

Aug. 8, 1933.

M. GARL

1,921,615

COMBINED FIRE AND POLICE ALARM SYSTEM

Filed March 26, 1931

3 Sheets-Sheet 1

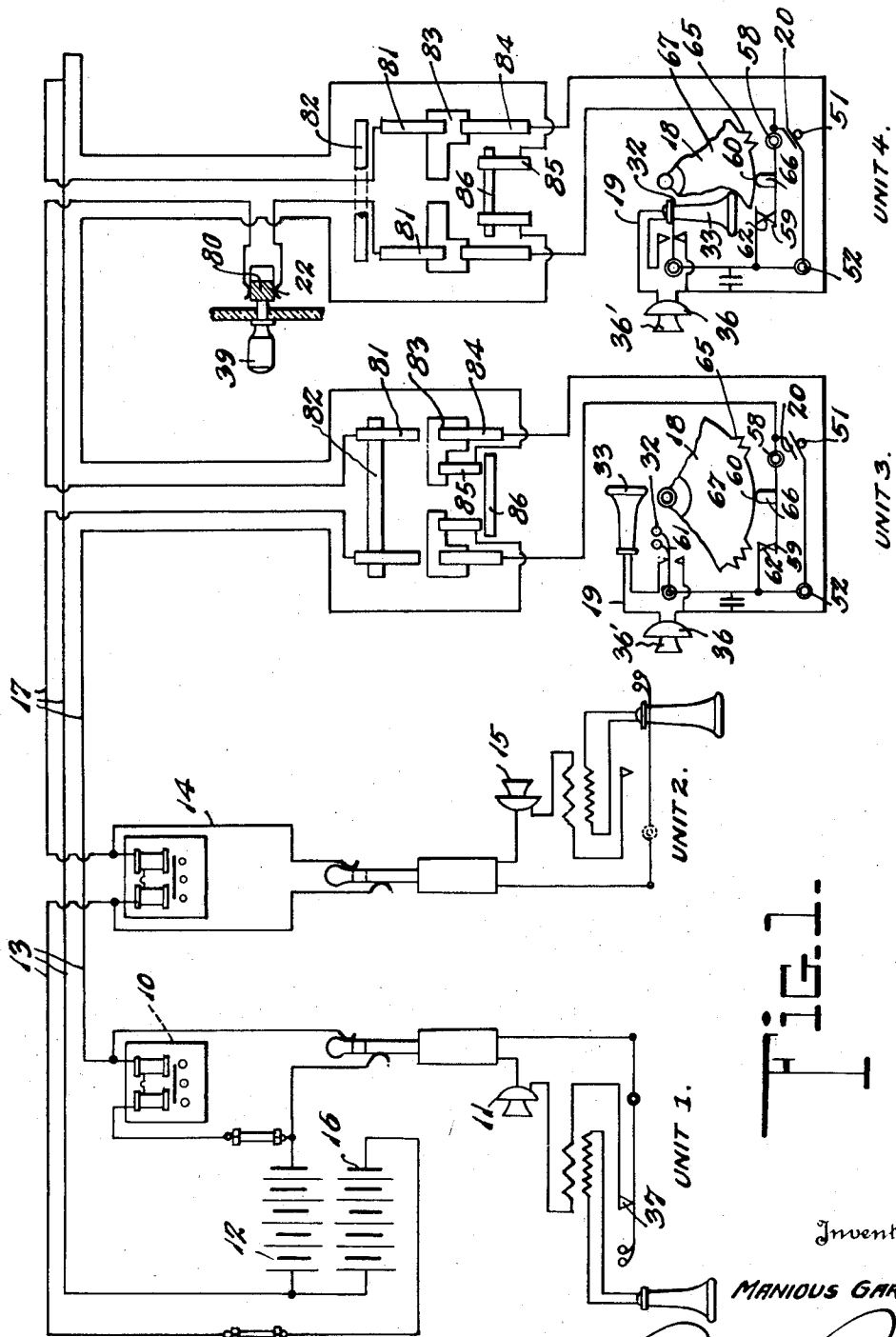


FIG. 1.

