

**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

**N**othing 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

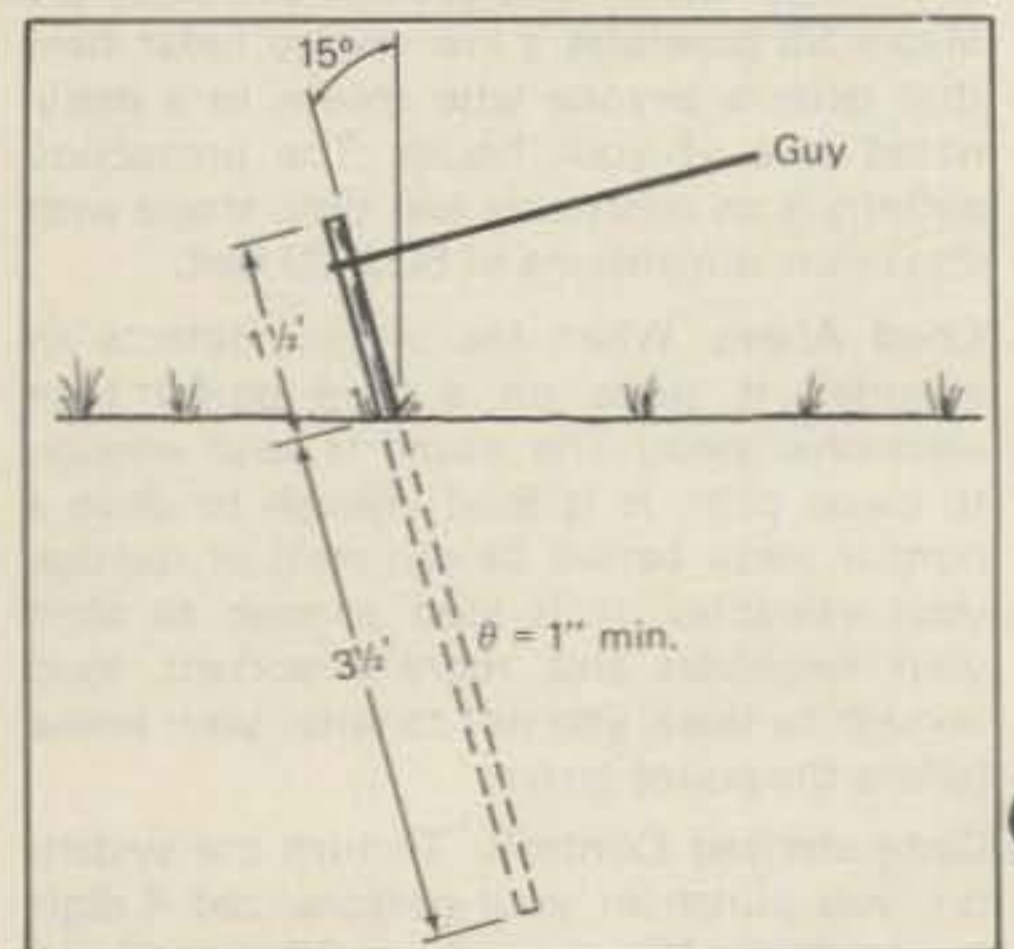
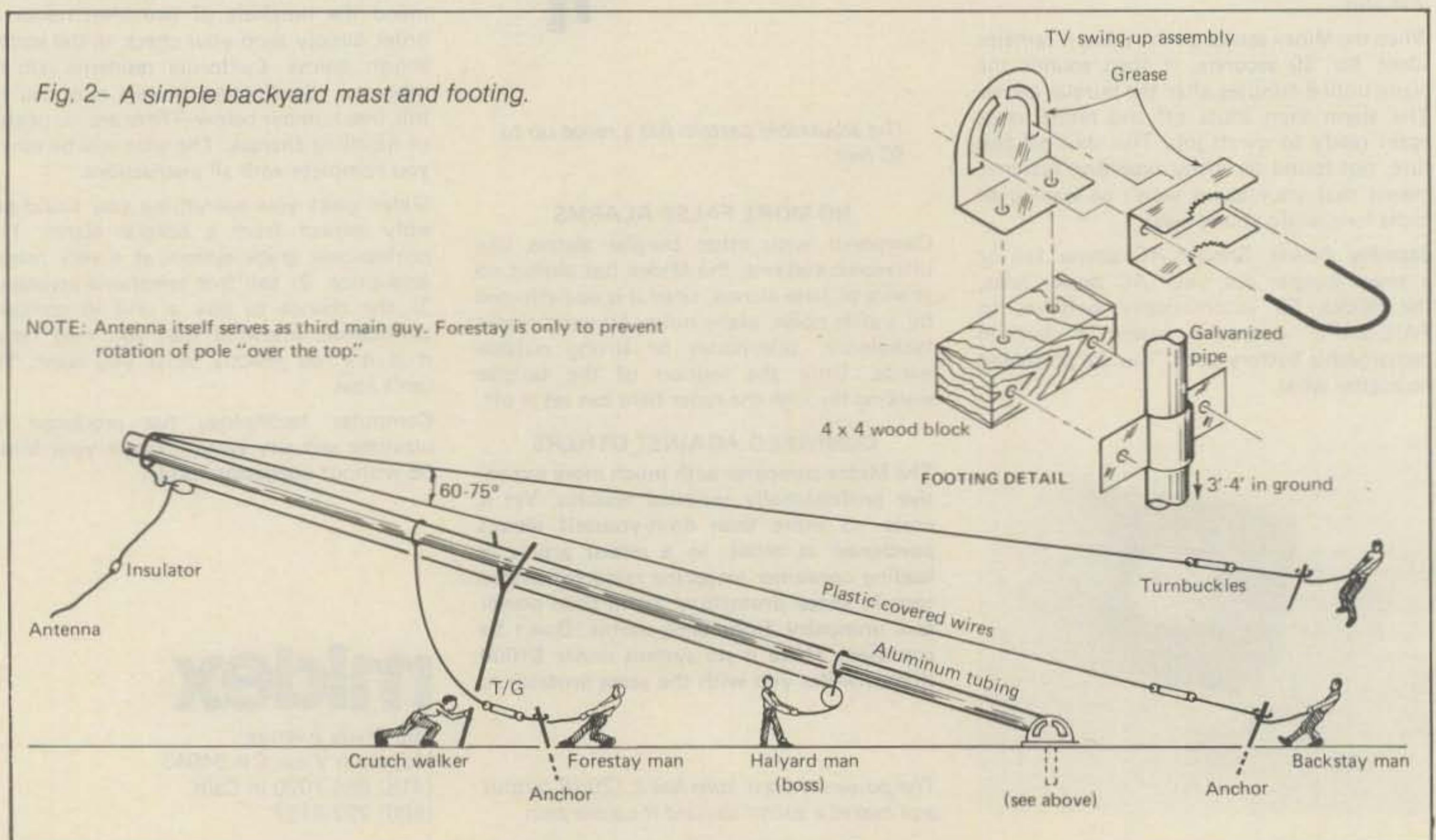


