

Tuned Anode Coupling.

YET another method of coupling is shown in Fig. 4. This is really better than the one using tuned anode, Fig. 1 and the diagram Fig. 3. The tuned anode suffers from one drawback. It often suffers from objectionable body capacity effects. The best cir-

cuit to try for anyone who would go to the trouble of preparing the coil. For broadcast band, 60 turns on each coil, one being tuned with a .0005 m.f.d. condenser would be found suitable.

Reference was made for a screened grid booster earlier in this article, and Fig. 5 gives the theoretical diagram for this. The whole unit can be made

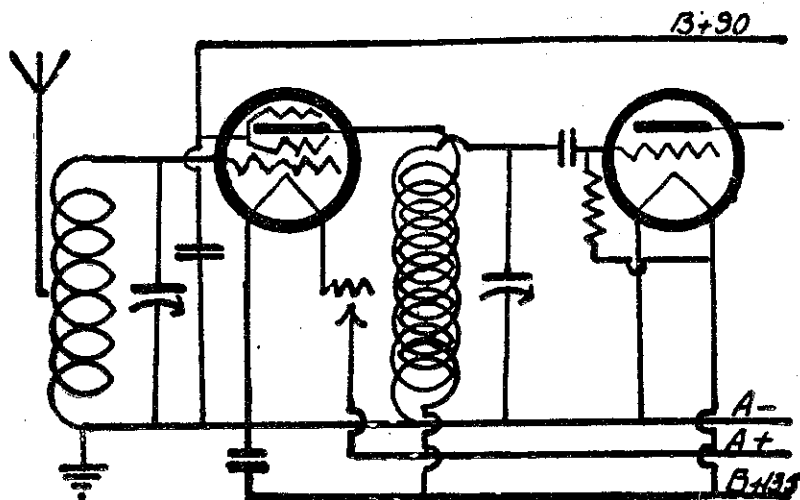


Diagram 4.—Transformer Coupled R.F. Stage.

cuit of all would be one using a 1—1 in a very compact form and stand ratio R.F. transformer with both the primary and secondary tuned. This would add too many tuning controls, but it has been found that if two coils are coupled very tightly together and one is tuned, the other also has the characteristics of the tuned coil. So

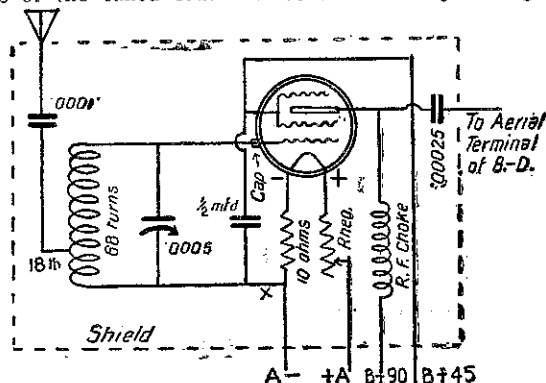


Diagram 5.—The Screen-Grid Booster.

if the primary and secondary were close wound, each having the same number of turns, the secondary being tuned, a very efficient coupling would be produced. In practice this can be accomplished by space winding one coil and winding the other coil in the spaces. Fig. 4 would be an excellent

short as possible, to either the grid tuning condenser. The wire, to lessen direct or to the fixed vanes on the first capacity effects, need be no larger than 24 or 26 insulated, and, if necessary, to shorten the length can be led through a hole drilled in the end of the cabinet.

The Value of the Grid Leak

Variation Advisable

IN tracking down distortion, the small inoffensive looking grid leak is often overlooked, but an incorrect value of this is quite frequently at the bottom of much trouble. Fundamentally, the problem of the grid leak is that a high resistance increases signal strength, but also increases distortion while the converse is true of the lower value grid leak. The value of this may vary from time to time according to the volume of the station that is to be tuned in.

Optimum results, therefore, can be obtained then only by varying very frequently the value of the grid leak. This would necessitate the keeping on hand of a very large number of these resistances which would mean an outlay greater than the average constructor would be prepared to meet.

By the introduction of a grid leak clarostat or a variable grid leak with a range of .1 to 10 megohms, adjustment of the value of the grid leak may be made for every condition. At the same time, the inclusion of a variable grid leak acts as a good volume control.

On the Low Frequency Side.

A PART from the detector, the grid leak has an important function to serve in resistance and impedance coupling. By means of an adjustable resistance, the value can be calculated to a nicety and make possible the employment of larger coupling condensers. The substitution will allow of the desired bass notes to be faithfully reproduced. Resistance coupling responds to low frequencies very faithfully, with the result that there is sometimes set up a low frequency oscillation due to coupling between circuits. This is heard in the speaker like the sound of the exhaust of a motor boat. Consequently the term "motor boating" has been applied. The simplest way to offset motor boating when it occurs is to use a lower resistance of grid leak for one or more stages together with smaller blocking condensers. Often the lowering of the grid leak resistance in the first or second stage will serve the purpose. In this respect the variable grid leak will serve the simple cure.

Water for Batteries

WATER from the city supply usually contains a certain amount of mineral salts and should not be used in storage batteries or chargers, as it will deteriorate the elements therein, thus shortening their life considerably. Only water free from impurities should be used, first of which is distilled water which may be purchased from almost any drug store. Rain water or melted snow makes a very good substitute for the distilled water, and may be gathered at no expense whatsoever. Rain water if kept in a metal container, will absorb some of the metal. This being the case, water to be used for storage batteries or chargers should always be kept and handled in nonmetallic containers.

Battery Isolation

Avoiding Leakage

THERE are many users of wireless sets who religiously isolate their A and B batteries by disconnecting the leads to the set, either at the receiver or battery end, each time the set is to be switched off. They prefer this to an ordinary push-pull switch on the front of the panel, stating that they have experienced trouble in the earlier days as the result of leakage inside the set.

It is not deemed advisable to discuss the pros and cons of the procedure here, but rather to show how this "isolation" idea can be put into operation in an efficient manner, and gives, in addition, the advantage that all connections—A, B, and C (if the last-named is used outside the set)—are broken at the same time with extreme rapidity.

Instead of mounting terminals on the strip of ebonite generally provided for that purpose at the back of the cabinet, fix into the hole positions small panel-mounting sockets, and make the receiver connections for the batteries to the soldering tags at the back of the sockets. The number of sockets required will depend, naturally, upon the number of battery points brought out. As far as the battery leads themselves are concerned, they must be taken to an ebonite strip half an inch wide and a quarter of an inch thick, and whose length is governed by the number of terminals it replaces. On this piece of ebonite must be mounted a number of plugs, the holes being drilled so that they coincide exactly with the socket positions. Connected to the nuts and screws at the back of these plugs we have the various battery leads, either arranged in the form of separate leads or as a multi-way battery cord, whichever fancy dictates.

The strip holding the leads and plugs can be withdrawn bodily from the sockets when the set is finished with, and the set is then completely isolated, and by using good quality ebonite for the strip there is no likelihood of any leakage taking place between the respective plugs. The idea works admirably in practice.

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