

J. P. WILLIAMS.  
ELECTRIC BURGLAR ALARM SYSTEM.  
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1,133,689.

Patented Mar. 30, 1915.

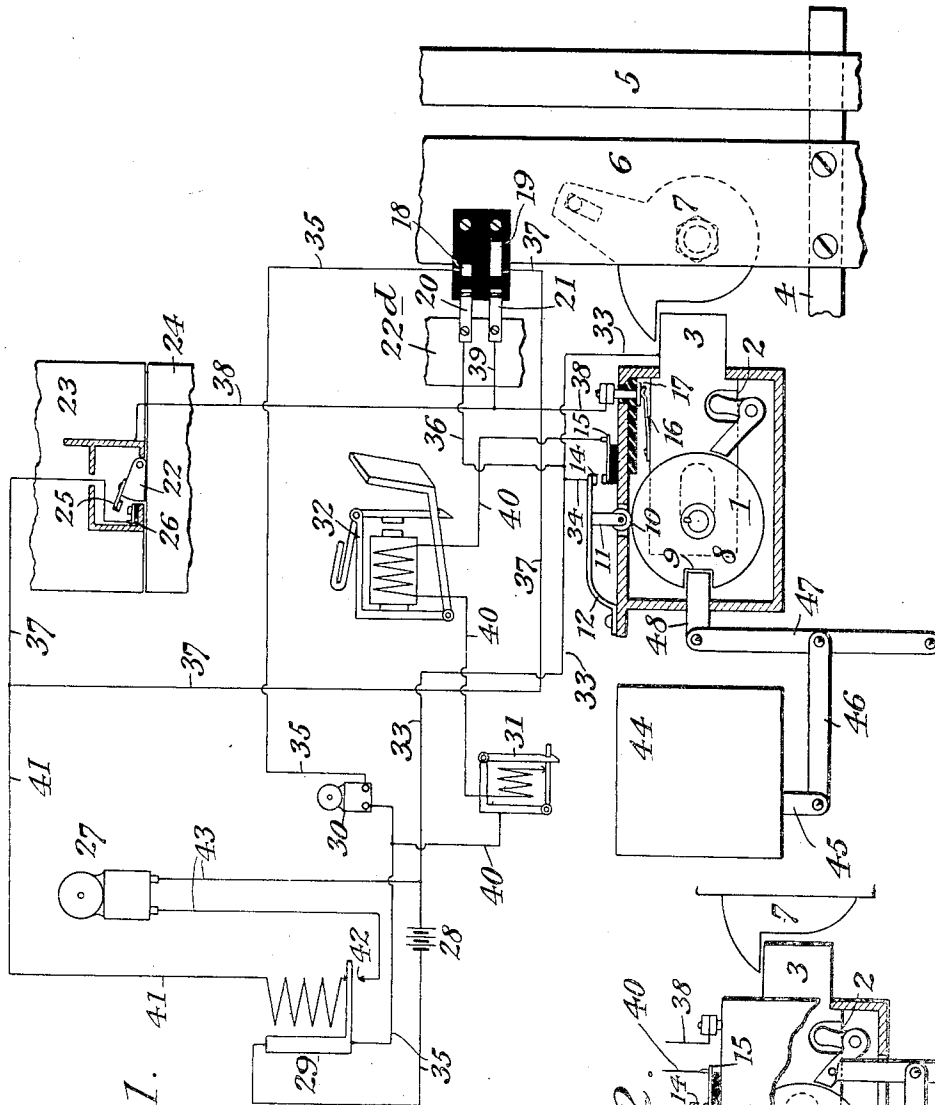


Fig. 1.

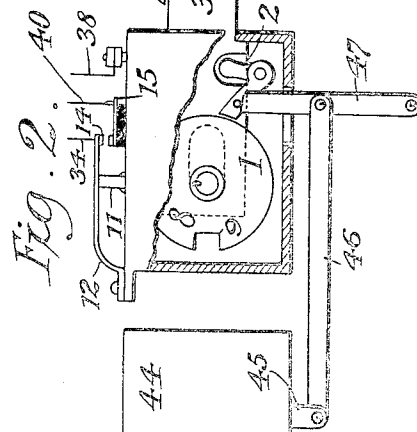


Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## ELECTRIC BURGLAR-ALARM SYSTEM.

