

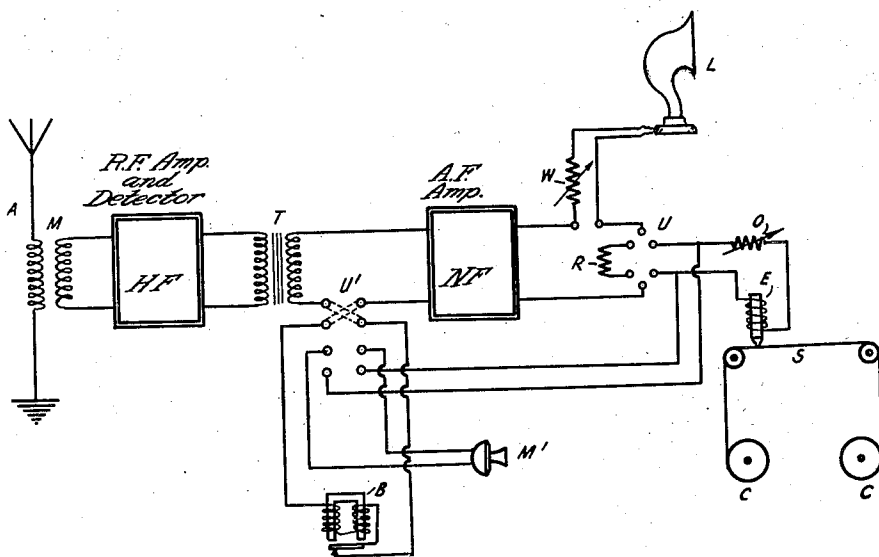
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COMBINED RECORDER AND REPRODUCER

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COMBINED RECORDER AND REPRODUCER

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8 Claims. (Cl. 179—100.11)

The present invention relates to receivers, and more particularly to combined recorders and reproducers.

It is known from Poulsen that articulate speech may be recorded upon a steel wire by magnetic action thereon, and that the wire may be used for future reproduction of such sounds or speech. Now, the present invention utilizes what is known as Poulsen's telegraphone in order to create a simple device which, in a way, constitutes a combination of a radio receiver set and a talking machine.

The method which forms the main object of this invention consists in recording a radio broadcast selection while being reproduced by the usual receiver set, in order that such portions thereof as are particularly pleasing may be rendered again after the transmission has ceased.

For recording, there is used in known manner the Poulsen telegraphone steel wire, the broadcast receiving set employed for the said method being such that recording of the sound upon the steel band, or wire, is effected in the last stage of the audio amplifier; and, if necessary, by the use of a transformer. The magnet insuring tonal recording, if desired, may be disposed in series, or in parallel, to the loud speaker so that independent regulation of the volume or current intensity in both apparatus is made feasible.

Furthermore, a change-over switch may be provided in the audio amplifier adapted to effect disconnection and connection of the recorder means without the volume of reproduction being incidentally affected in the loud speaker. With this end in view the recorder electromagnet is not simply disconnected or short-circuited, but is replaced by a resistance.

The steel wire in well known manner can be wound upon rolls, a counting device or datum marks being preferably provided on the steel wire (say, by superficial copper-coating of the wire, or the like), in order that the location of certain portions on the steel wire may be facilitated. To reproduce the steel-wire record, recourse is had most suitably to the audio amplifier of the receiver set. For this purpose a change-over switch is provided in the grid circuit of the first audio tube adapted to establish connection with the electromagnet coils of the steel wire recorder. By throwing over the said switch, the amplifier can be changed over in a very simple manner from broadcast reception to tonal reproduction of the steel-wire record.

Another important object consists in adding a microphone to the broadcast receiver set, where-

by it may be employed also commercially as a dictaphone.

In order that the steel wire after having been impressed with a record may be utilized again for a new record when the tonal record borne thereby is no longer of interest and use, a buzzer, or the like, of supersonic frequency may be fitted to the apparatus adapted to act upon the grid circuit of the first audio stage. By changing connections of the outfit to operation on buzzer, the old record can be extinguished or wiped out upon the steel wire, without the undesirable replacement of the steel wire being required. Another way of wiping out the old record consists in the use of direct current, which may be derived from the plate potential source with the interposition of a suitable resistance.

