

Notes on the Condenser Speaker



Now that at least one commercial receiver employs a reproducer the operation of which depends upon the principle of electro-static attraction, it should be of some interest to investigate the theory and possibilities of this type of speaker.

As may be guessed, the speaker consists of two metallic plates separated by a thin sheet of insulating material or dielectric. The speech currents are applied between the two plates and traverse the capacity existing between them. A condition for successful operation is that the plates shall be polarised; that is to say, one plate must be charged with a direct current E.M.F. of several hundred volts. Where the circuit and power supply employed does not permit of the automatic application of the polarising voltage, it may

A New Movement giving Surprising Realism

By "CATHODE"

readily be obtained from alternating current mains by means of a small transformer-rectifier combination and blocking condenser. The rectifier tube may well be of the ordinary 201A type, as it is called upon to pass only three or four milliamperes.

Constructional Details.

The unit of a condenser speaker is naturally very thin. This, combined with its ruggedness, makes it a simple matter to disguise it effectively. It may be embodied in the furniture

of the room as a table-top, a wall tapestry, or a screen; alternatively, it may form the top or front panel of a console model radio receiver.

The most successful form of construction as yet adopted consists essentially of (a) a perforated metal back-plate having small corrugations or other undulated surface; (b) a flexible dielectric diaphragm stretched over the back plate so as to bridge the corrugations or depressions; and (c) a thin and flexible conductive coating cemented or otherwise secured to the surface

of the diaphragm opposite the back-plate.

The corrugated back-plate is really the feature which contributes most to the success of the speaker. The writer has a lively recollection of his own early experiments with the condenser speaker. After making the discovery that extremely thin sheet rubber of the toy balloon type was about the only material for the diaphragm that would give any results at all, and after spending a considerable sum in buying sheets of rubber until one was found sufficiently free of defects to stand the polarising voltage, it was found that anything approaching efficiency was even then unobtainable.

A flat back-plate was in use, of course, the idea of a corrugated plate not then presenting itself, and when the diaphragm placed in contact with the back plate, the possible movement

RADIO ECONOMICS.

We have already despatched over 40,000 80-page Radio Catalogues to enthusiasts throughout N.Z. If you have not yet received yours, please send us your address, and a fresh copy will be gladly posted.

This catalogue contains full details of practically everything for Radio, and is, as one customer expressed it, the "RADIO BIBLE OF N.Z." It sets the seal on "quality" in Radio and is, in addition, brimful of information. It is, and intended to be, as another customer puts it, "HONEST."

In radio, new lines are constantly appearing, hence the following remarks:—

FARRAND INDUCTOR SPEAKER.

Originally invented in U.S.A., this speaker gives results very nearly approaching those of the dynamic, an opinion shared, after full test, by a well-known radio magazine. Because it cannot in itself cause any hum, and especially, because it requires no extra field current, the inductor speaker will be tremendously popular, and we have no hesitation at all in recommending it for home use. Like the dynamic, it is practically impossible for an inductor to rattle.

The speaker is sold as a complete unit, with cone and chassis, ready to be mounted in your own cabinet, or it can be supplied with a cabinet. It requires cabinet on a baffle, just like the dynamic. We can supply two types, one made in U.S.A. by the Farrand Co., and selling at £6/17/6 each. The other one will be available very shortly, and is made by the N. and K. Company in Europe, apparently under license from U.S.A. Samples of these have arrived, and give a very fine performance on test.

The price of the N. and K. Inductor has been provisionally fixed at between £5/10/0 and £6, and orders are being taken now for prompt delivery on arrival, probably in about eight weeks. Customers ordering now will be certain of securing theirs at £5/10/0. Cabinets £3/12/6, or £2/12/6 extra.

But order now—the shipment is being very rapidly booked.

LOFTIN WHITE AMPLIFIERS.

Details of these have been published locally, but some difficulty is still experienced in obtaining suitable Resistors. We have cabled to U.S.A. for complete kits of Resistors, and expect them in about six weeks.

In the meantime, we can supply special transformers for the Loftin White, with filament windings for two extra valves, at £4 for 250 valves, and £3/12/6 for 245 valve type. Condensers, etc., are already listed in our catalogue.

