The Ultimate Anchor

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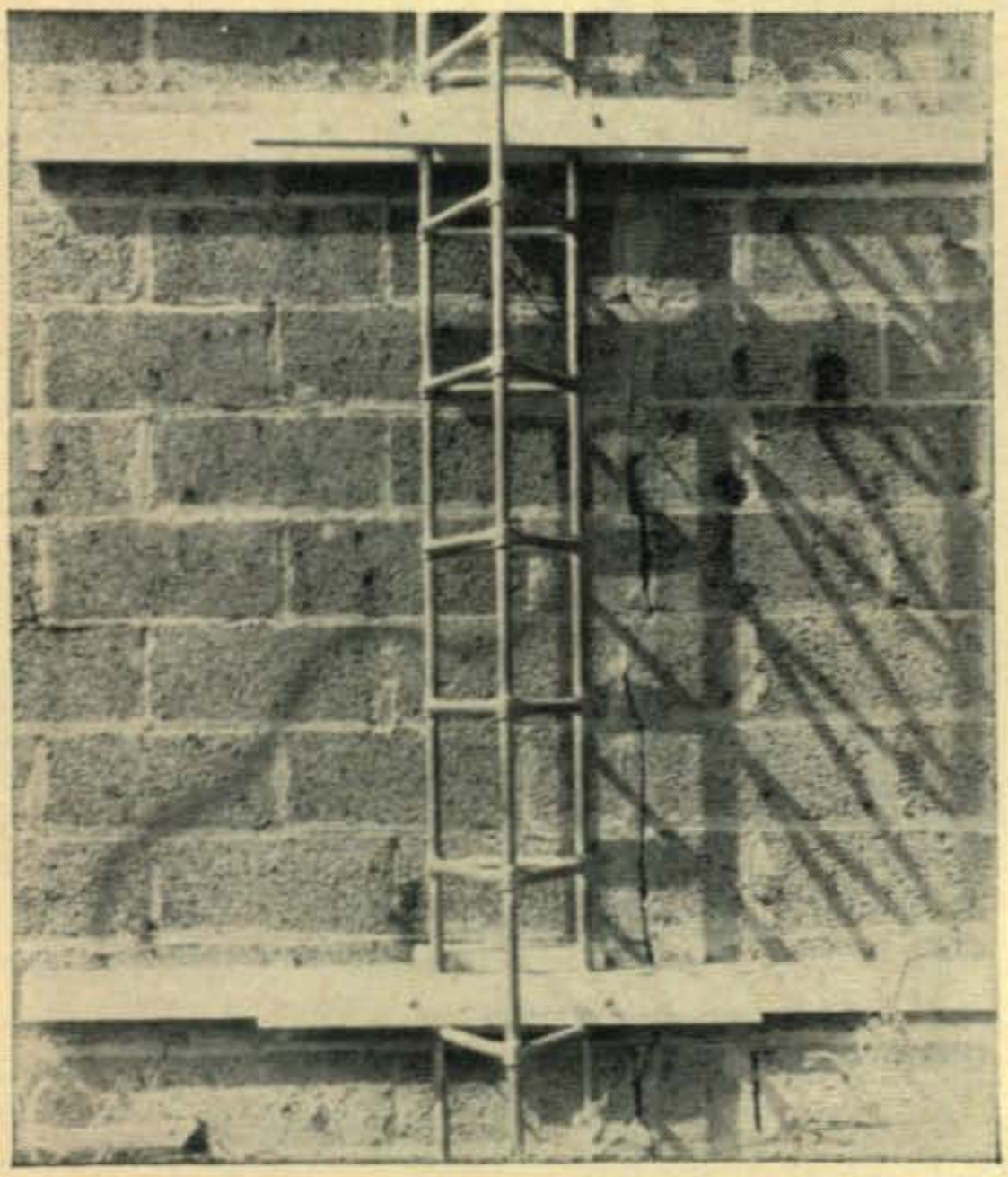
There comes a time in the orderly evolution of each ham who operates on the higher frequencies when the shadow of suspicion becomes a cold, rock-hard fact; if you can't beat 'em, join 'em—GET A ROTARY BEAM! Whether we build, buy, or borrow them, we eventually wind up with a beautiful collection of gleaming metal rods, a powerful package of rotator, and graceful coils of coax and control cable.

