*Our Sky (wire) King answers head-scratching questions like: which way do I put the line through the pulley?*

# A Primer Of Rigging And Erecting For Antenna And Mast Builders

BY T.E. WHITE*, K3WBH

Nothing takes the joy out of hamming as much as the aerial that won't go up or the halyard that won't come down. For those who don't own their own fleet of cranes or command the services of members of the local heavy haulers union, here is a brief course in blocking and tackling (no, Virginia, not the gridiron variety), and other secrets of the rigger's art.

We will cover lifting, guying, anchoring, reeving pulleys and blocks, winches, and other arcana of putting the laws of mechanical advantage to work for the ham who may hold an advanced ticket, but who is a novice in hanging skywire from skyhooks. There are tricks of the trade which enable one or two people, or four at the most, to accomplish easily and safely what at first glance may seem to require a whole crew of power company linemen or circus roustabouts.

Say we need to raise a typical tubular mast which will support one end of a wire antenna. What is axion number one? Answer: measure, cut, and preassemble *everything* in the shop or in the yard first. This means every turnbuckle, guy length, swivel, guy ring, pulley, lifting line, etc. (and oil the pulleys).

This article is written not for permanent broadcast-station-quality installations as much as it is for field-day and semi-permanent backyard work. But still, quality pays. Use plastic-coated guy wire; it's easy to work with and will support almost any mast you'll ever raise. For turnbuckles, rings, thimbles, and clamps use marine-grade hardware, not chain or franchise electronic store varieties. Spend a dollar and be safe and happy. Wilcox Crittenden of Middletown, Connecticut, makes excellent hardware. For nuts and bolts get the cadmium-plated or

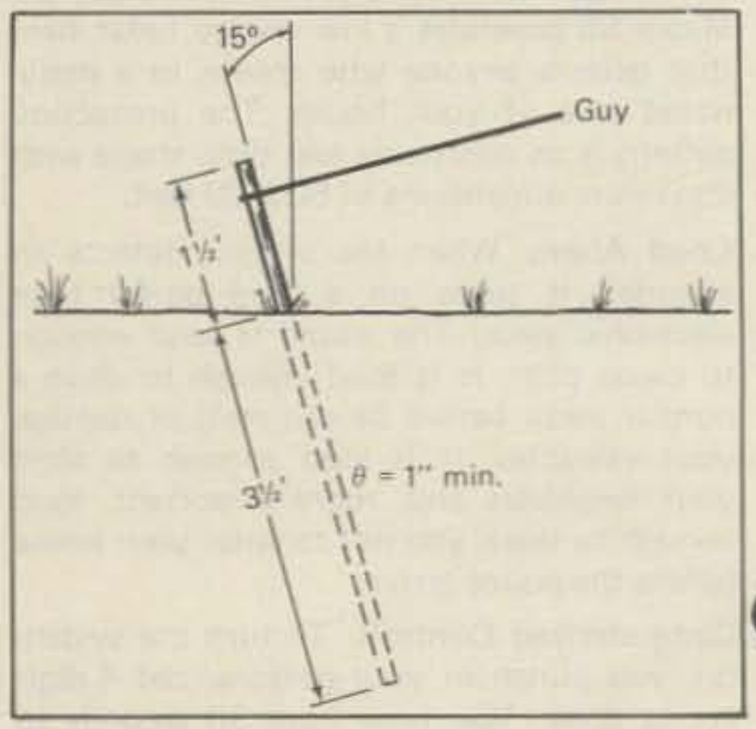
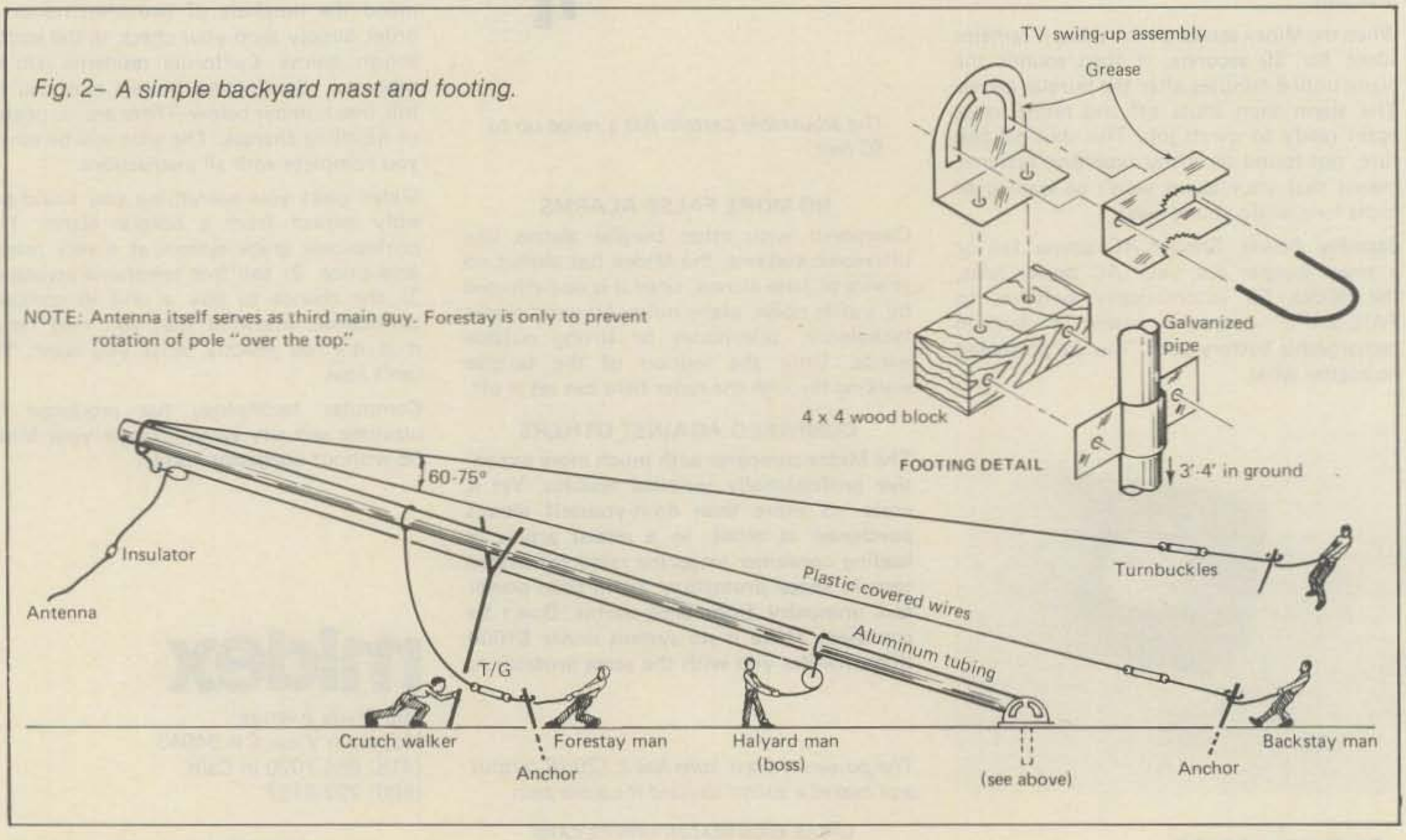



