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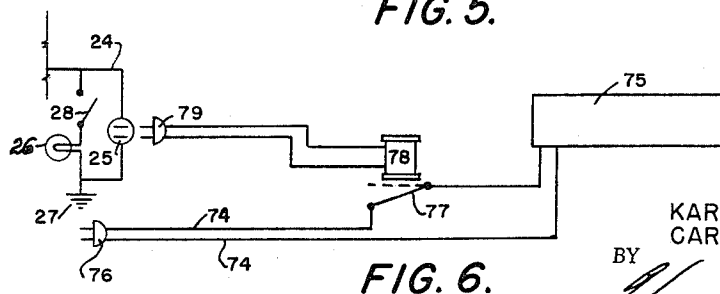
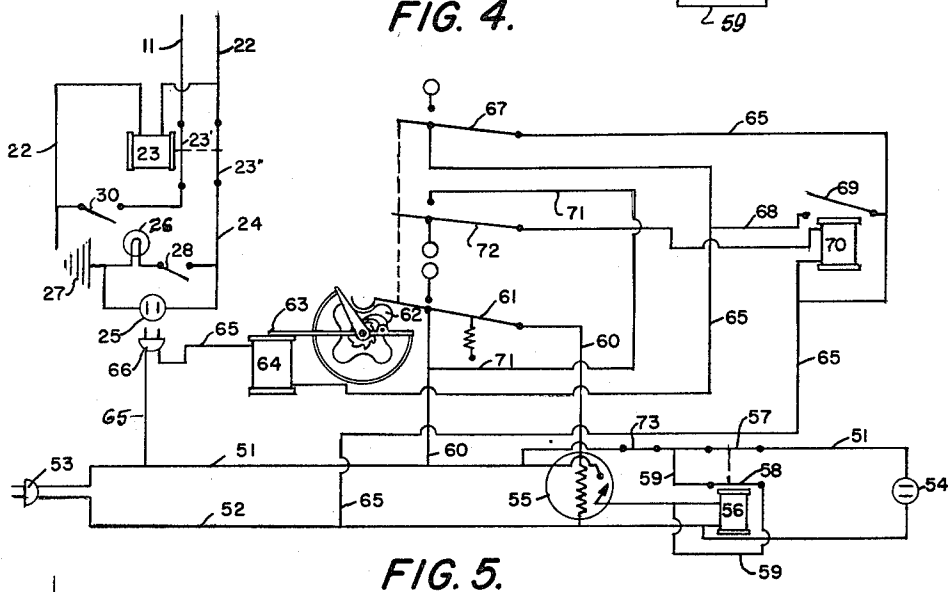
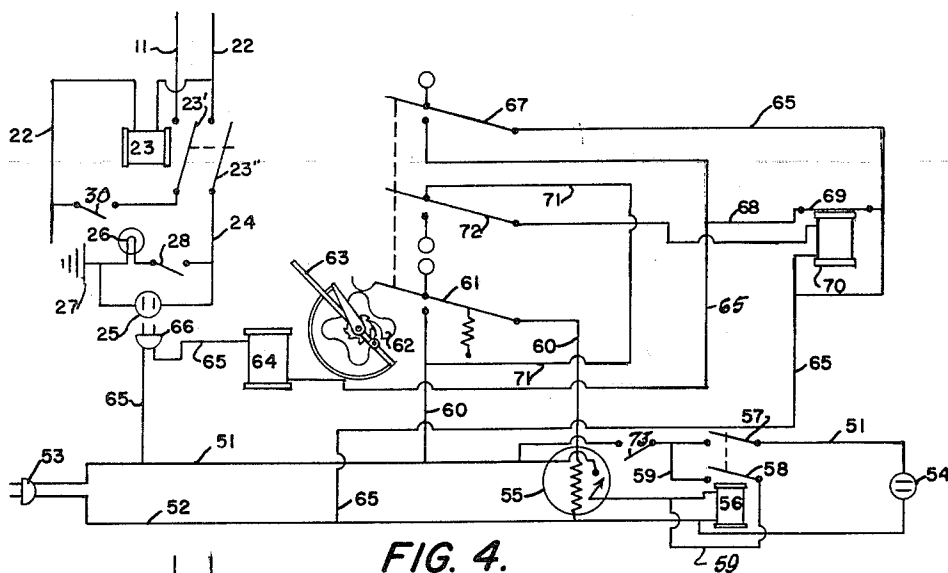
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SOUND-RESPONSIVE RELAY UNIT

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2 Sheets-Sheet 2



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SOUND-RESPONSIVE RELAY UNIT

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This invention relates to facilities automatically reactive, when appropriately powered, to sound and sound-generating agencies to activate an associated instrumentality for diverse purposes, and has as a primary object the provision of a unitary organization adaptable to so function with reliable efficiency.