The novel features which we believe to be characteristic of our invention are set forth in particularity in the appended claims, the invention itself, however, as to both its organization and method of operation will best be understood by reference to the following description taken in connection with the drawing in which we have indicated one circuit arrangement whereby our invention may be carried into effect.

The invention is diagrammatically illustrated in the drawing, wherein A denotes the grounded antenna coupled, as at M, to the radio amplifier and detector, the latter being coupled by an audio transformer T to the audio amplifier. The secondary coil of transformer T is connected to the input circuit of the first tube of the audio amplifier NF, the output circuit of which contains the loud speaker with regulable series resistance W, as well as the change-over switch U. The switch U serves to operate the Poulsen recorder whose electromagnet is denoted by E while the steel-wire is denoted by S, or to connect in the circuit the resistance R instead. The resistor O is provided, like the regulable resistance W, to provide independent adjustment of the currents in the recorder circuit.

C, C' denote the rolls adapted to wind the steel wire thereon. In the input circuit of the audio amplifier NF is also provided a multi-pole change-over switch U' adapted to supply current to the amplifier either from the audion circuit, the steel-wire recorder S, the buzzer B, or else of a dictaphone microphone M.

While we have indicated and described one arrangement for carrying our invention into effect, it will be apparent to one skilled in the art that our invention is by no means limited to the particular organization shown and described but that

many modifications may be made without departing from the scope of our invention as set forth in the appended claims.

What we claim is:

- 5 1. In combination, a radio receiver including an audio amplifier and a loud speaker, means for recording a desired portion of the audio output, switching means for selectively connecting the recording means to the amplifier, and a resistance
10 having a value equal to that of the recording means associated with the switching means adapted to be connected in circuit with the loud speaker, whereby no volume fluctuations in the loud speaker are occasioned when the recorder is rendered operative or inoperative.
- 15 2. In combination with a radio receiver, an audio amplifier, a recording device of the electromagnetic type, means for selectively connecting the latter to the output of the audio amplifier, a reproducer, means for connecting the latter to the amplifier output, a microphone independent of the reproducer, and means for connecting at will either the microphone or recording device to the audio amplifier input.
- 20 3. In combination, a radio receiver, an audio amplifier, a reproducer, a recording device, means for connecting the reproducer or recording device to the amplifier output, a microphone independent of the reproducer, and a multiple, change-over switch means for connecting either the receiver, microphone or recording device to the amplifier input.
- 25 4. In combination, a radio receiver, an audio amplifier, a reproducer, a recording device, means for connecting the reproducer or recording device to the amplifier output, a microphone independent of the reproducer, means for connecting either the receiver, microphone or recording device to the amplifier input and a matching impedance
30 arranged for connection to the reproducer when only the latter is connected to the amplifier output.

5. In combination, a radio receiver, an audio amplifier, a reproducer, a recording device, means for connecting the reproducer or recording device to the amplifier output, a microphone independent of the reproducer, and means for connecting either the receiver, microphone or recording device to the amplifier input, the recording device consisting of a combined telegraphophone recorder and reproducer.

6. In combination, a radio receiver, an audio amplifier, a reproducer, a recording electrical pick-up device, means for connecting the reproducer alone or the reproducer and recording device, to the amplifier output, a microphone independent of the reproducer, multi-pole, change-over switch means for connecting either the receiver, microphone or recording device to the amplifier input and means for controlling the flow of currents through said reproducer.

7. In a combined radio receiver and recording arrangement, a radio broadcast receiver of the type including a radio frequency amplifier, a detector and an audio frequency amplifier, a loud speaker connected to the output of the audio amplifier, a recorder of the electric pick-up type, means for selectively connecting the recorder to said audio amplifier output whereby amplified detected radio broadcast signals may be recorded when desired, a microphone independent of said speaker and recorder, and means for selectively impressing at will detected broadcast signal energy, microphone electric impulses, or electric impulses from said recorder upon the input of said audio amplifier.

8. A device of the class described consisting of means for receiving radio broadcast sounds, an audio amplifier connected to said radio receiving means, a microphone also connected to said amplifier, and a recording device and a loudspeaker connected to the output of the amplifier.

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