

weight of 22's d.c.c. will make over 100 turns, and enamelled about 120 turns. Two ounces of d.c.c. or enamelled 24's will make about 90 turns.

On a 2½ in. former, quarter-lb. 20's d.c.c. will make 80 turns, and enamelled about 88, and for 100 turns just over 3oz. of 22's d.c.c. or under that quantity of enamelled. One ounce of 26's d.c.c. makes over 75 turns.

These figures allow a small margin over for connecting up, but if the former is even slightly over the specified diameter, more wire will be required

Winding on the Turns.

HAVING the wire as specified, two small holes are now made half an inch from one end of the former, sliding it partly off the bottle for the purpose. Through these holes the end of the wire is passed, leaving six inches spare for connecting. The former can now be placed on the knees, with the spool of wire on the floor. Commence winding at the left-hand end, turning the coil towards you, and guiding the wire with the left thumb, using suffi-

cient pull to straighten out ordinary unevenness. Sharp kinks should be straightened by special treatment.

When the requisite number of turns has been wound, pass the end of the wire through two holes as at the beginning, and leave a sufficient length over for connecting.

Low-Loss Coils.

THE usual low-loss coil is made of plain tinned or enamelled wire wound with a space between each turn, half the diameter of the wire being a good proportion for the spacing. For short-wave reception heavy wire is used, spaced its own diameter apart when necessary. Whether the wire is tinned or enamelled matters little, but the latter ensures that turns will not

and once made, can be used as often as desired.

A number of circles of cardboard are cut, the diameter being less than that of the inside of the finished coil by twice the thickness of the former. A number of small squares of wood, ¼ to ½ in. thick, are also required. A hole is drilled in the centre of each circle and block, and the whole can then be threaded upon a piece of twine, which is secured at each end by twisting round a nail or otherwise. This pile of circles can be used to make the former on just as a bottle is used, but it has the advantage of being withdrawn without trouble when the coil is complete, and if the former is split lengthways it may be used repeatedly. See diagram. Some constructors use a tin for the former instead of cardboard.

Stock Coil Formers.

MANY types of coil former are stocked by radio dealers, a convenient form being composition tubing from which the required length may be sawn as required by the purchaser. This tubing may be plain circular or may be cast with six or more projecting ribs running lengthways. Upon these ribbed formers good low-loss coils may be wound without the preliminary labour of constructing the former.

Another type of ribbed former is the six-pin coil with plug-in base. This former is cast in bakelite, with 12 small ribs. The diameter may be 2 3/8 or 2½ inches, and length 2½ to 3 inches. Three separate coils, primary, secondary and tickler, may be wound upon these formers, the whole being plugged into the corresponding base with one operation. Some are provided with notches on the ribs to facilitate spaced winding, otherwise spacing may be obtained by using double cotton-covered wire, or by the method already given, securing the turns with cement.

Celluloid Formers.

WHEN the coil is to remain upon the former it may be constructed of motor-hood celluloid, about 20 mills thick, a very neat-looking coil resulting. A former must be used around which to shape the celluloid with an overlap of not more than ¼ inch. A strip of paper under the joint prevents the celluloid from adhering to the former. When the joint has been made, wrap many turns of twine around the whole, and set aside until next day. Wind the wire before removing the celluloid from the former. If the celluloid is thick there will be more difficulty in making a neat join and tendency to pull out of shape.

Primary and Tickler Coils.

PRIMARY and tickler coils vary considerably in construction. In some cases these are wound on insulating strips over one end of the secondary coil to give the required space between coils. In the Browning-Drake the primary is invariably placed inside the first turn of the filament end of the secondary coil, and must have as little "self-capacity" as possible. Sixteen to twenty-five turns, according to the impedance of the valve, are usual, and the capacity is kept low by winding the turns irregularly or jumbled, so that they cross and recross as much as possible. Double cotton-covered wire assists in giving separation, the usual gauge being 30's a.w.g.

