

phragm cone speaker which was published some time ago. Unfortunately, we have sold out completely of the numbers in which the description appeared. However, in a future issue we shall publish a short description with diagrams. One of these correspondents, "D.C.C." (Southland) has suggested an index to constructional items. We had this in mind, and intend publishing it with the completion of volume two next week.

An Unsatisfactory Tuner.

"BACKBLOCKS" (Glen Murray) writes stating that he has purchased a tuner to replace the coil already in the set. It was not satisfactory; the primary coil has 12 turns, and the secondary 52. The tickler 26 turns.

A.: The coil is of the wrong specifications. The primary should be of 24 turns at least.

2. I am thinking of adding another R.F. stage. Would it be O.K. if I re-wound the primary and centre tapped it?—Yes.

Is a moving tickler coil better than condenser controlled reaction?

A.: A few weeks back this was discussed fairly fully in the "Beginner's Corner," where it was shown that a condenser used to control reaction rarely alters the tuning, and is sometimes smoother than the moving tickler.

How many turns should I use on a primary with 425 as detector?

A.: 425 is suitable only with resistance capacity coupling. Try 409 and 415. UX 199 requires 25 turns.

Improving Sets.

WRITING on behalf of the owners of several commercially-made neutrodyne receivers, "H.M.B." (Te Kuiti) asks how they might improve their sets, although the correspondent reports a quite good log. Sometimes he can get the Japanese on the loudspeaker, but he is not able to get the Americans. What can they do to go "D.X.-ing"?

A.: "D.X.-ing" with factory-made receivers of the neutrodyne type with less than six valves is very difficult. If a wireless enthusiast wishes to go "D.X.-ing" he should construct a regenerative receiver. In this case, if tone is poor, the valves may be at fault. In this connection it is unwise to use valves other than those originally provided in the sets, unless it is a power-valve in the last stage. A power-valve of the 171A type will greatly improve tone if correctly biased. The detectors used in this case are

inclined in some cases to be harsh, so that a change back to the American detector for which the set was built may be preferable.

Various Points.

"S.B." (Auckland), writes: I propose to use the following valves in a receiver. Screen-grid, PM4, PM3 detector, PM4 and pentode. Is this a suitable combination?

A.: It can be improved. PM14 (screen-grid), PM3 (R.F.), PM4D (detector), PM4 (first audio), PM254 (second audio), or PM14 ("Pentode"). While greatly increasing signal strength the pentode type of valve can be overloaded easily, and ruin the quality from a local station.

2. How many turns on the primary to suit the R.F. valve?

A.: The screen-grid circuit should be tuned anode, which does not require a primary. PM3 requires 25 turns.

Would a 7-plate neutralising condenser be all right for neutralising?—Yes.

Choke Construction.

I HAVE a quantity of soft iron, transformer laminations, which I should like to use in the construction of audio chokes, writes "Choke" (Hataitai). Can you give me:

1. A compensation between the magnetic stallo and soft iron?

A.: Two-thirds. Stallo carries 60,000 magnetic lines of force to the square inch, soft iron 40,000.

2. The method of finding the value of a choke in henries? I have been placing a milliammeter in series with the choke, and measuring the current taken when placed across a convenient voltage, such as 110 volts, or 230 volts A.C., 50 cycles, and then working out the value of "L" (inductance) from the usual formula. E/I is equal to the square root of $(R \text{ squared plus } P \text{ squared } L \text{ squared})$. Where E is the voltage, I the current, R the resistance, P 6.2832 times frequency, and L henries. Would not the inductance of a choke vary at different frequency? If so, at what frequency is a choke rated?

A.: The usual rating for a choke is 920 cycles per second. Using this, the formula given can be applied.

I have an all-electric crystal and valve amplifier which gives splendid results. Are there any objections to my using a raw A.C. on the filament of the power valve. If not, what is the difference between an A.C. power valve and a D.C. power valve?

A.: As there is no difference a D.C. power valve may be used quite conveniently for A.C.

Amplifying the Full Wave Crystal Set. **I HAVE** made the full wave crystal set, writes "R.L.F." (Wellington), and have found it much superior to the usual crystal set. I intend building another, and adding a stage of audio frequency, and would like to know:

1. Is it possible to add a stage of radio frequency?—No, it is not practicable.

2. Would it be a disadvantage to bank-wind the primary coil?

A.: A bank-wound primary coil would not be satisfactory for this circuit.

