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1,953,475

FREQUENCY CONTROL FOR AMPLIFIERS

Filed July 30, 1932

FIG. 1.

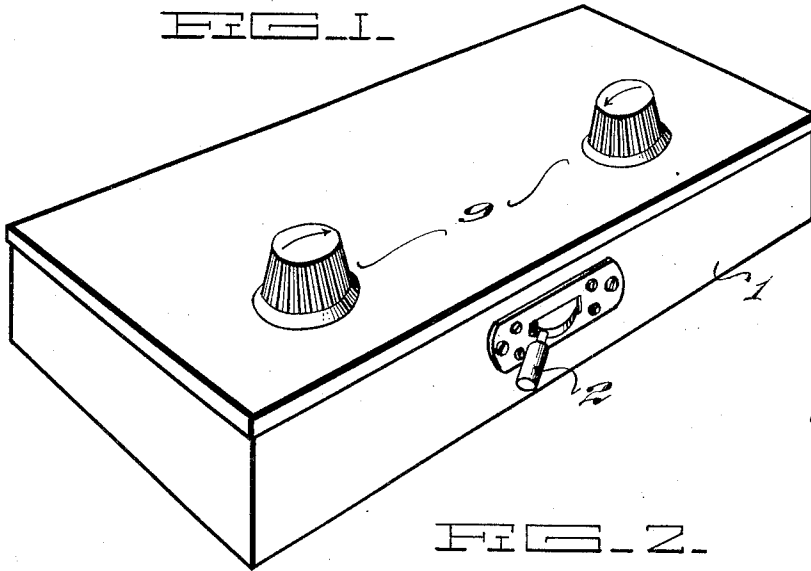


FIG. 2.

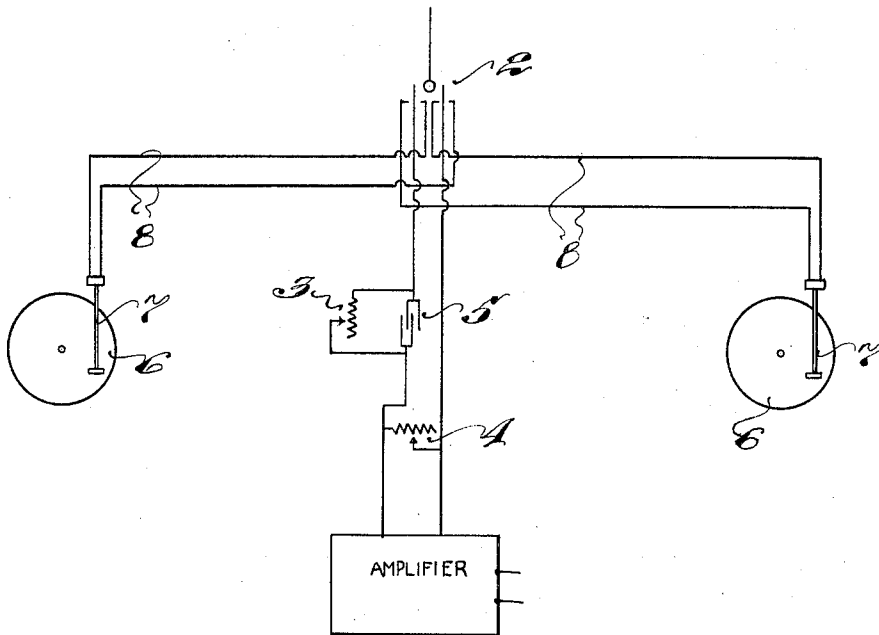
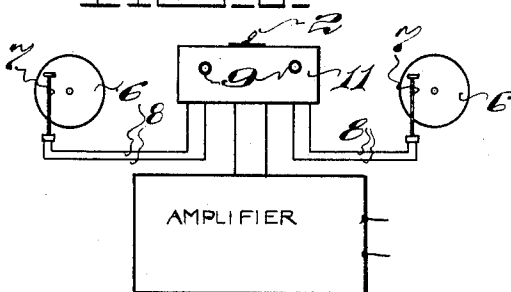


FIG. 3.