A further object of the invention is to provide a unitary facility adapted for conjunctive association with a conventional telephone in various practical and advantageous ways.

A further object of the invention is to provide a unitary facility automatically reactive to impulses of remote initiation to complete, or, alternatively, to interrupt electrical circuits powering diverse appliances and agencies.

A further object of the invention is to provide a unitary facility for the automatic control of electrical circuits in reaction to sound or sound-generating impulses that is expediently adaptable for operative correlation with various impulse-generating means.

A further object of the invention is to provide an improved unitary facility reactive to sound or sound-generating impulses that is selectively applicable in a given practical organization to a wide variety of specific uses.

A further object of the invention is to provide a unitary facility reactive to sound or sound-generating impulses that is operable in certain adaptations to respond selectively to a repetitious signal sequence.

A further object of the invention is to provide a novel and improved relay unit automatically reactive to sound or sound-generating impulses that is expedient and economical of production in compact, convenient form from known and readily available materials and elements, that is practical of ready installation in preferred positions of use wherever conventional electrical power is present, that is simple of adjustment and adaptation for full automatic performance of its selected functions, and that is dependably reliable throughout extended use periods.

With the foregoing and other objects in view, our invention consists in the construction, arrangement, and operative combination of elements as hereinafter set forth, pointed out in our claims, and typified by the diagrams shown in the accompanying drawings, in which—

Figure 1 is a conventionalized diagram of the elements, circuits, and connections comprising a typical embodiment of the invention as organized ready for use in reaction to the bell signal of a conventional telephone.

Figure 2 is a diagram identical with that of Figure 1 showing alternative dispositions of certain of the elements resulting from reaction of the organization to a bell signal.

Figure 3 is a fragmentary, detail diagram illustrating adaptation of the organization according to Figures 1 and 2 for reaction to remote sound impulses other than bell signals.

Figure 4 is a diagram of adjunctive means reactive to the circuit according to Figures 1 and 2 to complete an independent supplementary power circuit through selec-

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tive interpretation of signal input to the circuit of the preceding views.

Figure 5 is a diagram identical with that of Figure 4 showing the disposition of elements of the adjunctive circuit appropriate for completion of the independent supplementary circuit in response to interpretation of signal input.

Figure 6 is a diagram illustrating applicability of the circuit according to Figures 1 and 2 for automatic interruption of an independent supplementary circuit.

Conveniently adaptable to organization as a compact, portable unit of any appropriate structural and physical particularity, the system represented by the diagrams of Figures 1 and 2 is fundamental to realization of the purposes and advantages of the invention and functionally, if not structurally, typifies the variables and equivalents through which the principles of the invention may be applied for practical effect.

As shown in Figures 1 and 2, the separate leads 10 and 11 of a power circuit are arranged, as by means of a plug connector 12, for connection with and to serve as extensions from a conventional source or supply of electric energy, such as the conventional domestic alternating current supply extensively in use. The lead 10 connects serially through separate switches 13 and 14, whereof the first is the principal control switch of the system closable from normal open position to power the improved unit and the second is normally closed in an arrangement conditioning it for use merely to check or test the operative condition of the system when the switch 13 is closed to power the same. Beyond the switches 13 and 14 in a direction away from the connector plug 12 the lead 10 connects through a conventional voltage divider represented by the resistances 15 and 16 and thence through a rectifier 17 which is conventionally biased through a condenser 18 to the lead 19 wherethrough the resistance 16 is bridged between the leads 10 and 11, and beyond the rectifier 17 the lead 10 continues to connection with the coil 20 of a normally-open relay whereof the movable armature 20' is adapted to close against a contact terminating a grounded lead 21 when the relay coil is energized by current flow therethrough. A lead 22 branching from the lead 10 between the switch 14 and resistance 15 connects with and through the coil of a relay 23 and continues thence to connection with the armature 20' of the relay 20, so that, when said armature closes to contact with the lead 21 as the relay 20 is energized, a path of current flow is established through the leads 10, 22, and 21 to energize the coil of the relay 23, assuming that the switch 13 has been closed to power the system. The movable armature of the relay 23 acts upon and to shift a ganged pair of switches 23' and 23'' between open and closed relation with the separate circuits therethrough; said switches 23' and 23'' normally being in open relation with their associated circuits and movable to close such circuits in reaction to energization of the coil of the associated relay. The switch 23'' controls a circuit which branches from the lead 22 in advance of connection thereof with the relay 23 and continues through said switch as the lead 24 serving a conventional plug outlet 25 and a parallel-connected incandescent bulb 26 through branches grounded at 27, whereby closing of the switch 23'' when the powering switch 13 is closed acts to complete a circuit effective to illuminate the lamp 26 and to power the outlet 25; it being desirable and expedient to provide a manually-actuable switch 28 in the branch circuit serving the lamp 26 in a manner to permit interruption of the circuit to said lamp, at times, while maintaining a closed circuit to and through the outlet 25. The lead 11 is conventionally grounded, as at 29, and is extended through the switch 23' to connection, through a manually-actuable switch

