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RECEIVING APPARATUS EQUIPPED WITH SEVERAL LOUDSPEAKERS

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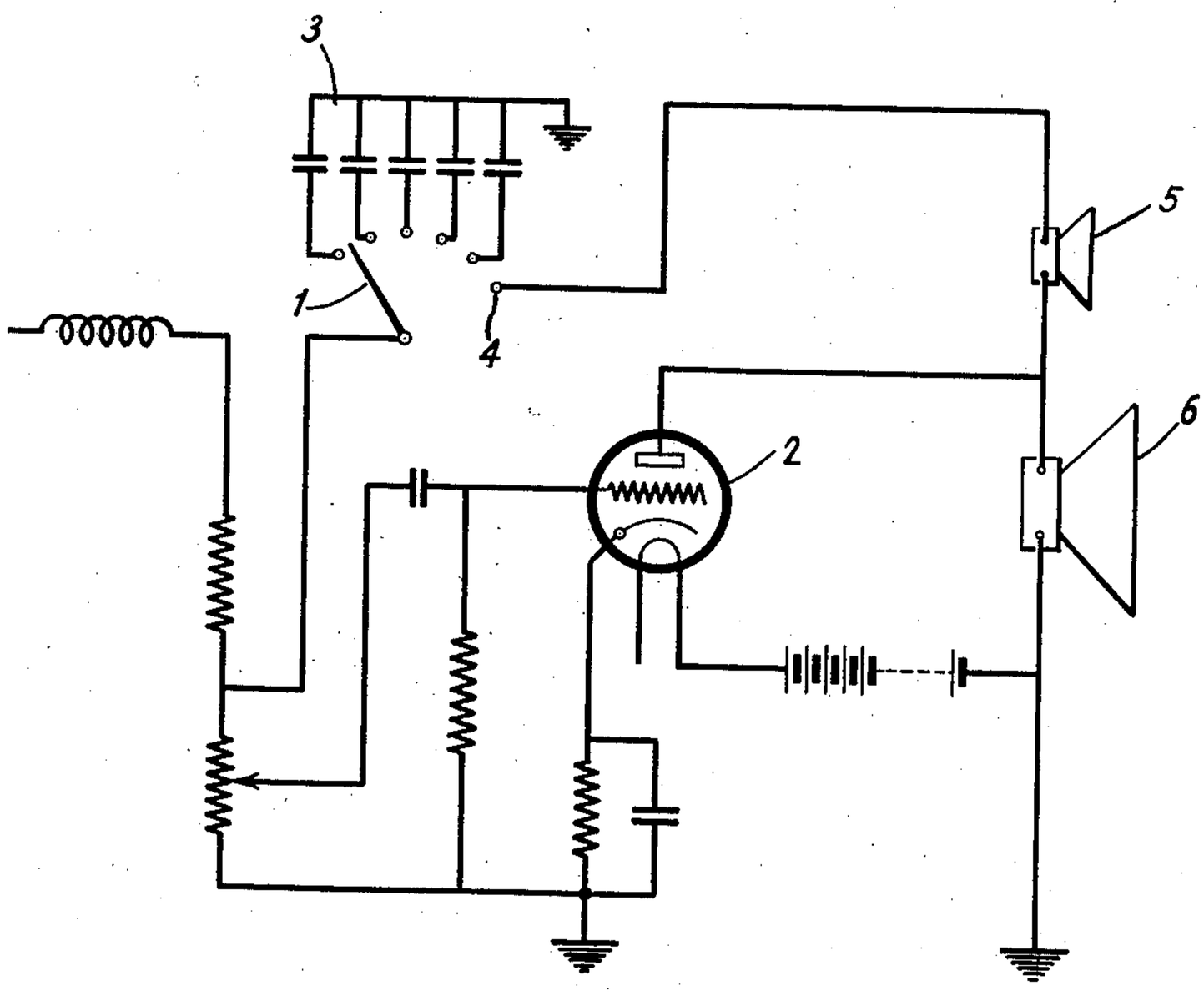