Inventor

MANIUS GARL

Robt H Robt

Attorneys

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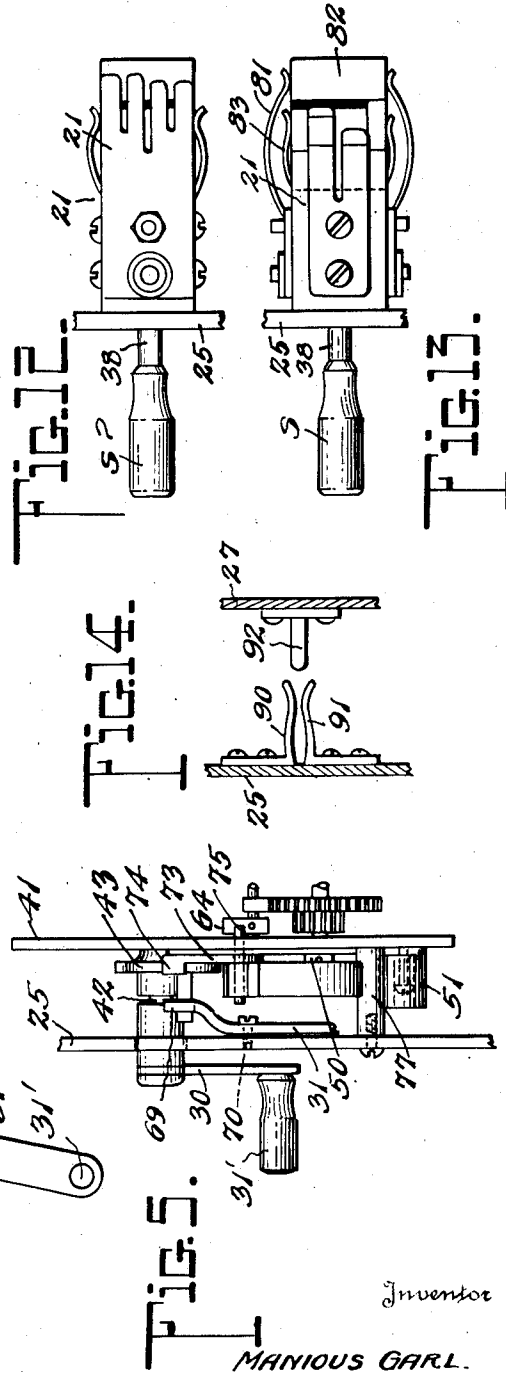
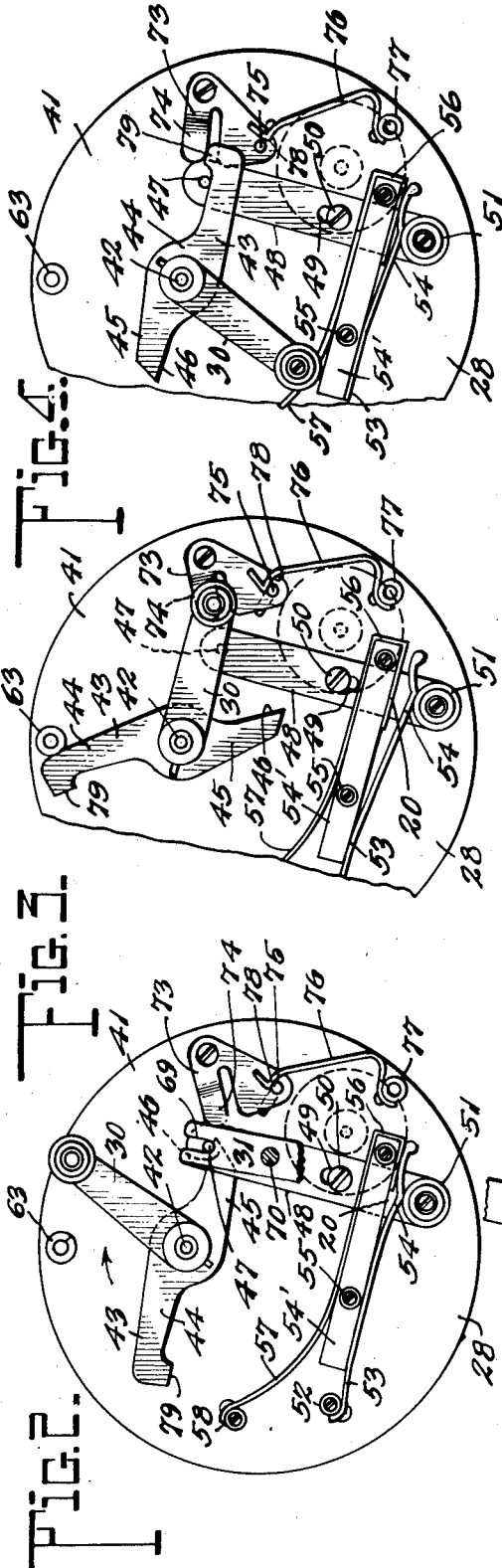
M. GARL

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3 Sheets-Sheet 2



Inventor

MANIUS GARL.

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Robb & Robb
Attorneys

Aug. 8, 1933.