30, with the continuation of the lead 22 through and beyond the relay 23, whereby to provide a circuit powering the relay 23 through operative connection thereof between the leads 10 and 11 when the switches 13, 23' and 30 are closed. The switch 23'' is hence connected and conditioned to function while the system is powered through closing of the switch 13 as a temporary connection closing a power circuit to the outlet 25 and lamp 26 whenever the armature 20' of the relay 20 is closed to contact with the lead 21, and to maintain such closing relation with its circuit only while said armature 20' remains in contact with the lead 21. The switch 23' is arranged to function when the switch 30 is closed as a means for holding the switch 23'' in closing relation with its associated circuit when the relay 23 is actuated through closing of the armature 20' into contact with the lead 21, even after such initiation of relay 23 reaction has been broken; it being manifest that energization of the relay 23 in reaction to contact established by the armature 20' through the lead 21 is effective to close both switches 23' and 23'' for completion of their associated circuits and to thereby establish through the switch 23' a circuit powering the relay 23 to hold the ganged switches in completing relation with their circuits after the armature 20' has separated from the lead 21.

As should be clear from the foregoing, energization of the relay 20 and consequent attraction of its armature 20' operates when the switches 13, 28, and 30 are closed to establish completed circuits effective to power the plug outlet 25 and to illuminate the lamp 26 in a continuing such condition maintained through the holding relay 23 and its switch 23' until the powering circuit is opened, as by means of the switch 13 or 14. Opening of the switch 28 merely removes the lamp 26 from the influence of the completed circuit powering the outlet 25 with retention of the latter in an operative circuit closable as above set forth. Alternatively, opening of the switch 30 nullifies the holding capacity of the relay 23 and conditions the circuit to the plug outlet 25 and lamp 26 controlled by the relay 20 and its armature 20' for completion during only such time as said armature 20' is closed to contact with the lead 21, whereby to establish circuit flow to said lamp and outlet, either or both, in synchronism with energization of the relay 20 subject to interruption when the latter is deenergized.

The circuit including the coil of the relay 20 is continued to ground at 31 by means of a lead 32 connecting with a continuation of the lead 10 through an electrical valve, hereinafter more particularly described, in such manner as to apply the potential characterizing the lead 10 beyond the rectifier 17 for energization of the relay 20 when the valve between the leads 10 and 32 is conditioned to pass the current, and said valve is arranged to so pass the current in automatic reaction to sound or sound-generating impulses in a somewhat conventional manner susceptible of considerable variation as to detail. In the practical and preferred arrangement according to Figures 1 and 2, a pick-up element 33, represented as an inductor productive of current flow in reaction to exposure within a magnetic field, is connected in completing relation with a circuit 34 including the primary of a transformer 35, one of the leads of said circuit 34 preferably including a jack 36 adapted for coaction with an insertable plug in a usual manner to remove the inductor 33 from the circuit 34 while completing said latter circuit through the plug and elements therewith associated. The secondary of the transformer 35 completes a circuit 37, including condenser 38 and resistance 39, which serves an amplifier 40 of appropriate type, either thermionic or transistor, but preferably the latter, as illustrated, and the signal output from the amplifier 40 is imposed through a circuit 41 containing a condenser 42 and biasing resistance 43 on the primary of a second transformer 44 whereof the secondary feeds through a circuit 45 including a variable resistance 46 functioning as a sensi-

