

A Double-Roll Loud Speaker



ERE is a loudspeaker that will interest a great many listeners, especially those who are using horn-type speakers and wish to try the effect of

a cone type. This speaker will compare favourably with many cone speakers costing several pounds, and will outclass many in the reproduction of high notes, whilst still retaining the bass. If any constructor is not satisfied with clearness and faithfulness of reproduction from this speaker, he may look for the trouble in his receiver, as the speaker has been constructed and tested by the writer on a receiver giving thoroughly clear and undistorted output, which was faithfully reproduced by the double-roll speaker now described.

The Driving Unit.

THE success of this speaker depends to a great extent upon being able to procure a suitable driving unit, and such is now available in the "omni-phone" unit, which may be obtained from Harrington's (Ltd.) branches for 30s., plus 8d. postage.

This unit is primarily intended to place on tables, chairs, doors, etc., converting them at once into a loudspeaker diaphragm with surprising results, but an even better performance is obtained when the unit is made to drive a suitably constructed loudspeaker.

The unit is the well-known type in which a reed works between the two adjacent poles of a powerful permanent magnet, the whole being encased in a neat metal case, the driving spindle projecting from the end. On the end of the driving spindle is a knob which fits friction-tight, and may be

Quality Reproduction of High and Low Notes with Great Volume

By Megohm

removed for attaching to a cone. A flexible cord of about six yards in length is furnished with 'phone tips for connecting up.

THE frame is of simple construction and may be finished and elaborated according to the constructor's taste and ability. Soft wood is best for frames for speakers of this type, so O.B. rimu will be very suitable, and the thickness should be 3-8 inch. A board 11½ x 32½ inches will provide material for the whole, excepting the piece to hold each side of the unit.

Three pieces are required 20 x 3½ inches, two pieces 12½ x 3½ inches, and a small piece measuring 5 x 2½ inches, this latter being used to clamp the unit down. To hold the unit in place two small pieces 2½ x 1 x 7-8 inches will be required. These two are drilled near each end and well countersunk to take No. 6 1in. screws, and the 5-inch piece has a hole drilled centrally near each end to take similar screws. The object of the box-like frame is to assist in amplifying the deep notes, so that the 3½ dimension should not be reduced, as the size given secures good even amplification. If more prominence is required for the deep notes, the sides of the frame may be made an inch or two deeper. If the back of the frame is left open, the speaker must be laid horizontally or hung on the wall, so that the back is closed, but if the back is filled in with three-ply the speaker may be used anywhere.

The four sides of the frame are put together with either inch nails or ¼in. screws, according to the style of work-

manship being put in. The centre strip which holds the unit is put in position after the unit has been attached to it, and must be secured to the short-ends of the frame by ¼in. screws to facilitate removal if necessary. The side of this strip on which the unit is placed must be half an inch out of centre, so that the driving spindle of the unit occupies a central position, so that the space at one side will be five inches and the other side 6 3-8in.

Attaching the Unit.

THE unit is attached to the centre strip by fixing one of the short 7-8in. pieces of wood about 1½in. out of centre, that is, in a position that allows the driving spindle of the unit to be ten inches from either end of the strip. Then a 3-8in. hole is to be drilled in the strip in a position to allow the flexible lead to be threaded through. Near the outlet for the cord on the unit there is a small projecting screw for which a depression must be made at the edge of the strip, and the unit will now lay snugly on the surface of the strip, with its beaded edge projecting. The other 7-8in. piece is pressed close against the other side, and secured with the screws. The 5in. piece is now secured to clamp the unit by means of a screw at either end of the 7-8in. piece underneath. A line must now be drawn inside each end of the frame, 6 3-8in. from one side. This indicates the unit side of the centre strip, and on the 5in. side of these lines two holes are to be drilled in each end of the frame for the securing screws, which can then be put in, completing the body of speaker.

The Paper Diaphragm.

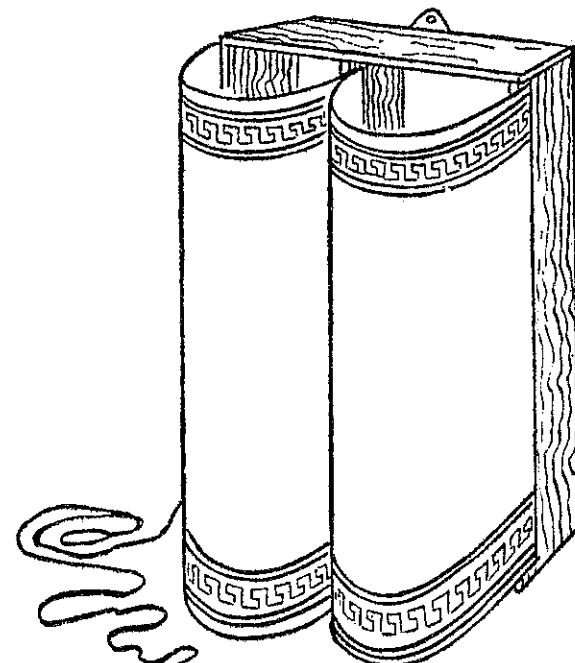
THE diaphragm is made from special cone paper if procurable. Johns, Ltd., Auckland, stock a sheet 25 x 25 for 4s. 6d. If other paper is used it must be as non-resilient as possible, and the nearest approach is the paper used as a cover for booklets, etc., by printers. The sheet is to be trimmed to 20 x 25 for use.

