

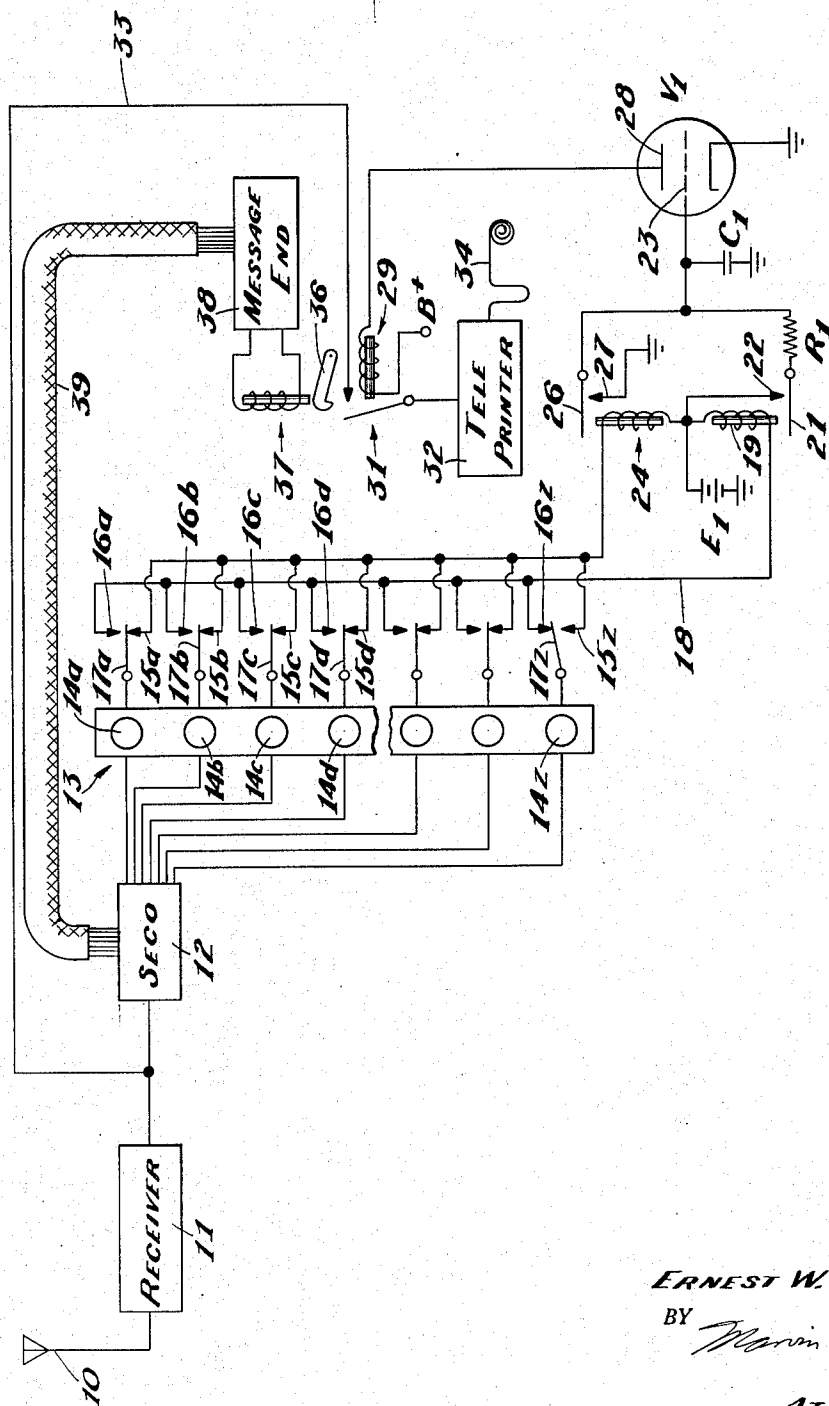
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RECOGNIZER CIRCUIT

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RECOGNIZER CIRCUIT

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This invention relates in general to a recognizer unit for turning on equipment when a predetermined code grouping has been received.

In the transmission of secret messages by radio or wire, it is desirable to start the message recording unit at receiving station in operation only during intervals when a message is being transmitted, rather than allowing it to operate continuously. When no message is being transmitted a meaningless train of characters is sent so as to confuse enemies.

It is an object of this invention, therefore, to provide a recognizer circuit which may be triggered on by transmitting a prearranged code grouping.

Another object of this invention is to provide a recognized circuit which may be used to perform a desired function at a receiving station.

A feature of the invention is found in the provision for a charging circuit which is energized upon the reception of prearranged signals but which is de-energized upon reception of a signal which is not within the prearranged triggering code.

Further objects, features and advantages of this invention will become apparent from the following description and claims when read in view of the drawing, in which;

The figure illustrates the recognizer circuit according to this invention.