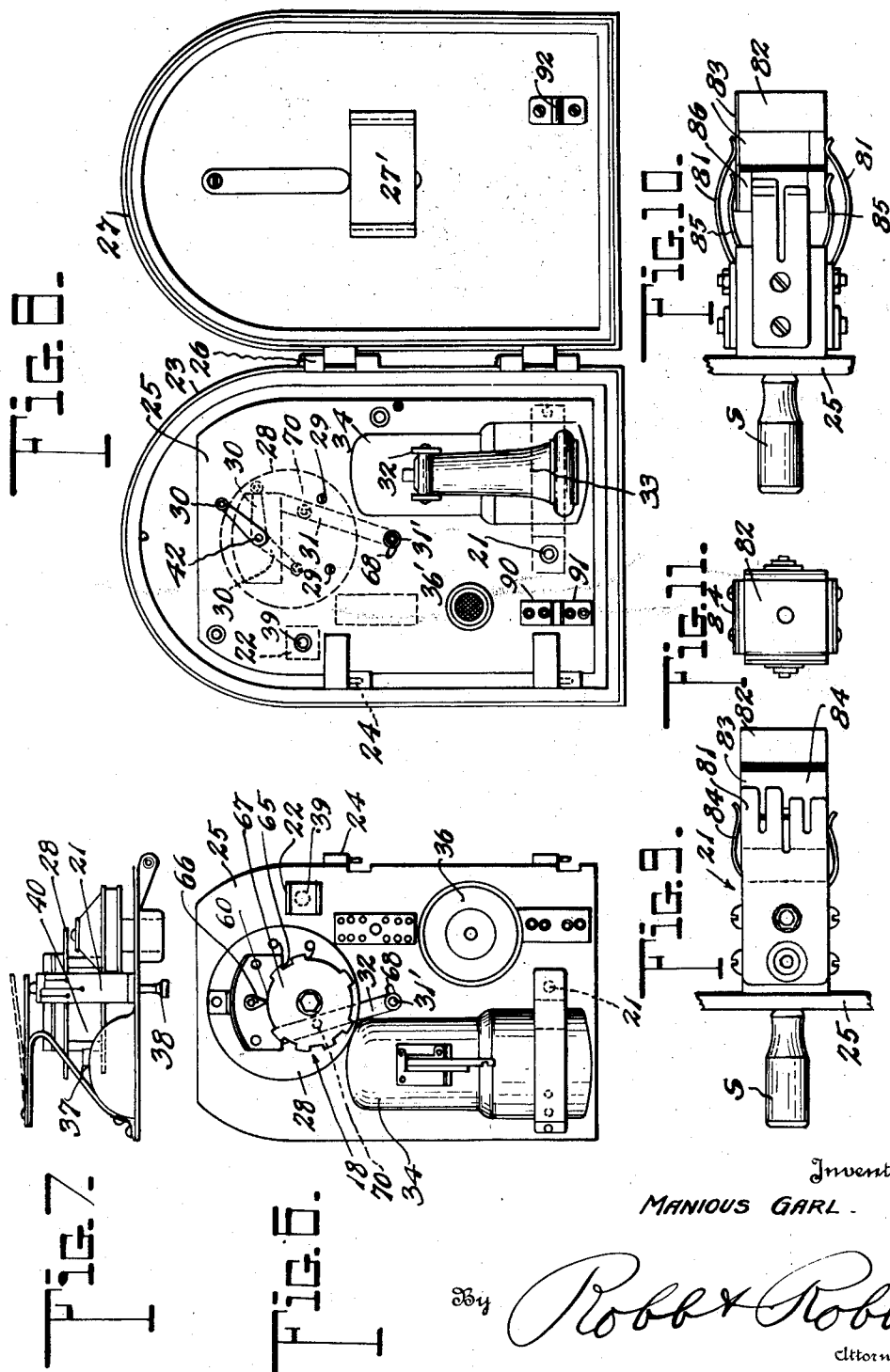
M. GARL

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COMBINED FIRE AND POLICE ALARM SYSTEM

Filed March 26, 1931

3 Sheets-Sheet 3



Inventor
MANIUS GARL

By *Robb & Robb*
Attorneys

UNITED STATES PATENT OFFICE

1,921,615

COMBINED FIRE AND POLICE ALARM
SYSTEMManious Garl, Akron, Ohio; Linnie Garl, execu-
trix of said Manious Garl, deceased, assignor
to Linnie Garl

Application March 26, 1931. Serial No. 525,510

16 Claims. (Cl. 179—5)

The combined fire alarm, police signal, and telephone system comprising the present invention is primarily adapted for use as a municipal network of communication in the form of a normally charged circuit used in the maintenance of a complete fire and police alarm system to establish intercommunication between the central station of either the fire or police department and their respective outlying stations, field posts or alarm boxes, or to establish selective intercommunication between a series of combined fire and police field posts and their respective central stations.

Most of the larger cities are at present equipped with separate and independent fire and police alarm systems, each independently maintained by its respective department. The installation of two separate systems involves the expense of providing two sets of line wiring, two sets of outlying stations, and two entire sets of station equipment. The expense of installing and maintaining two separate alarm systems, one for the fire department and one for the police department, is prohibitive in many smaller cities and especially so in towns and at the present time there are many such cities and towns whose fire and police departments operate at the disadvantage of having neither a fire alarm system nor a police system.

The present invention greatly reduces the limitations attendant upon the installation of fire and police alarm systems by providing a three wire, two circuit alarm and communication system in place of the four or six wire system ordinarily required in the maintenance of separate police and fire alarm systems. The invention also possesses the added advantage that the two circuits are separately operable to establish signal and telephonic communication through either circuit, or are successively operable from the same outlying station to give alarms to both central stations.

The paramount object of the invention being economy of installation and maintenance, the invention is characterized throughout by the use of apparatus of conventional design, that may be used either as at present manufactured for separate systems, or may, with slight alterations, be converted for use in the improved combined system. To further the interests of economy of installation and maintenance, the invention contemplates the use of conventional street alarm boxes, including the usual clock gear train alarm mechanism, in such a manner that the signaling function may be selectively applied either to the fire alarm circuit or to the police alarm circuit. By thus employing one complete operative system of alarm and telephonic instrumentalities where two were formerly required, an added economy of considerable proportions is an embodiment of the invention.