The next problem (all the time problems—this is supposed to be a hobby?) in the order of things is where to mount it so it will give us the most benefit. Mounting it on the roof was rejected because of vehement protests of the XYL and the known fact that the metal and wiring in a house does terrible things to an *rf* field. It is finally decided that nothing but a tower will provide the answer. It must be as inconspicuous as possible, so we must put it in the back yard. It must not have any guy wires, so that we don't hazard the possibility of decapitating any of the neighborhood children (ours included, adds the XYL). It must be very solidly anchored so those very masculine storms with the delicate feminine handles won't deposit it in a nearby attic.

The expense of mounting the triangular, climbable, free-standing tower, which the author acquired, in several yards of seemingly gold plated concrete dissolved when his feverish eyes settled on the cinder block garage. It was solid, it had a very wide base, it gave at least six feet of vertical leverage, and best of all; it was already in place—the *ultimate anchor!*



Installation

So much for the preceding verbose drivel, let's get to the hammer and saw stage. First we select two cinder (or cement) blocks in the second course of blocks from the bottom and the same in the second course of blocks from the top and drill holes through the air space portion so that they will straddle the outside dimension of the tower legs. Now we can assemble the following materials—

4—2"x4"x6' lumber for support member.
2—2"x4"x3' lumber for clamping member.
2—2"x4"x14" lumber for spacer.
4—⅝"x2' threaded steel rod.
6—⅝"nuts and appropriate sized washers.
3—ground clamps
3—1"x24" woven copper battery straps
3—6' ground rods.

Drill a ¾" hole in each of the six supporting and clamping members so that they line up with the holes drilled previously through the blocks, and then give all the pieces of lumber at least two coats of paint. Put the rods through the drilled holes and cinch them up tight to the wall with the long end of the rod on the weather side of the wall. The reason for the seemingly unnecessary length of the support

[*Continued on page 117*]

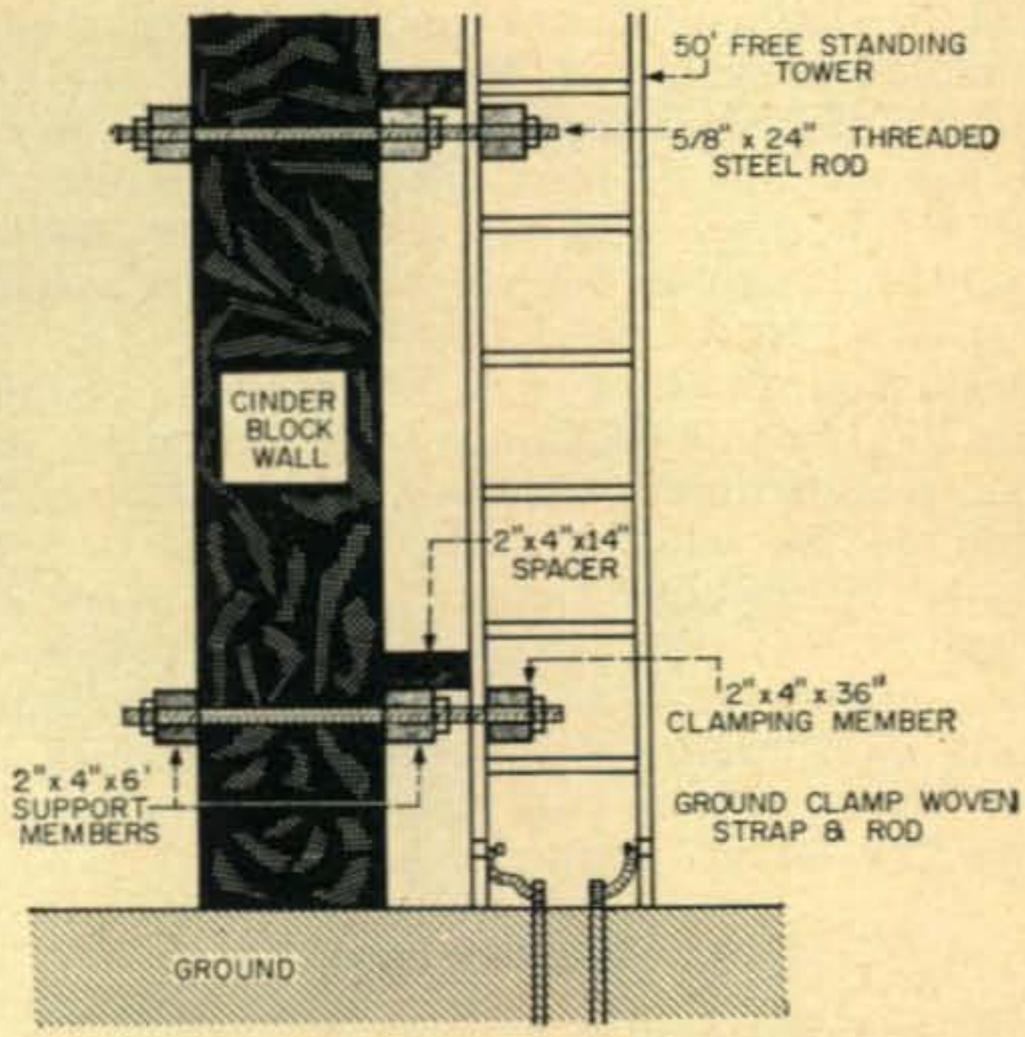


Fig. 1—Cross section view of the tower support.