tivity control to a second amplifier 47 which is the electrical valve controlling current flow through the coil of the relay 20 as above discussed. Obviously, the amplifier 47 may be either a thermionic tube or a transistor, and is represented as of the latter type in deference to the practical advantages thereof. With the elements and components of the circuits assembled and connected as illustrated and described in appropriate correlation of their values, as is well within the skill of the art, the system is completed for practical operation through such juxtaposition of the inductor 35 to the magnetic field of an electrical sound-generating agency, such as a telephone bell, as will promote reaction in the form of current flow through the circuit 34 containing said inductor at each output of magnetic flux from the adjacent sound-generator. When and as so positioned, the inductor 33 responds to each signal impulse of the adjacent agency with a current impulse in the circuit 34 which is reflected through the transformer 35 to the amplifier 40 and thence, as an augmented signal, through the transformer 44 to the amplifier 47, where it is effective as so amplified to open a path for current flow through the relay 20 which is thereby energized to close its armature 20' into contact with the lead 21. As so organized, the circuits shown and described operate in reaction to each signal impulse of the associated agency to close the armature 20' into contact with the lead 21 at each said signal impulse and throughout the duration of each such impulse, thereby applying the relay 20 and its armature 20' to trigger the associated circuits serving the outlet 25 and lamp 26 in the manner hereinabove set forth. While the pick-up element 33 is represented and described as an inductor reactive to magnetic field variations, it is fully apparent that any functionally equivalent pick-up element may be substituted with equal operative facility for the inductor type named; it being well within established practice and the contemplation of the invention to utilize a pick-up element reactive to sound, instead of to magnetic flux, such as a microphone, in substitution for the magnetically-responsive inductor.

As represented by Figure 3, the system shown and thus far described is readily adaptable to react with identical performance to sound or sound-generating impulses remote from the location of the circuit 34 and its connections, it being entirely practical and feasible to utilize a microphone 48, or the equivalent, connected through leads 49 with a plug 50 coactable with the jack 36, whereby to provide for delivery of signal impulses received by the microphone 48 to and for actuation of the circuit 34 as above discussed, exactly as though the inductor 33, disconnected from its circuit through engagement of the plug with the jack 36, were subject directly to the impulses acting upon the microphone 48.

Figure 1 typifies a preferred and practical arrangement of the signal-responsive system characterizing the invention as organized preparatory to and ready for practical use, the switch 13 being open to interrupt current supply to the system and the switches 28 and 30 being closed to complete their respective circuits. All that is necessary to condition the system for practical operation in the intended manner is closing of the switch 13, which in and of itself in no way alters the relationship of elements represented by Figure 1. With the system powered through closing of the switch 13, a signal impulse of whatever nature applied to reactively affect the pick-up element 33, or the equivalent microphone 48, is reflected through the amplifying stages shown and described to establish a flow of current through the relay 20 effective to close the armature 20' into contact with the lead 21, as in Figure 2, whereafter the circuits so completed by the armature 20' actuate the relay 23 to close, and to hold closed, the switches 23' and 23'' for completion of current flow powering the outlet 25 and lamp 26 until the switch 14, or the switch 13, is opened to interrupt the power supply, deenergize the relay 23, and thereby

break the circuits to the lamp and outlet. Obviously, and as above discussed, the switches 28 and 30 may be manipulated as desired to correspondingly condition the associated circuits comprised in the system.

Typical of arrangements wherethrough the system represented by Figures 1 and 2 may be applied to close an adjunctive circuit powering an electrical facility or appliance of any type in selective reaction to signal input to the system, the diagrams of Figures 4 and 5 represent, respectively, the initial inoperative and subsequent operating positions of an organization effective to close and complete an adjunctive circuit in response to a single, unrepeatable signal received by the primary organization.