The invention may be briefly described as an alarm system consisting in two or more central stations, or most generally these central stations will consist in a single central station at the fire department headquarters and another central station at the police department headquarters. Each of these central stations for the purpose of description may be said to maintain in the field outlying stations which may be widely separated and which may vary in number. These outlying stations consist in the conventional street alarm boxes having housed therein alarm and telephonic instrumentalities adapted to function in separate energized circuits connecting each alarm box with the central stations respectively. Each alarm box is of conventional design and is provided with the usual inner door on which the various instrumentalities, both signal and telephonic, are mounted. The outer door is provided with a shatterable glass seal adapted to be broken in the usual manner when a fire alarm is to be sent into the fire department headquarters. Means is provided for the use of the alarm box as a field post signal and telephonic station to the police department central station or headquarters by simply opening the outer door, the signal and telephonic instrumentalities being automatically introduced, upon opening of the outer door, into the police department circuit. Provision is made for temporarily shunting the signal and telephonic instrumentalities out of the fire department circuit to permit the functioning of the fire circuit from other outlying stations to be maintained operable as usual and to prevent reception of the police signal at the fire department headquarters. Means is similarly provided for shunting the signal and telephonic instrumentalities out of the police department circuit and introducing them into the fire department circuit when a fire alarm is sent into the fire department, such means being operable only when the outer door remains closed or when the door operated instrumentalities are manually operated. In order that a general alarm may be sent in successively by the same police officer to both central stations, as for example when a fire is supposed to be of an incendiary origin, the switch mechanism op-

erated by the outer door is manually controllable so that signal or telephonic communication may be first sent in to the police department and immediately thereafter to the fire department, or vice-versa.

Other objects and advantages of the invention are present and these will become more readily apparent as the nature of the invention is better understood, and the same consists in the novel construction, combination and arrangement of parts shown in the accompanying three sheets of drawings, in which

Fig. I is a diagrammatic view of the electrical circuits and signal and telephonic instrumentalities of a complete police and fire alarm system installed in accordance with the principles of the present invention;

Fig. II is a front elevation of the clock gear train mechanism with the inner door removed, showing the same in its normal position when the outer door is shut and when the mechanism is ready to be tripped to send in a fire alarm.

Fig. III is a fragmentary view, similar to Fig. II, showing the clock gear train mechanism in the position occupied when the police alarm lever has been tripped and when the outer door is open to shunt the signal and telephonic instrumentalities out of the fire department circuit and install the same into the police department circuit.

Fig. IV is a fragmentary view similar to Figures II and III, showing the clock gear mechanism occupying the proper position after a fire alarm has been sent in to the fire department headquarters, with the outer door shut and before the clock mechanism has been reset by the presiding officer of the fire patrol.

Fig. V is a fragmentary side elevation of the arrangement of parts shown in Fig. IV.

Fig. VI is a front elevation of the detached inner door panel showing the signal and telephonic instrumentalities mounted thereon.

Fig. VII is an underneath view of the showing in Fig. VI.

Fig. VIII is a fragmentary front elevation of an alarm box having hinged inner and outer door panels with associated signal and telephonic instrumentalities mounted thereon in operative relation.

Fig. IX is a side elevation of a transfer switch employed in connection with the present invention showing the same in its operative position when the outer door is closed to permit the ringing in of a fire alarm to the fire alarm headquarters;

Fig. X is a side elevation of the transfer switch taken at right angles to the showing in Fig. IX;

Fig. XI is an end view of the transfer switch in the position shown in Fig. IX;

Fig. XII is a side elevation of the transfer switch showing the same in position for police and telephone signal service;

Fig. XIII is a side elevation of the transfer switch. This view is taken at right angles to the showing of Fig. XII; and

Fig. XIV is a fragmentary view of a door shunt employed in connection with the present invention.

In all of the above described views like characters of reference are employed to designate like parts throughout.

Referring now to Fig. I, unit 1 designates diagrammatically the police department headquarters central station including a police alarm relay 10, a telephone unit 11 in multiple there-

with, and an energizing battery 12, all operatively connected in a three wire police department circuit 13 connected with various outlying stations or field posts.

Unit 2 represents diagrammatically a similar central station for the fire department, including a fire alarm relay 14, telephone instrumentalities 15 in multiple therewith and an energizing battery 16, all operatively associated in the fire department circuit 17.

Unit 3 represents diagrammatically the signal and telephonic instrumentalities operatively mounted within one of the outlying street alarm boxes as connected in the police department circuit and including clock controlled signal instrumentalities 18, telephonic instrumentalities 19, a clock shunt mechanism 20, and a transfer switch 21 for shunting the signal and telephonic instrumentalities out of the police department circuit.

Unit 4 represents diagrammatically the same outlying station represented by unit 3, with the signal and telephonic instrumentalities connected in the fire department circuit 17, and showing a telephone signal switch 22 adapted for use in establishing telephonic communication with the central station of the fire department.

Referring now to Figs. VI, VII and VIII, the alarm box is shown at 23. This box is of the conventional type and has hinged thereto as at 24 an inner door panel 25 on which are mounted the signal and telephonic instrumentalities. Hinged to the alarm box 23, as at 26, is an outer door panel 27 having a shatterable window 27' which is shown in its open position in Fig. VIII.

The signal instrumentalities shown at 18 in units 3 and 4 of Fig. I and in Fig. VII are comprised of a clock unit 28 secured by means of bolts 29 (see Fig. VIII) to the rear of the panel 25. This clock unit comprises a police alarm wind and trip lever 30 positioned on the front of the panel 25, and a fire alarm trip lever 31 operable by means of a handle 31' and extending forwardly of the panel 25.

