PATENTS REVIEW...

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IMPROVING "MUSICALITY"

In the hi-fi world there is currently considerable controversy over the "musicality" of amplifiers, that is to say the possibility that two amplifiers which measure the same on even the most sophisticated test equipment currently available may sound different when reproducing music. In BF 1 499 939 Tokyo Shibaura Electric Company Limited of Japan patented an amplification circuit that is claimed to give improved results, through a particular connection of capacitors, but with the admission by the inventor that it is unclear why the improvement is achieved.

Essentially the claim is that the connection of extra nonpolar capacitors parallel with the electrolytics "can effectively improve the fidelity of reproduction", although the reason why "is not theoretically clear".

The audio amplifier of Fig. 1 is based on FETS 12, 13 in a complementary pair. Electrolytic capacitors 20, 21 are used as filters for the d.c. source and also for decoupling. The capacitors are formed of an aluminium film and are of high value e.g. 5,000 to 20,000μF. To capacitor 20 is connected in parallel a pair of nonpolar capacitors 22, 23 and to capacitor 21 is likewise connected a pair of nonpolar capacitors 24, 25. The capacitors 22, 23, 24, 25 are each chosen to have a capacity which is sufficiently low to leave the capacity of the electrolytics 20, 21 largely unaffected but sufficiently large to allow a substantial proportion of the audio frequency range to pass through them.

Capacitors 22, 24 are of metallized paper in the value range 10 to 100μF and the capacitors 23, 25 are of Mylar film type and similar value.

According to the inventor, "nothing is known about what effect is exerted on sound signals by the non-linearity of the inner loss of the capacitors relative to audio frequency" but he believes that electrolytics as used in audio amplifiers are non-linear in this respect.

He also believes that the connection of various given types of nonpolar capacitor in parallel with the electrolytics causes the collective inner loss-frequency characteristics of all the capacitors to be linear over the audio range. The number of nonpolar capacitors is not limited to two, and three or more may be used as necessary to provide linearity.

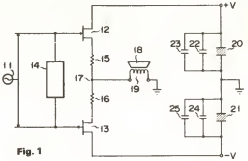

Fig. 1

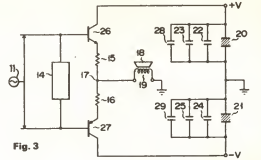

Fig. 3

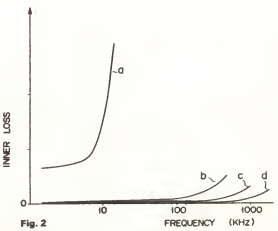

Fig. 2

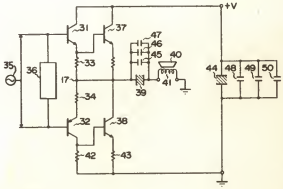

Fig. 4