1,133,689.

Specification of Letters Patent.

Patented Mar. 30, 1915.

Application filed November 22, 1910. Serial No. 593,613.

*To all whom it may concern:*

Be it known that I, JOHN P. WILLIAMS, a citizen of the United States, and resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Electric Burglar-Alarm Systems, of which the following is a specification.

This invention relates to electric burglar-alarm systems, and it has particular relation to improved means for governing the conditions of access to the guarded structure without actuating the alarm, and to other protective features comprised in the operative status of such systems, substantially as hereinafter described.

My present invention and improvements are correlated to the type of mechanism shown in my Patent No. 1,114,565 dated November 20, 1914, to which reference may be had for a more detail understanding of the particular operative character and purposes of electro-mechanical locks which are also adapted for use in connection with the improvements herein described, and of the general type of burglar-alarm systems for which this mechanism is particularly adapted.

My invention is designed to obviate the employment of time mechanism in connection with the electric circuits for automatically throwing off the alarm to permit access to the guarded structure or for automatically opening and closing the circuits, which time mechanism in connection with the electric circuits has been heretofore usually employed in burglar-alarm systems of the type to which my invention particularly relates and has thus subjected the operative conditions of the circuits to the disadvantages and risks attending the automatic operation of the circuits by a mechanical time mechanism.

A leading object of my invention is to provide simple and improved means of certain and positive manually-operative characteristics by which the operative status of the alarm circuits can be definitely and conveniently governed to permit authorized access to the guarded structure.

A further object of my invention is to obviate the employment of time mechanism or time controllers in the alarm circuits of an electrical burglar-alarm system, for automatically governing the closed and open

condition of the circuits, but to enable the employment of time mechanism for governing the periods when means for the authorized opening or closing of the circuits can be operated, for instance, the control by time mechanism of the operative periods of a locking-mechanism by the operation of which locking-mechanism the open and closed conditions of the circuit can be governed.

A further object of my invention is to provide a general burglar-alarm system which will possess advantages in point of simplicity, effectiveness, positive operation, convenience, and general efficiency.

In the drawings—Figure 1 is a diagrammatic representation of the main parts of a burglar-alarm system embodying my improvements. Fig. 2 is a diagrammatic representation illustrating a modification in the operative relationship of the time mechanism and the circuit-controlling lock.

Corresponding parts in all the figures are denoted by the same reference characters.

The type of burglar-alarm systems to which my improvements particularly relate involve primarily a guarded structure or main structure protected by the burglar-alarm system, which guarded structure, as herein referred to, may be the vault, safe, or other structure which it is desired to protect in a bank or other building or apartment, or the building or apartment itself or a part thereof. The guarded structure is electrically protected by the system in such manner that an unauthorized attempt to gain entrance thereto by an attack upon the structure will operate an electrical circuit and cause the actuation of an alarm. In practice, authorized access to the guarded structure must be permitted at certain periods, and usually heretofore, in such systems, a time controller has been employed in the alarm circuits and adapted to be set to maintain the circuits in operation during certain periods when an attack upon the system would cause the actuation of the alarm and to automatically throw off the alarm for a definite period when authorized access to the guarded structure is desired. In connection with such burglar-alarm systems, my invention has particular relation to means whereby the employment of such time controllers in the alarm circuits is obviated and authorized access to the main