The telephonic instrumentalities 19 are comprised of the usual receiver hook 32, a receiver 33 mounted within a pocket 34 in the front of the panel 25, and a transmitter 36 secured to the rear of the panel 25 and having a mouthpiece 36' on the front side of the panel, together with the usual telephone switch assembly 37 selectively connected in multiple with the police and fire alarm relays 10 and 14, as clearly shown in unit 1 of Fig. I.

Operatively associated with the inner door panel 25 is a transfer switch 21 for selectively rendering the signal and telephonic instrumentalities 18 and 19 operable in the fire department or police department circuits 13 or 17. This switch is operable by a plunger 38 extending outwardly of the front wall of the panel 25 for such selective control. The switch in its normal position with the outer door panel 27 closed serves to maintain the signal and telephonic instrumentalities in the fire department circuit, but upon opening of the outer door panel this switch is automatically operable, by an arrangement of parts more fully to be described hereinafter, to exclude these instrumentalities from the fire department circuit and install the same in the police department circuit.

The telephone signal switch 22 is operable by a push pull plunger 39 extending forwardly of the panel 25 to cause a signal apparatus (not

shown) at the fire department headquarters to notify the desk attendant that the telephone is to be used.

Referring now to Figs. II, III, IV and V, the gear clock signal unit 28 is shown in a number of operative positions. The specific spring actuated gear train which causes movement of the novel signal control is of conventional design. No claim is made to the novelty of this mechanism, the novelty of the clock unit residing rather in the signal control itself. The clock unit is shown as comprising the usual frame 40 including a plate 41. Journalled in this plate 41 is a shaft 42 upon which the wind lever 30 is mounted and secured. This shaft 42 has applied thereto a torque normally urging the same in a counter-clockwise direction. The shaft 42 has keyed thereto a swing arm 43 having oppositely extending radial portions 44 and 45, the arm 44 being slightly longer than the arm 45. The arm 45 is provided with an abutment surface 46 adapted to engage the pin 47 on a sliding plate 48. The plate 48 is provided with a slot 49 through which there extends a screw 50 which is threadedly receivable in the plate 41. The plate 48 is of elongated shape and one end thereof has a roller 51 mounted thereon, which roller is formed of insulating material. Secured to a post 52 and electrically connected thereto is a conducting leaf spring 53 having one end thereof bearing against the roller 51 as at 54 and normally urging the roller and the elongated plate 48, to which it is attached, downwardly in a direction opposed to the direction of movement of the plate as urged by the engagement surface 46 bearing against the pin 47. In the normal position of the arm 43 the abutment surface 46 bears against the pin 47 and holds the plate 48 in the position shown in Fig. II with the leaf spring 53 under tension. A bar 54' formed of suitable insulating material is secured by insulated bolts 55 to the plate 41. This bar 54' has a contact plate 56 secured thereto, which plate is connected through an electrical connection in the form of a copper strip 57 to a contact post 58, (Fig. II and units 3 and 4 of Fig. I), electrically connected to one contact 59 of the circuit breaker mechanism 60. The contact post 58 is also electrically connected to the transfer switch 21 in a manner to be more fully described. The post 52 which has the leaf spring 53 secured thereto is electrically connected to the movable arm 61 of the telephone receiver hook 32. This post 52 is also electrically connected to the other contact 62 of the circuit breaker mechanism 60. (See unit 3, Fig. I.) In the normal position of the mechanism the roller 51 maintains the clock shunt, comprised of the contact plate 56 and the leaf spring 53, closed in order to shunt the telephone mechanism out of the circuit. Upon tripping of the circuit breaker mechanism in a manner to be more fully described, the clock shunt is opened to enter the telephone mechanism into the circuit for operative use after the signal has been given. The clock shunt is operable in this manner to exclude or include the telephone mechanism in this circuit regardless of whether the telephone mechanism is tripped for signalling in either the police department or the fire department circuit.

Referring again to Fig. II, wherein the normal position of the mechanism is shown with the outer door 27 closed and with the trip arm 43 bearing against the pin 47, and with the clock

shunt closed to exclude the telephone mechanism from the fire department circuit and to include the signal mechanism in the alarm circuit, opening of the door 27 will cause the transfer switch 21 to shunt the fire department circuit completely out of the box and introduce the police department circuit to the various signal and telephonic devices thus far described within the box. By turning the wind lever 30 in a clockwise direction, as shown in Fig. VIII, the shaft 42 will be turned against the torque applied to it by the clock spring mechanism. This will cause the swing arm 43 to be turned in the direction of the arrow shown in Fig. II, the limit of this turning movement being shown in Fig. III with the swing arm 43 bearing against the stop pin 63. Upon releasing of the wind lever 30 the escapement mechanism 64 will be set into action and the swing arm 43 will be rotated in a counter clockwise direction. The turning of the swing arm 43 in a clockwise direction will cause the sliding plate 48 to be moved downwardly against the action of the contact spring 53 to open the clock shunt 20 and exclude the telephone mechanism from the police department circuit maintained within the box by virtue of the outer door 27 being opened. Due to the turning of the swing arm 43 under the action of the clock spring working on the shaft 42, and due to the operation of the escapement mechanism, the signal mechanism 60 (shown in Fig. VI) will be set into motion.

