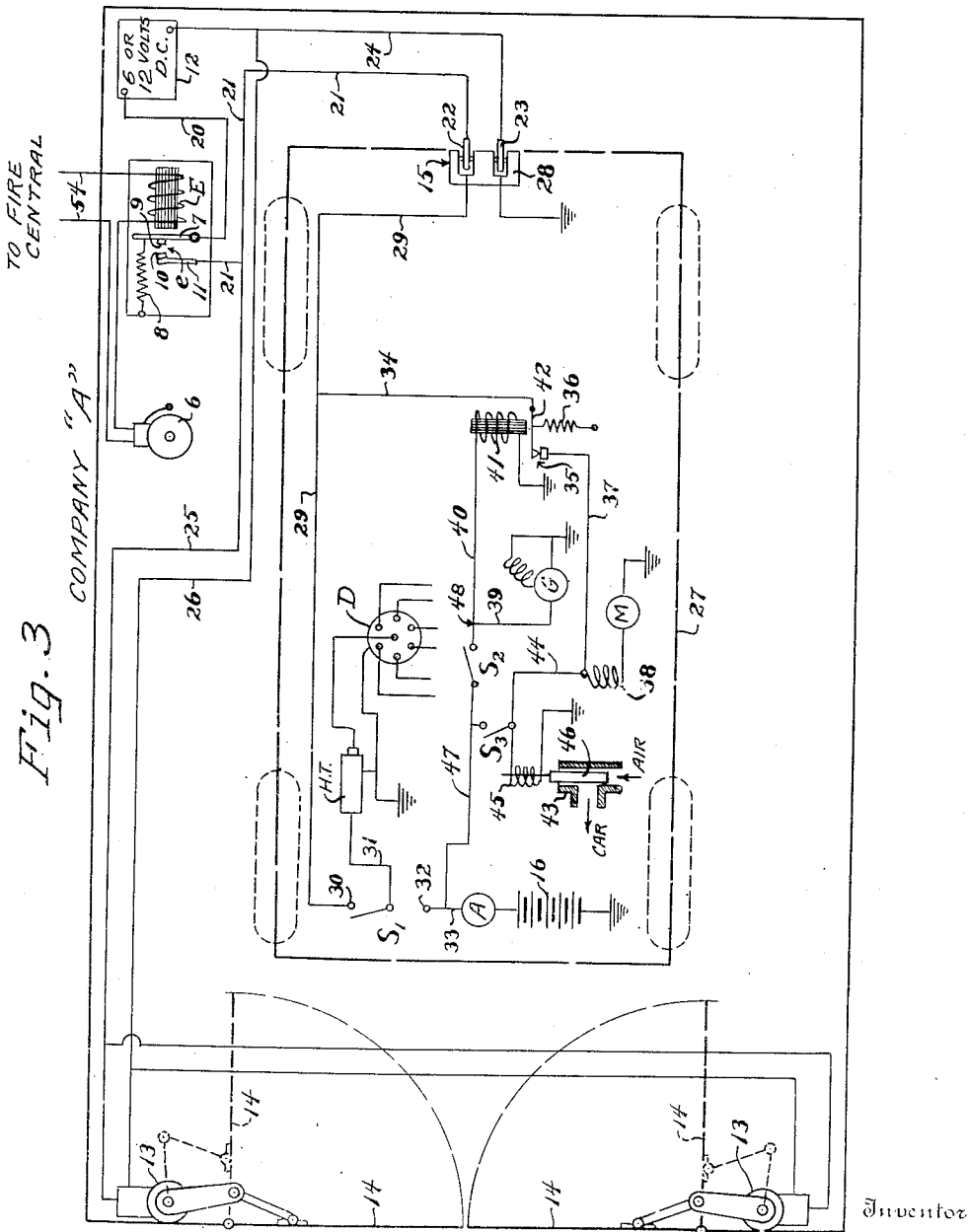
G. E. LUKE

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EMERGENCY ALARM AND MOTOR STARTING SYSTEM

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2 Sheets-Sheet 2



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331

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UNITED STATES PATENT OFFICE

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EMERGENCY ALARM AND MOTOR START-
ING SYSTEM

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3 Claims. (Cl. 177-383)

This invention relates to fire alarm systems and the like, and more particularly, to fire alarm systems wherein the various motor vehicles which constitute the emergency apparatus may be automatically started. I am aware that automatic starting of the motors of fire or other emergency vehicles is not broadly new, but for the most part, the automatic systems which have been proposed heretofore do not readily lend themselves to application to present day motorized emergency equipment.