As shown in Figures 4 and 5, a supplementary circuit closable to power an electric facility or appliance connected therewith is represented as comprising the leads 51 and 52 conventionally connecting between a connector plug 53 insertable in a powered service outlet and a plug outlet 54, or the equivalent, indicative of power supply through the circuit to an associated facility or appliance. The lead 51 connects through a time delay relay 55 having a delay factor on the order of ten seconds in series with an electromagnetic relay 56 to complete a circuit effective to energize the coil of the latter when the time delay relay 55 has acted to close the circuit therethrough, and said lead 51 completes, in parallel, the circuit to the outlet 54 through a normally-open switch 57 closable to circuit-completing relation in reaction to energization of the coil 56. The switch 57 is ganged for co-action with a switch 58 controlling a circuit 59 bridging between the uninterrupted lead 51 and the branch thereof serving the coil 56 from the time delay relay 55, so that, when the switch 58 is closed in reaction to energization of the coil 56, a completed circuit for current flow is established through the lead 59 to and through said coil for consequent retention of the switches 57 and 58 in closing relation with their circuits when the power circuit through the time delay relay 55 has been interrupted. With the plug 53 appropriately engaged in a service outlet and a facility or appliance to be activated appropriately connected with the outlet 54, current flow through the circuit including said plug and outlet is established through closing of the switches 57 and 58 in reaction to energization of the coil 56 consequential to closing of the circuit through the short time delay relay 55 to establish an initial path of current flow to said coil, whereafter the completed circuit from the plug 53 to the outlet 54 is maintained by virtue of the circuit established by the closed switch 58 through the lead 59 after the initially-completed circuit established through the time delay relay 55 to the coil 56 has been interrupted.

The time delay relay 55 is powered to close the circuit therethrough in a conventional manner by means of a circuit 60 connecting said relay between the leads 51 and 52 through a switch 61 mechanically reactive in a well-understood manner to a multi-lobed cam 62 revoluble to alternatively elevate the switch 61 out of completing relation with its circuit 60 and to permit said switch to close its circuit, and said cam 62 is progressively rotatable through successive uniform angular displacements by means of a member 63 arranged to function as the movable armature of coil 64; the arrangement being such that each attraction of the member 63 by and to the associated coil 64 moves the cam 62 through a displacement appropriate to reverse the previous position of the switch 61 with provision for return of the member 63 to its position of separation from the coil 64 whenever released by the latter. As so organized, successive energizations of the coil 64 operate to shift the switch 61 into open relation with its circuit 60 when a lobe of the cam 62 is disposed to elevate said switch and to subsequently close the switch 61 into completing relation with its circuit 60 when the cam is moved to clear the lobe from engagement with said switch; each impulse serving

to energize the coil 64 hence acting to reverse the position of the switch 61 with respect to its circuit.

The coil 64 is included in and served by a lead 65 branching from the lead 51 through a plug connector 66 cooperable with the plug outlet 25 of the system according to Figures 1 and 2 and continuing through the switch 67 ganged to the switch 61 to connect with the lead 52, whereby to provide for flow of current through the circuit, with consequent energization of the coil 64, whenever the circuit through the lead 65 is completed at the plug 66 and switch 67. A branch 68 including a switch 69 arranged to function as the movable armature of a time delay relay coil 70 connects across the circuit comprised by the lead 65 by means of the switch 69 when the switch 67 is positioned to open the circuit, and vice versa, and the said coil 70 is served by leads 71 and through a switch 72 ganged to move with the switches 61 and 67 in such manner, as by connection of the leads 71 with powering branches of the leads 60 and 65, as to provide for current flow to and through the coil 70 only when the switch 72 is closed to complete the circuit represented by the leads 71. The switches 61, 67 and 72 are ganged to close the switch 72 for completion of a circuit through the leads 71 and to and through the coil 70 when both switches 61 and 67 are open in relation with their respective circuits serving the relay 55 and the coil 64 and, alternatively, to open the switch 72 controlling the circuit to the coil 70 when both switches 61 and 67 are in closing relation with their associated circuits; the switch 69 being operable as the armature of the coil 70 to reestablish the circuit represented by the leads 65 which includes the coil 64 and plug 66 whenever the coil 70 has acted to actuate said switch 69 for completion of a path through the branch 68.

The time delay relay represented by the coil 70 has a delay factor preferably considerable in excess of the normal duration of an unanswered telephone bell ringing cycle, expediently on the order of three minutes, and is reactive when connected as shown and described to normally hold the switch 69 closed to establish a circuit to and through the coil 64 interrupted only at the plug 66, in which disposition of elements, the coil 64 being deenergized, the member 63 is separated from the coil 64 and the ganged switches 61, 67 and 72 are elevated by the cam 62 to establish and maintain current flow through the leads 71 and switch 72 to and for energization of the coil 70, to interrupt the circuit through the lead 60 to the relay 55 at the switch 61, and to interrupt the circuit represented by the leads 65 beyond the associated shunt circuit at the open switch 67. With the plug 66 engaged in the outlet 25 of the primary organization, completion of a circuit through said plug establishes and completes the circuit through the leads 65 effective to energize the coil 64, each signal impulse to the primary organization being operable to correspondingly trigger current flow to and through the coil 64 when the switch 30 controlling the relay is opened and when, preferably, the switch 28 is opened to break the circuit to the lamp 26. Flow of current to the coil 64 in reaction to signal input to the primary organization effective to close switch 23" and power the outlet 25 operates to attract the member 63, angularly displace the cam 62, and consequently reverse the position of the switches 61, 67, and 72 ganged to react as a unit to said cam.

