

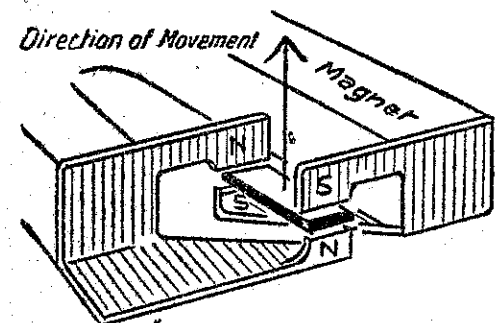
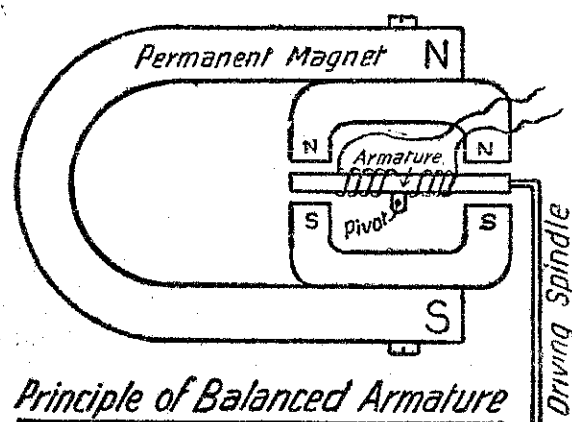
## Condenser Combinations

EXPERIMENTERS who wish to obtain special capacities of fixed condensers by combining two of standard capacity will find the following table useful. Capacities are all expressed in microfarads. The first two columns contain the values of the two condensers to be combined, and the other two columns give the resultant capacity of the combination.

Separate Capacities		Combination	
		Series	Parallel
.0001 and .00025		.000071	.00035
.0001 and .0005		.000083	.0006
.0001 and .001		.000093	.0011
.0001 and .002		.000095	.0021
.0001 and .005		.000098	.0051
.0001 and .006		.000098	.0061
.00025 and .0005		.00016	.00075
.00025 and .001		.0002	.00125
.00025 and .002		.00022	.00225
.00025 and .005		.00023	.00525
.00025 and .006		.00024	.00625
.0005 and .001		.00033	.0015
.0005 and .002		.0004	.0025
.0005 and .005		.00045	.0055
.0005 and .006		.00046	.0065
.001 and .002		.00066	.003
.001 and .005		.00083	.006
.001 and .006		.00085	.007
.002 and .005		.0014	.007
.002 and .006		.0015	.008
.005 and .006		.0027	.011

## Balanced-Armature Speaker Movement

THE principle of the balanced-armature loud-speaker movement is shown in the accompanying diagram (a). The usual permanent-magnet is provided with a double-ended pole-piece on each extremity, thus giving an ad-



acent north and south pole opposite each end of the armature. The armature acts as the core of a small coil carrying the audio-frequency current, and is pivoted as indicated. The driving spindle to connect to the diaphragm is attached to one end of the armature.

The above principle has been simplified for commercial reproduction in some units as shown in diagram B, which illustrates the balanced-armature principle as embodied in the

"Blue Spot" balanced unit No. 66, and in the "Anchor" driving unit, both of which are stocked by the Roger Importing Co., Ltd., of 159 Manchester Street, Christchurch. On looking at diagram B it will be noticed that there are two extension pole-pieces on each pole of the permanent magnet, but arranged differently to the original scheme in order to eliminate the necessity for pivoting the armature, and by this means to secure parallel movement of it. The coil encircling the armature is omitted for the sake of clearness.

The Roger Co. stocks a large number of radio lines, including loud-speaker kits and complete speakers, receivers, valves, headphones, crystals, etc.

## That Extra R.F. Stage! Another Success.

UNDER the date of October 3, a Nelson constructor sent the following enthusiastic letter which we print practically in full.