In the fire alarm systems most commonly employed at the present time in large cities or municipalities, there is provided a plurality of call box circuits distributed over the area covered by the city, and each of these circuits leads to a central office, usually near the center of the city, this central office being known as fire central. The central office houses the recorders, repeaters, storage batteries, switching mechanism, etc., which are usually included in these alarm systems, and one or more attendants are on duty at the central office at all times, the attendant being known as the fire central operator. From the central office leads a plurality of circuits which are connected with the various fire companies or precincts located in different parts of the city or municipality. The number of fire companies or precincts, as well as the number of call box circuits will vary according to the size of the area to be served, and in a city of average size, there may be as many as thirty or forty fire companies scattered over the city. Each of the fire companies or precincts is also connected with the central office or fire central so as to permit telephone communication.

According to the usual operation of such a system as just generally described, the tripping of any call box in the alarm system operates an annunciator, usually a gong and/or recorder of the perforated tape type, in both the central office as well as in each of the fire company stations or precincts. In other words, the alarm signal is received at the central office and simultaneously distributed or repeated therefrom to all of the fire companies or stations. Each call box is identified by a number and automatically signals this number by suitable signalling mechanism when the box is tripped. That is to say, the fire central operator, as well as the attendants at each fire company or station, can determine what call box is tripped, as by counting the strokes of the gong previously referred to, or by noting the perforations in the recorder tape. However, since each fire company or station serves only a

relatively small area, it does not proceed to answer the alarm unless the alarm is turned in from one of the call boxes assigned to the company within the particular area intended to be served by that company. It will therefore be apparent that the fire companies cannot determine whether they are to proceed to a fire until the strokes of the gong or the perforations in the recording tape complete the identifying signal of the call box from which the alarm is turned in. An appreciable time must elapse, therefore, before the fire company attendants know which company or companies should answer the alarm.

The fire central operator or attendant plays an important part in the operation of the usual alarm systems. Before answering an alarm, the operator at the central office usually gives a verbal order over the telephone, releasing the particular company or companies which shall proceed to the fire. Moreover, in the case of telephone or "still" alarms, the calls are received at fire central by the fire central operator, who must then communicate with the station precincts and give the order releasing the company which is nearest to the fire. As this order is usually communicated over the telephone, an appreciable time will elapse before the company is ready to move out or get under way.

It will therefore be seen that even though the delay in the usual system between the time an alarm is given and the time when the emergency apparatus starts to the fire is of comparatively short duration, there is still room for improvement. In emergencies of this sort, a delay of only a fraction of a minute may result in thousands of dollars of damage and/or the loss of human life.

One of the primary objects of my invention has been to provide an alarm system which will expedite the answering of an alarm by the fire company or companies, and which minimizes delays ordinarily necessitated by reason of the particular arrangement of the alarm systems which are now most commonly in use. Although my improved system may require certain apparatus in addition to the usual apparatus, and thus increase the expense of the system slightly, such additional expense is more than offset by the provision of the additional safety in respect to property and human lives, particularly the latter.

As a further object of the invention, I have provided a very simple and efficient means whereby the motors of motorized apparatus of the various fire companies are automatically started and the apparatus otherwise conditioned for im-

mediately proceeding to answer the alarm as soon as the alarm signal is initiated. In other words, by the time the firemen taken their stations on the apparatus, the motors will be in operation and the apparatus will be ready to start to the fire. During this procedure, the usual annunciator system will indicate the source of the alarm, so that there will be no delay in getting under way as soon as the location of the fire is indicated by the annunciator, or by verbal announcement of the fire central operator.