With reference to the drawing, an antenna 10 supplies an input to a receiver 11. The receiver 11 might be a superheterodyne receiver adapted to receive a teleprinter message. It is to be realized, of course, that in place of the receiver 11, an input signal may be received from a wire.

A sequential selector 12 receives the output of the receiver 11 and produces a plurality of outputs corresponding to the various characters to be printed. Oftentimes 32 characters comprising the 26 letters of the alphabet, and six other characters such as numbers and punctuation marks are used. The sequential selector 12 is well known to those skilled in the art and may be of the type manufactured by the Teletype Corporation.

Each of the 32 outputs from the sequential selector 12 is connected to a push button switch, designated generally as 13, which comprise a push button 14, a pair of contacts 15 and 16, and a movable contact 17. The contact 17 is controlled by the push button 14. All of the contacts 16 are connected together and to a common conductor 18.

The conductor 18 is connected to one end of

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a relay 19 which has its opposite end connected to a battery E₁ that has its negative side grounded. The relay 19 actuates a switch contact 21 which is engageable with a contact 22 that is connected to the positive side of the battery E₁.

Switch contact 21 is connected to a resistor R₁ and to the grid 23 of tube V₁. A condenser C₁ is connected between the grid 23 and ground.

All of the contacts 15 are connected together and to one side of a relay 24. The opposite side of the relay 24 is connected to the positive side of the battery E₁. A switch contact 26 is controlled by the relay 24 and is engageable with a contact 27 which is connected to ground. The switch contact 26 is connected to the grid 23 of tube V₁.

The plate 28 of tube V₁ is connected through a relay 29 to B plus. The relay 29 controls a switch 31 which connects a teleprinter 32 to a lead 33 that is connected to the receiver 11. The teleprinter 32 may be of a well known type which produces a printed output on the tape 34.

A latching relay 36 is pivotally supported adjacent the movable contact of switch 31 to hold it in the closed position after the relay 29 has been actuated. A relay 37 is connected to a message end circuit 38 and when energized releases the latch 36 so that the switch 31 may open. The message end circuit 38 receives a plurality of inputs from the sequential selector 12 through a lead 39.

In operation, an agreed sequence of letters is chosen so that upon the reception of the particular sequence, the teleprinter will be connected to the receiver 11 through the switch 31. The sequence is set up by push buttons 14. For example, suppose the top push button 14 in the figure corresponds to the letter A. If the desired sequence to start the teleprinter is a series of six A's, then the first push button 14a would be pushed to move the contact 17 from engagement with contact 15 to engagement with contact 16.

As shown in the figure, the only push button which has been pushed is the lower one, designated as 14Z, wherein the movable contact 17Z has been moved to engage contact 16Z. Thus, the only incoming signal which will energize the teleprinter is a series of letters Z. It is to be realized, of course, that the number in the series may be varied by adjustment of the circuitry. When a Z is received, an output pulse is fed from the sequential selector 12 through contact 17Z to the relay 19 which temporarily closes switch 21, thus connecting the condenser C₁ to the positive

terminal of the battery E_1 , so that it may receive a charging pulse. The amount of charge supplied to the condenser C_1 during this short interval when the switch 21 is closed depends on the values of R_1 and C_1 in a well known manner.

The condenser C_1 controls the bias on the grid 23 of tube V_1 and this bias may be adjusted so that upon the reception of six consecutive Z's, the condenser C_1 is charged to a potential high enough so that the current through the tube V_1 will energize the relay 29, thus closing the switch 31.

To take another example, suppose that instead of a sequence of Z's, that it is desired to close the teleprinter circuit when a series of letters all consisting of A, B, and C are received. In this case all of the switches 17 are left engaged with the contacts 15 except the first three corresponding to the letters A, B, and C. The reception of six letters, all of which are A, B, or C, will close the relay 29. However, it is to be noted that if any letter is received in the sequence which does not correspond to the starting code, the relay 24 will be energized, thus closing the contact 26 and discharging the condenser C_1 to ground. This discharge will occur completely during the interval when the contact 26 is engaged with the contact 27 because there is no resistor in series in the discharge path.

Once the desired starting sequence has been received, the latch 36 will hold the switch 31 closed and the teleprinter 32 will print the incoming message. At the termination of the message a stop sequence of pulses may be transmitted and when the desired sequence is received the message end unit 38 will energize the relay 37, thus unlocking the latch 36 to release switch 31. The message end 38 may comprise push buttons 14, and their related circuitries, similar to that shown in the starting unit. The stop sequence should be a different sequence than the start sequence so that the relays 29 and 37 will not be simultaneously energized.