The signal mechanism comprises a rotatable disk 67 having a number of spaced radial projections 65 thereon adapted to successively engage a trip member 66 (see Fig. VII and unit 3 of Fig. I). Engagement of the projections 65 with this trip member 66 will cause opening and closing of the contact members 59 and 62 (see unit 3, Fig. I) to carry the signal through the police department circuit 13 to the police department headquarters.

It will be seen, therefore, that when the outer door is open and when the wind lever 30 is rotated until the swing arm 43 engages the stop pin 63 and is then released the signal mechanism is operated in the police department circuit. The gearing of the disk 67 in the train of gears comprising the clock mechanism is such that substantially one revolution of the disk will take place while the shaft 42 rotates throughout an arc sufficient to carry it from the position shown in Fig. III to the position shown in Fig. II. When the shaft has completed this rotation throughout the arc just specified, the radial arm 45 engages the pin 47, thereby closing the shunt 20 and throwing the telephone mechanism into the police circuit, from which it was previously excluded to permit tripping and functioning of the signal apparatus in the police circuit.

It has been seen how the signalling mechanism 18 functions to cause a signal to be sent into police headquarters when the outer door is opened and when the wind arm 30 is set off. It has also been seen how the clock shunt 20 operates to permit this trip mechanism to function for signal purposes and later to permit the telephone mechanism to be used after the signalling has ceased, and it will now be described how the trip handle 31' may be employed to send a signal caused by the signal mechanism 18 through the fire department circuit to the fire department headquarters. With the transfer switch 21 so positioned that the fire department circuit is introduced into the box and the

various signal and telephonic instrumentalities adapted for use in the fire department circuit, means is provided whereby movement of the trip arm handle 31' in an arcuate slot 68 formed in the inner door 25 will release the swing arm 43 for further rotational movement throughout a wider arc than is permitted when the trip arm 30 is thrown. Thus the escapement mechanism 64, released upon movement of the swing arm 43, will permit the circuit breaker disk 67 to make several revolutions to send in several series of signals to the fire department headquarters. To accomplish this the trip lever 31 is provided with a bifurcated end 69 and is pivoted at 70 to the inside of the inner door panel 25. The bifurcations of the end 69 straddle the pins 47 and movement of the lever 31 on its pivotal axis and through a small angle commensurate with movement of the trip handle 31' in the slot 68 will shift the pin 47 (see Fig. II) from the short arm 45 of the swing arm 43, thereby leaving the swing arm free to rotate under the action of the coil spring of the clock mechanism as governed by the escapement mechanism 64. The long arm 43 may then swing in a counter-clockwise direction from the position shown in Fig. II to the position shown in Fig. IV. During the movement of the swing arm 43 the escapement mechanism 64 is in operation. A locking means is provided for the escapement mechanism in the form of a pivoted latch member 73, (see Figs. II, III, IV, and V). This latch member is substantially triangular in shape and is provided with an offset flange 74. A pin 75 extends completely through the latch member adjacent one corner and a leaf spring 76 secured to a post 77 has a bearing surface 78 thereon normally resting on the pin 75 in the position shown in Fig. III. The long end 44 of the swing arm 43 is provided with a projection 79 (see Fig. IV) which engages the offset portion 74 of the latch member 73 upon completion of the stroke of the swing arm when tripped by the trip lever handle 31'. The play afforded by the slot 49 in the sliding plate 48 permits the projection 79 to engage the offset portion 74 and by a bell crank lever action through the pin 75 in the latch member 73 toward the escapement mechanism 64, (see Fig. V), to stop the escapement of the clock mechanism and to stop movement of the breaker disk thereby shutting off the signal. As the long end 44 of the swing arm 43 engages the pin 47 at the end of its stroke, the sliding plate 48 is carried upwardly, together with the roller 51 thereon, and the clock shunt 20 is closed to shunt the signal mechanism, which has completed its function, from the circuit and introduce the telephone mechanism. In unit 4 of Fig. I the signal switch 80 is shown as being in series in the fire department circuit 17. This switch is of the push pull type and upon outward pulling of the plunger 39 the circuit is broken and a signal device at the fire department headquarters is operated. This signal device may be of any suitable type, such as a bell, light, or the like, and upon functioning of the same the operator at the fire department headquarters is notified that he is to pick up the telephone for communication.

Referring now to units 3 and 4 of Fig. I and Figs. IX, X, XI, XII, and XIII, the transfer switch 21, thus far generally referred to, will now be described in detail. In unit 4 of Fig. I the switch is shown as being capable of shunting either the fire alarm circuit or the police