More specifically, it is an object of the invention to provide means in a fire alarm system for automatically actuating the usual electric starter motor of the motorized emergency apparatus, the ignition circuit, the fuel choke, and other auxiliaries, which must be actuated to start the motors of the vehicles, and also to automatically open the doors of the housing stations, all instantaneously and responsive to initiation of the transmission of an alarm signal over the alarm circuit.

In carrying out the aforementioned objects, I preferably provide a separate power source in order to conserve the energy of the storage batteries which are usually part of the equipment on the motorized vehicles, and which have heretofore been relied upon in the previous so-called automatic starting systems. In this connection, it is an object of the invention to provide means whereby the power for the automatic operations is initially derived from a power source separate from the usual power source on the vehicles, with the additional provision for connecting the starting motor and ignition circuits to the usual storage battery on the vehicle after the automatic starting has been effected, this connection being preferably manually effected by the driver of the motor vehicle when he takes his station on the vehicle.

A still further object of the invention is to provide means whereby the fire central operator or attendant may automatically and instantaneously start all of the motors of the emergency vehicles at the various fire companies or precincts, said means preferably enabling the fire central operator to selectively control the automatic starting at will so that all of the motors can be started at the same time, or separately, or in any desired combination or combinations. This feature of my improved alarm system is particularly useful in the case of telephone alarms or "still" alarms.

Other objects and advantages of the invention will be hereinafter described, and the novel features thereof defined by the appended claims.

In the drawings:—

Figure 1 is a schematic or diagrammatic view representing my improved fire alarm system as a whole, said system including the usual call box circuits, a fire central office, and one or more fire company stations or precincts;

Figure 2 is a view of a portion of the system shown in Figure 1, and particularly illustrating the selectively operable controls in the fire central office or station; and

Figure 3 is a diagrammatic view illustrating the control circuits at each fire company station or precinct, only one station being illustrated in this figure inasmuch as each fire company station or precinct will include the same or similar circuits.

Like reference characters designate corresponding parts in the several figures of the drawings.

Referring first to Figure 1, I have shown diagrammatically three call box loops or circuits, designated respectively circuit #1, circuit #2 and circuit #3, each connected with the fire central office or station, generally denoted by the reference character 1. By way of example, the particular system illustrated is what is known as a closed circuit system, and the call boxes 2 in each of the circuits #1, #2, and #3 are arranged in series in their respective circuits, in the usual manner. The call boxes may be of any conventional type, which, when tripped to transmit an alarm, will give a signal of such a character as to identify the particular call box which is tripped. As shown in Figure 1, the fire central office, 1 is connected with the various fire companies or housing stations for the motorized emergency apparatus, designated for convenience, Co. "A", Co. "B", Co. "C", Co. "D", etc., and the circuits are so arranged that alarm signals are distributed from the fire central office 1 to each of the companies whenever a call box is tripped in any one of the circuits #1, #2, and #3. Patent No. 810,912, granted January 30, 1906, to F. W. Cole, shows an automatic non-interfering repeater which may be used as a part of my improved system, such as is designated 4 in the drawings, although it is to be understood that I do not wish to be limited to such precise arrangement. It will be understood that there may be as many call boxes and as many call box circuits as desired, according to the extent of the area to be served by the fire alarm system, and likewise, there may be as many station houses or precincts as are necessary to adequately protect the area served.

Referring now to Figures 2 and 3, the complete circuit from one call box circuit (for example circuit #1) to one of the fire companies (for example Co. "A") has been diagrammatically shown in full lines, and the following description will be directed to this circuit as illustrative of the operation of the entire system. The other parts of the system have been shown in dotted lines, and it will be understood that the dotted circuits function in the same manner as will now be described.