RADIO DIRECTORY

What to Buy and Where

CITIES

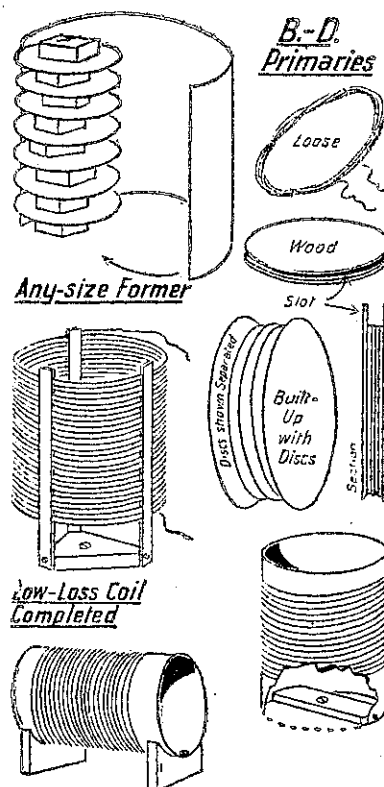
- AERIAL MASTS** Domestic Radio Co., Ltd.,
Strand Arcade, Auckland.
- ALTONA & HAMMARLUND-ROBERTS SETS.** Johns, Ltd.
Chancery Street, Auckland.
- ATWATER-KENT RADIO** .. Frank Wiseman, Ltd.
170-172 Queen Street, Auckland.
- BREMER-TULLY RADIO** Superadio, Ltd.,
147 Queen Street, Auckland.
- BURGESS RADIO BATTERIES,** All Radio Dealers.
- CROSLEY RADIO** Abel, Smeeton, Ltd.,
27-29 Customs St. E., Auckland.
- FERRANTI RADIO COMPONENTS** A. D. Riley & Co., Ltd.,
Anzac Avenue, Auckland, and all leading Dealers.
- CROSLEY SETS** Lewis Eady, Ltd.,
Queen Street, Auckland.
- LOUDSPEAKER AND TRANSFORMER REPAIRS** A. E. Strange,
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- MULLARD VALVES** All Radio Dealers.
- RADIOLA RECEIVERS** Chas. Bennett, Ltd.,
619 Colombo Street, Christchurch.
- RADIOLA RECEIVERS and Expert Radiola Service.** Farmers' Trading Co., Ltd.,
Hobson Street, Auckland.
- RADIO REPAIRS AND SERVICE** E. G. Shipley,
185 Manchester Street, Christchurch.
- WILCOX ELECTRIC RADIOS** Royds-Howard Co.,
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- T.C.C. CONDENSERS** A. D. Riley and Co., Ltd. Anzac Ave., Auckland, and all leading dealers.

COUNTRY TOWNS

- CROSLEY RADIO** J. C. Davidson,
Main Street, Pahiata.
- CROSLEY SETS** F. H. Jellyman, Ltd.,
Devon Street, New Plymouth.
- CROSLEY RADIO** D. A. Morrison & Co.,
Victoria Avenue, Wanganui.
- MAJESTIC, ATWATER-KENT AND APEX ELECTRICAL SETS.** Also Bremer-Tully, Radiola and Browning-Drake

Radio House, Hamilton,
G. S. Anchor, Manager.

APPARATUS All Good Radio Dealers.



"short" if accidentally touched owing to being misplaced by a knock.

Suitable gauges of wire are 20's to 24's, and the best method of spacing is to wind an enamelled wire of several sizes smaller, alongside the wire composing the coil. This thinner wire is afterwards carefully unwound, leaving the coil turns ready to be secured to celluloid strips with celluloid cement. These strips, about half an inch wide, may be three or four in number.

When the winding is complete, the permanent wire is secured through two holes at the end of the former, and the spacing wire is then carefully unwound without disturbing the position of the permanent turns. Thin celluloid cement is now liberally applied to the turns where they cross the celluloid strips, and when this has been done, a duplicate strip of celluloid is pressed into place above the turns and underlying strip. Put aside to set overnight.

The cardboard former may be shaped upon a suitable jar or bottle as already described, or made by the alternative method now to be outlined. By this system, formers of any exact dimensions may be easily constructed,