guarded structure is permitted without  
 actuating the alarm or disturbing the gen-  
 eral operative status of the alarm system,  
 and whereby such means for permitting au-  
 5 thorized access may itself be governed in its  
 operative periods by time mechanism. To  
 these ends, the main subject-matter of my  
 present invention comprises electro-mechani-  
 cal combination-lock devices, which in their  
 10 arrangement and construction and circuit  
 connections enable the governing of the sys-  
 tem so as to permit authorized access to the  
 guarded structure without actuating the  
 alarm or disarranging the operative condi-  
 15 tions of the system, and the employment in  
 combination therewith of time mechanism  
 for governing the operative periods of such  
 electro-mechanical combination-lock devices  
 which are in the circuits.  
 20 Referring to the drawings, 1 designates a  
 combination lock, such as is usually em-  
 ployed upon the doors of vaults, safes, and  
 other structures, and is employed for lock-  
 ing purposes. This combination lock 1 may  
 25 be, in its main features of construction and  
 operation of parts, of any usual or adapted  
 type, and the diagrammatic illustration  
 shows the usual fence, 2, and bolt, 3, for  
 locking the door, and the drawbolt, 4, these  
 30 being of the usual constructions well-known  
 in the art, and operating in the usual man-  
 ner. Such combination locks, as generally  
 employed in the art, usually have their bolts  
 thrown manually by operation of the draw-  
 35 bolt, as will be readily understood, but while  
 I have herein illustrated the combination  
 lock 1 in its relation to a drawbolt, the  
 means for throwing the bolts of such lock  
 are not necessarily restricted to the use of a  
 40 manually-operatable drawbolt, but the bolts  
 of the combination lock, in its employment  
 in association with my present invention  
 and improvements, may be thrown in any  
 45 other suitable manner under any of the vari-  
 ous constructions of combination locks com-  
 mon in the art. The combination lock 1 is  
 suitably and conveniently mounted upon the  
 door of the guarded structure, and in the  
 50 diagrammatic illustration is herein shown  
 in association with the usual fixed drawbolt  
 frame, 5, the movable drawbolt bar, 6, and  
 the dogging-block, 7, the operation of which  
 parts is as usual and will be readily under-  
 stood. The combination lock 1 is in an  
 55 operative sense a mechanical lock for lock-  
 ing purposes and is in electrical connec-  
 tion with the alarm circuits of the  
 burglar-alarm system by which the guarded  
 structure is protected, and in its particular  
 60 construction as related to my present inven-  
 tion and improvements comprises a tumbler  
 (shown in the diagrammatic illustration at  
 8) having a peripheral recess, 9, adapted to  
 65 receive a roller, 10, bearing with relation to  
 the periphery of said tumbler. The roller

10 is carried upon a rod, 11, connected to a  
 bar, 12, which is spring-mounted and car-  
 ries a contact point, 14, operating with rela-  
 tion to a contact plate or point, 15. In its  
 particular construction as related to my in-  
 70 vention, the lock 1 has a spring contact, 16,  
 carried by the bolt 3 and slidably operating  
 with relation to a contact plate, 17, suitably  
 mounted.

In the general arrangement of the im- 75  
 proved electrical burglar-alarm system as  
 herein illustrated, I have shown contact  
 plates or blocks, as at 18 and 19, which are  
 carried upon the drawbolt bar 6 and respec-  
 tively operate with relation to spring con- 80  
 tacts, 20 and 21, mounted upon a portion of  
 the door frame, 22<sup>d</sup>. I have also shown a  
 trip device, as at 22, pivotally mounted and  
 arranged upon the door frame, 23, so that it  
 will be lifted by action of the door, 24, when 85  
 the latter is in normal closed position, and  
 will drop when the door is opened to bring  
 a contact point, 25, on said trip in contact  
 with a contact plate or point, 26. The gen-  
 eral arrangement and operation of said con- 90  
 tact plates 18 and 19 and the contacts 20  
 and 21, and of the trip plate 22 and the con-  
 tacts 25 and 26 is fully set forth in my pre-  
 vious patent above referred to and need not  
 be herein further described. 95

The alarm of the burglar-alarm system is  
 indicated at 27, and may consist of a gong  
 device suitably located as desired. The bat-  
 tery of the system is shown at 28, and the  
 system further comprises an automatic 100  
 drop, shown at 29, and a test bell, shown at  
 30, these supplementary parts and other  
 parts which may be comprised in the gen-  
 eral features of the alarm circuits being  
 preferably arranged within the main guard- 105  
 ed structure. The system also preferably  
 comprises, in my present invention, an auto-  
 matic circuit breaker, as at 31, contained  
 within the guarded structure, and an indi-  
 cator, as at 32, suitably located at the de- 110  
 sired point of observation.