In its normal stand-by disposition represented by Figure 4 and above described, the supplementary circuit typified by the leads 51, 52, and the elements therewith associated reacts, when the plug 66 is engaged with the outlet 25, to a signal impulse through the primary organization effective to transiently power said outlet with automatic shift of the switch elements of the supplementary circuit to the dispositions shown in Figure 5. The signal input to the primary organization acts when the switch 30 is open to power the outlet 25 synchronously with such input and to thereby complete a circuit through

the leads 65, 68, and switch 69 that is effective through the coil 64 to attract the member 63 with consequent angular displacement of the cam 62 sufficient to reverse the positions of the ganged switches 61, 67 and 72 reactive thereto. Such shift of the switches last mentioned results in completion of the circuit through the leads 60 and switch 61 for consequent initial activation of the time delay relay 55, interruption at the switch 72 of the circuit through the leads 71 serving the coil 70 for consequent release of the switch armature 69 to break the circuit through the branch lead 68, and completion at the switch 67 of an alternative operative circuit serving the coil 64 through the leads 65. With the switch 30 open to nullify holding action at the relay 23, the switch 23" is closed to power the outlet 25 only so long as the signal input to the primary organization persists and promptly opens upon cessation of such input to consequently break the circuit serving the coil 64 and inactivate the latter for return of the member 63 to its separation from said coil characterizing the showing of Figure 4, in which return travel the member 63 ratchets relative to the cam 62 without displacing effect thereon. With the circuit components disposed as shown by Figure 5 in reaction to a first signal input impulse and in the absence of further signal input to the primary organization during the time delay interval of the relay 55, the switch 23" remains open to hold inoperative the circuit serving the coil 64, the circuit to the coil 70 is inactivated, and the circuit serving the relay 55 is maintained operative for consequent actuation of the latter to establish the initial circuit to the coil 56 effective therethrough to close the switches 57 and 58 for powering of the outlet 54 and any associated appliance and to complete the branch circuit 59 powering said coil as a holding relay, whereby to establish and complete the supplementary circuit represented by the leads 51 and 52 for continuous, uninterrupted current supply, even subsequent to deactivation of the relay 55, until the so-established circuit is intentionally opened, as by means of a manually-actuable switch 73 appropriately incorporated in the circuit.

Effective to close and operatively complete a supplementary circuit in reaction to initial signal input to the associated primary organization, the arrangements according to Figures 4 and 5 are selectively so responsive to but one signal impulse as distinguished from a closely spaced succession of such impulses, such as the repetitious sounding of a telephone bell, whereby to provide feasible control for the activation of the supplementary circuit from remote stations with inhibition of inadvertent such activation. Positioned as shown by Figure 5 in reaction to the impulse of an initial signal input, as above explained, the circuits and circuit components are effective to close and complete the supplementary circuit through the agency of the time delay relay 55 if undisturbed by further signal input prior to circuit-closing actuation of the latter, whereafter, the supplementary circuit, once established, being maintained operative by means of the holding relay coil 56, subsequent signal input to the primary organization effective therethrough to even momentarily power the outlet 25 acts to again energize the coil 64 for actuation of the member 63 and consequent displacement of the cam 62 resulting in return of the ganged switches 61, 67 and 72 to the dispositions thereof shown in Figure 4. As is manifest, such return of the ganged switches to their normal stand-by positions interrupts the circuit to the time delay relay 55 at the switch 61, opens the circuit serving the coil 64 at the switch 67, and closes the circuit to the coil 70 at the switch 72, whereby to inhibit energization of the coil 64 until the so-activated coil 70 is effective at the end of its time delay period to close, and to hold closed, the switch 69 in completing relation with a circuit serving the coil 64 and conditioning the latter for response to signal input manifest at the outlet 25. Thus, the supplementary cir-

cuit having once been established by the facilities shown and described, subsequent signal input manifest at the outlet 25 is operable to initiate a time delay period during which the system is unresponsive and after which the system is automatically reset for repetition of its operative cycle. However, should a second signal input power the outlet 25 before the activation of the time delay relay 55 initiated by a first signal impulse has operated to complete the supplementary circuit, return of the circuits and components of the system to their stand-by relationships represented by Figure 4 will result after a time delay as above set forth, thereby inhibiting completion of the supplementary circuit in reaction to more than a single signal input and nullifying the operative potential of the system during the time delay characterizing activation of the coil 70.