The closed alarm circuit is energized by any suitable power source, such as a bank of storage batteries 3, located for convenience at the fire central station or office, and the usual equipment, such as repeaters 4, and a gong or gongs 5, or some other annunciator, are also provided. At each housing station or fire company precinct, as illustrated in Figure 3, there is located an electro-magnet E, and some suitable form of annunciator such as the gong 6. The call box circuit, the gong 5, the storage batteries 3, the electro-magnet E and the gong 6, are all arranged in the alarm system, as will be apparent from the drawings. Thus when the box circuit is broken, as by tripping one of the call boxes 2, the gongs 5 and 6 will be actuated, and the electro-magnet E will be deenergized. Ordinarily, the call boxes are provided with a breaker device, such as is well-known in the art for intermittently opening and closing the circuit whereby to transmit a series of signals in a predetermined order to identify the call box which is tripped. The gongs 5 and 6 will accordingly be sounded in such a manner that by counting the strokes of the gong, the source of the alarm signal can be determined.

The electro-magnet E is provided with a pivoted armature 7 forming the movable element of an electric switch, generally designated e,

and normally held in its open position by the said magnet until the latter is deenergized by the opening of the circuit in which the electro-magnet is arranged, the opening of the circuit being normally controlled by the call boxes 2.

When the armature 7 is released by the deenergizing of the magnet E, spring 8 urges the electric contact 9, carried by armature 7, into engagement with a relatively fixed contact 10, the latter being carried by a stationary part 11 of switch e.

Switch e is in series with a power source 12 so that when the switch e is closed, the door actuating mechanism, generally designated 13, for the doors 14, is energized to open the doors automatically. This door actuating mechanism may be of any suitable type, preferably electrically operated, and may include suitable automatic controls for causing the doors to close after a predetermined period, such mechanism being well known in the art.

The switch e also automatically controls the connection of the power source 12 with the circuits on the motorized emergency vehicles housed within the station, represented generally by the rectangular outline in dashed lines. Included in this latter connection, is a separable plug, generally designated 15, which permits automatic separation of the coupling members thereof when the vehicle is driven from its station under its own power in response to an alarm.

The power source 12 is preferably of some reliable type such as a storage battery, although this power may be derived from any power supply line normally available in the station housing, if this is convenient. If the supply line is of the A. C. type, a rectifier may be utilized to convert the A. C. power to D. C., at such a voltage as to be applicable to the ignition circuit and starter motor circuit on the emergency motor vehicle or vehicles. The primary object in providing this separate power source 12 is to conserve the energy of the storage battery 16 on the motor vehicle, and from which the ignition circuit and starting motor M is normally energized, having in mind that the vehicle motors will be started automatically more or less frequently in the normal operation of my improved system. The storage battery 16 is thus relieved from excessive drain, and need be only utilized in starting the vehicle motor for test purposes, or when the emergency apparatus is ready to return from the scene of a fire. Of course, should the power source 12 fail for any reason, the storage battery 16 can be relied upon as it normally is relied upon in the usual manually controlled starting of the vehicle motor.

The ignition circuit, the starting motor circuit, the automatic fuel choke circuit, and the various other circuits and their operation will now be described: One side of the power source 12 is connected by conductor 20 to the pivoted armature 7 of switch e. The other member, 11, of switch e is connected by a conductor 21 to one of the coupling pins 22 of the separable connector 15. The other side of the power source 12 is connected directly to the other coupling pin 23 of the separable connector 15, as by means of conductor 24. The door-operating devices 13 are connected in this circuit just described by means of conductors 25 and 26, the former being connected to conductor 21, and the latter to conductor 24, thereby establishing a circuit from the power source 12 to the electrically operated devices 13 when the switch e is closed, as previously mentioned.