Dear "Megohm"—Just a line to congratulate you on the design of B.D. Shielded set. I have constructed this receiver and find it to be remarkably sensitive. Allow me to say that I have not stuck to all the features embodied in it. For instance I am using condenser control for reaction which I consider much better than the ordinary tickler. This does not de-tune the set at all. Secondly I found that it was very difficult to neutralise the R.F. by the ordinary neutrodyne way, I mean the tapped secondary. It worked all right on the first stages but not a hope on the second. I therefore tried the split primary method and found that this was simplicity itself. It neutralised perfectly. Although I quite appreciate your idea of making a separate amplifier, I thought I would like this section embodied in the set so allowed extra space to take it and also the reaction condenser. The only other alteration I have made is to cut out the filament rheostat on the detector and put in a fixed filament ballast. I don't think these alterations have made the set any less efficient, perhaps more so as I cannot imagine a five valve receiver being more efficient. Believe me, I think it is simply wonderful. 2FC comes in on the speaker at Mid-day. To-day, I had the Sydney G.P.O. chimes striking twelve at quite good strength. I completed the set last Thursday and on Friday and Saturday nights, I had KEX Portland, Cal. that loud on my amplier A.R. 19, that it could be heard all over the house. Yesterday at 1.30 p.m., 2FC came in so loud that my wife came in and said: "What station is that?" "2FC," I answered. "Oh, really, I could hear it out in the kitchen and thought it was 2YA opening up to tell us the 'Southern Cross' was leaving." This sounds a bit tall but believe me it is "dinkum." It is doing what a well-known "six" won't, though they have a big reputation for pulling distance. In conclusion, I must thank you very sincerely for all this. I have built several BD's but have never made or seen a five-valver like this. Four of the valves I am using are 21A Radiotrons which I have been using for the last three years. The detector is a PM6. Several of the fans about here show great surprise at the results and some others, on being told about it won't believe. I omitted to say that 3YA is very difficult to pick up

here on 5 valves during the day, but I can now get it on the speaker, O.K. All the A class "Aussies" and all N.Z.'s come in with great volume at night, no reaction and filaments cut down. I don't think there is a station in Aussie or N.Z. that I can't get on the speaker. The Japs also, KGO, KEX, and a couple of others. I haven't heard the call of yet. I could go on praising this set all night but I suppose you have had enough by now.

## End of Double-Ended Screen-Grid Valve.

THE Marconi and Osram type of screen-grid valve is to undergo a change. In future they will be made on the same plan as the UX222, with the ordinary four pins in the base and the fifth or control grid connection on top of the bulb. A copper "lid" is to be supplied that will completely screen the valve externally. Standardisation and facility in manufacture are the reasons bringing about the decision to make the change.

## Browning-Drake Improvement.

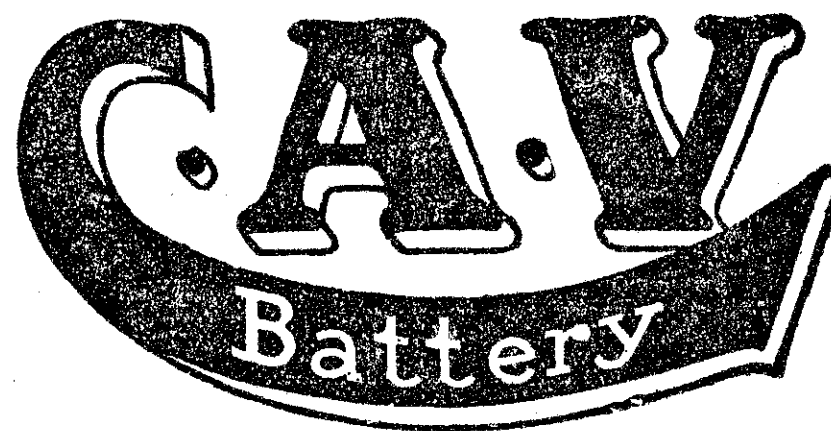
SEVERAL correspondents have enquired as to a method of altering the connections of the Browning-Drake r.f. primary coils. This change was made in the 1928 Browning-Drake, and consists in placing in the r.f. plate B positive lead a radio choke instead of the primary coil. The primary is then connected to the plate with a .5 mfd. condenser in series, so that the other end of the primary is earthed to A negative instead of being connected to B positive. Improved results may be looked for with this change, either in one or two r.f. stages.

## Eliminator Rectifying Tubes.

THE Cc-Co type D.G. full-wave rectifying tube is similar in action to the Raytheon, without filament. It can be used on outputs up to 300 volts, at which it puts out 85 milliamps. The tube sells at 24s. by Bond and Bond, Commerce Street, Auckland. This information has been forwarded by a correspondent.

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