Obviously, the circuit-closing system typified by Figures 4 and 5 may be organized within the skill of the art for reaction to code groups of closely-spaced, repetitious signals other than the single signal input selected for illustrative purposes, and it is similarly apparent that the system is practical and useful in providing for completion of operating circuits at desired times and from remote stations through selective actuation of conventional and available agencies indirectly but responsively coupled thereto through the facilities herein described.

In yet another adaptation, the primary organization according to Figures 1 and 2 is applicable to the interruption of an auxiliary, separate circuit in reaction to signal input effective to power the outlet 25, as above explained. As typified by Figure 6, an independent circuit 74 serving an appliance 75, or any analogous facility, from a plug connector 76, or the like, may be provided with a switch 77 reactive to and as the movable armature of an electromagnetic coil 78 in circuit with a plug connector 79 adapted for engagement with the outlet 25. The switch 77 being arranged to retain either of its adjusted positions relative to the coil 78 and circuit 74 until positively shifted therefrom and the connector 79 being engaged with the outlet 25 of the primary organization, it is apparent that powering of said outlet in response to signal input to the associated system is effective to energize the coil 78 and thereby open the switch 77 for interruption of the circuit to the appliance 75 until said switch 77 is manually returned to closing relation with its circuit 74. This latter adaptation is particularly useful to abate noises incident to appliance operation when arranged to respond to signal input from a telephone bell.

Since changes, variations, and modifications in the form, construction, and arrangement of the elements shown and described may be had without departing from the spirit of our invention, we wish to be understood as being limited solely by the scope of the appended claims, rather than by any details of the illustrative showing and foregoing description.

We claim as our invention:

1. A relay unit variously applicable to establish an operative electric circuit in automatic reaction to a selected species of diverse extraneous signals capable of initiating electrical response, comprising a principal normally-open, powered circuit, means in and electrically actuable to close said circuit, a normally-open branch circuit from said principal circuit serving said means, separate means in and electrically actuable to close said branch circuit, a second branch circuit from said principal circuit serving said separate means through a rectifier and an electric valve normally inhibitive of current flow, and means triggering said valve for release of current flow therethrough in reaction to input of a predetermined extraneous signal.

2. The organization according to claim 1, wherein a normally-open, shunt circuit adapted to be closed by the means actuable to close the principal powered circuit

coincidentally with closing of said latter circuit connects said means through a manually-actuable switch in parallel across the principal powered circuit, whereby to optionally condition said means to be retained in completing relation with the principal powered circuit subsequent to such actuation thereof.

3. A relay unit variously applicable to establish an operative electric circuit in automatic reaction to a selected species of diverse extraneous signals capable of initiating electrical response, comprising a conventionally-powered principal circuit serving parallel-connected attention-attracting and outlet means through the contacts of a normally-open relay, a branch circuit through the contacts of a second open relay operable when completed to close said first relay and thereby power the elements served by the principal circuit, a second branch circuit through a rectifier and electric valve normally inhibitive of current flow effective upon current flow through the valve to close said second relay, and means triggering said valve for release of current flow therethrough in reaction to input of a predetermined extraneous signal.

4. The organization according to claim 3, wherein a normally-open shunt circuit adapted to be closed by the first relay connects the latter through a manually-actuable switch in parallel across the principal circuit, whereby to optionally condition said first relay to be retained in completing relation with the principal circuit subsequent to actuation thereof induced by closing of the second relay.

5. The organization according to claim 3, wherein the means triggering the electric valve comprises an electrically-responsive signal detector connected through amplifying stages in circuit with said valve.

6. The organization according to claim 3, wherein the means triggering the electric valve comprises an inductor adapted for reaction to magnetic fields connected through amplifying stages in circuit with said valve.

7. The organization according to claim 3, wherein the means triggering the electric valve comprises a microphone connected through amplifying stages in circuit with said valve.

8. The organization according to claim 3, wherein the means triggering the electric valve comprises an inductor adapted for reaction to magnetic fields connected through amplifying stages in circuit with said valve and a jack in said circuit adapted to connect the latter with a microphone in alternative, by-passing relation with the inductor.