*Fig. 1– Guy anchors.*

*36 Lake Ave, Fair Haven, NJ 07701

*Fig. 2– A simple backyard mast and footing.*



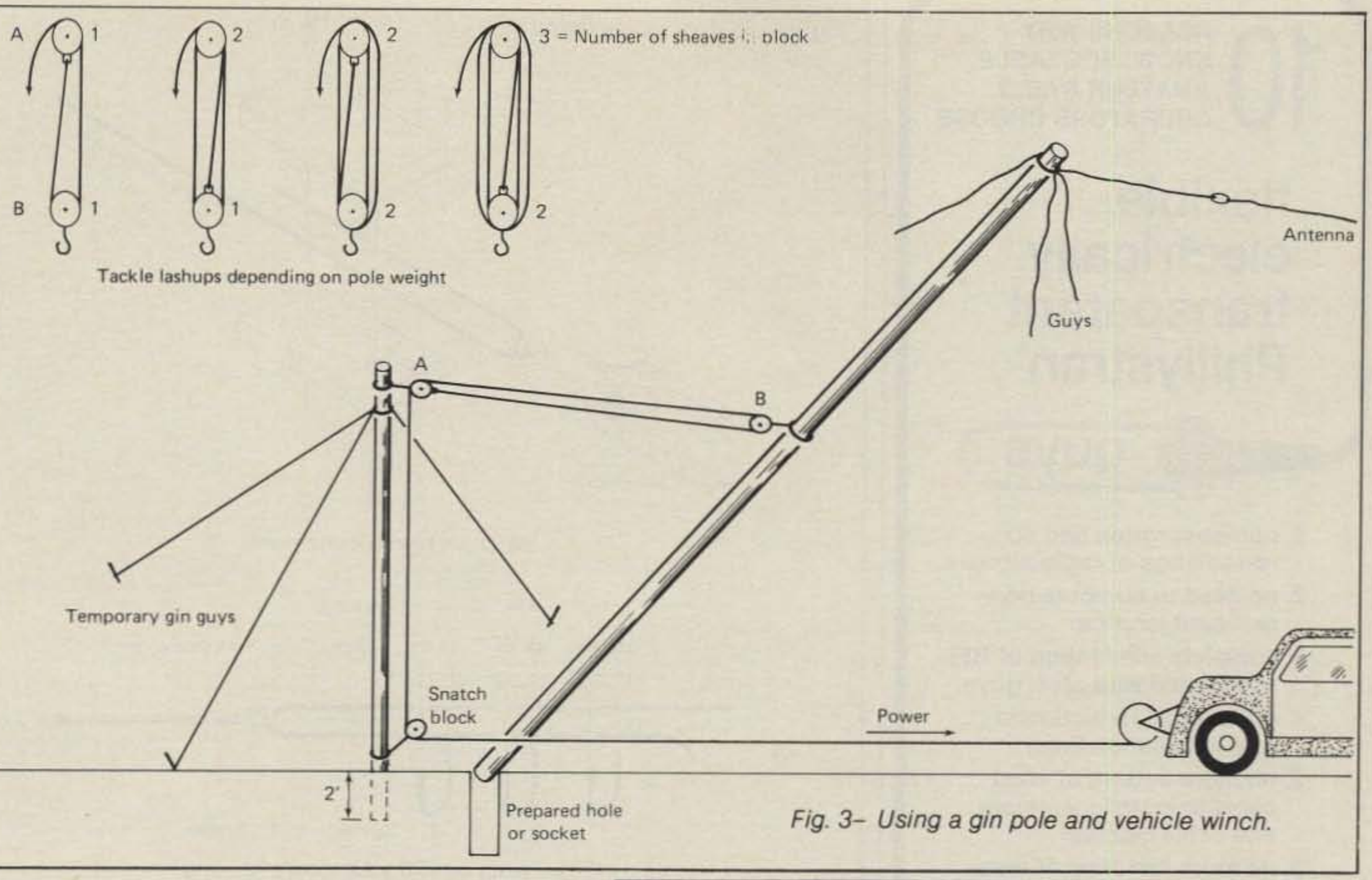