The general circuits connecting the vari-  
 ous parts of the electrical burglar-alarm  
 system comprised in the subject-matter of  
 my present invention, may be arranged in 115  
 any suitable or desired manner, and I have  
 herein shown one preferred arrangement of  
 circuits, which I will now proceed to de-  
 scribe. At one side of the battery 28, a  
 wire, 33, extends to electrical connection 120  
 with the bolt 3 of the combination lock 1,  
 this electrical connection being in practice  
 preferably through the metallic parts of  
 said lock device, with which the bolt is of  
 course in metallic electrical circuit connec- 125  
 tion and is also in circuit connection with  
 the spring contact 16. A wire, 34, extends  
 from the wire 33 to the contact point 14 of  
 the roller device 10. From the other side of  
 the battery 28, a wire, 35, extends, through 130

the frame of the automatic drop 29 and through the test bell 30 to the drawbolt bar contact 18. A wire, 36, extends from the wire 33 to the spring contact 20 which operates with relation to the drawbolt bar contact 18. A wire, 37, extends from the drawbolt bar contact 19 to the contact 26 with relation to which the door trip 22 operates, and a wire, 38, extends from electrical connection with said door trip 22 to electrical connection with the contact plate 17 with relation to which the spring contact 16 on the bolt 3 of the combination lock 1 slidably operates. A wire, 39, extends from the wire 38 to the spring contact 21 which operates with relation to the drawbolt bar contact 19. A wire, 40, extends from the wire 35 through the circuit breaker 31 and through the indicator 32 to the contact 15 with relation to which the contact 14 operates. A wire, 41, extends from the wire 37 to the coil of the automatic drop 29, and from the contact point, 42, of the automatic drop 29, a wire, 43, extends, through the main alarm 27, to the wire 33.

The general protective system hereinabove described operates substantially in the same manner as that set forth in my previous patent herein referred to, the contact arrangement 16 and 17 in connection with the combination lock 1 as herein shown being substituted for the auxiliary electric combination devices shown in said previous construction in operative relation to the main combination lock, and my present improvements are therefore materially simplified over the subject-matter of said previous patent.

In connection with my present invention and improvements, I employ mechanical time mechanism for controlling the operative periods of the combination lock and in this connection I have shown a mechanical time lock, 44, which may be in the main of any usual or adapted construction, as will be readily understood, and is preferably arranged upon the door of the guarded structure and within the latter in adjacent relationship to the combination lock 1. The time lock 44 is operatively adapted to so control the combination lock 1 that the bolt 3 thereof will be retained against withdrawal from its locking position for a predetermined period of time, thus preventing the separation of the contacts 16 and 17 until the release of the control of the time lock enables the operator to turn the tumblers of the combination lock 1 to their opening point, thus permitting the drawing of the bolt 3 from its locked position. When the bolt 3 is thus operated, the contact 16 will slide from circuit connection with the contact 17, thus opening the circuit connection and removing the current from the combination lock 1, under which circumstances

the door of the guarded structure can be opened without actuation of the alarm. In the construction shown in Fig. 1, the time lock 44 is adapted to dog the tumblers of the combination lock 1, in the usual manner as is common in the operation of combination and time lock mechanisms, the dogging connection being by means of a series of pivotally connected rods, as at 45, 46, 47 and 48, the terminal one of which has a locking engagement with the recess 9 of the combination lock tumbler 8 until it is withdrawn therefrom by action of the time lock 44. In the modified arrangement shown in Fig. 2, instead of interlocking with the combination lock tumbler, the pivotally connected rods of the time lock 44 are adapted to control the operation of the fence 2 so that for a predetermined period of time the combination lock 1 cannot be operated to throw the bolt 3 and enable the opening of the door of the guarded structure.