The motor vehicle is generally designated 27, and has mounted thereon one of the separable parts 28 of the separable connector 15, this part 28 being adapted to receive the coupling pins 22 and 23 in the usual manner of separable male and female plugs, and from one contact of the member 28, a conductor 29 leads to one side 30 of a single-pole double-throw switch S₁. This switch may be mounted on the dashboard of the motor vehicle, or in some other convenient location for rendering the same readily accessible to the driver of the vehicle. The other contact of the member 28 is grounded to the frame of the vehicle or to a common connection which may be designated "the ground connection". The switch blade 15 of switch S₁ is connected by conductor 31 to the usual high tension coil HT, which is in turn connected to the usual distributor D, from which the ignition wires lead to the spark plugs of the vehicle motor in the customary manner. The other side 32 of the switch S₁ is connected to one side of storage battery 16 by conductor 33, and an ammeter A may be interposed in this conductor in the usual manner. The other side of the storage battery 16 is grounded. The blade of switch S₁ normally is left closed with contact 30 so as to normally condition the ignition circuit for energization by the power source 12 while the vehicle is in the station housing and awaiting an emergency call. The connecting circuit, however, is normally open by reason of the open condition of switch e, it being understood that this switch is normally held open by the electro-magnet E until an alarm signal is initiated. However, as soon as a call box is tripped somewhere in the system, the normally closed alarm circuit is broken and the electro-magnet E becomes deenergized, thereby causing switch e to close and establish a circuit from the power source 12 through the separable connector 15, to the ignition circuit just described. Switch e remains closed under the urge of spring 8, which is greater than the magnetic pull of the electro-magnet E when the switch is in its closed position, until the alarm circuit is restored to its normally closed condition, whereupon the armature 7 may be manually moved back into the strong field of the electro-magnet E for holding the switch e open to condition the circuit for subsequent automatic operation responsive to the turning in of another alarm.

At the same time the ignition circuit is energized from the separate power source 12, the starting motor M is also energized through the following circuit: From conductor 29 over conductor 34, through the normally closed switch 35 which is held closed by the spring 36, and through conductor 37 to the field winding 38 of the starting motor M. The starting motor is also grounded so as to form a complete circuit from the power source 12 through the separable plug 15, to the starting motor.

Suitable means is provided to automatically deenergize the starting motor M when the vehicle motor has started, and this may be accomplished through means of the current of the generator G, which begins to generate current when the vehicle motor starts. The generator G is connected by means of conductors 39 and 40 to one side of an electro-magnet 41, the other side of the electro-magnet being grounded, as is also the other side of the generator G. This electro-magnet 41 is so disposed as to attract the movable arm 42 of switch 35, when energized, and thereby break this normally closed circuit, ex-

tending from the conductor 29 to the field winding 38 of motor M.

The automatic fuel choke, generally designated 43, is connected in the same circuit as the starting motor M, as by means of conductor 44, which leads to one side of an electro-magnet 45, arranged to act upon a valve 46 to control the intake of air to the carburetor, as diagrammatically represented by the arrows in Figure 3. The other side of the electro-magnet 45 is connected to ground to complete the circuit. It will be understood that the automatic choke 43 will be automatically operated when the starting motor circuit is energized, and will be automatically re-energized, that is, after the vehicle motor has started up and caused the switch 35 to open, as previously described.

Provision is made for connecting the generator G with the storage battery 16, so that the storage battery will be charged by the generator in the usual manner when the vehicle motor is running, and for this purpose, I provide a conductor 47 which is tapped into the conductor 33 and also into the generator circuit, as at 48. A manually operable switch S₂ is provided in this conductor 47, so that the storage battery 16 will not feed back to the electro-magnet 41 and cause switch 35 to open while the starting motor circuit is conditioned for automatic operation under the control of the fire alarm circuit. This switch S₂ may be in the form of a separate switch located within convenient reach of the vehicle operator or driver, or it may be formed as a unit with switch S₁ so that the two switches work together. That is to say, switch S₂ may be so arranged that it will always be open when the switch S₁ is thrown to connect the switch blade of switch S₁ with the contact 30, and when the switch blade S₁ is thrown to a position contacting with contact 32, the switch S₂ closes, whereby to connect the generator with the storage battery 16 for charging the latter during the operation of the vehicle under its own power.