*Fig. 3– Using a gin pole and vehicle winch.*

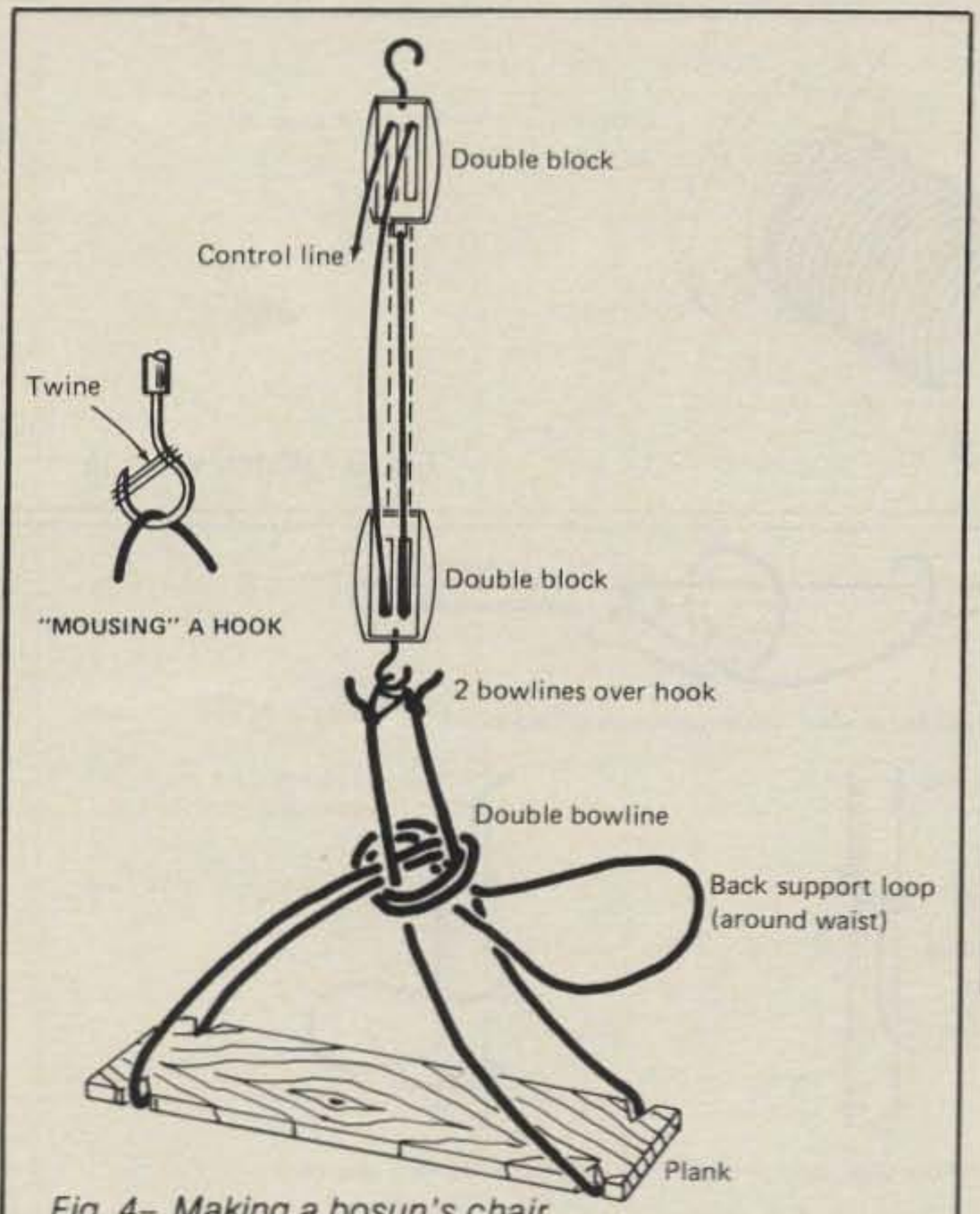



*Fig. 4– Making a bosun's chair.*