INVENTOR
WILHELM MENNERICH
BY H. B. Brooke
ATTORNEY

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RECEIVING APPARATUS EQUIPPED WITH SEVERAL LOUDSPEAKERS

Wilhelm Mennerich, Berlin, Germany, assignor to Telefunken Gesellschaft für Drahtlose Telegraphie m. b. H., Berlin, Germany, a corporation of Germany

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4 Claims. (Cl. 179—1)

The invention has as its object an apparatus, in particular a radio apparatus, equipped with a supplementary high-tone loud speaker and a so-called deep-tone loud speaker. The high-tone loud speaker may in this case be developed as a cone loud speaker or as a freely radiating membrane loud speaker with relatively small membrane. The deep-tone loud speaker is either built according to the usual loud speakers or as special loud speaker for deep tones.

It is the practice of the prior art to provide a tone blender wherewith certain frequency ranges may be influenced, in particular where the higher frequency ranges are neglected.

The action of the sound blender or mixer can be increased in accordance with the invention in the manner that the high-tone loud speaker can be cut out. This is of particular importance in apparatus where the tone blender is coordinated to a tube disposed ahead of the end tube. The reason for this importance lies in the fact that even with use of the sound mixer higher frequencies, produced in the end stage by non-linear distortions due to over-modulation, are favored in the reproduction through the high-tone loud speaker. The resulting sound image is unfavorably influenced thereby. The deep-tone loud speaker does practically no longer respond to these interference frequencies and with the cutting out of the high-tone loud speaker according to the invention a considerable improvement in tonal quality is accomplished.

The switching out of the high-tone loud speaker is suitably effected with the same operating button actuating the sound blender. A practical embodiment of such an arrangement is illustrated in the drawing.

The circuit diagram shows basic elements only. The electric separating filters and sound intensity regulators required for certain cases for the loud speakers are not shown. Switch 1 for the sound mixer 3 disposed in the grid circuit of tube 2 contains a free contact 4 leading to high-tone loud speaker 5. Parallel to this latter is connected deep-tone loud speaker 6. As may be seen from the circuit diagram high-tone loud speaker 5 is connected when the tone mixer is disconnected. As soon as the parallel condensers, controlling the high frequencies, of the tone mixer are cut in, the circuit of the high-tone loud speaker is interrupted and solely the so-called deep-tone loud speaker 6 remains in action which is dimensioned in the manner that it not only transmits the lower but also the high frequencies. Its action corresponds to that of the usual loud speakers for radio apparatus. Higher harmonics occurring by over-modulation of end stage are not favored in the radiation.

What I claim is:

1. A receiving circuit provided with a last stage amplifier, a pair of loud speakers energized by the amplifier, one of said speakers being permanently connected in circuit, the other being adapted to be switched in or out of circuit, a tone control circuit preceding the amplifier, and means for adjusting the tone control, said adjusting means serving to alternatively include in circuit either the tone control or the said other loudspeaker.

2. A receiving circuit provided with a last stage amplifier, a pair of loud speakers in the output circuit of said amplifier, one radiating the lower audio frequencies more efficiently and permanently included in circuit and the other radiating the high audio frequencies more efficiently and capable of being switched in or out of circuit, a tone control circuit preceding the amplifier, and means for adjusting the tone control, said adjusting means serving to alternatively include in circuit either the tone control or the high frequency loud speaker.

3. A receiving circuit comprising an amplifier, input and output circuits therefor, a sound reproducer included in the output circuit, a tone control circuit included in the input circuit, said tone control including a plurality of condensers and a movable arm capable of connecting in circuit any one of said condensers, a contact in cooperative relation with said movable arm, and a second sound reproducer connected between said contact and the amplifier output circuit, whereby either the tone control or the second reproducer may be operated in the alternative.

4. Means for effecting a faithful reproduction of received signals comprising an audio frequency amplifier, input and output circuits therefor, a loudspeaker responsive to a wide range of audio frequencies included in said output circuit, a second loudspeaker responsive to the higher audio frequencies, and common control means which in one position effects operation of the second loudspeaker and disconnects the tone control circuit and which in other positions connects the tone control circuit in the amplifier input circuit and disconnects the second loudspeaker.

WILHELM MENNERICH.