

# SPAN FIVE"

## and Economical

### "Browning Drake"

#### ICAL EDITOR

shields have to come into position. A general idea of the lay-out can be obtained from photograph 1. Coils and transformers are placed in line at the back of the set, while in another straight line some 4in. away are all the valves. They are quite in order from the first radio frequency to the power valve. See that the valve sockets are turned round in the right direction. All filament terminals face the panel, while the grid and plate lie in a straight line on the more distant side.

#### Winding the Coils.

THE coils should now be wound.

Divide a foot of 2in. tubing into three lengths for the secondaries and 1½in. tubing, 6in. long, into three sec-

tions for the primaries. The method of winding the coils is left to the constructor, each one of whom will probably have his own ideas. We find the easiest way is to start by drilling two fine holes and threading the wire through these, then wind on the required number of turns and finish off through two coils. It is an advantage to bring out the ends at certain specified places, as this simplifies the wiring. For instance, in the first coil, the top and bottom are brought out on the one side and solder lugs attached quite close to one another. When mounted these will face the panel. The number of turns on this coil when wound with 26 gauge wire is 75.

In winding the first r.f. coil the top is brought out on one side and the bottom about 1½in. further round and as close as possible to the point where the foot is to be attached. This end is earthed so its proximity to the foot will be a decided advantage. On this coil are wound 80 turns.

For the third r.f. coil a little space must be left at the top on which to wind the reaction coil. The bottom and top of the main coil are brought out quite close together. Seventy-five turns should be wound on this secondary. Leave a space about 1-8in. and wind on another 30 turns of 32 s.w.g. wire; bring the ends out about 1in. round from the secondary terminals. When mounted these two will be between the back of the set and the two secondaries toward the front and left. The primary coils are now wound separately. For the aerial coils 25 turns of 34 gauge are wound, the ends threaded through the former and brought out ready to be attached to solder lugs on the main former. Both ends should be near one another. The same applies to the other three coils, but 30 turns are wound upon each. All coils are wound in the same direction.

In mounting the primary inside the secondary former some means of holding it in position will be required. We have found that little pieces of ebonite tubing are quite useful for this purpose.

Roughly speaking, the bottom of the primary coil should come opposite to the bottom of the secondary coil. In the case of the first coil turn the former round until the two ends are opposite the two lugs already on the former. These are then taken out to solder lugs. The bottom of the aerial coil and the bottom of the secondary coil are joined and these are earthed, a suitable connection for which may be the foot that is attached to the coil. In the case of the secondary coil, the small former is arranged so that both taps come out to the back of the coil,



Photograph 2 (upper) shows the front panel layout.

Photograph 3 (lower) is a back view of the set.

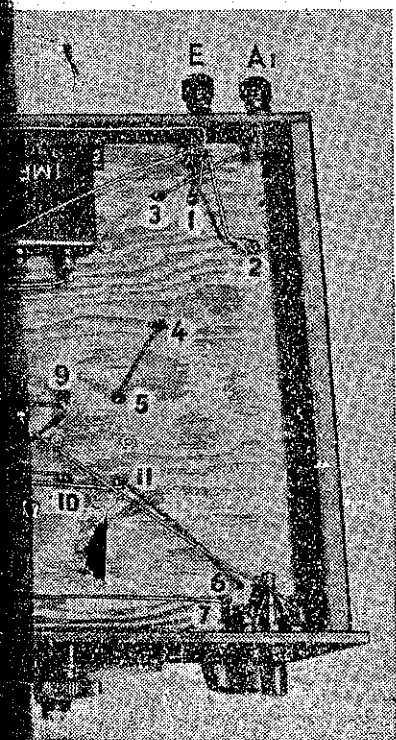
that is, the side directly opposite to its existing terminals. In the third coil the two must come out close to the two ends of the main coil. When this coil is placed in position these four terminals face the panel and the two regeneration taps are at the back. If English type screen-grid valves are used, the top ends of the second and third coil are connected to flexible leads which are taken to terminals at the top of the valves. If American valves are used these go to the appropriate plate terminals on the first and second r.f. valve bases and the tops of the main coils are connected with the terminals on the top of the valves. A suitable connection may be made from the fixed plates of the moving condensers.

The diagram of the third coil will be of considerable assistance to those who make their own coils. Those who do not feel equal to the task (it is really quite a simple one) can obtain them already made for quite a very reasonable sum.

Cut a piece of ebonite the length of the sub-panel and 1½in. deep. On the

left hand end drill 10 holes and mount the terminals. The designations of these are quite clearly seen from the photograph showing the underneath wiring (4). On the right hand end drill two holes for the aerial and the earth. Two pieces of ½in. timber will be required for the sides of the base. These will be 9½in. x 1½in. Fasten the aluminium to a piece of three-ply of equal size and mount panel and sidepieces. Angle brackets will hold the panel and sub-panel together, as can be seen from the photographs. Actually the aluminium sub-panel will be 1½in. from the bottom of the front panel. This is to allow for wiring and components to be placed underneath and to protect the wire from damage. At this stage fit the valve sockets and the coils and transformers on the sub-panel in the positions indicated in the photograph. These are bolted right through the three-ply and the aluminium. The grid-leak and the condensers are likewise attached, but there is no

(Concluded on page 29.)



- Fig. 4.
30. Plate terminal of first audio transformer.
  31. Grid terminal of regenerator.
  32. B regenerator.
  33. Regeneration coil.
  34. Regeneration coil.
  35. B+ first audio transformer.
  36. G.B. first audio transformer.
  37. End of secondary regenerator (det. return).
  38. B+ second audio transformer.
  39. G.B. second audio transformer.
  40. (Between condensers reading "4") B+ second r.f. transformer.

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