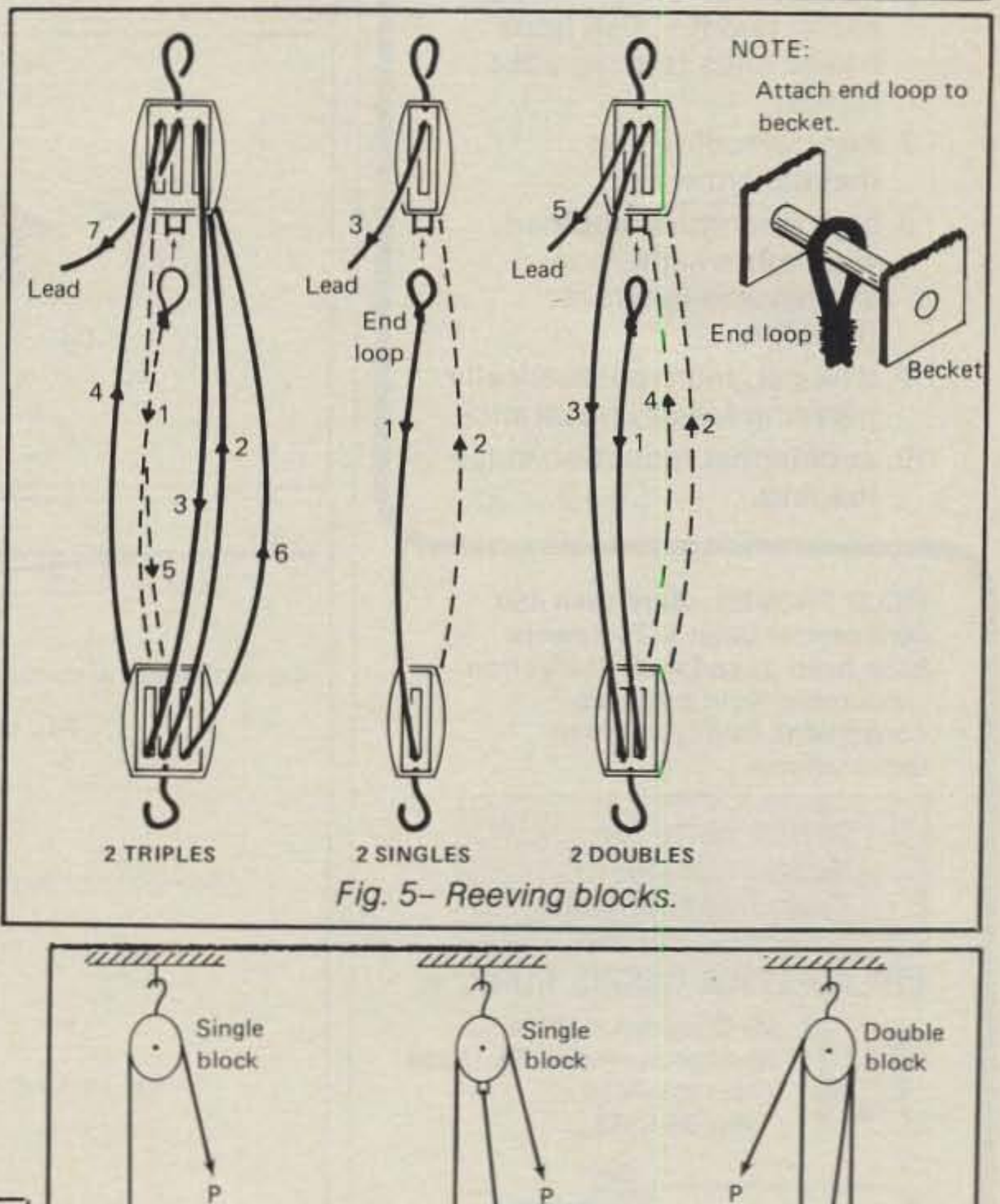



*Fig. 5– Reeving blocks.*




*Fig. 6– Components of shack end of antenna anchorage.*

