

An Improved "Linen-Diaphragm" Speaker



HOSE who have not heard a good linen diaphragm loud-speaker do not know how good this type of speaker is. It is to be preferred to some of the poor makes of dynamic cones that over-emphasise the bass, and almost ignore the higher frequencies, thus losing all brilliance. The response curve of the linen diaphragm speaker has already been published in the "Record," and if carefully constructed, the speaker will be found to respond well to all musical frequencies. For volume with any given unit, it will be found superior to other magnetic type speakers, and its purity of reproduction will be found very pleasing. The absence of a paper diaphragm, tending to reduce very much the unwarranted frequencies, background noise and static, is the great feature of this type of set.

On the score of expense, this speaker is a good one to adopt, for the total expense of construction with a good unit is under £2. This is a very small sum when one considers the quality reproduction and vast amount of entertainment that will be derived from its use.

Silk Diaphragms.

THIS article is intended to be a brief one, merely to supplement previous specifications, and describes a very successful variation recently constructed by the writer.

Hitherto this type of speaker has been referred to as the "linen" diaphragm, but by using silk instead of linen, an improvement may be effected, producing thin but strong diaphragms that will, incidentally, be economical in the quantity of "dope" that they will absorb. The silk used is a creme shade of "heavyweight fuji," 28 or 30

Silk Diaphragms and Suspended Unit

(By "MEGOHM")

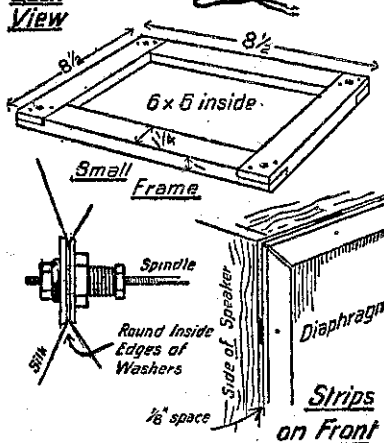
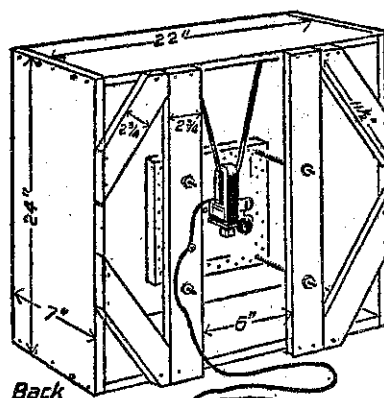
inches wide, costing from 3s. 6d. to 4s. 6d. per yard, only one yard being required.

The mixture with which each diaphragm is painted three times on one side, is composed of six fluid ounces of liquid acetone and three fluid ounces of amyl-acetate, which the chemist will put up in one bottle. This quantity is just sufficient. In it, motor-hood celluloid is to be dissolved, but the quantity of celluloid must not be great, or the solution will be too thick. It must run easily off the brush. If the celluloid is fairly stout, 25 to 30 mils, a piece six inches square may be ample, but the constructor must use his discretion. Each successive coat may be applied an hour or so after the previous one. Keep away from a naked light. The liquid evaporates quickly, so keep covered.

The Frame.

DIAGRAMS show clearly the construction of the frame of O.B. rimu or other soft wood, all 7-8 in. thick when dressed. The whole can be put together with 2 in. nails, but two 2 in. screws should afterwards be put in each of the four main corners. Glue in all joints is an advantage. Secure joints are necessary to prevent rattle, and the corner braces assist to this end.

To cover the row of nails round the edge of the front diaphragm, a one-inch lath may be run, mitred at the corners. In order to prevent rattle, these strips are raised above the fabric one-eighth inch, by placing a small



square of cardboard this thickness at two points under each, securing the strip with a headless brad through both. At the mitres, place a piece of thin cardboard in the join while fixing, so that a slight space is left. Stain or shellac makes a good finish.

The threaded brass rod is 3-16 in diameter, and eight nuts are required. The final length of the rods is six inches, but it is convenient to have them longer when commencing to tighten up, afterwards cutting off the superfluous with a hack-saw. The diaphragms will require tightening after each application of celluloid solution, and may be adjusted afterwards as required, by means of the back nuts.

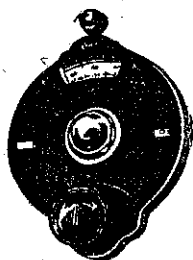
The nails securing the diaphragms should have good flat heads, and be placed not more than one inch apart in zig-zag formation, to reduce any tendency to split the wood.

The centre of each diaphragm is marked, and a large needle pushed through, gradually enlarging the hole without breaking any threads. The central connector may be a flush socket, not more than half-inch long. The hole will be too large for most spindles, so a short strip of paper half-inch wide is wrapped round the spindle and secured with seccotine when a good fit for the socket. Make a washer of thick paper to go between spindle-nut and socket, both back and front. Celluloid solution will fasten the nuts when finally adjusted.

Suitable Units.

If big volume is required, a good unit must be provided, the balanced-armature type being most suitable. Full effect of the deepest bass notes is best obtained by suspending the unit instead of fastening it rigidly to the frame. The writer finds this plan excellent, and construction is simplified. For this system the unit should not necessarily be heavy with regard to actual weight. The method of suspension must be suited to the particular unit. The 66 anchor type is very suitable. The illustration shows a new unit, 66P of which a sample has been forwarded to the writer, and which will be available in a few weeks' time.

A length of adhesive tape passes through the bend of the magnet, and is secured at each end of the top of the frame by a pair of strong drawing-pins. The position should be adjusted carefully, so that the spindle will swing in-and-out of the socket before the nuts are secured into place. This arrangement ensures that the deepest notes in any gramophone record may be well reproduced, provided that the amplifier handles them efficiently. Such a speaker is quite suitable for a receiver of almost any size up to two



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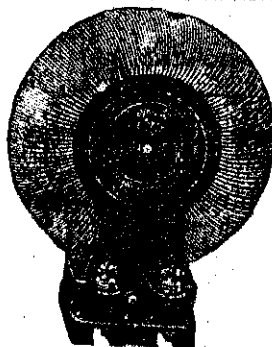
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