It will be understood that the governing time lock 44 does not co-act with nor control the operation of the combination lock mechanism electrically for the protection of the guarded structure against attack, and that the general electrical mechanism which is in connection with the combination lock mechanism is operative for the protection of the guarded structure at all times during the period the combination lock is dogged by the time lock mechanism and during the period it is released from the dogging action thereof. Thus, the electro-mechanical combination lock mechanism is electrically operative for the protection of the guarded structure at all times, and is both electrically and mechanically operative when it is not dogged by the time lock mechanism, but is not mechanically operative when it is dogged by the time lock mechanism. The office of the governing time lock mechanism, in its relation to the electro-mechanical features of the combination lock mechanism, is to control the mechanical operation periods of the electro-mechanical combination lock mechanism, whereby the latter has periods when it is mechanically non-operative but is still electrically operative. Therefore, an attempt to operate the combination lock mechanically, during such periods, is prevented by the dogging of the time lock mechanism, and the system is thus protected against an attack upon the combination lock to mechanically throw its bolt 3 and thus break the contact 16—17 and place the electrical protective system out of operation. During the periods when the electro-mechanical combination lock mechanism is not dogged by the time lock mechanism, it is then operative both mechanically and electrically, and the electric protective means is active against an attack, and it is mechanically operative against an attack which

would throw the bolt and break the contact 16—17 except by its operation under knowledge of the authorized combination. At such periods, when the time lock mechanism is not operative, the combination lock can be operated by an authorized person, to place the electrical protective means out of operation and enable access to the guarded structure, but during the periods the time lock mechanism is operative the combination lock mechanism cannot be operated mechanically, even with knowledge of its combination, and an attempt to then operate it would not affect the operative condition of the electrical protective system which is in connection therewith. My present invention and improvements therefore comprise a protective system in which the time mechanism control, in combination with the electrical control of the locking mechanism affords mechanical protection as a supplement to the electrical protection afforded by the operation of the alarm circuits of the improved system.

It will be understood that any adapted type of time mechanism may be employed and that the time mechanism may be operatively arranged to dog or control any part of the locking mechanism, whether by direct action upon the tumblers of the combination lock, the fence thereof, or the drawbolts of the door, or other operative parts of the locking mechanism, under conditions usual in such mechanisms, and that when the time mechanism is arranged to directly dog the combination lock neither the dial nor tumblers can be turned, when it is arranged to dog the fence the door cannot be opened until the fence is released although the dial and tumblers may be turned to the opening point, and when it is arranged to dog the drawbolts direct the bolts cannot be thrown until they are released even though the combination lock is operated.

The operation and advantages of my invention and improvements will be readily understood by those skilled in the art. The diagrammatic illustration in Fig. 1 of the drawings shows the position of the contacts and the relatively-operating parts and the circuit conditions when the door of the protected structure is closed or in normal position and has been locked, and in the positions shown the alarm circuit controlled by the operation of the contacts is set in operative condition and ready for actuation in case of an attack upon the protected structure. The combination lock 1 is also so controlled by the time lock 44 that it can not be operated until the time lock releases its control and enables the turning of the tumblers of the combination lock. When the combination lock is thus released it can be operated to permit authorized access without actuating the alarm, as it operates

to open the alarm circuit by reason of its electrical connection and control thereof, as will be readily understood.

With relation to the various contacts, it will be understood that the contact 16 and 17 is normally closed, the contact 14 and 15 is normally open, the contacts 18 and 20 and 19 and 21 are normally open, the contact 25 and 26 is normally open, and the contact of the automatic drop 29 is normally open.

The closing of the contact 25 and 26, by release of the door trip 22, will complete a circuit and cause an alarm to be sounded, as follows: from one side of the battery 28 through the wire 33, through the bolt 3, through the contact 16 and 17, through wire 38, through the door trip 22 and contact 25 and 26, through wire 41, through the automatic drop 29, and through the wire 35 to the opposite side of the battery. The circuit thus completed through the automatic drop will cause the continuous actuation of the alarm 27 through its circuit connections by the wire 43.

