

ANOTHER method of using midget condenser to obtain increased sensitivity and selectivity is shown in Figure 6. Here we have a midget condenser connected from the plate of the detector tube to the plate of the preceding r.f. tube. With this arrangement the detector circuit will be thrown into oscillation as the capacity of the midget is increased; the improved performance which can be obtained from an arrangement such as this is sometimes remarkable. In addition it makes it possible to tune-in distant stations by means of a heterodyne whistle.

With the circuit shown in Figure 6 it may be necessary to reverse the connections to the primary winding of the r.f. transformer in order to make the circuit oscillate. To determine this point it is simply necessary to set the midget for maximum capacity, and if the circuit does not oscillate to reverse the primary connections.

Instead of connecting the condenser between the two plates a small regeneration coil may be used as shown in Figure 7. And incidentally this latter arrangement has the advantage that one side of the midget condenser is at ground potential so there will be no hand capacity effect such as might be experienced with the circuit of Figure 6. But whether Figure 6 or Figure 7 is used, in both cases it will almost invariably be necessary that there be an r.f. choke in the plate circuit as indicated. Without the choke it will not be possible to make the circuit oscillate.

IN screen-grid r.f. amplifiers, especially those using impedance coupling, the midget condenser can be used as a coupling control. Sometimes these circuits tend to oscillate and by gradually reducing the capacity, thereby decreasing the coupling, the circuit may be set just below the point at which it oscillates.

It seems that a set these days cannot be considered modern unless it has a tone control, and it is therefore

The Uses of Midget Condensers

(Concluded from a previous issue.)

interesting that a midget condenser can be used for this purpose. To obtain a tone control capable of the most gradual variation the circuit of Figure 8 can be used. Here we show a midget of some 300 mmfd. capacity connected across the secondary of one of the audio transformers in the audio amplifier. With the condenser plates all out the circuit will function normally, but as the plates are gradually tuned in, adding more and more capacity across the secondary, the high frequency response will slowly fall off. In this way the relative emphasis on the low or high audio frequencies can be varied to suit the taste of the listener. If a resistance coupled amplifier is used the midget condenser may be connected directly across the grid-leak, or across the grid-choke in the case of a double impedance amplifier.

WHERE a midget condenser is used for tuning radio-frequency circuits it should preferably not be of the ordinary straight line capacity type, since the tuning will then be crowded at the lower end of the dial. For such purposes a condenser with a plate shape that will give more uniform separation between stations will prove much more satisfactory.

Where only infrequent variation of the condenser setting is necessary there is no need to use a midget variable condenser. Some type of compact, semi-adjustable condenser will be more practical. For example, condensers of this type are used for neutralising and for balancing the various sections of a gang condenser, since in these cases the condensers when once adjusted do not have to be altered unless tubes are changed.

There are many other uses for both the midget and the equalising condensers that will immediately suggest themselves to the broadcast and short-wave experimenter. Our purpose here has simply been to indicate, in a general way, their utility.

[Reprinted from "Radio News" by arrangement.]

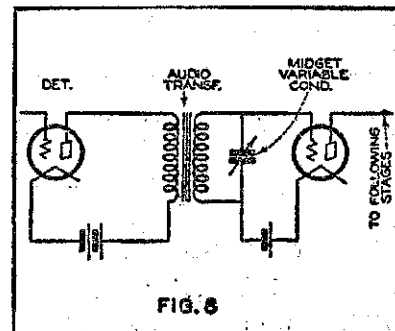


FIG. 8

Figure 8. A midget condenser of about 300 mmfd. can be used as a tone control. The condenser is connected directly across the secondary of the audio transformer, or across the grid leak in a resistance coupled amplifier.

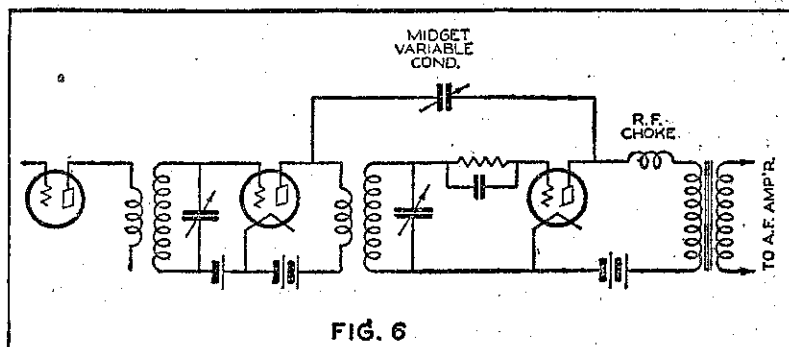


FIG. 6

Figure 6.—A method of increasing sensitivity and selectivity by adding regeneration to the detector circuit. This arrangement can be used with many types of sets, a.c. or d.c., screen grid or otherwise. The midget variable condenser is connected from the plate of the detector tube to the plate of the preceding r.f. amplifier tube.

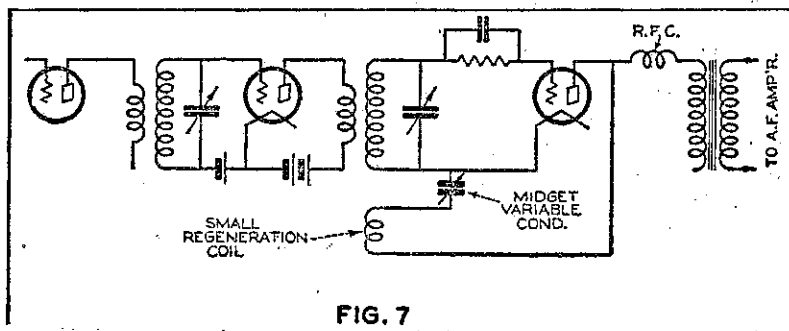


FIG. 7

Figure 7. Another circuit arrangement for adding regeneration to the detector circuit. An additional coil of about 20 turns is wound near the filament end of the r.f. transformer, one side of the coil connecting to the detector plate and the other side to the stator of a 50 mmfd. midget variable condenser.

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