Constructors in country towns will be able to get from the local printing office a sheet of heavy pamphlet cover paper, and if this is 20 x 25 it will do quite well. If the sheets are smaller, get two and cut them each to 20 x 12½, joining the two edges to form the centre ridge by means of a half-inch joint of seccotine. Cover papers are often obtainable in attractive browns and greys, which considerably add to the appearance of the finished article. If the constructor is artistically inclined, embellishment may be added with Indian ink.

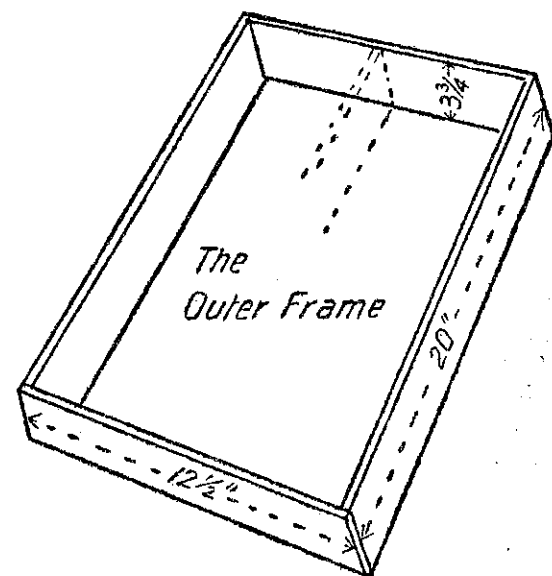
The sheet having been cut to size, it is folded in the centre by bringing the corners together, stroking the fold down with a paper-knife or other suitable tool. Then at the top and bottom of what are to be the outside edges, a pencil mark is made half-an-inch from the edge as a guide for attaching to the frame.

The Connecting Link.

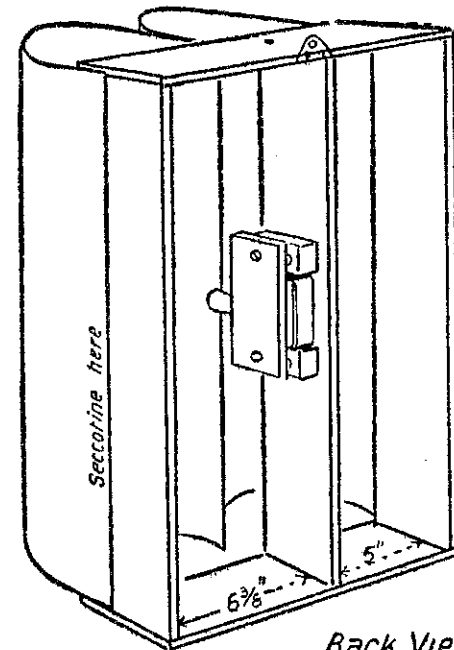
CONNECTION between the unit and diaphragm is easily established by means of a cork not less than ¼in. diameter, cut to a length of ¼in. A



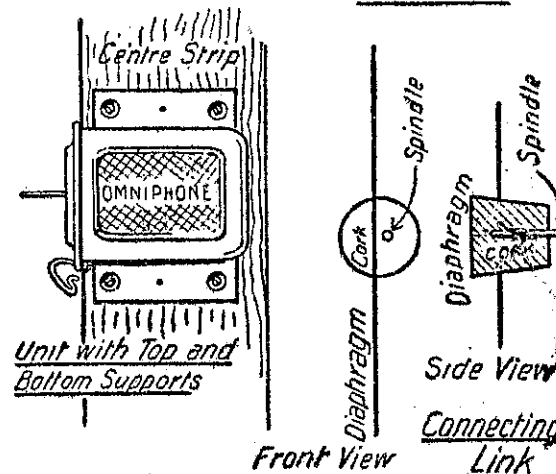
The Complete Speaker



The Outer Frame



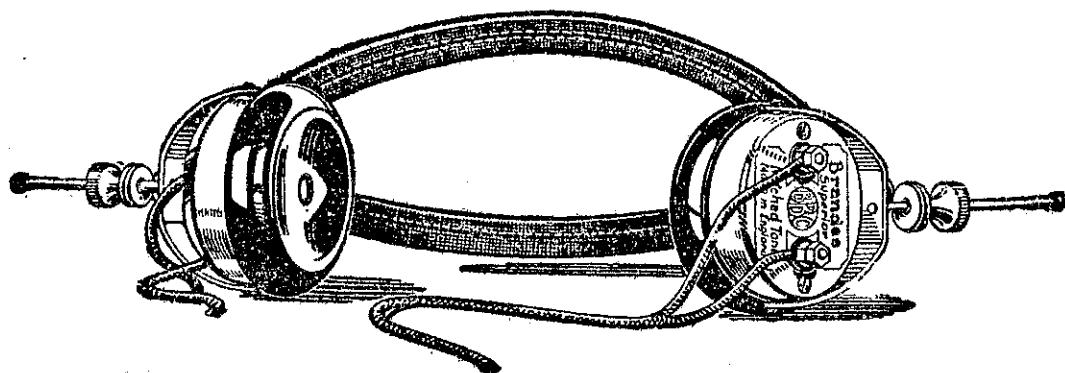
Back View



Details of Double-Roll Speaker

Brandes

The Name to know in Radio



Made in England
Price 15/-

OBTAINABLE FROM ALL RADIO DEALERS or
INTERNATIONAL RADIO Co. Ltd., Ford Bldgs., Wellington