The closing of the contact 19 and 21, by springing of the drawbolt bar 6, would complete a circuit and cause the alarm to be sounded, as follows: from one side of the battery 28, through the wire 33, through the bolt 3 and contacts 16 and 17, through the wire 38, through the wire 39, through the contacts 21 and 19, through the wires 37 and 41, through the automatic drop 29, and through the wire 35 to the other side of the battery. The closing of the contact 14 and 15, which contacts become operative in the act of properly closing the door of the guarded structure, will complete a circuit, as follows: from one side of the battery 28 through the wires 33 and 34, through the contact 14 and 15, through the wire 40 and through the coil of the indicator 32 and the circuit breaker 31, and through the wire 35 and the frame of the automatic drop 29 to the other side of the battery.

The test bell 30 becomes operative when the contact 20 and 18 is closed, which occurs when the drawbolt bar is moved, the circuit being completed as follows: from one side of the battery 28 through the wires 33 and 36, through the contact 20 and 18, and through the wire 35 and the test bell and the frame of the automatic drop 29 to the other side of the battery.

It will be understood that the contact 16 and 17 operates to close the circuit whenever the bolt 3 of the combination lock 1 is in normal operative position, and that the circuit is broken at this contact whenever the bolt 3 is thrown so that the spring contact 16 slides from contact with the contact plate 17. It will also be understood that, in lieu of the arrangement of the contact 16 and 17 as herein shown, such contacts for closing the circuits may be ar-

ranged upon the tumblers of the combination lock in substantially the manner shown and described in my previous patent herein referred to.

5 In the general operation of the system comprising my present invention, it is essential to know that the combination lock 1 has its tumblers scattered away from the opening point when the door is closed, so  
10 that the combination lock will be returned to locked position and in condition for the operation of the time lock mechanism to dog and control the operative period of the combination locking mechanism. It will be  
15 understood that in the operation of the usual and well-known combination locking mechanisms, as employed in connection with my present invention, the act of scattering the tumblers from the opening point will  
20 bring the recess 9 of the driver tumbler 8 opposite the locking bar 48 of the time lock mechanism (in the relative arrangement as illustrated in Fig. 1) and thus permit said bar to enter the recess of the driver tumbler  
25 and engage the combination locking mechanism. After the door of the guarded structure has been closed and the bolt of the combination lock thrown, the operation of turning the tumblers to scatter them away  
30 from the opening point and effect the locking action, will permit the roller 10 to drop into the peripheral recesses of the tumblers of the combination lock and thus close the contact 14 and 15. A circuit is then completed, as hereinbefore set forth, which circuit  
35 is through the indicator 32, and the indicator is operated to cause an annunciator to drop and indicate to the operator that the door of the guarded structure has  
40 been properly locked and that the entire locking mechanism is in proper operative status. The operation of the indicator 32 is therefore an important feature of the system comprised in my present invention,  
45 and provides a certain indication that the locking mechanism is in proper operative and locking status. The indicator 32 may in itself be of any usual or adapted construction, and may be located at any desired  
50 point outside of the guarded structure, and in view of this outside position the wires running from inside the guarded structure to the indicator 32 are protected by the circuit breaker 31, which is located inside the  
55 guarded structure. The operation of this circuit breaker, after the action of the indicator, thus serves to prevent the use of the wires of this circuit running to the outside indicator for the purpose of injuring or  
60 destroying any of the circuits and their operative parts in the system, by attaching to said wires outside sources of current in an attempt to burn out coils or circuit parts which are inside the guarded structure.

65 It will be understood that the breaking of

the circuit at the contact 16 and 17, in the authorized operation of the combination lock 1, enables authorized access to the guarded structure without operation of the alarm circuit.

I do not desire to be understood as limiting myself to the detail construction and arrangement of parts or circuits as herein shown and described, as it is manifest that variations and modifications therein may be  
75 resorted to, in the adaptation of my invention to varying conditions of use, without departing from the spirit and scope of my invention and improvements. I therefore reserve the right to all such variations and  
80 modifications as properly fall within the scope of my invention and the terms of the following claims.