LIGHTNING [*from page 38*]

won't do much good in withstanding the awful energy in the bolt. If you happen to be unlucky enough to live in a lightning area, the wise and safe thing to do is to ground your antenna and *disconnect* it from your equipment *before* the storm starts! Come what may, your valuable station equipment is protected even if your antenna suffers a direct hit. Disconnect your feedline and drop it out of the window, or let it dangle and touch the ground (fig. 6).

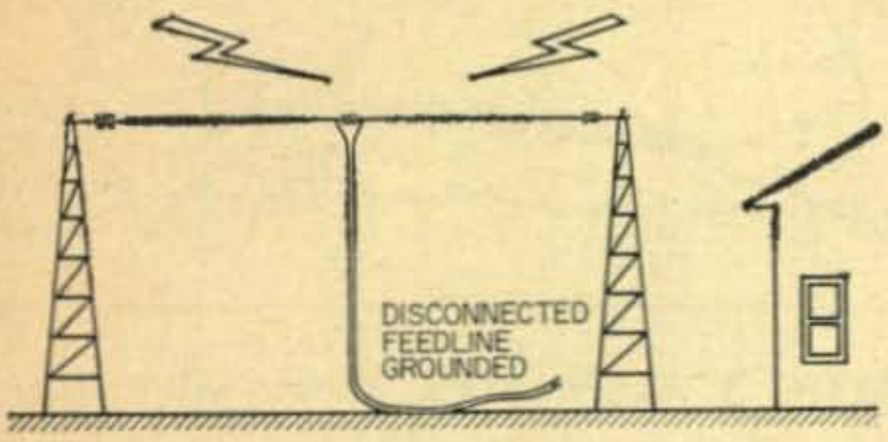


Fig. 6—Safe and simple lightning protection is to disconnect your antenna feedline and let it drop on the ground. The station is completely isolated from the antenna, and you can watch a lightning storm completely at ease!

Your station will be physically separated from the attractive (to the lightning) antenna, and you can breathe in peace while the storm flashes about you!

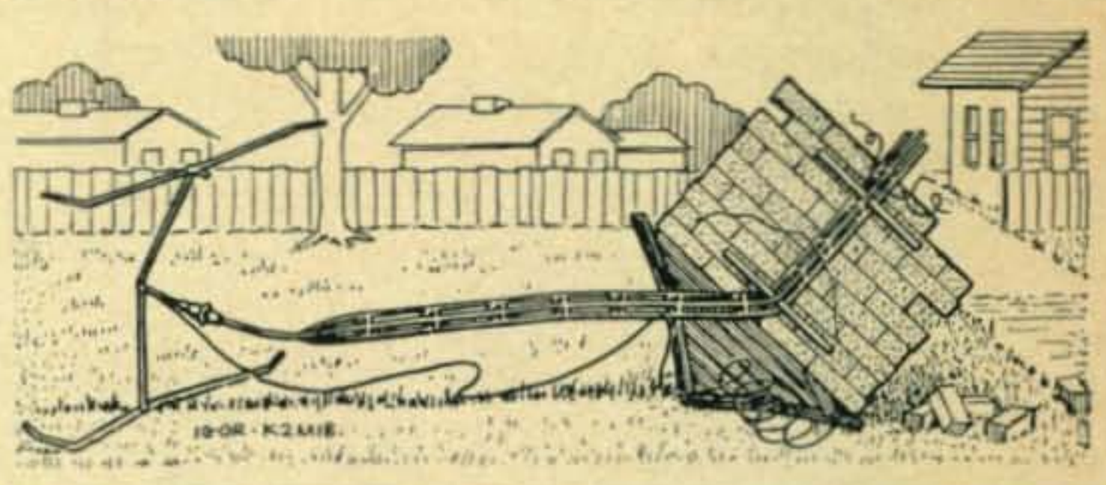
Whatever form of lightning protection you choose, DO IT NOW! When the next storm comes along it may be too late! ■

