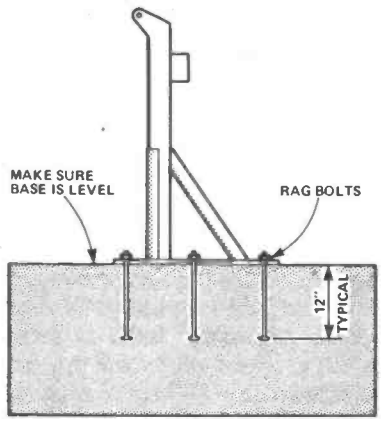

Fig. 5 Base or frame post

material is required. To find the volume of the base simply multiply the area of the bottom of the hole by its depth. Thus:

Volume = A x A x B

cubic feet or metres. (See **Fig. 4.**)

The weight of concrete in the base can be found by multiplying the volume base by the weight of concrete per cubic foot/metre. The approximate weight of concrete is 144lb per cubic ft, or 230kg per cubic metre. Buying the concrete ready mixed or having it mixed on your premises by a contractor is probably the cheapest and quickest method. If you are going to make your own then a mixture in the proportions 2:4:6 of cement: sand:coarse aggregate/broken-brick-filling should do the job providing the mix is not too dry and the hole is properly filled with it. In some circumstances, where the space available for the base is a little restricted, or when the soil is a little loose, it may be necessary to increase the resistance of the soil by spreading the loads over a larger area. This can be done easily by driving suitable lengths of steel angle or 1½ to 2 inch diameter pipe into the soil near the bottom of the hole, leaving a foot or so of the steel reinforcing sticking into the hole itself so that it will become embedded in the concrete when the hole is filled (See **Fig. 7.**) But remember, this is not a subsititute for a proper concrete base. The manufacturers specified dimensions should be followed.

Earthing

A conductive metal structure such as a mast or tower can be affected by the RF being transmitted at the aerial as well as by static electricity in the air and lightning.

In order to minimise these effects and eliminate the possiblities of getting an accidental static discharge, or the tower being damaged by a lightning strike, it is advisable to ground the structure to a suitable 'Earth' point. This can be done by burying up to 3 or 4 feet of copper rod (about 3/8" diameter) or a similar length of copper water pipe and then bonding the base of the mast or tower to it, using a flat strip of copper about 1" wide at least 1/16" thick (16 or 14 SWG). Earthing the tower in this way will also reduce the likelihood of any RF pick-up being reradiated, causing the inevitable TVI.

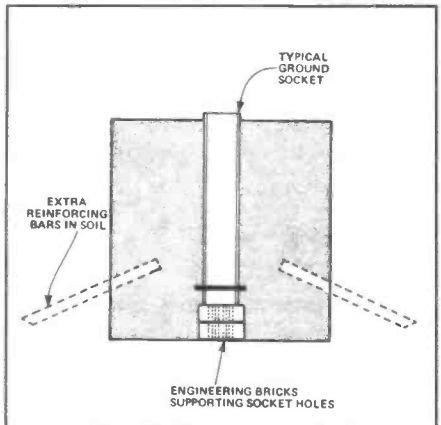

Fig. 7 Ground socket

Safety

Like all mechanical devices, a mast or tower can be dangerous if it is incorrectly used, poorly maintained or overloaded. Remember that safety and performance will depend to a large extent or correct usage and regular maintenance. Most of the problems that arise with mast and tower installations are due to one or both of these factors being ignored. When you are deciding where to position the tower, bear in mind its full retracted length, including the aerial array, and mark out where exactly it will come when lowered down.

Some do's and don'ts

Do read all the manufacturer's instructions before carrying out any operation.
Do observe the manufacturer's specified loadings.
Do inspect regularly for wear and tear.
Do lubricate such things as pulleys and cables regularly.
Do support the weight of the structure when it is horizontal.
Do check that cables are seated in their pulleys before any winching operation.
Don't overload the structure.
Don't tilt over with the mast or tower extended.
Don't allow anyone to stand in its 'line of fall' where tilting down.
Don't rush the operation or let an inexperienced person carry it out.
Don't heave and pull on the end of the structure while it is tilted over and unsupported.
Don't leave the mast or tower fully raised when you go on holiday. Lower it and immobilize it or lock it.
Don't leave yourself uncovered by insurance.

That's about it then, with a correctly installed mast or tower properly used and well maintained, you should be able to keep your aerials in tip-top condition and enjoy many years of happy amateur radio operating. ●

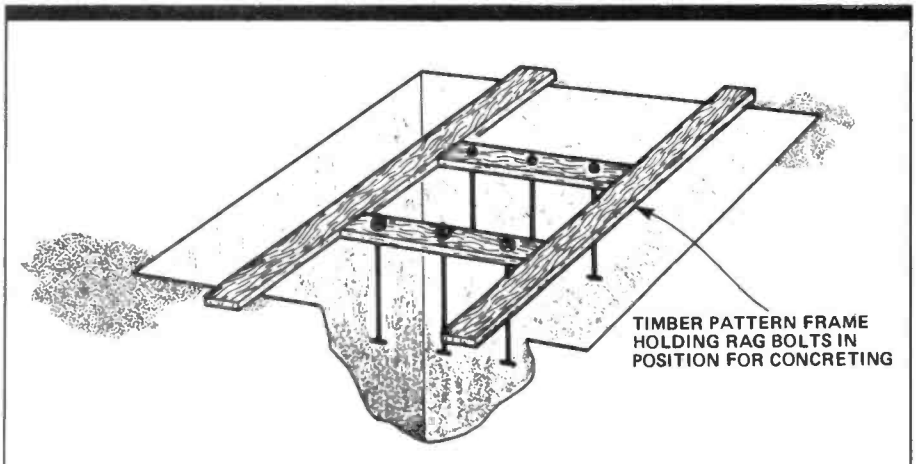

Fig. 6