9. A relay variously applicable to establish an operative electric circuit in automatic reaction to a selected species of diverse extraneous signals capable of initiating electrical response, comprising a conventionally-powered principal circuit including manually-actuable control switches serving parallel-connected attention-attracting and outlet means through a normally-open switch constituting the movable armature of an electromagnetic relay, a branch circuit from said principal circuit serving the coil of said relay through a second normally-open switch constituting the movable armature of a second electromagnetic relay, a second branch circuit from said principal circuit serving the coil of said second relay through a rectifier and an electric valve normally inhibitive of current flow therethrough, and an electrically-responsive signal detector in circuit with and effective to open a path for current flow through said valve, whereby signal excitation of said detector effects automatic closing of both said relays and consequent completion of the principal circuit to power the associated attention-attracting and outlet means.

10. The organization according to claim 9, wherein a shunt circuit connects the coil of the first relay through a manually-actuable switch in parallel across the principal circuit and a normally-open switch in said shunt circuit is ganged to move with the armature of said relay into closing relation with the shunt circuit when said armature closes the principal circuit, whereby to optionally condi-

tion said relay to be retained in completing relation with the principal circuit subsequent to such actuation thereof.

11. The organization according to claim 9, wherein the signal detector is an inductor adapted for reaction to magnetic fields through amplifying stages connecting it with the valve.

12. The organization according to claim 9, wherein the signal detector is a microphone adapted for reaction to sound through amplifying stages connecting it with the valve.

13. The organization according to claim 9, wherein the signal detector is an inductor adapted for reaction to magnetic fields through amplifying stages connecting it with the valve, and the signal path of the inductor includes a jack selectively coactable with a microphone at the input side of said amplifying stages in alternative, by-passing relation with the inductor.

14. The combination with a normally-open, electric circuit automatically closable in reaction to a selected species of extraneous signals to power an outlet, of an independent, powered, electric circuit, and means for interrupting said independent circuit in automatic reaction to signal-induced powering of said outlet, said means comprising an electromagnetic relay normally completing said independent circuit through its movable contacts and actuable to interrupt the same, and a circuit serving the coil of said relay from said outlet, whereby to apply power manifest at the outlet to energize the relay.

15. The combination with a normally-open, electric circuit automatically closable in reaction to a selected species of extraneous signals to power an outlet, of an independent, normally-open, electric circuit served by an independent power supply, and means for completing said independent circuit in automatic reaction to selective interpretation of repetitious signal input manifest as power at said outlet, said means comprising an electromagnetic relay served in parallel with the normally-open, independent circuit through a time delay relay of short interval by the power supply of and energizable to complete said independent circuit through its contacts, a shunt circuit connecting said time delay relay through a switch in parallel across said independent circuit at the powered side of the interruption therein, means repetitiously and uniformly actuable to successively open and to close said switch, electromagnetic means in circuit with said outlet adapted to effect one-step actuation of said first means in reaction to each signal manifest as power at the outlet, whereby to apply successive such signal impulses to alternately open and close said switch, a second switch in the circuit serving said electromagnetic means ganged to move with said first switch to correspondingly open and close their respective circuits, a shunt in the circuit serving said electromagnetic means by-passing said second switch through a time-delay relay of long interval energizable to complete the shunt, a circuit connecting said latter relay in parallel across said independent circuit at the powered side of the interruption therein, and a third switch in the circuit serving the time-delay relay of long interval ganged to move with said first and second switches in an operative relation with its circuit opposite to that characterizing the associated switches.

16. The organization according to claim 15, wherein a shunt circuit connects said electromagnetic relay in parallel across the power supply of said independent circuit through a switch closable in response to energization of the relay, whereby to establish the latter as a holding relay effective to maintain the independent circuit operative subsequent to energization of the relay through the time delay relay of short interval.

17. The combination with a normally-open, electric circuit automatically closable in reaction to a selected species of extraneous signals to power an outlet synchronously with the signal input thereto, of an independent, normally-open electric circuit, and means for completing said independent circuit in automatic reaction to but a

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single signal input manifest as power at said outlet, said means comprising a relay responsive with a time delay of short interval to powering of said outlet to close, and to hold closed, said independent circuit, means responsive to subsequent powering of said outlet within the short time delay interval to inhibit circuit-closing response of said relay during a time delay of long interval thereby initiated, and other means automatically reactive to completion of the time delay of long interval to restore

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said relay to its initial condition of potential response to power manifest at the outlet.

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