alarm circuit, including both signal and telephonic instrumentalities, from the box. The contact fingers 81 are electrically connected in the fire alarm circuit. The bar 82 is adapted to short circuit the two contact fingers 81 when the outer door of the box is opened. The contact switch handles shown in Fig. IX at S is adapted to be engaged by the outer door 27 and compressed upon closing of the outer door to throw the switch to the position shown in Unit 4. The fire alarm circuit is entirely shunted out of the box as shown in unit 3 but a continuous path is formed keeping the fire alarm circuit closed, since the contact fingers 81 remain on the contact bar 83 until after contact is made with the bar 82. A pair of contact fingers 84 remain at all times in contact with the contact bar 83. These latter contact fingers 84 are connected electrically to the signal transmitting and telephone circuit. It will thus be seen that when the contact fingers 81 are in contact with the bar 82 the fire alarm circuit is shunted out of the box, but when these same contact fingers are in contact with the contact bar 83 the signal transmitting and telephonic instrumentalities are introduced into the fire alarm circuit. A third pair of contact fingers are shown at 85. These contact fingers are connected to the police alarm signal circuit and are shown in unit 3 of Fig. I as being in contact with the contact bar 83 and thus the circuit is completed through the contact fingers 84 to the signal transmitting and telephonic apparatus, and the switch introduces the police alarm circuit in the box in proper position for the transmission of police signals and telephonic communication with the police headquarters. When the outer door is closed and the contact switch handle S is depressed thereby, the contact bars 85 make contact with the bar 86 to completely shunt the police alarm circuit from the box and connect the fire alarm circuit with the signal and telephonic instrumentalities in the box. It should be remembered, however, that in order for telephonic communication to be had with the fire department headquarters the fireman at the box must, after opening the outer door, depress the contact switch handle S manually to shunt the police department circuit out of the box and introduce the fire department circuit. He must also operate the signal switch 80 in the manner previously described to get the operator's attention at his headquarters.

In Figs. VIII and XIV a door shunt is shown comprising contact elements 90 and 91 operatively connected in the telephone circuit. The outer door is provided with a contact 92 adapted to bridge the contacts 90 and 91 to shunt the telephonic instrumentalities out of the fire department circuit when the outer door is closed. The electrical connections for this door shunt are such that the signal instrumentalities remain in the circuit whether the door shunt is open or closed. It is thought unnecessary to illustrate the complete electrical connections for this door shunt.

The operation of the combined police and fire alarm system will be apparent from the foregoing description, inasmuch as the various elements, units and combinations of units have been described both as to their structure and as to their operation singly and in combination with each other where the occasion required.

The invention is not to be limited to the

exact arrangement of parts shown in the accompanying drawings and described in the specification, as various changes in the detail of construction may be resorted to without departing from the spirit of the invention. Only insofar as the invention has been particularly pointed out in the accompanying claims is the same to be limited.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent in the United States, is:

1. In a combined fire alarm and police alarm system, a central fire station, a central police station, an alarm box, a normally closed circuit connecting said alarm box with the central fire station, a normally closed circuit connecting said alarm box with the central police station, signal instrumentalities and telephonic instrumentalities in each alarm box adapted to be selectively introduced into either the fire circuit or the police circuit, and a transfer switch for causing selective introduction of the signal instrumentalities and the telephonic instrumentalities into either circuit.

2. In a combined fire alarm and police alarm system, a fire station, a police station, an alarm box having a normally closed door; a normally closed circuit connecting the alarm box with the fire station; a normally closed circuit connecting said alarm box with the police station, signal instrumentalities and telephonic instrumentalities in said alarm box adapted to be selectively introduced into either the fire circuit or the police circuit, a transfer switch in the alarm box for causing selective introduction of the signal instrumentalities and the telephonic instrumentalities into either circuit, said transfer switch being operable upon opening of the door to exclude the signal instrumentalities and the telephonic instrumentalities from the fire circuit and introduce the same into the police circuit, and being operable upon closing of the door to exclude said instrumentalities from the police circuit and introduce the same into the fire circuit.

3. In a combined fire alarm and police alarm system, a central fire station, a central police station, a plurality of alarm boxes, a normally closed circuit connecting each alarm box with the central fire station, a normally closed circuit connecting each alarm box with the central police station, signal instrumentalities in each alarm box adapted to be selectively introduced into either circuit, and a transfer switch in each alarm box for causing selective introduction of the signal instrumentalities into either circuit.

4. In a combined fire alarm and police alarm system, a central fire station, a central police station, a plurality of alarm boxes, a normally closed circuit connecting each alarm box with the central fire station, a normally closed circuit connecting each alarm box with the central police station, telephonic instrumentalities in each alarm box adapted to be selectively introduced into either circuit, and a transfer switch in each alarm box for causing selective introduction of the telephonic instrumentalities into either circuit.

5. In a dual three wire circuit alarm system, a plurality of central stations and a plurality of outlying stations, said outlying stations being connected by a normally closed circuit to each central station, said circuits comprising a three wire system, and instrumentalities associated with said circuit for selectively permitting com-

munication between any one of the outlying stations and any one of the central stations.

6. In a combined fire alarm and police alarm system, a central fire station and a central police station, an alarm box having a normally closed door, a normally closed circuit connecting the alarm box with the central fire station, a normally closed circuit connecting the alarm box with the central police station, communication instrumentalities in said alarm box adapted to be selectively introduced into either the fire circuit or the police circuit, and a transfer switch in the alarm box for causing such selective introduction of the communication instrumentalities into either circuit.

7. In a combined fire alarm and police alarm system, a central fire station and a central police station, an alarm box, a normally closed circuit connecting the alarm box with the central fire station, a normally closed circuit connecting the alarm box with the central police station, communication instrumentalities in said alarm box adapted to be selectively introduced into either the fire circuit or the police circuit, and a transfer switch in the alarm box for causing such selective introduction of the communication instrumentalities into either circuit.

8. In a dual alarm system, a pair of central stations, an outlying station, a normally closed three wire circuit connecting the outlying station with each central station, signal instrumentalities and telephonic instrumentalities at said outlying stations, and means for selectively introducing said instrumentalities into the circuit leading to either station.