THE ULTIMATE ANCHOR [*from page 47*]

member is to distribute the stress over as many blocks as is possible. (The cracks in the wall, which are evident in the photograph were there before the tower was even dreamed of, and are not a consequence of its erection.) Now center and screw the spacer on top of each outside support member. This spacer prevents the tower from mutilating any overhang of the roofing material. The next step involves laying the tower out with its base at the foot of the garage wall and having several willing helpers assist in raising it to a vertical position against the spacers. The mechanics of this depend on the amount of help and local conditions, so we leave it to your yankee (except in the south) ingenuity. While your husky cohorts hold the tower vertically, slip the clamping member onto the rods and tighten them securely in place. While your perspiring helpers are quaffing the amber nectar you bribed them with, you can paint over the exposed rods, nuts, and washers.

Experience with our employer, Mother Bell, has instilled a healthy respect for lightning, so we have connected a ground rod to each leg of the tower. The lower resistance path to ground you can offer to lightning, the better protection you afford yourself.

I don't advise this method of mounting be used on a wood frame garage because of the stresses and drumming effects of high winds. Over two years of use has proven our ideas to be sound, both structurally and electrically. I hope the "Ultimate Anchor" will solve one of your problems; and if the neighbors complain, tell them it is the best lightning rod in the neighborhood! ■



40 MTR 3 ELEMENTS [*from page 46*]

condenser with close spacing can be used.

On a large antenna such as this one is constructed it would be almost impossible to reach the adjustment out on the element, if it were a gamma match. Adjustments on the Omega match were all made from the center of the tower.

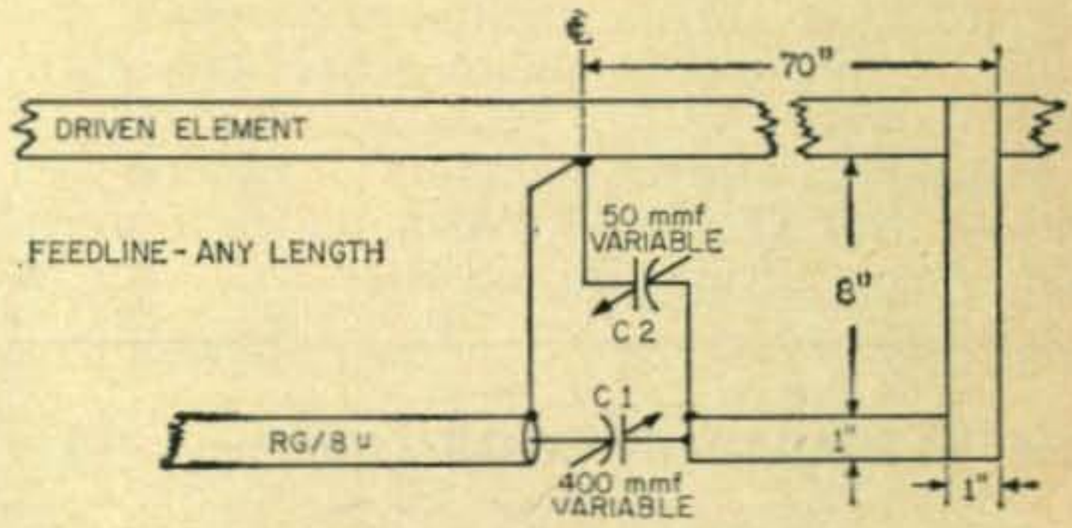


Fig. 4—Gamma match dimensions.

I feed the beam with RG8/U through the Omega matching network. The beam weighs approximately 130 pounds, and is rotated with a Prop-Pitch motor. The elements resonate at 7250 *kc* at a height of 70 feet. The director is 63′ 9″, driver 65′ 11″, and reflector 69′ 4″. SWR at the operating frequency is 1.1 to 1; at the upper edge of the band it is 1.2 to 1; and at 7100 *kc* it is 1.35 to 1.

The Gamma Rod is one inch in diameter and shorted to the driven element at 70 inches. The Omega condenser is set approximately 50 mm. The Gamma condenser at 400 uuf.

Conclusion

Checks on the air prove the beam was really a worthwhile project. The f/b ratio of the beam is approximately 25 *db*. The most objections the fellows have about this beam is that it cannot be put up on a small property; the turning radius being nearly 35 feet. Also, it does require a good husky tower. Even at this it was fun to build and has *proven its worth* on the 40 meter band. If you have questions, I am on 7296 *kc* nightly. ■