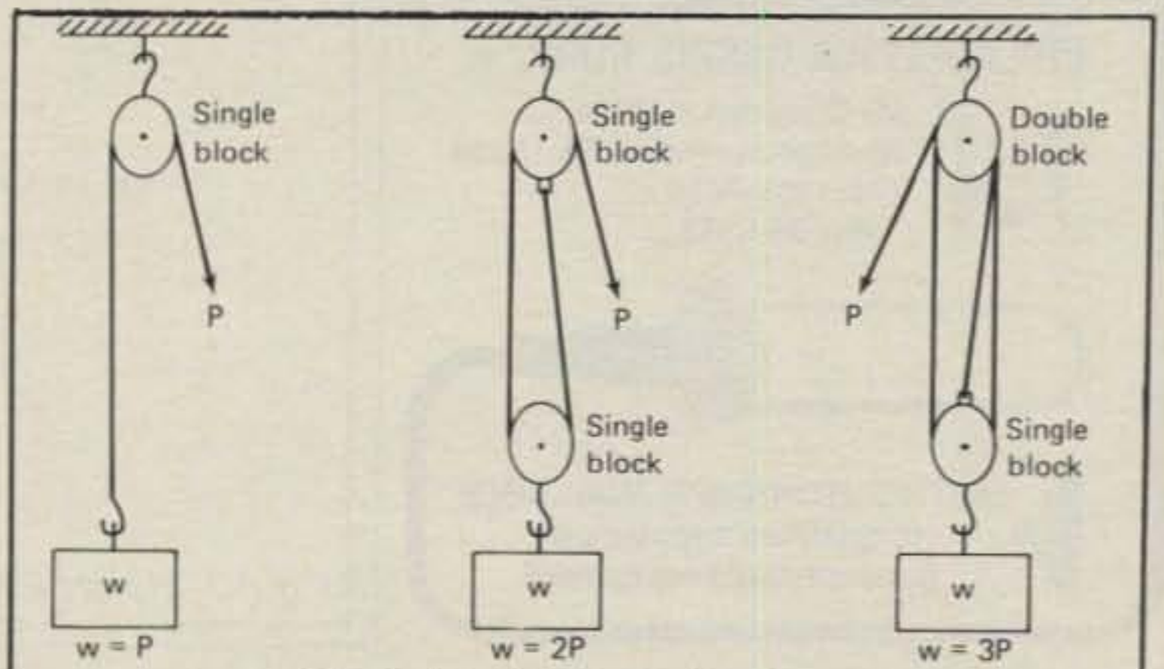
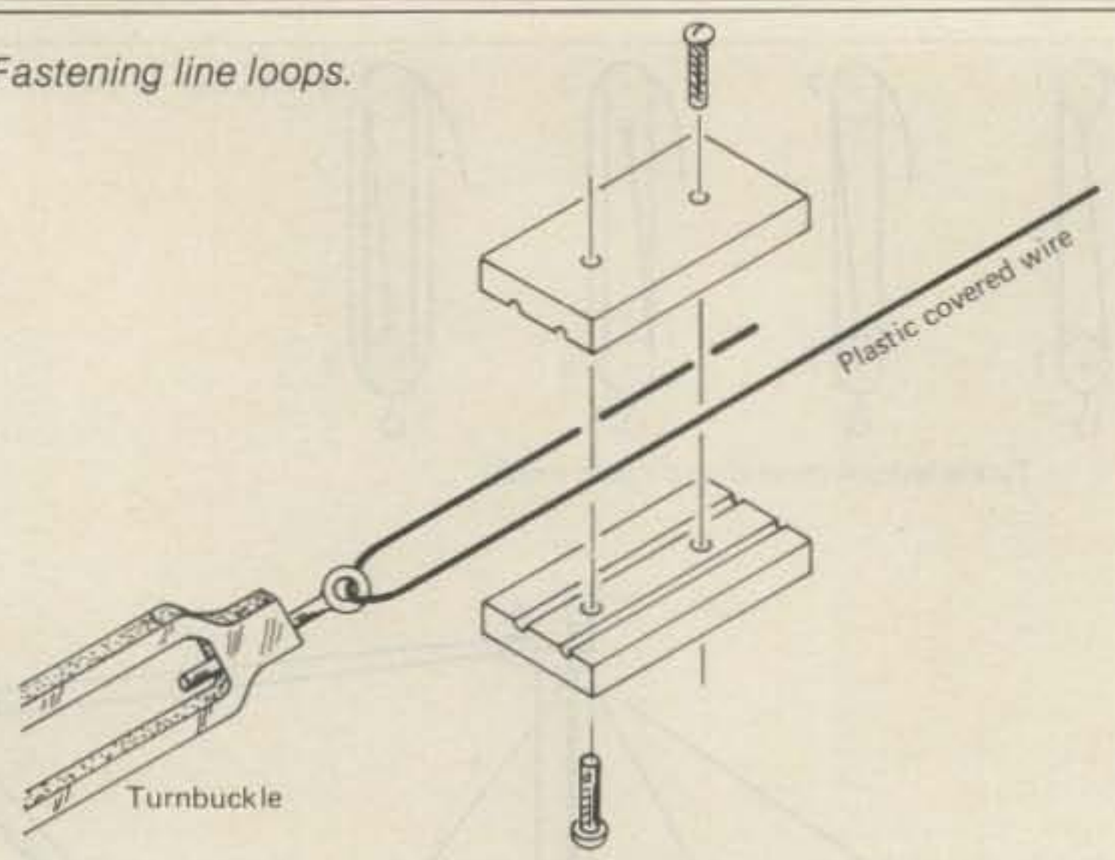
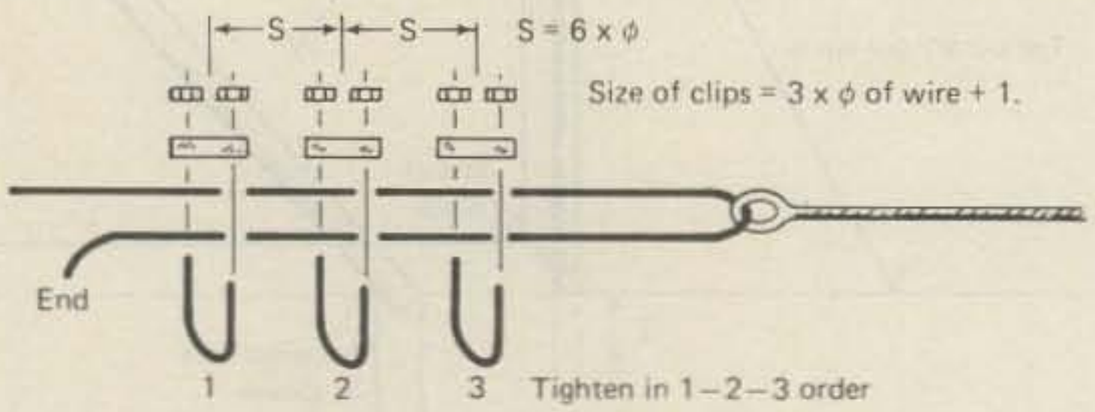



