

The "Rotorua" Portable Receiver

An Ideal Equipment for the Approaching Holidays

By "Pentode"

WITH the coming of summer the general opinion is that the radio enthusiast loses interest in the hobby in preference for some outdoor sport. He cannot be blamed for leaving his radio set at home unused and packing a hamper for a trip into the country. The average receiver, when once installed is not adaptable to portability and it would need many bulky packages of batteries, speaker, etc., to be looked after if one wished to have the set during a holiday for company. The possessor of a true portable receiver is to be envied if he can merely open the lid and tune in a station to get the latest cricket results, etc.

Take the man touring the country in a car. He camps in some out-of-the-way spot and takes out his portable receiver and can enjoy the afternoon session and later have a summary of all the latest news. Out on the river, what could be more pleasant than a little music. When listening in on the beach there is far more fascination than listening at home with the receiver connected to an unsightly aerial.

Points in Design.

IN the design of a portable receiver there are numerous points that have to be considered. In the first place the set has to be truly portable, and self-contained. It has not to be too heavy. Especially as it has to be used outside, the speaker will be called upon to deliver great volume and good quality reproduction. So many portable sets give horribly distorted music as soon as the volume is turned up. The question of running costs also enters, although not quite to such a great extent as with a home receiver. And last, but not least, the price has to be moderate.

In designing the following portable set, consideration was given to all these points, and if the reader desires to

make one of his own and follows the details set out below, he will be in possession of a portable set that will be the envy of all of his friends. Provision is made for the use of an outdoor aerial, so this receiver can be constructed as a home receiver and will receive distant stations with just the same ease and clarity as the popular Browning Drake. Also, if the constructor desires to develop the audio frequency side a little more fully, such

can be desired in the quality reproduction of music, and furthermore they are not adaptable for use on an outside aerial. This receiver is neutralised and although reaction is used, the set cannot radiate if properly used.

In a portable set the constructor is confined more or less to a limited choice of components. Appended is a list of the components used by the writer, but if the builder wishes to incorporate parts he already has, or if he is

measuring everything out before starting to make the cabinet, unless, of course, those actual components are used.

The valves also were chosen to suit the circuit, but whatever valves are used, it is always better to employ one having a high amplification factor as a detector. As the full description of this receiver makes rather a long article it will be divided into two issues. This week the construction of the cabinet will be dealt with, confining the receiver construction to next week's issue.

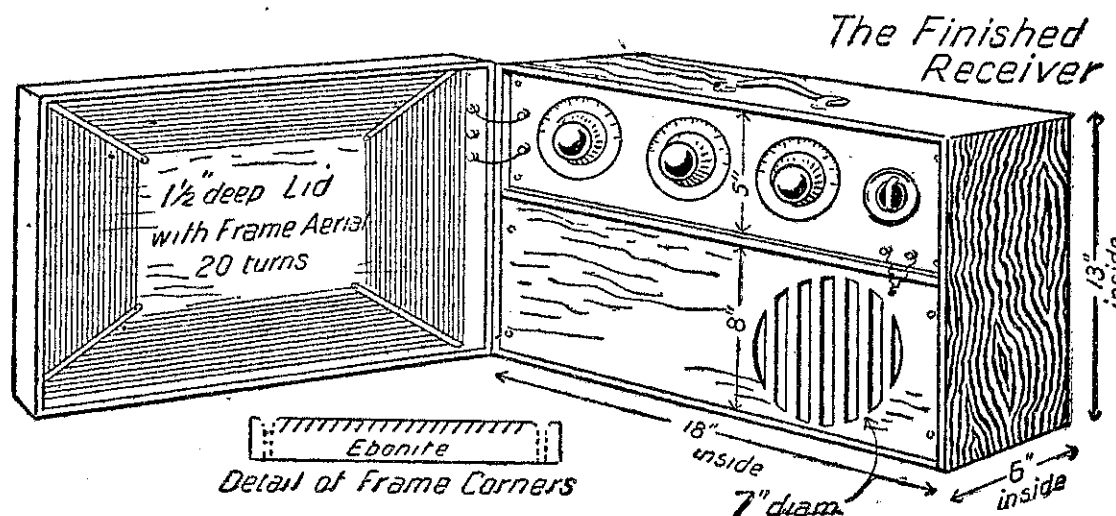
The Cabinet.

WITH all portable sets the cabinet is of importance, inasmuch as it has to be light and yet strong. It has to be of such a size and shape that no complicated manoeuvres are necessary to examine batteries or valves.