It is to be realized that the number of letters in sequence which actuate the relay 31 may be varied, depending upon the values of R_1 and C_1 . Suppose for example, that a start message consists of three groups of three similar letters such as AAA, BBB and CCC. With a message composed of nine letters the probability of an incoming random message actuating the teleprinter is once during a period of one year at a 100 words per minute rate. It is to be realized, of course, that in communication links where secrecy is desired when no message is being transmitted, a random signal may be sent so as to confuse any listener who may be attempting to break the code used.

It is seen that this invention provides means for actuating a teleprinter upon the transmission of a predetermined sequence.

Although this invention has been described with respect to particular embodiments thereof, it is not to be so limited as changes and modifications may be made therein which are within the full intended scope of the invention, as defined by the appended claims.

I claim:

1. A recognizer circuit for actuating a mechanism upon the reception of a predetermined sequence of signals comprising, a signal producing means, a plurality of switches connected to said signal producing means with each switch corresponding to a particular output signal, a pair of relays connected in series between opposite con-

tacts of said plurality of switches, a first of said relays controlling a first movable contact to move it from an open circuit position to a grounded position, a second of said relays connected to a second movable contact to move it from an open circuit position to a closed position, a voltage source connected to said second movable contact in the closed position, an electron tube, a condenser connected to the grid of said electron tube, a resistor connected between the second movable contact and said grid, the first movable contact connected to said grid, and an actuating means connected in the plate circuit of said electron tube so as to be energized on reception of the correct sequence of signals.

2. A message start signal for a radio receiver comprising, a signal producing means producing a plurality of output signals, a plurality of two-way switches receiving outputs from said signal producing means with each switch corresponding to a particular output signal, the first contacts of said plurality of switches connected together, the second contacts of said plurality of switches connected together, a first relay connected to said first plurality of contacts, a second relay connected to said second plurality of contacts, said first and second relays connected together, a voltage source connected between the midpoint of said first and second relays and ground, second switching means controlled by said first relay, third switching means controlled by said second relay, an electron tube, a condenser connected between the grid of said electron tube and ground, a resistor connected between said third switching means and the grid of said electron tube, said second switching means connected to the grid of said electron tube, and a third relay connected in the plate circuit of said electron tube to actuate a message receive circuit when the correct sequence of characters has been received.

3. A control circuit comprising, a receiving station, a sequential selector receiving the output of said receiving station and producing a plurality of outputs corresponding to various input signals, a plurality of switching means connected respectively to various outputs of said sequential selector, first contacts of each of said plurality of switching means connected together, second contacts of said switching means connected together, a pair of relays connected in series between the first and second plurality of contacts, a voltage source connected between the midpoint of first and second relays and ground, second switching means controlled by the first of said relays and movable from an open circuit position to a grounded position, an electron tube with its grid connected to said second switching means, a third switching means controlled by said second relay and movable from a first open circuit position to a second position in engagement with said voltage source, a resistor connected in series between said third switching means and the control grid of said electron tube, a condenser connected between the control grid of said electron tube and ground, and an electromagnetic means connected in the plate circuit of said electron tube to actuate the controlled mechanism upon reception of the desired sequence of signals.

4. Means for operating a controlled circuit comprising, receiving means receiving an incoming signal, a sequential selector receiving the output of said receiving means and producing a plurality of outputs each corresponding to a particular input signal, a plurality of switching means connected to each of the outputs of said sequen-

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tial selector, first contacts of said plurality of switching means connected together, second plurality contacts of said switching means connected together, a pair of relays connected with one side together, the other side of said first relay connected to said first plurality of contacts of said switching means, the other side of said second relay connected to the second plurality of contacts of said switching means, a second switching means controlled by said first relay to move a switch contact from an open circuit position to a grounded position, a third switching means controlled by said second relay and movable from an open circuit position to a closed circuit position, a voltage source connected to said third switching means in the closed position, a resistor connected to said third switching means, an electron tube with its control grid connected to said resistor and to said second switching means, a condenser connected between ground and the grid of said electron tube, and control means connected to the plate circuit of said electron tube and actuated when a pre-determined voltage is applied to the grid of said electron tube.

5. A control circuit comprising, a receiving means receiving an incoming signal, a sequential selector receiving the output of said receiving means and producing a plurality of outputs corresponding to the inputs, a first plurality of switching means connected to each of said outputs from said sequential selector, said first plurality of switching means movable between a pair of con-

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tacts, the first of said plurality of contacts connected together, the second of said plurality of contacts connected together, a pair of relays connected in series between the first and second plurality of contacts, a voltage source connected between ground and the midpoint of said pair of relays, a second switching means controlled by said first relay and movable from an open circuit position to a closed circuit position in engagement with ground, a third switching means controlled by said second relay and movable from an open circuit position to a closed circuit position engageable with the positive side of said voltage source, an electron tube with its control grid connected to said second switching means, a resistor connected in series between said third switching means and the control grid of said electron tube, a condenser connected between the control grid of said electron tube and ground, and actuating means connected in the plate circuit of said electron tube.

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