S₃ generally designates a suitable manually controlled switch accessible to the vehicle operator's hand or foot, whereby the starting motor may be energized from the storage battery 16 in the conventional manner of starting the vehicle motor. Thus when switch S₁ is thrown to connect the ignition circuit with the storage battery 16, switch S₃ permits the vehicle motor to be controlled manually instead of automatically, which, of course, is necessary in order to start the vehicle motor if for any reason the motor should be stopped when away from its station or house, or in the event the power source 12 should fail for some reason.

Reverting back to Figure 2, the selective controls for permitting the starting of the motors of the motorized emergency apparatus under the manual control of the fire central operator will now be described: I preferably employ a master switch 49 in the main alarm circuit, which may be manipulated by the fire central operator or attendant to open the main circuit and thus manually send in an alarm to all of the fire stations or companies, as will be obvious. This switch is preferably in the form of a signal key, by means of which the fire central operator may control the annunciator at the fire stations in such a way that the latter can be operated to give various predetermined signals. Additional switches 50, 51, 52, and 53 are provided in the various branch circuits 54, 55, 56, 57, etc., leading to the various

fire stations or precincts. By means of these last mentioned switches, the fire central operator may selectively control the electrical circuits at the fire stations. The effect of actuating the master switch 49 will be the same as that resulting from the turning in of an alarm at a call box, excepting for the fact that the call box usually employs automatic breaker means for transmitting a predetermined series of signals to identify the call box which is being operated, whereas the master switch 49 must be manually actuated by the fire central operator. This master switch 49 controls all of the circuits in the fire stations or precincts simultaneously, whereas the switches 50, 51, 52, 53, etc. control the separate circuits of their respective fire stations Co. "A", Co. "B", Co. "C", Co. "D", etc.

Occasionally, it may be desired to prevent the signals automatically initiated by the call boxes, when the latter are tripped, from being transmitted to the fire stations or precincts. For this purpose, I have provided a switch 60, which is normally open, but which may be closed to shunt out the circuits leading to the fire stations or precincts. When this switch 60 is closed, the signals from the call boxes 2 will be transmitted to the fire central office, and no farther, and the sounding of the gong 5 at the fire central office, or the perforations of the tape in the usual recorders, will indicate to the fire central operator what call box has been tripped. The fire central operator may then selectively actuate the master switch 49, if it is desired to signal all of the fire companies or precincts simultaneously, or actuate any one of the selective switches 50, 51, 52, 53, etc., or any combination of the same, to signal one or more of the fire stations or precincts as the fire central operator sees fit. The opening of the switches 49, 50, 51, 52, and 53 will not only actuate the annunciator at the respective fire companies, but also will automatically start the vehicle motors of the motorized apparatus at these stations, and open the doors of the station houses so that the apparatus is conditioned for proceeding immediately to answer the alarm as soon as the attendants at the stations or precincts take their positions on the apparatus. Continued or intermittent opening and closing of the switches 49, 50, 51, 52, and 53 will cause the annunciator at the fire stations or precincts to operate, so as to indicate the location of the fire, but this continued or intermittent operation of these switches will have no effect on the switches *e* at the fire stations or precincts when the switches *e* have closed. The switches *e* close practically instantaneously with the first opening of the master switch 49, or the respective switches 50, 51, 52, and 53, and remain closed until reset to their open position at such time as the alarm system is restored to normal.

It will be noted from the foregoing description that the main features of the invention comprise the automatic, simultaneous and/or selective energization of the ignition systems of the motorized apparatus at the fire stations or precincts, together with energization of the starting motors, operation of the fuel choke valve and operation of the station house doors. The operation of the various elements of the system should be obvious from the foregoing description, taken in conjunction with the drawings, and may be briefly summarized as follows:

Let it be assumed that the circuits of the system are normally closed and the elements of the circuits are in their normal condition awaiting

the turning in of an alarm. That is to say, switches 49, 50, 51, 52, and 53 at the fire central office are all closed, and the switches *e* at the fire stations or precincts are held open by the normal energization of the electro-magnets *E*, there being one of these switches *e* and an electro-magnet *E* located at each company station or precinct. Switches *S*₁ and *S*₂ are normally open and switch *S*₁ is thrown so that the switch blade contacts with the contact 30, these latter switches all being located on the respective motorized vehicles at the company stations or precincts. Each vehicle also includes a switch 35 which is also normally closed, and let it be assumed that the separable parts of the plug 15 on each vehicle are connected together. Now if an alarm is turned in at one of the call boxes 2 of the various loop circuits #1, #2, or #3, the alarm circuit will be broken in the usual manner heretofore practiced, and each of the switches *e* at the company stations or precincts will automatically close by reason of the fact that the electro-magnets *E* become deenergized when the alarm circuit is broken by the turning in of an alarm. The automatic signal transmission from the alarm box, in the usual manner, may be continued without affecting the switches *e* so that the annunciator 6, at each fire company or precinct will operate in the usual manner.

Considering now what takes place at the fire company stations or precincts, and referring to Co. "A" (Figure 3) by way of example, it being understood that the operation is similar at all of the precincts, the closing of switch *e* establishes a circuit from the power source 12 through switch *e* to the door-actuating mechanism 13 for doors 14, thereby causing the doors to open automatically to permit the vehicle 27 to be driven out of the housing station when the attendants are ready to proceed to answer the alarm. At the same time the door-operating mechanism 13 is energized, the closing of switch *e* establishes a circuit from the power source 12, through the separable plug 15 and over the conductor 29, through switch *S*₁, to the ignition circuit comprising conductor 31, high tension coil HT and distributor D. Simultaneously with the energization of the ignition circuit, the starting motor circuit is energized through the conductor 34, switch 35, conductor 37 and field winding 38 of the starting motor M. The automatic choke 43 is likewise simultaneously energized along with the starting motor M through conductor 44 and solenoid winding 45. As soon as the vehicle motor starts, as a result of the energization of these circuits, the generator G will energize the electro-magnet 41 through conductors 39 and 40, and attract the pivoted armature 42 against the tension of spring 36, and consequently open switch 35, thus automatically breaking the circuit to the starting motor and fuel choke.

During the automatic starting of the vehicle motor, the attendants at the fire station or precinct will be taking their positions on the vehicle, and when the driver reaches his driving station on the vehicle, he merely has to throw switch *S*₁ to contact with the contact 32 to transfer the ignition circuit to the circuit of the storage battery 16, the latter being mounted upon the motor vehicle. This will cause the vehicle motor to operate under its own power entirely. Switch *S*₂ is preferably closed simultaneously with the throwing of switch *S*₁ towards the side establishing contact with contact 32, whereby to cause the generator to charge battery 16 while the

motor is running. In other words, these switches *S*₁ and *S*₂ may be so arranged as to be actuated together by a single manipulation, as will be obvious to those skilled in the art. Should the power source 12 fail, or should the vehicle motor be stopped at the scene of the fire, or at any time after it has been started from the power source 12, it may be started by using battery 16 as the power source for the starting motor M and the automatic choke 43. Switch *S*₃, when closed, connects the starter motor circuit and the fuel choke circuit with the battery 16, this switch being of one of the conventional hand or foot operated types.

By the time the vehicle motor has been started automatically and the attendants have reached their positions on the apparatus, the annunciator 6 will have indicated the location of the fire or scene of the emergency, and the motor vehicle can proceed immediately to answer the alarm and without any delay whatsoever. As the motor vehicle is driven forwardly, the separable plug 15 automatically separates. When the vehicle returns to its housing station, the separable parts of the plug 15 are connected together again so as to place the various circuits on the motor vehicle in circuit with the automatic control circuits of the alarm system. The motors of those vehicles which do not respond to the call, may be stopped, after having been automatically started, by separating plug 15, and when the alarm circuit has been restored to normal, the plug can be connected together again to condition the motor for subsequent automatic starting.

