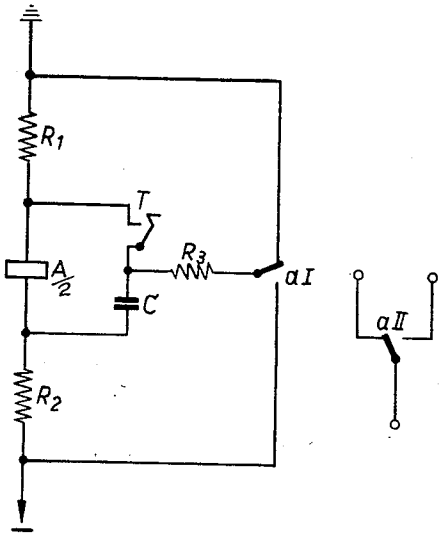
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CIRCUIT ARRANGEMENT FOR OPERATING AND RELEASING A CONTROL RELAY BY THE SAME SWITCHING OPERATION

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CIRCUIT ARRANGEMENT FOR OPERATING AND RELEASING A CONTROL RELAY BY THE SAME SWITCHING OPERATION

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1 Claim. (Cl. 317—151)

The invention relates to a circuit arrangement whereby a control relay is induced to respond by a switching operation and is caused to drop upon its repetition.

Several circuit arrangements, commonly termed timing circuits, have already become known for this purpose. These serve the purpose, for instance in telephone technique, of operating and releasing a device with one and the same switching operation. Arrangements are known for doing this which employ two relays. In order to further reduce this amount of equipment means, circuits have been conceived that use only one relay with several windings. A circuit arrangement is known, for instance, whereby a condenser which is continuously connected with a current source over a high resistance, is discharged by a switching operation over an energizing winding of the relay, and whereby, after its response, this relay is connected over a change-over contact, with a counter winding in such a manner that, upon repetition of the switching operation, the excitation of the hold winding of the relay is compensated for by the discharge current of the condenser that flows over the counter winding.

It is the object of the invention to make such circuits still less expensive. This is so attained, according to the invention, that the relay with but one winding which is continuously arranged in a circuit that normally upholds a condition just below the operating threshold, is induced to respond through the discharge of the condenser, as implemented by the switching operation, and is held in this circuit after discharge of the condenser, and that upon repetition of the switching operation, the relay is caused to drop through the discharge of the condenser which has been charged in opposite sense during the hold condition.

Thus, the arrangement of the invention requires a relay with but one winding, contrary to the known solutions.

The invention will now be described in greater detail with reference to the sample embodiment shown in the attached circuit representation.

The relay A lies with its winding A in a hold circuit

+, *R1*, *A*, *R2*, —

The condenser C is charged over the resistor R2:

+, *aI*, *R3*, *C*, *R2*, —

If the condenser C is connected to the winding of relay A through the key T, it will discharge, and relay A will respond, since the charge of the condenser adds to the current in the hold circuit. The relay thereupon holds independently over the hold circuit even when the condenser is emptied and the key is released.

Because the contact *a*I is operated during actuation of relay A, condenser C is charged in opposite sense over the following path:

+, *R1*, *A*, *C*, *R3*, *aI*, —

If the same switching operation is now carried out by the key T, the current in the winding of relay A is then reduced and this relay is caused to drop. It remains dropped even after the condenser has been fully discharged, whereby coincidentally the current in the winding climbs to its original value. If the key is released, the condenser is recharged, as has been described at the outset, and the process is repeated anew.

By means of a contact *a*II, any switching procedures may in this way be implemented, for instance, transfer from one reproducing magnet of a magnetic tape recorder to another such magnet.

What is claimed is:

A switching circuit comprising a source of potential, a single winding relay, a first resistor, a second resistor, means for connecting the winding of said relay in series with said first and second resistors and said source of potential, the ends of said relay winding being respectively connected directly to said resistors, a condenser, a third resistor, one terminal of said condenser being connected to the junction point of said relay winding and said second resistor and the other terminal being connected to one end of said third resistor, the other end of said third resistor being connected through a break contact of said relay to the junction point of said first resistor and said source of potential, the same end of said third resistor being connected through a make contact of said relay to the junction point of said second resistor and said source of potential, and a switch connected between the junction point of said condenser and said third resistor and the junction point of said relay winding and said first resistor.

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