On arrival of the Resistors, we will immediately market a complete kit with aluminium chassis.

ELECTRIC MOTORS.

We have secured a shipment of 1/6 h.p. Emerson 230-volt 50 cycle single phase motors, with grooved pulley. These are brand new, and of a very superior manufacture, being adopted as standard by the B.G.E. We are offering these at the ridiculous price of £3/17/6 each. They will drive small lathes, sewing machines, dynamos, pumps, picture plants, etc. They are worth about £5 each. There is one of these, used, at £2/17/6, and a G.E.C. 110-volt at 45/-, also used. A Repulsion Induction 1/6 h.p. motor, G.E.C., new, is offered at £12/10/0. One only, and worth £17/10/0.

GRAMOPHONE MOTORS.

Liquidated stocks account for us being able to offer one of the best of the celebrated Thorens Swiss Gramophone Motors, double spring, retelling at 70/- or more, for 80/- each, complete with 10-inch turntable, regulator and brake. There is no catch here—just a plain bargain. Buy one to replace your present worn-out motor, or to use with a gramophone pick-up, to make your set an electric gramophone. Cash will be refunded if these motors do not satisfy you.

GRAMOTROPE.

This consists of a gramophone motor, pick-up and volume control, in a small case. It is merely connected to your radio and enables you to play gramophone records through the radio.

We are offering first-class components, less cabinets (these will be quoted when desired, with everything fitted ready for use), for £4 complete. The outfit includes Thorens motor, as above, tone arm, Royalty, volume control and good quality pick-up.

Or with the famous B.T.H. pick-up, probably the best ever made for tone qualities, £5. Everything brand new, and one of the best bargains ever offered. A butter box makes a very good case for the gramotrope.

DYNAMIC SPEAKERS.

We have a number of assorted dynamic speakers here, mostly new, which we are offering at very attractive prices. They comprise 230 volt A.C. and D.C. 6 volt, 32 volt (the only dynamic able to be used directly from a 32-volt lighting plant) and 2500 ohms, for use with the usual U.S.A. radio chassis. Write us, giving us some idea of the price you wish to pay, and we will quote for the most suitable.

Of course, if you want the best dynamic, order the Jensen from our catalogue. Concert type, 10in., with Nu-Core, at the same price as others 7 inch.

VALVES.

ALL VALVES BELOW ARE NEW, AND WE ABSOLUTELY GUARANTEE SAFE DELIVERY, AND SATISFACTION, OR YOUR MONEY WILL BE REFUNDED. This should convince you that the valves are really good value.

Good valves at low prices are always interesting. Probably, for results, the best screened grid valve to-day, is the old Osram 8625. Its shape was not popular. Originally priced at 30/-, we are offering a few dozen at 15/- each, and where two are ordered, one free holder is included. This offers excellent opportunity for cheap experimenting.

For amplifying, the Ediswan DE5, with English base, matches in performance the 201A. Price is 6/- each, including an English valve holder free; 6 volts, 25 amps.

Lastly, power valves are always in great demand. We can offer a good make of 112 at half price, 9/- each, and 171 at the same price. Again, we guarantee safe arrival and satisfaction with these—you can test them, therefore, at our risk.

Remember, no mistakes about our guarantee—we mean every word of our promises as above. We are fair—we know our customers will be.

SERVICE.

We are the oldest radio firm in Auckland, and proud of it. Ten years' success in the radio business has been attained only by giving our many customers the best of service. We are out to sell you, not mere radio apparatus, but RADIO SERVICE. We want you to get the very best possible from radio, at the minimum of expense.

Recently, we have been simply overwhelmed with orders, inquiries and requests for advice. Unfortunately, we have to apologise for delay at times in filling orders, owing to this unprecedented rush. In radio one cannot obtain useful help readily, and we trust that those who have experienced inconvenience will at least appreciate our difficulties recent additions make. The total staff now under our control is now about 40, so we are rapidly getting our service back to normal.

JOHNS LTD.,

CHANCERY STREET, AUCKLAND.