

of valve used, can be obtained by varying the proportion of the secondary coil, which is used in the plate circuit of the preceding valve.

Shielding always introduces certain losses in the coil, due to linking a portion of the coil's field, and also complicates the mechanical construction of the receiver.

The necessity for shielding is mitigated as far as interstage coupling effects go, while the diameter of the coils is so small that direct pickup from local station is reduced to a minimum as has been demonstrated in practice.

Correspondents Write.

IN response to a general invitation in the "Radio Record" re screen grid (writes F.W.L., Alexandra), I can advise that I have been using one for three months. The set was originally a five-valve Browning Drake, home assembled, with commercial coils, 1—V—3, the three audio stages being impedance coupled.

The set has gradually transformed into a 2—V—1; 1 screened grid, tuned anode, 1 Browning Drake stage, space wound coils on celluloid strips, phasatrol neutralised, detector, and one audio stage, with a pentode.

The two radio valves have by-pass condensers and decoupling resistance in the B leads; the detector and pentode screen are by-passed, and two 100 Henry chokes out of impedance formers are used as decouplers. The two radio stages and the detector are fully screened in upper. The set is used without reaction. I took the tickler right out and when I was using a good choke it was a pleasure to listen to. It isn't bad now, but won't carry the same volume without distortion. I found the screen grid a big improvement, but the tuned anode has broadened the tuning, and I can no longer separate 2BL and JOAK. I sometimes use anode bend detection on 2YA, when it is coming in well (very variable here), and notice the sharpness of tuning of the detector stage as compared to leaky grid. The set is extremely quiet, and cannot be made to oscillate, and I am considering replacing the Browning Drake stage with another screened grid, but the selectivity question deters. I'm afraid I wouldn't be able to separate 2YA and 2FC.

I HAVE wired my set to your diagram No. 1, "Application of the Screen Grid" in the "Radio Record," Vol. II, No. 36, writes H. Jacob, Mangaweka. I use the best components procurable. I rewired the set at Baster (1—V—3), and since then I have had the following stations: New Zealand's 1YA, 2YA, 3YA, 4YA, 2ZM, 2ZF, and 3ZC; Australia: 2BL, 2FC, 2UE, 2GB, 3AR, 3LO, 4QG, and 7ZL; and three other stations I cannot get the calls—eighteen in all. The first 14 were all too loud when tuned right up to the mark. These stations could be heard about half-mile away. You can see I'm getting all the volume I require.

I have shielded the S.G. stage and the Det. stage, and I am now getting a very good tone. It is very seldom I use the four valves, as I find that I lose tone if I come down to that.

I think Mangaweka is rather a poor reception place, as a friend of mine has a five-valve set, about nine miles from here, and he can pick up America and Japan fairly often. There are eight sets here, and not one of us has picked up America or Japan.

I HAVE taken advantage lately of your Queries and Answers Column in connection with the application of the screen grid to the Browning Drake. I know that the term "Browning Drake" is somewhat a misfit, but I call it such for the want of a better name. I made "Pentodes" 1 to 1 transformer, as described in an earlier issue of the "Radio Record," and used a 442. I found that with 140 volts on the plate and 67½ on the screen that the results were entirely satisfactory. I tried 80 volts on the screen, but it seemed to choke the valve, and after a little experimenting 67½ seemed to be the best. The second dial also tuned broad. I might state that I joined the grid leak return to A minus, but have altered it to A plus. Would that make any difference to the broad tuning?

(It may improve matters depending on conditions particular to the set.)

I tried a .0001 fixed condenser in the aerial, but it made the tuning the reverse—too sharp, in fact. (Try bigger valve 00025.) I may also state that the B battery, which I made to "Megohm's" specifications, is still going strong. The only thing that is worrying me is the broad tuning. I have shielded the R.F. stage only, using 615 as detector with 5 megohm leak and usual audio stages.—"Dials" (Napier).

I HAVE been very interested in the discussions for and against transformer coupling and I am sure discussions of this nature are of interest.

By closely coupling the primary and secondary of the transformer and tuning the secondary with a parallel condenser, it is stated that indirectly the primary is tuned.

Now, as an example, if both consist of 60 turns and the secondary has a parallel condenser to increase its wavelength, how can the primary be tuned any way near the desired frequency without a similar capacity across it or increased turns?

I notice this week that an American, a Mr. Marvin H. Thoreau, in a letter on page 8 states that the "best sellers" are kit sets which tune both grid and plate circuits of S.G. Perhaps it would be worth the extra to tune both, as it is very desirable using S.G. valves to gain as much selectivity as possible.

About six years ago I used an aperiodic transformer (both primary and secondary) and found it fairly good. I believe it was wound with resistance wire to make it aperiodic and I have an idea that perhaps, if in the coupling you suggest the primary was wound with fine resistance wire, it would be aperiodic to the tuned secondary.

When Browning designed the B.D. Regenerator, he was careful to place the primary as near as possible to the grid end of the secondary coil, and apply reaction to the filament end, presumably to avoid damping.

Now I suggest winding 60 turns fine resistance wire solenoid fashion on a celluloid former to fit closely (say, 1-16th inch) inside a low-loss secondary of 60 turns No. 24 S.W.G. As the secondary would be the longer, the primary could fit under the grid end and reaction could be coupled to the filament end.

I am contemplating using a potentiometer in the grid return of the S.G. valve, so as to get any degree of grid bias. Do you think this worth while? Finally, can I expect a S.G. set of the type discussed to be as selective as the

good old Browning-Drake?—"Mech." (Dannevirke).

Comments.

The circuit referred to, tuning both plate and grid, is an altogether different circuit. The primary is tuned, in the close-wound primary and secondary, in centre of its light magnetic coupling with the secondary.

The correspondent is under a misapprehension regarding the placing of the primary in the B.D. It is placed under the filament end of the secondary. This would not act with the screen-grid valve. The potentiometer to control grid bias should be OK.

For selectivity, the four-valve B.D. is hard to excel.

RADIO DIRECTORY

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- T.C.C. CONDENSERS** A. D. Riley and Co., Ltd. Anzac
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COUNTRY TOWNS

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