*Fig. 7– Mechanical advantages.*

*Fig. 8– Fastening line loops.*




(A) USING MARINE CABLE CLAMP




(B) USING U-BOLT CLAMPS

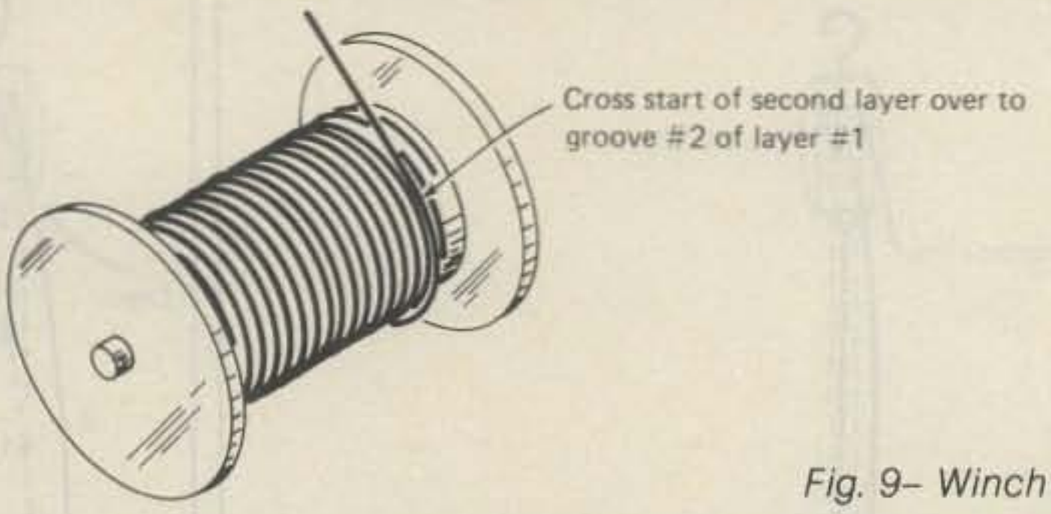
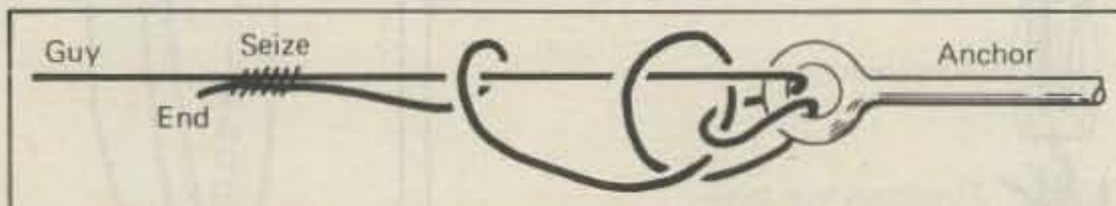
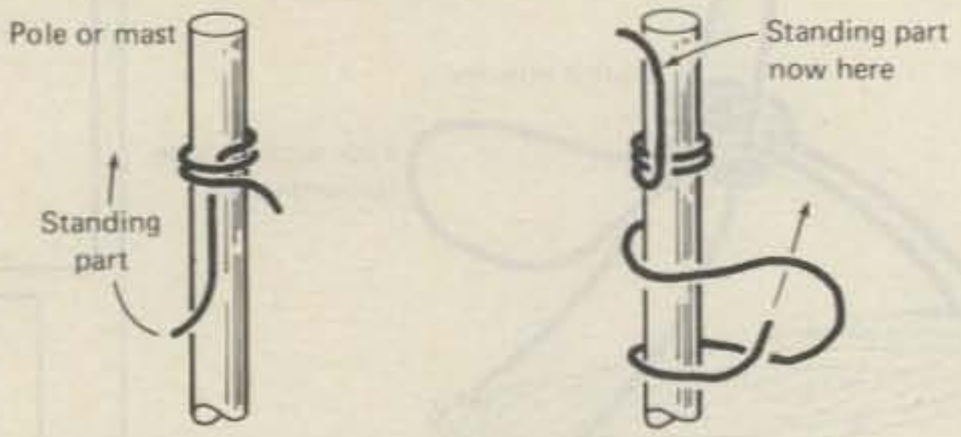


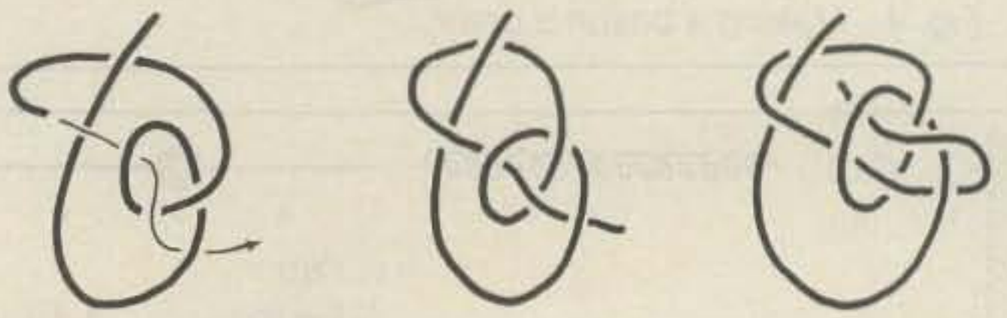

*Fig. 9– Winch winding.*




(A) FISHERMAN'S BEND: for field day or when clips or clamps are not available.




