

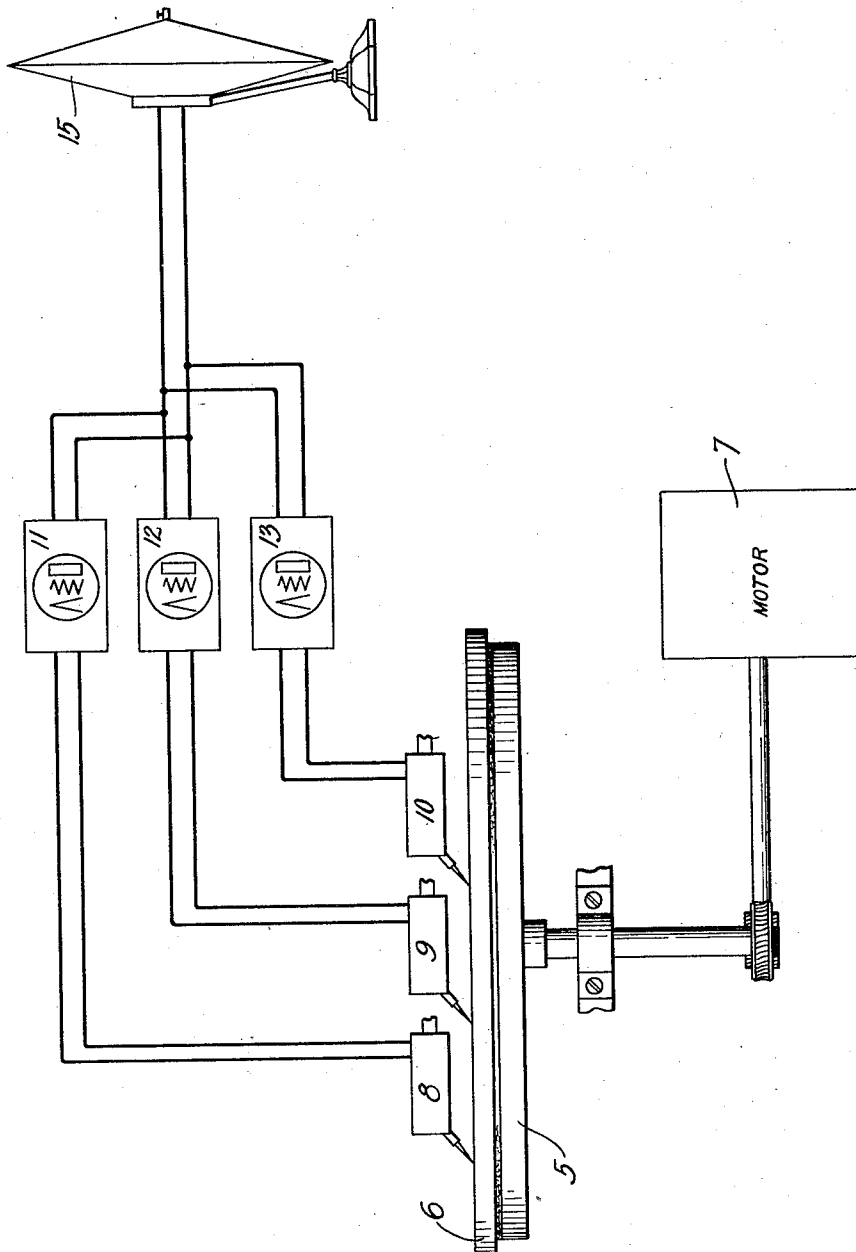
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H. D. ARNOLD

1,859,423

SOUND RECORDING

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SOUND RECORDING

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This invention relates to sound reproduction and particularly to means for introducing into the sound reproduced from a record desirable characteristics which may not be present in the original record of a selection.

In certain types of music it is desirable to have certain echo or reverberation effects which may be produced by reflecting surfaces in the recording room. The amount of reflection to be provided in any particular case, however, is hard to establish and much of the recording is done in rooms in which the echo or reverberation effects are purposely suppressed by damping.

It is the object of this invention to reproduce a record made in a so-called dead room in such a manner that the necessary echo or reverberation effects will be heard by the listener.

In accordance with the general features of this invention the desired tonal effects are produced by means of a plurality of pick-up devices so located with respect to each other and with respect to the record surface to secure proper time intervals of the successive cooperation of each pick-up device with the same portion of the record surface, each pick-up device being associated with an attenuator or amplifier to secure the proper relative loudness.

In the drawing which illustrates schematically the reproducing arrangement, 5 is a phonograph turntable driven by a motor 6 and carrying a record 7 upon which is engraved the selection to be reproduced. Co-operating with the record 7 are a plurality of reproducers 8, 9 and 10 of a well-known form such as disclosed, for example, in the H. C. Harrison Patent No. 1,628,666 issued May 17, 1927. The reproducers 8, 9 and 10 are connected respectively with adjustable amplifiers or attenuators 11, 12 and 13 the outputs of which are fed to a sound amplifier 15 or the output of the amplifiers may be fed to a recording apparatus for produc-

ing a record surface having the desired effects.

By so locating the pick-up devices 8, 9 and 10 with respect to each other on the record that they pick up the same waves at closely succeeding intervals and properly controlling the volume of the output of each pick-up device by means of its associated amplifier or attenuator the same effects may be produced as by a single reproducer picking up from a record from a selection played in a room with echo and reverberation effects.

The amplifiers or attenuators 11, 12 and 13 are adjustable and may be associated with a single sound amplifying device or with a plurality of these devices in parallel as is common in present loud speaker installations.

While the invention has been illustrated and described in connection with one form of sound reproduction it is obvious that the scheme is equally applicable to any of the forms of recording and reproduction known and practiced in the art.

What is claimed is:

1. The method of producing echo or reverberation effects in the reproduction of a record made from a selection produced in a dead room which consists in reproducing in close succession the engravings of the record and controlling the loudness of each successive reproduction.

2. The combination with a sound record made from a selection produced in a dead room of a plurality of pick-up devices co-operating with said record in predetermined spaced relation, adjustable controlling apparatus associated with each of said pick-up devices and sound amplifying means associated with said controlling apparatus.

3. The method of making a record having the attributes of one made in a live room from a record made in a dead room which consists in reproducing the latter record a plurality of times in close succession, con-

trolling the loudness of each successive reproduction, combining the reproductions and making therefrom a second record.

4. The combination with a sound record made from a selection produced in a dead room of a plurality of pick-up devices cooperating with the record in predetermined spaced relation, adjustable controlling apparatus associated with each of the pick-up devices, sound amplifying means associated with the controlling apparatus and means associated with the amplifying means for making a single record of the combined output of the pick-up devices.

15 In witness whereof, I hereunto subscribe my name this 6th day of May, 1929.

HAROLD D. ARNOLD.

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