Having thus described my invention, I claim and desire to secure by Letters Patent:

1. In an alarm system, an electric protective alarm circuit, locking means, an electrical connection between a movable part of said locking means and said circuit  
90 whereby the circuit will be opened and closed under the operative action of said locking means, said locking means and its circuit connection constituting an electro-mechanical protective mechanism, and supplementary  
95 mechanical means comprised in said locking mechanism and operative to automatically control the operative movement of said locking means against action for a predetermined period of time, said  
100 supplementary mechanical means being independent of the circuit connection of said locking means with the alarm circuit and constituting a mechanical controlling mechanism supplementary to the electro-mechanical locking mechanism.

2. In an alarm system, an electric protective alarm circuit, mechanical means exposed to manipulation and in electrical connection with said circuit and operative under  
110 unauthorized tampering to cause the actuation of the alarm, locking means in connection with said exposed mechanical means, an electrical connection between a movable part of said locking means and  
115 said circuit, circuit connections operatable by action of said electrically-connected movable part of said locking means whereby the circuit will be opened and closed under the operative action of said locking means,  
120 the parts being so arranged that when said locking means is in locked position the alarm circuit is in operatable condition whereby tampering with said exposed mechanical means will cause the actuation of  
125 the alarm and when said locking means is in unlocked condition said circuit will be out of operation, said locking means and its circuit connection constituting an electro-mechanical protective mechanism, and supplementary

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plementary mechanical means comprised in said locking mechanism and operative to automatically control the operative movement of said locking means against action for a predetermined period of time, said supplementary mechanical means being independent of the circuit connection of said locking means with the alarm circuit and constituting a mechanical controlling mechanism supplementary to the electro-mechanical locking mechanism.

3. In an alarm system, an electric protective alarm circuit, contact devices in said circuit the operation of which will cause the actuation of the alarm, locking means, an electrical connection between said locking means and said circuit, said electrical connection embodying contacts carried by a movable part of said locking means whereby the circuit will be opened and closed under the operative action of said locking means at the respective unlocked and locked positions thereof, said locking means and its circuit connection constituting an electro-mechanical protective mechanism, and supplementary mechanical means comprised in said locking mechanism and operative to automatically control the operative movement of said locking means against action for a predetermined period of time, said supplementary mechanical means being independent of the circuit connection of said locking means with the alarm circuit and constituting a mechanical controlling mechanism supplementary to the electro-mechanical locking mechanism.

4. In an alarm system, an electric protective alarm circuit, and a locking mechanism comprising locking means and supplementary mechanical means operative to automatically control the operative movement of said locking means against action for a predetermined period of time, said locking means having an electrical connection between one of its movable parts and said circuit whereby the circuit will be opened and closed under the operative action of said locking means, and said supplementary mechanical means being independent of the circuit connection of said locking means with the alarm circuit, whereby said locking means and its circuit connection constitute an electro-mechanical protective mechanism and said supplementary mechanical means constitute a mechanical controlling mechanism supplementary to the electro-mechanical locking mechanism.

5. In an alarm system, an electric protective alarm circuit, a locking mechanism comprising combination locking means and supplementary mechanical means operative to automatically control the operative movement of said combination locking means against unlocking action for a predetermined period of time, and circuit connec-

tions operatable by action of a movable part of said combination locking means whereby the circuit will be opened and closed under the operative action of said locking means, said supplementary mechanical means being independent of the circuit connection of said combination locking means with the alarm circuit, whereby said combination locking means and its circuit connection constitute an electro-mechanical protective mechanism and said supplementary mechanical means constitute a mechanical controlling mechanism supplementary to the electro-mechanical combination locking mechanism.

6. In an alarm system, an electric protective circuit, an indicator in circuit connection therewith, a locking mechanism comprising locking means and supplementary mechanical means operative to automatically control the operative movement of said locking means against action for a predetermined period of time, and means in circuit connection with said indicator and operatable by action of a movable part of said locking means to operate the indicator circuit when said locking means is restored to normal status in locked position and subject to the operative action of said supplementary mechanical controlling means, said supplementary mechanical means being independent of the circuit connection of said locking means, whereby said locking means and its circuit connection with the indicator constitute an electro-mechanical protective mechanism and said supplementary mechanical means constitute a mechanical controlling mechanism supplementary to the electro-mechanical locking mechanism.