9. An alarm box for use in communication circuits for police and fire departments, having a normally closed door, signal instrumentalities in said alarm box, a normally inaccessible trip for the signal instrumentalities adapted to be rendered accessible upon opening of the door and adapted to cause the signal instrumentalities to perform a predetermined function at the police department, a normally accessible trip for the signal instrumentalities adapted to cause the same to perform a predetermined function at the fire department.

10. In a combined fire alarm and police alarm system, a fire station, a police station, an alarm box having a normally closed door, a normally closed circuit connecting the alarm box with the fire station, a normally closed circuit connecting said alarm box with the police station, signal instrumentalities and telephonic instrumentalities in said alarm box adapted to be selectively introduced into either the fire circuit or the police circuit, a transfer switch in the alarm box for causing selective introduction of the signal instrumentalities and the telephonic instrumentalities into either circuit, said transfer switch being operable upon opening of the door to exclude the signal instrumentalities and the telephonic instrumentalities from the fire circuit and introduce the same into the police circuit and being operable upon closing of the door to exclude said instrumentalities from the police circuit and introduce the same into the fire circuit, and a door shunt normally excluding the telephonic instrumentalities from either circuit but operable upon opening of the door to introduce the same into the circuit for which the transfer switch is set.

11. In a combined fire alarm and police alarm system, a central fire station, a central police station, a plurality of alarm boxes having nor-

mally closed doors therefor, a normally closed circuit connecting each alarm box with the central fire station, a normally closed circuit connecting each alarm box with the central police station, signal instrumentalities and telephonic instrumentalities in each alarm box adapted to be selectively introduced into either the fire circuit or the police circuit, a transfer switch in each alarm box for causing selective introduction of the signal instrumentalities and the telephonic instrumentalities mounted therein into either circuit, each transfer switch being operable upon opening of the door of the respective box in which it is mounted to exclude the signal instrumentalities and the telephonic instrumentalities from the fire circuit and introduce said instrumentalities into the police circuit and being operable upon closing of the door to exclude said instrumentalities from the police circuit and introduce the same into the fire circuit, a clock for operating each set of signal instrumentalities, a normally inaccessible trip for the respective signal instrumentalities in each box adapted to be rendered accessible upon opening of the respective door and adapted to cause the signal instrumentalities to send in a signal through the police circuit to the central police station, and a normally accessible trip for the respective signal instrumentalities in each box adapted to cause the signal instrumentalities to send in repeated signals through the fire circuit to the central fire station.

12. An alarm box having a normally closed door and having signal instrumentalities therein, a clock for operating said signal instrumentalities, a normally inaccessible trip for the signal instrumentalities adapted to be rendered accessible upon opening of the door and adapted to cause the signal instrumentalities to send a signal through an electric circuit, and a normally accessible trip for the signal instrumentalities adapted to cause the same to send a signal through an electric circuit.

13. In a combined fire alarm and police alarm system, a fire station, a police station, an alarm box having a normally closed door, a normally closed circuit connecting the alarm box with the fire station, a normally closed circuit connecting said alarm box with the police station, signal instrumentalities and telephonic instrumentalities in said alarm box adapted to be selectively introduced into either the fire circuit or the police circuit, a transfer switch in the alarm box for causing selective introduction of the signal instrumentalities and the telephonic instrumentalities into either circuit, said transfer switch being operable upon opening of the door to exclude the signal instrumentalities and the telephonic instrumentalities from the fire circuit

and introduce the same into the police circuit and being operable upon closing of the door to exclude said instrumentalities from the police circuit and introduce the same into the fire circuit, a door shunt normally excluding the telephonic instrumentalities from either circuit but operable upon opening of the door to introduce the same into the circuit for which the transfer switch is set, a clock for operating said signal instrumentalities, a normally inaccessible trip for the signal instrumentalities adapted to be rendered accessible upon opening of the door and adapted to cause the signal instrumentalities to send a signal through the circuit for which the transfer switch is set.

14. In a combined fire alarm and police alarm system, a fire station, a police station, an alarm box having a normally closed door, a circuit connecting the alarm box with each of said stations, signal instrumentalities in said alarm box adapted to operate in either circuit and being normally operable in the fire circuit but adapted upon opening of said door to operate in the police circuit.

15. In a combined fire alarm and police alarm system, a fire station, a police station, an alarm box having a normally closed door, a circuit connecting the alarm box with the fire station, a circuit connecting the alarm box with the police station, signal instrumentalities and telephonic instrumentalities in said alarm box adapted to be operated in either circuit for communication with the respective stations, and a transfer switch in the alarm box operable upon opening of the door to cause selective introduction of the signal instrumentalities and the telephonic instrumentalities into either circuit, said transfer switch being accessible upon opening of the door for manual operation.

16. In a combined fire alarm and police alarm system, a fire station, a police station, an alarm box having a normally closed door, a circuit connecting the alarm box with the fire station, a circuit connecting the alarm box with the police station, signal instrumentalities and telephonic instrumentalities in said alarm box adapted to be operated in either circuit for communication with the respective stations, a transfer switch in the alarm box operable upon opening of the door to cause selective introduction of the signal instrumentalities and the telephonic instrumentalities into either circuit, said transfer switch being accessible upon opening of the door for manual operation, and a door shunt normally excluding the telephonic instrumentalities from either circuit but operable upon opening of the door to introduce the same into the circuit for which it is set.

MANIOUS GARL.