It has been shown how the motor vehicles at the various fire stations or precincts are started automatically responsive to the turning in of an alarm at a call box in the alarm circuit. It not infrequently happens that calls for the emergency apparatus are made via telephone. These calls are known as telephone alarms or "still" alarms. The telephone calls are usually always received at the fire central station, and by reason of the selective controls which form a part of my improved alarm system, the fire central attendant or operator may start the vehicle motors at the fire stations or precincts, simultaneously, or separately, as desired. That is to say, the fire central operator can control the alarm system, including the automatic motor starting circuits, independently of the call boxes in the alarm circuit. Master switch 49 controls the signal transmission and automatic starting of the vehicle motors at all of the fire stations or precincts simultaneously, whereas switches 50, 51, 52, 53, etc. control the individual circuits for the separate precincts or Companies "A", "B", "C", "D", etc. It will thus be seen that my improved alarm system is more flexible than has ever been proposed heretofore, and operates in such a manner as to materially expedite the conditioning of the motorized apparatus for promptly answering an emergency call.

It is to be understood that reference to a normally closed alarm system is made only by way of example herein, as it should be obvious to those skilled in the art that the various elements of the circuit may be of such a type as to constitute a normally open alarm circuit or system.

Inasmuch as the usual starting motor circuits and ignition circuits for these emergency motor vehicles are designed for six or twelve volts (sometimes six volts and sometimes twelve volts, depending upon the size and type of the motors), 75

the storage battery 16 and the power source 12 should be such that either six or twelve volts is produced at the terminals thereof, according to the requirements of the particular vehicles with which they are to be used. The power source represented at 12 is preferably derived from the "house" current at the station or precinct, as by stepping down the voltage if this "house" current is D. C., or by stepping down the voltage and rectifying the current if it is A. C. On the other hand, a separate and independent power source, such as a storage battery, may be employed if desired.

While the specific details have been herein shown and described, the invention is not confined thereto as changes and alterations may be made without departing from the spirit thereof as defined by the appended claims.

What I claim as new and desire to secure by Letters Patent, is—

1. An emergency system of the class described, comprising a call box circuit, an alarm circuit operable by the call box circuit, a housing station in the alarm circuit for housing a motorized emergency vehicle having an internal combustion engine for propelling the same and having electrical starting means including a power source on the vehicle for starting the engine under manual control of the vehicle operator, means for automatically starting the engine of the motorized emergency vehicle at the housing station independently of the power source on the vehicle and incident to initiation of an alarm signal from the call box circuit, said last-named means including another power source permanently maintained at the housing station and adapted to be connected with the starting means on the vehicle responsive to operation of the alarm circuit to transmit an alarm signal, and means operable at a point remote from the vehicle in the housing station for automatically starting the engine independently of the call box circuit.

2. An emergency system of the class described, comprising a call box circuit, an alarm circuit operable by the call box circuit, a plurality of hous-

ing stations in the alarm circuit, each housing one or more motorized emergency vehicles having internal combustion engines for propelling the same, and having electrical starting means including a power source on each vehicle for starting the engine under manual control of the vehicle operator, means for automatically starting the engines of the motorized vehicles at the housing stations independently of the power sources on the vehicles and incident to initiation of an alarm signal from the call box circuit, said last-named means including another power source permanently maintained at each housing station and adapted to be connected with the starting means on the vehicles responsive to operation of the alarm circuit to transmit an alarm signal, and means operable at a point remote from the vehicles in the housing stations for automatically and selectively starting the engines independently of the call box circuit.

3. An emergency system of the class described, comprising a call box circuit, an alarm circuit operable by the call box circuit, a housing station in the alarm circuit for housing a motorized emergency vehicle having an internal combustion engine for propelling the same, and having electrical starting means including a power source on the vehicle for starting the engine under manual control of the vehicle operator, means for automatically starting the engine of the motorized vehicle at the housing station independently of the power source on the vehicle and incident to initiation of an alarm signal from the call box circuit, said last-named means including another power source permanently maintained at the housing station and adapted to be connected with the starting means on the vehicle responsive to operation of the alarm circuit to transmit an alarm signal, and means in the alarm circuit and operable at a point remote from the vehicle in the housing station for automatically starting the engine independently of the call box circuit.

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