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FREQUENCY CONTROL FOR AMPLIFIERS

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Application July 30, 1932, Serial No. 626,521

1 Claim. (Cl. 179—100.4)

This invention relates to voice amplification in reproduction and it has particular reference to an instrument to eliminate "basic" disturbances in recording and the principal object of the invention resides in such an instrument calculated to generally improve the performance of a unitary equipment comprised of a phonograph and a signalling receiving system for translating into sound or image either signals locally reproduced from a sound record, or signals such as high frequency signals received from a distant station.

Another object of the invention, as a continuation of the foregoing principal object is to provide a means to match the impedance of an amplifier with the impedance of the reproduced voice, thereby reproducing the voice in greater clarity, audibility and volume, and particularly when accompanied by music or sound effects.

Still another and important object of the invention resides in improving to an obvious degree reproduction of sound from a sound record wherein certain defects are prominent, when heavily and undesirably recorded.

The invention further comprehends among its objects the provision of an apparatus by which effective sound control may be obtained from a point in the auditorium in which moving pictures are being shown, which differs from conventional equipment in that the latter has no control other than through the medium of the reproducer accessible to the operator of the projector. In the latter case it is difficult to the point of being almost impossible to obtain uniformly desirable voice and other synchronized sound effects, while the present invention affords means by which these sound effects may be controlled in the auditorium proper.

This control eliminates frequencies audible in any reproduction from 16 cycles up to 8000. Frequency control is very necessary as at times radio broadcasting as well as all recorded matter have lower frequencies predominating tending to eliminate the featured such as singing or talking or some higher frequency. This control eliminates only the frequencies featured.

With these objects as paramount, the invention has particular reference to its salient features of construction and arrangement of parts, to become manifest as the description proceeds, taken in connection with the accompanying drawing, wherein:—

Figure 1 is a perspective view of the "fader" box, a part of the invention.

Figure 2 is a diagrammatic view of the pre-

ferred wiring arrangement of the invention, showing symbolically the record turntables, and

Figure 3 is a further diagrammatic view showing the fader box, turntables and amplifier.

In proceeding more in detail with the drawing, it may be stated for the sake of clarity, that as this invention or its embodiment is adapted for use in connection with all types of amplifiers employed principally in places of amusement where dramatic effects are desirable, it is possible to render the voice more intelligible and the music and sound effects more firm and acute, thereby minimizing or eliminating entirely the blurring of sound which is particularly noticeable when the screen images require extremely high or low volume.

Accordingly, the invention is comprised of a housing 1, and herein referred to as the "fader box". The amplifier, so designated on the drawing, in sound and image synchronization, is situated behind the screen upon which the image is projected, while the box 1, containing the double switch 2, rheostats 3 and 4 and condenser 5, are situated in the auditorium for remotely controlling the amplifier.

In usual practice two projectors are employed, hence the two turntables 6 and attendant reproducers or "pick-ups" 7. Wires 8 connect the reproducers with the switch so that when the switch is thrown in one direction, take-off is made from one of the records, and when thrown in the opposite direction, the other record is reproduced.

For example, the switch when in the position shown in Figure 3, when compared with Figure 2, will energize the circuit on the left in this figure, recording the sound from the record on the turntable on the left, and if thrown in the other direction, the opposite reproducer begins functioning instantly.

The simple wiring diagram shown provides a circuit through each electric reproducer 7 and amplifier, the potential gradient being controlled by the simple manipulation of the knobs 9, actuating the rheostats 3 and 4. Obviously, the voltage increase and decrease in the circuit during reproduction, by manipulating the dials or knobs 9 will accordingly act to minimize the distortion or "squeal" found to be prominent in the electrical sound reproducers, when the sound attains an exceptionally high or low pitch, particularly the former.

When distortion is detected in reproduction, the operator simply manipulates the rheostat knob to match the impedance of the amplifier to

the impedance of the sound, thereby bringing about a very pleasing effect.

Manifestly, the construction shown is capable of modification and such modification as is considered within the scope and meaning of the appended claim is also considered within the spirit and intent of the invention.

What is claimed is:

In combination with reproducing and amplifying units, means for matching the impedance of said reproducing units with that of said amplifier, said means including a common circuit through

said amplifier and separable circuits to said reproducing units having connection with said first circuit, a variable rheostat in said first circuit and a condenser in parallel with said variable rheostat and a second variable rheostat in said first circuit for increasing and diminishing the frequency response between said reproducing units and said amplifier and means containing said rheostat and condenser and arranged to be disposed at a point remote from said reproducing and amplifying units to effect control thereof.

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15	90
20	95
25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150