

ber 7. It consists of a single high mast, with aerial wires radiating like the ribs of an open umbrella. They are insulated from the top of the mast and well above the earth. As the lead-in is attached to each the effective height is the distance of the aerial wire from the nearest earthed object. The aerial would, if not raised to considerable height, act as a very low aerial. However, it would be very suited to congested city areas.

Erecting the Aerial.

HAVING now decided the dimensions of the aerial, the next procedure is to select masts. "What kind of masts shall I use?" Two factors should be born in mind—neatness and efficiency.

A beginner will usually glance round his section to find whether there are any trees, or chimneys, handy to attach the wire. This may be all right,

be amiss. Trees form good aeri-als, especially if high, providing the collecting wire is well away from the tree, say, twenty or thirty feet, at the least, and that the supports are attached to a branch not likely to sway. A swaying aerial gives an unpleasant, rising and falling effect.

Wooden masts. A good mast can be made from 4 x 2 and 3 x 2 timber. For the first twenty feet use 4 x 2, then taper to the 3 x 2, but provide at least two sets of stays, one set of four at the very top, and the next set at the join. If these are insulated, by egg insulators near the mast, and near the ground, so much the better. A diagram is given, showing how a good base can be made, allowing the aerial to be collapsed merely by removing the bolt, and slackening the stays. (b) Steel or galvanised iron pipe masts. These are usually the neatest and easiest to erect, but should be well provided with stays. Commence with, say, a water pipe of 3 inches diameter, and gradually reduce till the top few feet is 1 inch diameter. The collecting wire should be well away from the mast, and the support well insulated from the mast. The stays, too, should be insulated from mast and ground. (c) Lead-in. This should be soldered either to the end, or to the middle of the collecting wire, and should be heavily insulated when nearing any earthed object. It is inadvisable to drill a hole in the wall to pass the lead in to the set, rather procure a flat strip of copper, well insulated, and pass it under a window. Similarly with the earth wire.

From the above summary, it will be evident that the best aerial is a single wire, well insulated from nearby objects, and supported by lofty masts. Facilities to keep the aerial taut should be provided, as shown.

Various Hints.

IT is unwise to share an aerial, as the more powerful set is almost certain to rob the weaker of the waves. A compromise is to break the wire by a series of insulators, and to run a lead from each half.

In congested areas, it is wise to erect aeri-als at right angles to one another. This will minimise interference by radiation. For the same reason, aeri-als should run at right angles to the power lines, even if it means a shorter aerial. The effect will be noticed, especially if a sensitive receiver is used.

There is little danger from lightning, but in order that the reader may not be the one in a thousand whose house is destroyed, and who loses all insurance, purchase and install a lightning arrester. Some firms are selling these, very cheaply, at present, and all receivers must be provided with one.

Further extracts from the Fire Underwriters' Rules are:—

1. Aerial.

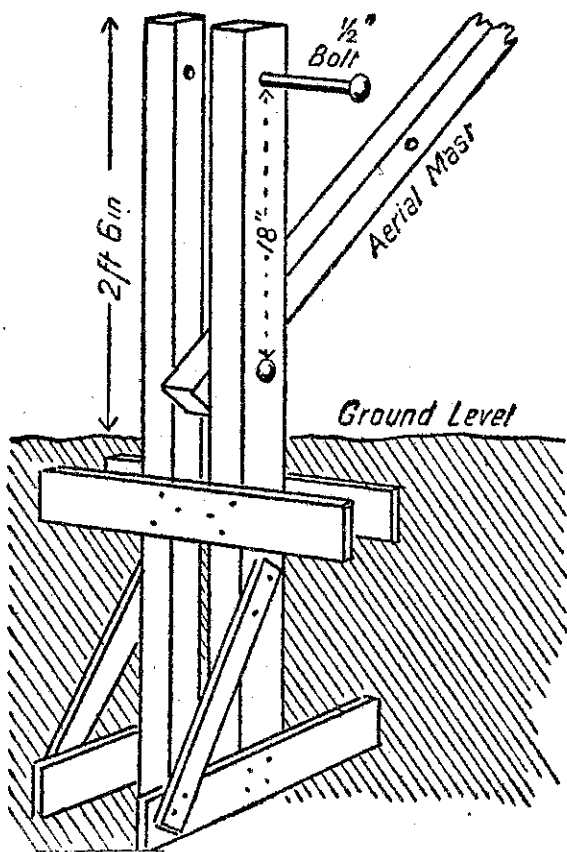
- (a) Aerial or counterpoise or part thereof outside of buildings together with any stay wire in connection therewith shall be so located in respect of aerial conductors of either power or telephone lines that contact by swinging, sagging or breaking is impossible.
- (b) Aerial and counterpoise outside buildings and any stay wire in connection therewith shall be so located in respect of aerial power conductors that a person cannot make simultaneous contact with them.
- (c) When the span does not exceed 100 feet the size of the aerial

wire shall have a cross sectional area of not less than 0.0045 sq. in. (7/.029") or No. 14 S.W.G. Where the span exceeds 100 feet the aerial wire shall not be less than 0.0070 sq. in. (7/.036")

- (d) Supporting structures for aeri-als shall be of ample strength and securely fixed in position by staying or otherwise.
- (e) Indoor aeri-als must not be twisted round or attached to any electric wiring or fittings or to gas fittings.

YOU must not run your aerial across other people's property without their permission.

COIL winding can very often be simplified by the use of a hand drill used in a vice.



But there are a few points to be borne in mind.

The effective height of an aerial is its distance from the nearest earthed object. Thus an aerial passing over a roof would in reality be only a low aerial. The remedy is to connect the aerial by means of a support, insulated at both ends to the chimney. This should be long enough to clear the roof. To the farther insulator, attach the aerial wire. For this reason, too, the actual collecting aerial wire should be some distance from the mast. Six feet is none too much. Where aeri-als are slung between two hills or two similar objects the actual aerial should commence well out from the support.

(a) Trees as aerial masts. An article has already appeared in a previous issue concerning trees as aeri-als, but a word of warning repeated would not



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