Fig. 1- Guy anchors.

\*36 Lake Ave, Fair Haven, NJ 07701

Fig. 2- A simple backyard mast and footing.

NOTE: Antenna itself serves as third main guy. Forestay is only to prevent rotation of pole "over the top."





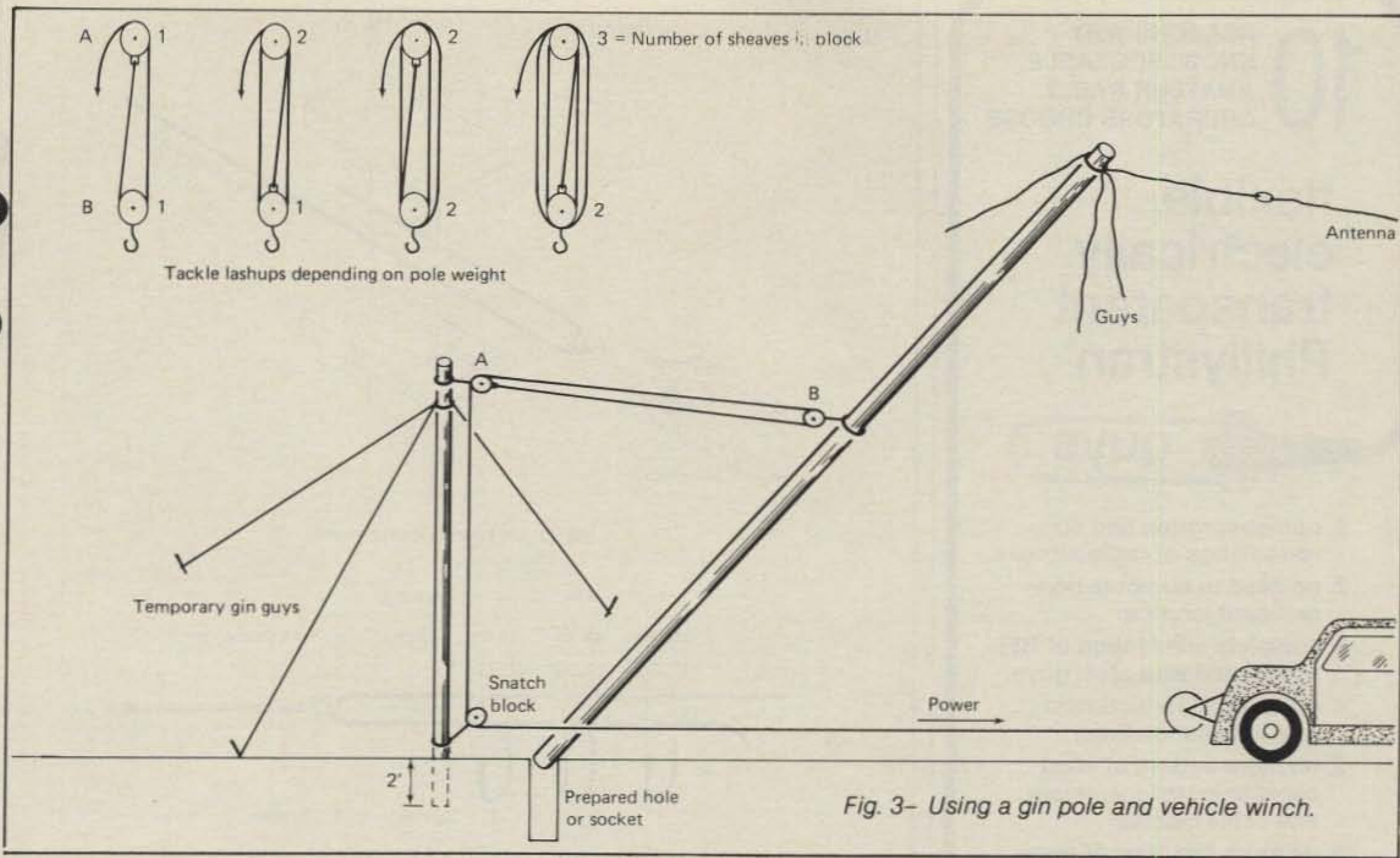


Fig. 3- Using a gin pole and vehicle winch.