(B) ROLLING HITCH: grips under strain but may be slid when strain is releived.



(C) RUNNING BOWLINE: a choke sling for tossing over a limb end or other unreachable or unclimbable point.

*Fig. 10– Handy knots.*

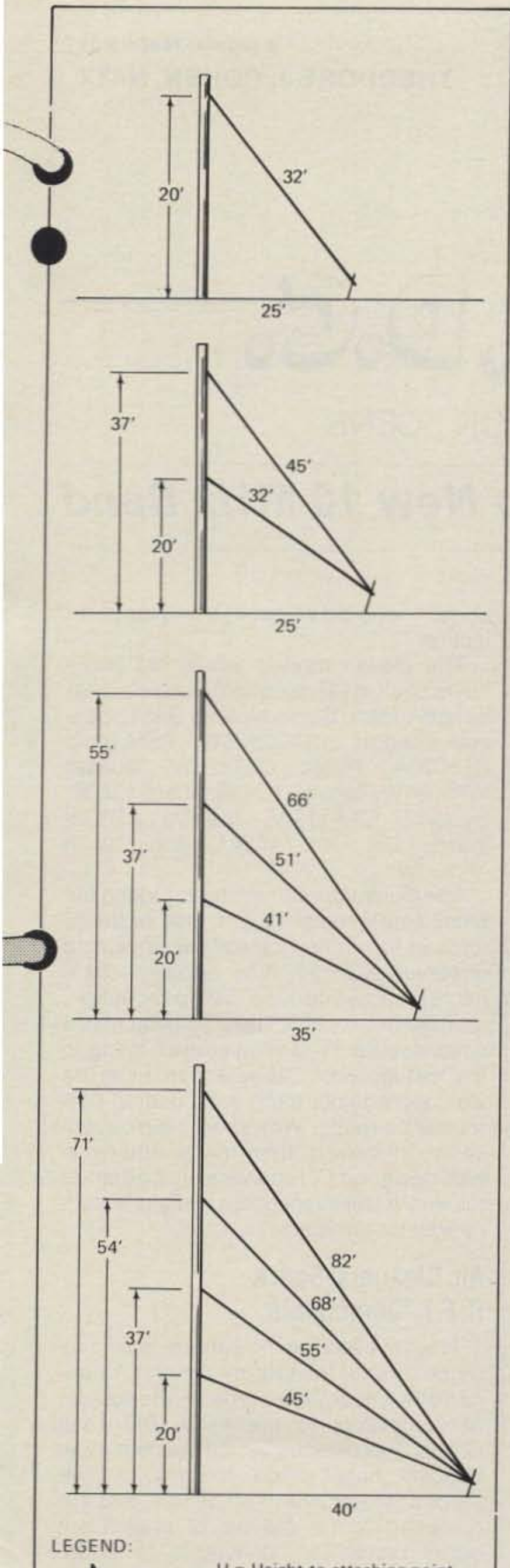



*Fig. 11– Representative guy lengths versus mast heights for three guys of guy sets at 120° interval.*

iridite finish types. For lines and halyards use marine nylon (not dacron or polypropyline, and certainly not "clothesline"). Insulators should be ceramic, and not glass. Aerial wire should be solid, not stranded.

There are only two ends to a line—the live end and the dead end—no matter how many blocks it reeves through.

Pre-raise the mast in a dress rehearsal without the antenna attached. Rough-cut the guys so your backstay man or men will need only to attach them to the deadmen when the real raise takes place. For masts over 40 feet a temporary gin pole is a help (see illustrations).

## Winches

The rating of a winch is taken with only the first layer of cable wound on. Each successive layer wound on reduces the capacity. Turns of line or cable should not overlap, but should wrap in smooth layers. Start the line against one flange and wind under tension. Wind the second layer with the line in the grooves of the first. Each turn of the second layer should cross over two turns of the first layer.

Drawings are worth thousands of words, so spend some time on the ones with this article. You may survive the next northeaster.