

# The Band-Pass Four

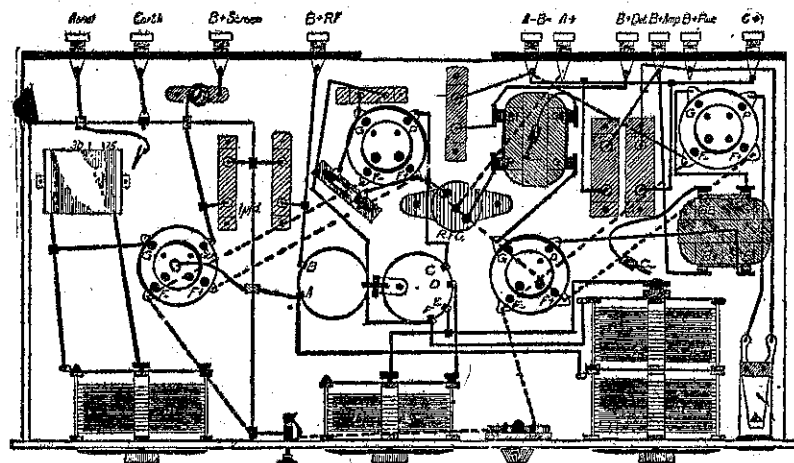
## Utilises Band-Pass Filter and Screen-Grid Valve



THE band-pass filter circuit is not really anything new, for it has been in use abroad for some time, and is consequently embodied in many factory-built sets in use in New Zealand. There has been a need for a circuit that is selective yet does not lack in quality because of this, and so the band-pass filter has been designed to meet this need. We will not enter here into the theory—that would take an article of its own,

inches from the top of the panel (or higher according to the type of dial to be used, but be careful that the radio condenser will fit in the screen) and at these intervals from the end: 4in., 12in., 20in.

The rheostat, switch and the jack,



but to the construction of a receiver embodying such a unit.

The circuit, "The Screen Grid Four," is a simple one. It has been constructed by a regular reader, who states that it is working excellently. Its construction may be taken on by anyone who has little if any previous experience in construction.

First take the accompanying list to your dealer and obtain the necessary components. In using components other than those specified the experimenter is safe but the novice decidedly unsafe. For those commencing this, their first set, follow the components set out, or if your dealer has not one exactly the same ask him to substitute.

### The Panel.

THE first job is to drill the panel. Lay it flat on a smooth surface (a sheet or two of newspaper on a firm bench) glazed side down, and mark out as follows.

The condensers, small holes are three

4½in. from the top and at these intervals from the end: The switch 5in., the rheostat 15½in., the jack 23in.

Secure the base board to the panel by raised headed screws or by angle brackets and mount the components on the panel as shown in the diagram. The condensers open upwards and the tandem condenser (two condensers on the same spindle) at the end near the jack.

### Making the Coils.

THE coils are the next task. The band-pass filter is composed of two

TABLE I.

Primary	.0005	70 turns	28 d.c.c.
and			
Secondary	.00035	85 turns	28 d.c.c.
Reaction—			
.0005	20 turns	30 d.c.c.	
.00035	25 turns	30 d.c.c.	
.0001	40 turns (2 layers)	30 d.c.c.	
All windings in same direction look-			
ing down on coils (anti-clockwise).			

separate solenoid coils wound on 2in. formers. The first (primary or left-hand coil) is composed of: For a .0005 condenser 70 turns of 28 D.C.C. or D.S.C. s.w.g. wire and for a .00035, 85 turns of the same wire. The right-hand coil or secondary is really the more elaborate. Starting at the top, the reaction coil is wound on. This will vary with the value of the reaction cond., viz., .0005 cond. 20 turns; .00035 cond. 25 turns; .0001 cond. 40 turns; all of 30 D.C.C. or D.S.C. s.w.g. wire. For the .0001 cond. it will be found advisable to wind the 40 turns in two layers to save space and keep the reaction winding as small as possible. After the winding, leave ½in. space and wind on the secondary winding exactly as the primary.

In making the coils it will be found advisable to bring the ends of the various windings to nuts and bolts as shown in the diagram.

When putting the coils together they should be arranged so that the bottom turn of the reaction winding comes opposite the top turn of the primary winding. The coils are all wound in the same direction, that is, either clockwise or counter-clockwise. Looking down on the coils, and starting from the top, the wire is wound toward the constructor.

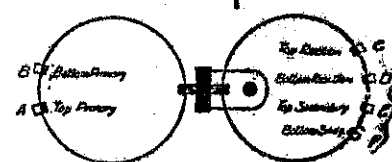
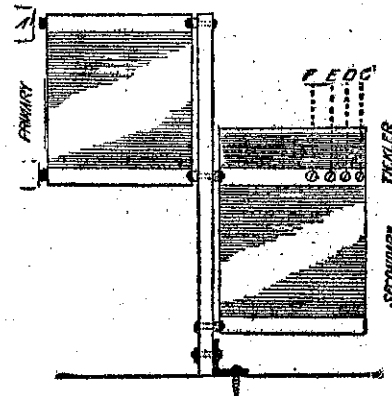
The radio frequency coil is made by winding one similar to the primary of the band-pass filter, but with two tapplings, one at the 15th turn and one at the 30th, these tapplings are brought out to two small terminals, so that a flex lead from the aerial can be clipped on to one or the other. Now

fasten the components to the base-board. This will not present great difficulty, but it is impossible to give definite measurements as the sizes of different makes are not the same.

### The Screening Box.

THIS can quite conveniently be the standard "Radio Record" screening box, obtainable from most dealers. Those who have the facilities to make one need not adhere to the standard size, but might utilise the one shown in the diagram 7in. x 10in. x 6in. The amateur is advised not to attempt to make a screen.

It will be found the easiest way of mounting this item is to remove the first condenser from the panel and arrange the front of the screen until the spindle hole of the condenser is in the



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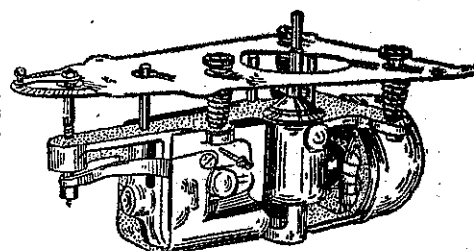
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