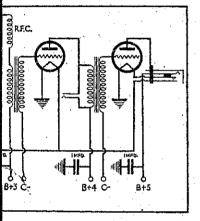
Shortwave Set

h Screen Grid

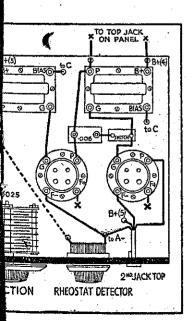
Sellens

i set coveted by many shortused by Mr. F. W. Sellens, ib, who compiles our weekly e requested details of his asions better than this when



It will be noticed that the metal porcions are connected to A+ and to earth. Only one side of the moving condensers a shown connected to anything, for the moving plates automatically connect with the screen. Note that the letector condenser has two conneccions, each of whom is from the stator plates.

The jacking arrangement should not resent any difficulty. The top jack is nerely a two-spring affair insulated rom the panel, and one side connects



with P of the second audio transformer and the other to B+ of that transformer. Do not use a complicated arrangement to cut out the primary of this transformer when using the first stage. It complicates the wiring too much and is liable to introduce unwanted oscillation. Use a filament break jack for the second stage and arrange it so that when the plug is in position the filament circuit to the last valve is made. One of the diagrams shows this fairly clearly.

It is always easier to tune with the 'phones in the first stage and then if the station is coming in strongly enough connect up the speaker to the last stage. There is usually a little too much background when four valves are used on the telephones.

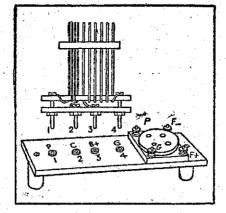
AN output filter out of the set is almost a necessity. Arrange this in some convenient place and connect the output side to a 'phone jack. The input side is connected to a plug, which can be connected with whatever jack is to be used. Either 'phones or speaker can be connected with the output side of the filter, but of course the plug connected with the filter must be taken to the appropriate jack.

It is perhaps unnecessary to add that the aerial terminal is well insulated from the sub-panel. It is on a piece of ebonite with a hole a little larger than its shank, and thus cannot connect with the frame. The earth terminal is taken direct to the cabinet

The Coils.

IF you can buy the formers for these well and good; the job of winding them will be simple. If they have to be made, the job is not a difficult one, but will need care, for they will best be wound on celluloid. I shall not pause here to describe in detail how the coils are made. That was done fairly fully in the 1930 "Radio Guide," but as I understand this is out of print, I have asked the Technical Editor if he would reprint the portion that is of interest.

COIL formers of various kinds are offered for sale, and many convenient forms can be purchased, but there are still many constructors who prefer to construct their own coils, and to such there is no material that makes a greater appeal than does cel-



luloid. It is easily worked and joined, and looks neat when finished, and the amount of labour involved is small.

Many constructors are already familiar with this type of coil construction, but for the benefit of many newcomers to the constructional realm we give a resume of the important points of the process.

One advantage of this material is that it may be procured in any town possessing a motor-trimming establishment, and its cost is small. Roughly speaking, two thicknesses are usually obtainable, one being heavy and the other light, the latter being most suitable for the construction of cylindrical formers. If the sheet celluloid is too heavy, it will go out of shape at the joint. Where flat pieces are required, the heavy sheet is more suitable, as it gives strength.

Celluloid can be cut with scissors, but the usual method is to scratch the surface heavily with a sharp steel point, when the sheet may be bent smartly, and will separate at the scratch. A pair of punching pliers is very handy for making round holes for screws, or for cutting out special shaped holes or slots, cutting away the celluloid little by little with the punch.

The best solvent to use is a mixture of two parts of acetone to one part of amyl acetate. The chemist will put these both into one bottle, and the solution is there ready for use. To make celluloid cement, waste celluloid is cut into chips, placed in a small bottle, and covered with the liquid to twice the height of the chips. With an occasional stir, the celluloid will be dissolved in about an hour, and should be of creamy consistence for use—running off the stick which is used for application. As the solution evaporates quickly, keep the bottle wellcorked when not in use, and keep away from an exposed flame. The solution, if applied thinly and liberally, sets in a few minutes. This mixture, if made extra thin, is suitable for "doping" linen-diaphragm speakers.

Round bottles are the handlest article upon which to maye cylindrical formers. All that is necessary is to select a bottle just under the required diameter, cut a piece of celluloid the length of the cylinder in one direction, and the opposite dimension just sufficient to-go round the bottle and over-lap not more than 3-8 inch. Both surfaces that overlap are covered with a thin layer of cement and then drawn round the bottle, overlapped, and pressed together. The whole must now be covered with many turns of twine wrapped tightly round at random, so that turns are an average of 1-8in, apart, keeping close to the ends particularly. When overlapping the join, a strip of thin paper should be (Concluded on page 31.)

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