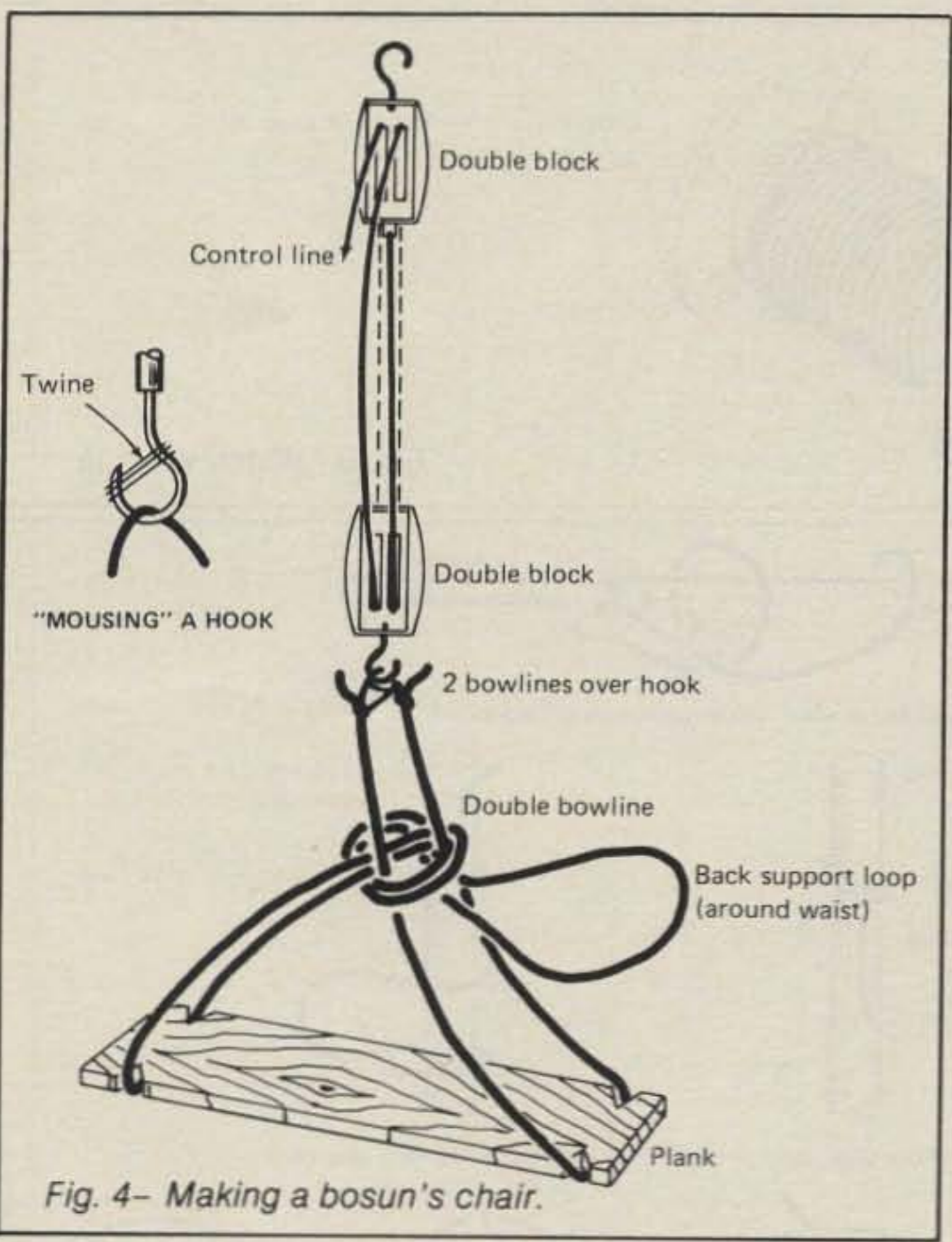


Fig. 4- Making a bosun's chair.