7. In an alarm system, an electric protective circuit, an indicator in circuit connection therewith, a circuit breaker in said indicator circuit, a locking mechanism comprising locking means and supplementary mechanical means operative to automatically control the operative movement of said locking means against action for a predetermined period of time, and means in circuit connection with said indicator and operatable by action of a movable part of said locking means to operate the indicator circuit when said locking means is restored to normal status in locked position and subject to the operative action of said supplementary mechanical controlling means, said supplementary mechanical means being independent of the circuit connection of said locking means, whereby said locking means and its circuit connection with the indicator constitute an electro-mechanical protective mechanism and said supplementary mechanical means constitute a mechanical controlling mechanism supplementary to the electro-mechanical locking mechanism.

8. In an alarm system, an electric protec-

tive circuit, an indicator in circuit connection therewith, a locking mechanism comprising combination locking means and supplementary mechanical means operative to automatically control the operative movement of said combination locking means against action for a predetermined period of time, and means in circuit connection with said indicator and in operative relation to the tumblers of said combination locking means to operate the indicator circuit when said combination locking means is restored to normal status in locked position and subject to the operative action of said supplementary mechanical controlling means, said supplementary mechanical means being independent of the circuit connection of said locking means, whereby said locking means and its circuit connection with the indicator constitute an electro-mechanical protective mechanism and said supplementary mechanical means constitute a mechanical controlling mechanism supplementary to the electro-mechanical locking mechanism.

9. In an alarm system, an electric protective circuit, an indicator in circuit connection therewith, a locking mechanism comprising locking means and supplementary mechanical means operative to automatically control the operative movement of said locking means against action for a predetermined period of time, means in circuit connection with said indicator and operable by action of a movable part of said locking means to operate the indicator circuit when said locking means is restored to normal status in locked position and subject to the operative action of said supplementary mechanical controlling means, and an electric connection between a movable part of said locking means and said protective circuit whereby the protective circuit will be opened and closed under the operative action of said locking means, said supplementary mechanical means being independent of the circuit connections of said locking means, whereby said locking means and its circuit connections constitute an electro-mechanical protective mechanism and said supplementary mechanical means constitute a mechanical controlling mechanism supplementary to the electro-mechanical locking mechanism.

10. In an alarm system, an electric protective circuit, an indicator in circuit connection therewith, a locking mechanism comprising combination locking means and supplementary mechanical means operative to

automatically control the operative movement of said combination locking means against action for a predetermined period of time, means in circuit connection with said indicator and in operative relation to the tumblers of said combination locking means to operate the indicator circuit when said combination locking means is restored to normal status in locked position and subject to the operative action of said supplementary mechanical controlling means, and contact devices in connection with said protective circuit and carried by a movable part of said combination locking means and constituting an electrical connection between said combination locking means and said protective circuit whereby the protective circuit will be opened and closed under the operative action of said combination locking means, said supplementary mechanical means being independent of the circuit connections of said locking means, whereby said locking means and its circuit connections constitute an electro-mechanical protective mechanism and said supplementary mechanical means constitute a mechanical controlling mechanism supplementary to the electro-mechanical locking mechanism.

11. In an alarm system, a protected structure having a door or means of access, an electric alarm circuit protecting said structure, a locking mechanism controlling the opening and closing of said door or access means and comprising locking means and supplementary mechanical means operative to automatically control the operative movement of said locking means against motion for a predetermined period of time, and an electrical connection between a movable part of said locking means and said circuit whereby the circuit will be opened and closed under the operative action of said locking means, said supplementary mechanical means being independent of the circuit connection of said locking means, whereby said locking means and its circuit connection constitute an electro-mechanical protective mechanism and said supplementary mechanical means constitute a mechanical controlling mechanism supplementary to the electro-mechanical locking mechanism.

In testimony whereof I have signed my name in the presence of the subscribing witnesses.

JOHN P. WILLIAMS.

Witnesses:

WALTER NORMANDY,  
E. SIDNEY BOOTH.