

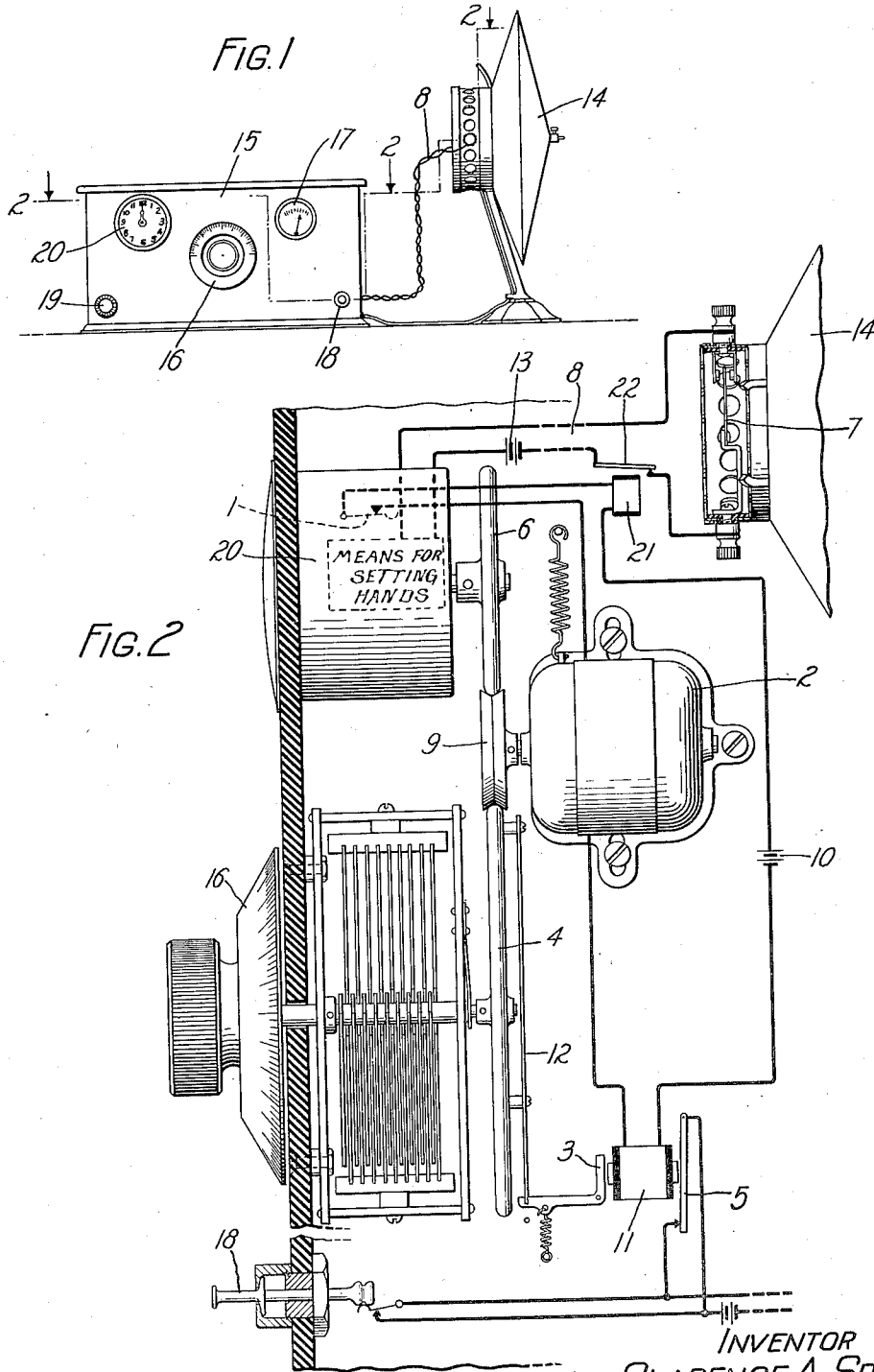
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RADIO CLOCK REGULATION

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RADIO CLOCK REGULATION

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This invention relates to systems for controlling a clock, and more particularly to a system in which a signal wave, transmitted by radio at a definite time, is used to control the operation of a clock.

Means for controlling the operation of a clock by signals transmitted over wires have been known for some time and are in common use.

The present invention has for its object the control of a clock by time signals transmitted from a radio station.

The invention provides means for automatically completing the power supply source of a radio receiver at a predetermined time by means of the clock to be regulated, means for winding the clock, means for tuning the receiver to a given wave length at the proper time, whereby the time signals may be received to set the clock, and means for opening the power circuits after the signals have been received.

In a specific embodiment of this invention there is provided a system comprising a radio receiver, a loud speaker, and a clock, the latter being provided with a control switch which completes the starting circuit of a motor adapted to wind the clock, adjust the tuning of the receiver to a selected wave length and complete the energizing circuit of the receiver, and a resonant circuit closer, associated with the loud speaker, operates to control the setting of the clock upon receipt of a characteristic signal from a broadcasting station.

Referring to the drawing, Fig. 1 illustrates a radio receiver 15, adapted to operate a loud speaker 14. The receiver is provided with clock 20 as well as with the usual tuning dial 16 and other desired controls, meters, etc. such as a voltmeter 17, switch 18, and rheostat 19.

