This invention relates to a remote control switch for controlling distant electric transmitting devices, especially adapted for closing the circuit between a radio receiving set and its A-battery, but of use in any distant control circuit containing electric transmitting devices. A desirable characteristic of the switch is its rapidity of action by which a long closure of the operating switch will do no damage to the controlling or controlled apparatus, which is accomplished by an instantaneous opening or closing of the circuit of the transmitting devices. A further characteristic is that the electro-magnetic control is established by the same source of electro-motive force that is used to control the transmitting devices. The switch may be adjusted to open or close the remote control circuits, as desired.

In carrying out my invention I provide an electro-magnetic switch provided with a retractile armature carrying a knife-edged latch and mount a spring-controlled trigger on a plane transverse to the knife edge with a front and back stop adapted for inclusion in the control circuit alternatively, accordingly as the switch is to control an opening or closing movement of the transmitting device circuit. The apparatus outlined is extremely sensitive in providing a reliable hair trigger release which instantaneously opens the circuit and puts beyond possibility damage to the transmitting device or coils by a prolonged action of the circuit controller. My invention, therefore, consists of a remote controlled device governing circuits containing electric transmitting devices and adapted for opening or closing the same. The invention is primarily intended for use in connection with radio receiving sets rectified or amplified by a vacuum tube to simplify their control from a distant point or points and therefore conserve toward conserving the energy of the batteries.

The invention will be more fully understood in connection with the accompanying drawings and the novel features will be specifically indicated in the appended claim.

In the drawings:
Figure 1 illustrates the system as applied to a radio receiving set as adapted for instantaneous opening by remote control of the circuit of the battery controlling the vacuum tube or tubes.

Figure 2 illustrates the system as modified by a mere shift of one circuit lead to permit closing control of the transmitting circuits.

Figure 3 is an elevation on a plane at right angles to Figures 1 and 2 of the electro-magnet.

Figure 4 is a sectional view in part elevation on the plane 4—4 of Figure 2.

Referring now in detail to the drawings, 1 represents a radio receiving set, the terminals of which are indicated at A, A, and in which in normal operation an A-battery of a few volts with a rheostat controls a rectifying vacuum tube containing a heating filament. 2 represents one control dial of the receiving set, any number of which may be employed with corresponding tubes for amplifying purposes. A set of wires 3, 4 lead to a distant point where remote control is desired, which may be any desired distance and includes a circuit closer 5. An A-battery is located adjacent the receiving set or may be at a distance from the same if more convenient, as in a closet shelf where it will be out of the way. The circuit of the A-battery may be of any proper voltage to heat the vacuum tube filament for rectification of the high frequency radio impulses and amplification by the usual higher voltage B-battery. In Figure 1 is shown the electro-magnetic switch comprising an electro-magnet 6 mounted upon a base and cooperating with a retractile armature 7 mounted on an elastic blade spring 8 carried by an angle bracket 9 secured to the base. The blade spring 8 has a free end spaced from the armature and forms a very thin line contact with a latch strip 10 carried by a leaf spring 11 anchored in an angle bracket 12 secured to the base. The leaf spring 11 is bent away from the latch piece 10 so as to form an elastic abutment to engage a front contact 13 with sufficient yield to permit ready latching when the operator raises the latch to engage the knife edge 8 of the armature. A back stop 14 is mounted in the plane of the latch which is engaged in
its release position. A binding post 16 is provided for the one terminal of the magnet and another binding post 16a is in electrical connection with the back stop 14 to which the positive lead 17 of the controlled circuit may be transferred to adapt the device for closing relation to the controlled circuit. Two other binding posts 18, 19 are provided, the former leading to one terminal of the battery and connecting with the bracket 12, and the post 19 forming one terminal of the electro-magnet. The other pole of the battery leads to the negative side of the A-battery by wire 20. Leads 3, 4 lead any desired distance to the circuit controller 5. As thus described, the control switch is set by lifting the latch member 10 to engage the knife edge at the top of the spring 8 which sets the electro-magnetic switch for open circuiting the receiver and when the switch 5 is closed no matter how long it may be held closed the armature 7 is instantly drawn over the knife-edged spring 8 and latch is shifted from front stop 13 to back stop 14 thus simultaneously breaking the translating circuit and the circuit through the electro-magnets of the electro-magnetic switch. The normal circuit is from the negative side of the A-battery Fig. 1 over the lead 20, battery post 18, armature 11, back-stop 13, post 16, lead 17 to the positive side of the radio. This circuit does not include the coils of the magnet but by closing the remote control switch 5 the battery is placed in the circuit by way of front stop 13 to one side of the coils and by way of binding post 19 and distant lead 4 to the switch, thus effecting opening of the circuit.

In Figure 2 the latch is shown in its off position and the positive lead 17 from the receiving set goes to the binding post 16a and the receiving set is put in closed circuit relation to the A-battery; if the latch is set, the circuit will be opened. When the switch 5a is operated the magnet will release the latch and close the battery to the radio set. I have described the invention as primarily intended for use in connection with radio receiving sets, but it is of efficient application to other types of circuits, where distant control is needed, such as burglar alarms or other types of electric translating devices where remote control is desired.

The latching mechanism described is an exceedingly sensitive one as the movement of the armature a microscopic distance against a spring pressure at right angles to the movement gives a hair trigger effect of remarkable sensitiveness. Of special value in remote control devices is the potential drop on long circuit wires, reducing the amperage to an extent that very weak magnetization exists in the cores of the magnetic releasing device. With my device, however, this disability is offset by the sensitiveness of the mechanism. In addition to the sensitive fea-

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

A switch comprising a base, an electro-magnet mounted upon said base, a retractile armature for the electro-magnet, an angle bracket secured to said base adjacent to the electro-magnet, a blade spring having an end secured to the angle bracket and being fixed to the armature, said blade spring having its opposite end free and disposed in spaced relation with respect to the armature, a second angle bracket secured to the base at an inclination, a leaf spring secured to the second angle bracket, a latch strip secured to the leaf spring intermediate its ends and extending beyond the free end of the leaf spring to be received by the free end of the blade spring for contacting engagement therewith whereby the latch strip is held under tension by said blade spring, said leaf spring having its free end spaced from the latch strip, a contact arranged in the path of the free end of the leaf spring, and a contact arranged in the path of the latch strip.

In testimony whereof I affix my signature:

FRANKLIN J. SORELL.