Omitting the lid, the inside measurements of the case are 18 inches long, 13 inches high, and 6 inches from back to front. As can be seen from the diagram, the lid makes an additional 1 inch inside when closed. The writer's box is made of 3-8 inch oak, and although slightly heavier than one made of, say, Oregon, it is very strong. The top, bottom, and two ends can be of oak, while the sides will do well if constructed of three-ply.

The best way to commence on the box is to treat the case and lid as one, and after fixing on each side a line can be drawn around where the lid cut has to be made, and the lid can be cut off afterwards. From the local timber yard obtain timber to these measurements:—

- 2 pieces 7½ inch x 13½ x 3-8 inch dressed oak or rimu.
- 2 pieces 7½ inches x 18½ x 3-8 inch dressed oak or rimu.
- 2 pieces 18½ inch x 13½ inch three-ply wood.
- 1 piece 18 inch x 5½ x 3-16 inch three-ply.
- 1 piece 18 inch x 8 x 3-16 inch three-ply.

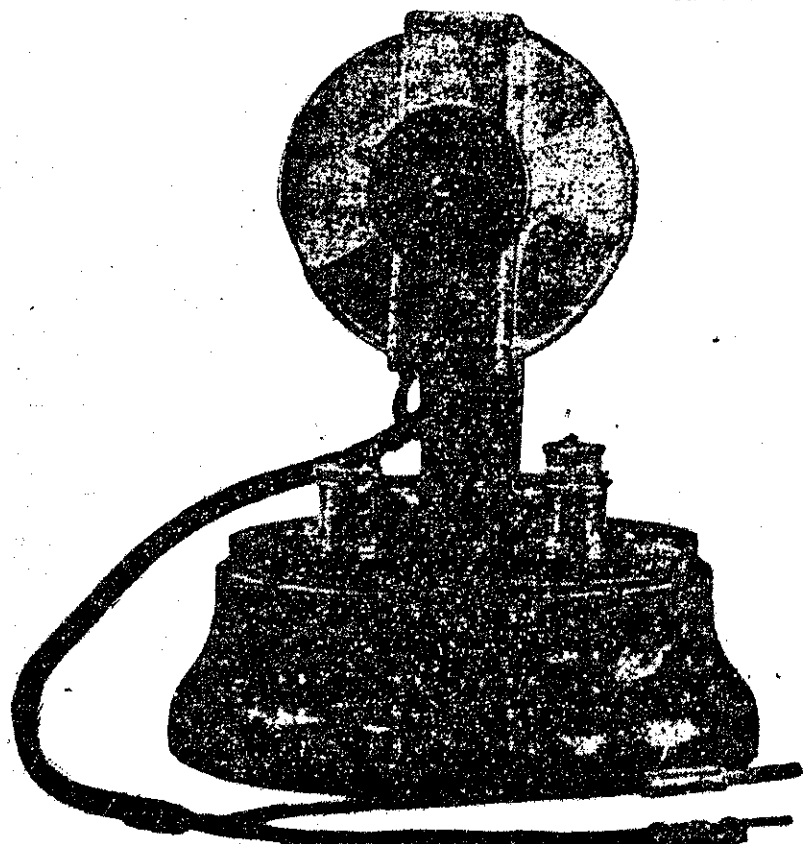


as incorporate pushpull in the last stage or use a higher plate voltage and larger power valve, he can use it with any of the high grade gramophone pick-ups and obtain music at good volume and wonderful quality. For those who can work from a theoretical diagram, by referring to the one below it can be seen that the first grid coil is actually the frame in the lid tuned by a .0005 mfd. condenser. This frame is centre tapped, so that an outside aerial can be attached to bring in more distant stations.

It may be stated here that this is not a freak set, that is uncertain in operation and ticklish to tune in. There are various circuits for portable receivers employing reaction in various ways, but these sets as a rule are not all that

unable to obtain the parts specified, he will have to adapt the box container to suit the size, etc., of such components.

The speaker, for example, is one that is easily obtainable, but there is no reason why a Sferovox or similar cone should not be used. The case, will, however, have to be made accordingly. The small Hellesens B batteries are used, but, if unobtainable, the ordinary upright 45 v 't can be used with a little extra weight to carry around. Those wishing to build exactly to specifications have the list of parts actually used and space is allowed for these components. The writer would stress the point that there is not too much room for larger parts and it would be time well spent to spend an hour in



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