Technical Tips

WHEN buying condensers for a home-made "B" eliminator it is important to see that the rated working voltage is well above the normal voltage which the finished unit will take.

A GOOD method of tidying frayed ends of flexible wires is to use a little blob of Chatterton's compound to seal off the odd lengths.

Under the Shadow of a Powerful Station

How a Receiver is Best Operated

AS listeners are aware, a new powerful 2LO, London, has been erected and in writing to the "Morning Post," W. James stresses valuable points concerning the use of a receiver in close proximity to a powerful local station. His advice is repeated in these columns in order that it may strengthen or collect points that have from time to time been given listeners in this respect.

"Those who live within a few miles of the new station when it begins transmission will receive a very strong signal, with the result that there will be a tendency for the receiver to be overloaded. This will have the effect of spoiling the quality of the reproduction unless the receiver is fitted with an effective volume control.

"As only a small number of sets have a volume control, those listeners who experience overloading will have to reduce the size of their aerials, or alternatively, fit an adjustable resistance in the aerial circuit of their receivers or across the circuit connected to the first valve. A modification of this type will not be very expensive.

"It will prove much more difficult, however, to cut out the powerful local transmission and to tune in distant stations. Much will depend upon the type of set employed, and if this is a simple one, the user will probably find himself unable to effect inexpensive modifications which will have the desired result.

Meeting New Conditions.

"THE effect of reducing the size of the aerial, and of fitting a small condenser in the aerial circuit, may, of course, be tried, but it will probably be necessary to add a further tuned circuit or a high frequency stage, and it may prove essential to employ a frame aerial.

"Those who have a portable receiver may find that by taking advantage of the directional properties of the aerial included in the set, other stations may be received, but it is not possible to say whether all sets of this type will be sufficiently selective.

"The points I wish to emphasise are that those who live within a few miles

of the new station will find they are not able to receive other stations so easily as before, but they will have a very strong signal to deal with. Those who are considering the purchase of a receiver, or those who build themselves a new receiver during the summer months—and I find a number of listeners do this—should, therefore, bear these two points in mind, and make certain of providing adequate selectivity and an effective volume control.

Wait and See.

"MANUFACTURERS realise that in the future selectivity will be of even greater importance than in the past, and I believe a number of interesting receivers at low prices will be forthcoming. The all-metal construction which was favoured in certain quarters during the past season may be more greatly employed in the popular sets of the future.

"Complete shielding, the use of suitable tuning coils and shielded valves, and the production of fewer types of receivers will be responsible for simplifying tuning and improving the results. New and improved valves also help the manufacturers, and it is expected that large number of sets will be sold during the season.

"There is still room for better loudspeaker construction without increasing their cost. Good loudspeakers are relatively expensive as compared with the receiver itself, and the cheaper instruments are not so good as they should be for the sets with which they are used. There are, unfortunately, a number of inexpensive foreign-made loudspeaker units in the country which give very good results. Numbers of amateurs are therefore building their own loudspeakers from sets of parts.

"This would not occur were there a supply of good loudspeakers reasonably priced. Unfortunately, sensitivity is often still considered of more importance than quality of reproduction, but when strong signals are more easily obtained than at the moment, the manufacturers will be free to design their products to give the desired quality without bothering so much about sensitivity."

Are You Having Trouble?

Does your Set fall short of expectations?

If so, do you know where to look for the trouble?

The 1929-30 Listener's Guide has a Special Service Section to help you.

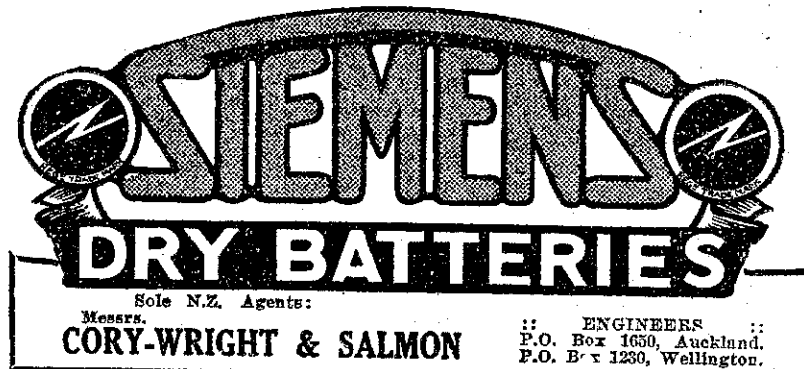
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