Fig. 2 is a plan view, partly in section, taken along the line 2—2 of Fig. 1.

As shown in Fig. 2 the clock 20 has associated with it a switch 1, adapted, at a predetermined hour of the day, to complete a circuit including a battery 10 which supplies current to operate a motor 2. The clock 20 may be of standard type such as

those commonly regulated over telegraph lines or of other suitable type equipped with a time controlled switch and circuit controlled means for setting the hands of the clock. The motor shaft or motor 2 carries a pinion 9 which frictionally engages a driving wheel 6 to wind the clock. The pinion 9 also frictionally engages a second drive wheel 4 to rotate the tuning dial of the radio receiver.

In the circuit of the battery 10 there is also a relay 11 having two armatures 3 and 5. When the circuit is closed armature 3 is attracted to its core.

The armature is one leg of a pivoted latch, which when attracted is brought into contact with an annular member 12 attached to the second drive wheel 4.

The annular member 12 has in its periphery a slot adapted to engage the latch, when the tuning dial shall have been rotated to the position to tune the receiver to the desired broadcasting station. At the same time relay 11 attracts its other armature 5 to close the circuits of the receiving set.

In the circuit with battery 10 is a relay 21, adapted to control a switch 22 in circuit with a battery 13. The above described operations are all under the control of the time controlled switch 1 which can be set to operate at any selected moment and to remain closed as long as desired.

For the purpose of illustrating the operation of this invention, we will assume that the switch has closed at, say, 2 minutes before 12 o'clock. The motor 2 winds the clock and adjusts the tuning dial of the radio receiver, the relay 11 operates to determine the setting of the tuning dial for the desired broadcasting station and completes the power circuit of the receiving set. Relay 21 closes the switch 22 to complete the circuit of the signal tone selector associated with the loud speaker.

At a predetermined hour, say 12 o'clock, the selected broadcasting station transmits a characteristic tone, say 250 cycles per second. A resonant circuit closer 7, tuned to the tone frequency, is associated with the loud speaker 14. The tone selector 7 may be within a casing attachable to the speaker 14, as illustrated

herein. Operation of the selector 7 closes the circuit 8, comprising the battery 13, to energize an actuating means for setting the hands of the clock to the correct time. The sound operated circuit closer may be of any suitable type, that here shown being but one of many suitable forms. It may consist of a plurality of reeds of different natural periods, whereby it will respond only to a chord or other definite combination of tones. The tone or tones employed may be high pitched, if desired, to permit the use of a circuit closer of very small size.

At, for example, 2 minutes after 12, the switch 1 is opened, the motor stops, the relay 11 releases its armature 5 to open the power supply circuit for the radio receiver, and the armature 3 releases, so that the radio receiver is ready for use in the regular manner. Relay 21 is deenergized and switch 22 is released, so that any tone of 250 cycles which occurs in the entertainment broadcast, does not actuate the circuit closer 7 to cause false operation of the clock setting mechanism. The clock may of course be placed in any desired position but is preferably built into the set as an accessory.

Friction wheel 4 is permanently fixed to the shaft of the tuning dial. Pinion 9 presses much more strongly against friction wheel 6 than against friction wheel 4, and the motion of the friction wheel 6 may be mechanically highly damped in both directions by a brake. Thus, when adjusting the dial by hand, slippage occurs between pinion 9 and friction wheel 4, and the wheel 6 remains stationary.

This invention is obviously capable of various applications and modifications other than the specific form shown, which will be apparent to one skilled in the art. For example, a simple modification would be the provision of auxiliary driving wheels for other tuning elements to adapt the system for use with a receiver controlled by more than a single dial. All of the driving wheels could be driven by the same motor and controlled by the same time controlled circuit.

What is claimed is:

1. In a radio receiving system, a clock, a circuit controlled thereby including a motor, means actuated by said motor to tune said radio receiving system to a predetermined wave length and to wind said clock, and means responsive to a received wave to set the hands of said clock.

2. In a radio receiving system, a clock, a time controlled switch, a motor in circuit therewith, means actuated by said motor to tune said receiving system to a predetermined wave length, means operated by said motor to wind said clock, and means responsive to a received wave to set the hands of said clock.

3. In combination, a radio signal receiver, a clock, means controlled by said clock for

tuning said receiver to receive from a particular transmitting station, and acoustic means associated with the sound producer of said receiver to control the setting of said clock.

4. In combination, a radio receiving system, a tuning mechanism therefor, a clock, a switch controlled by said clock and operated at a predetermined time to complete the circuit of a motor for winding said clock and adjusting the tuning of said receiver, a relay in said circuit, a latch operated by said relay to hold said tuning dial at a selected position, a switch operated by said relay for closing the power circuit of said receiver, a resonant circuit closer adapted to be actuated by signals from said receiver, and means controlled by said circuit closer for setting the hands of said clock.

5. In combination, a radio broadcasting station for transmitting a time signal, a radio receiving station for receiving said signal, tuning means for tuning said receiving station to the wave length of said broadcasting station, a clock and a time controlled switch at said receiving station, and means operable in response to said time controlled switch for operating said tuning means and causing said time signal to set the hands of said clock.

In witness whereof, I hereunto subscribe my name this 24th day of January, 1928.

CLARENCE A. SPRAGUE.