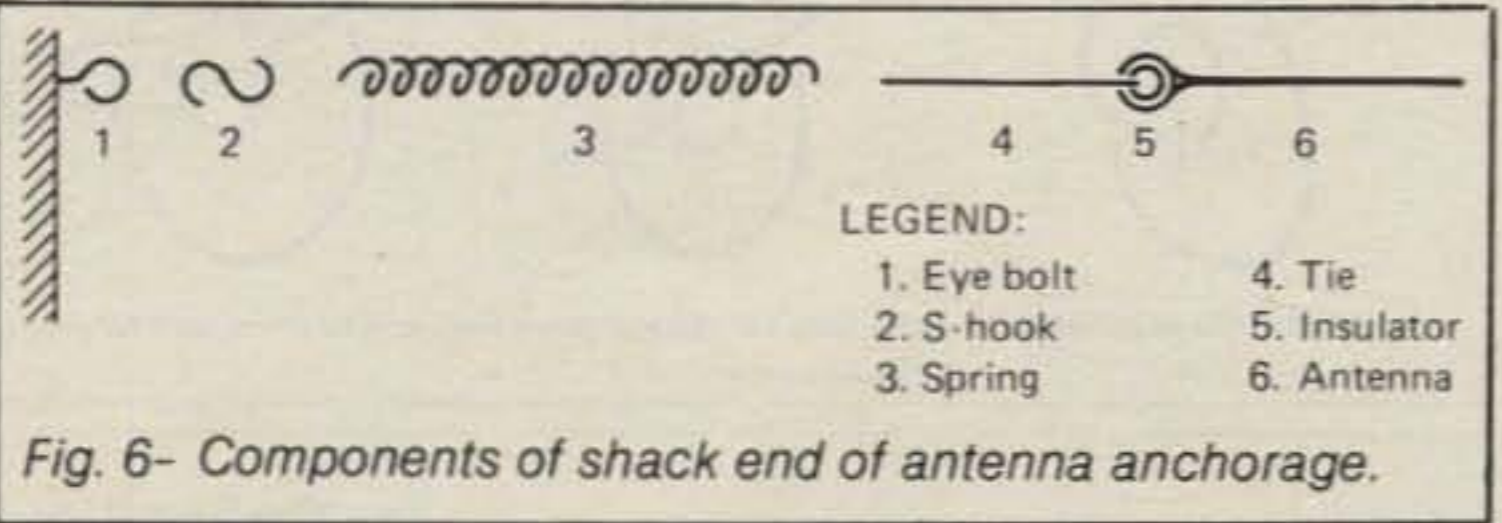
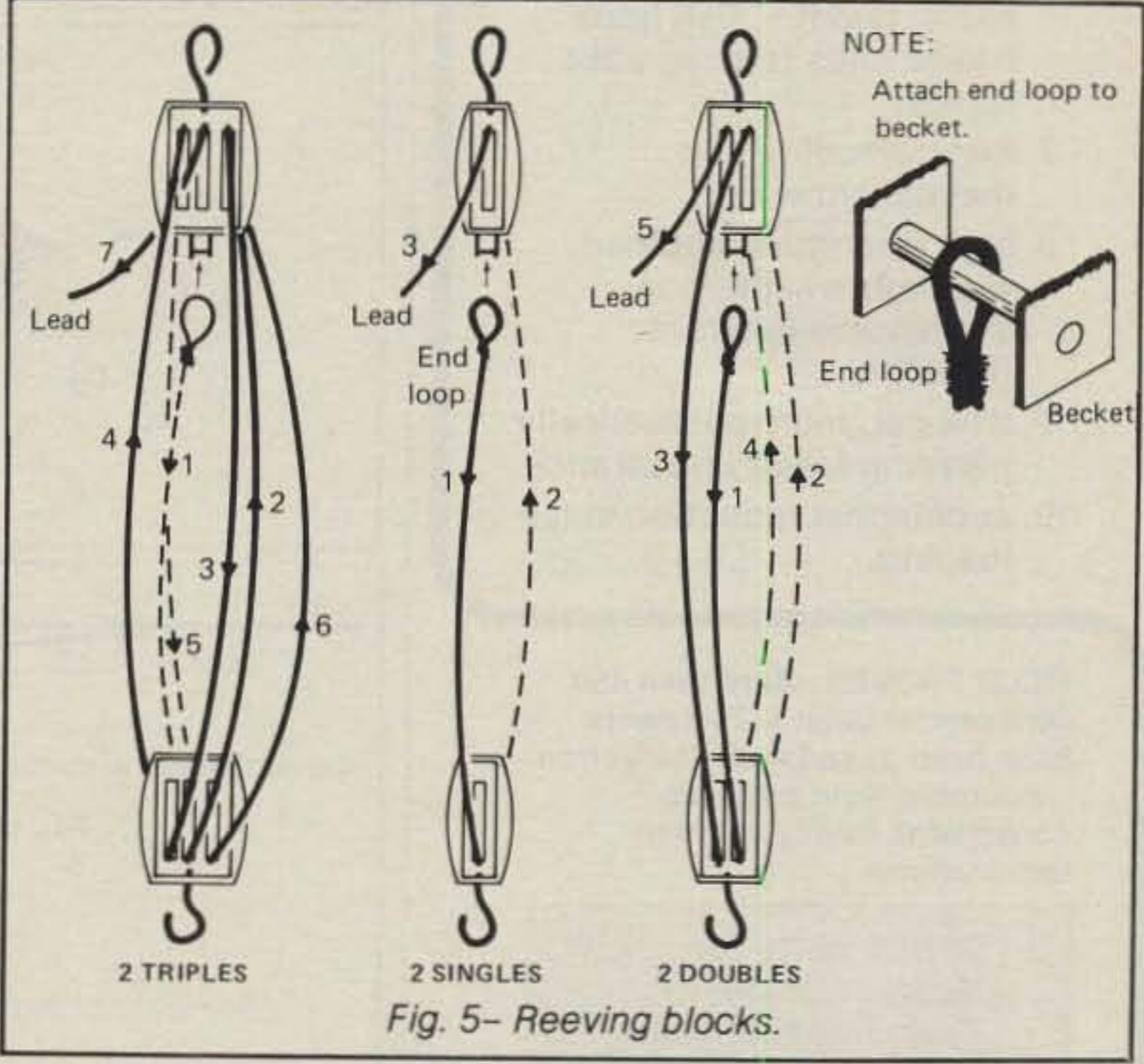
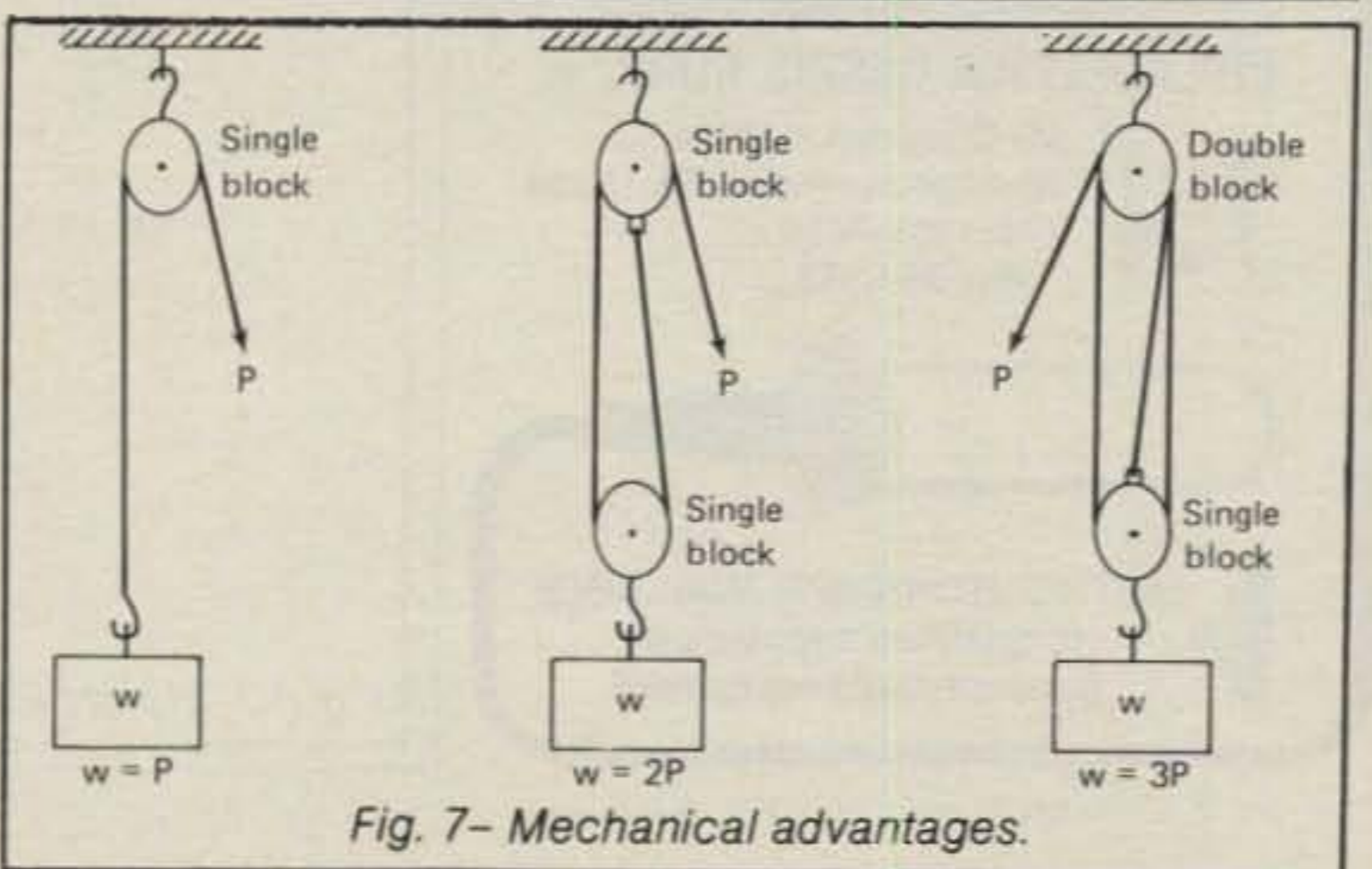


Fig. 6- Components of shack end of antenna anchorage.





**10 REASONS WHY KNOWLEDGEABLE AMATEUR RADIO OPERATORS CHOOSE**

**flexible, electrically transparent Phillystran®**



**guys**

1. non-absorption and no re-radiation of radio signals.
2. no need to compute non-resonant lengths.
3. complete elimination of RFI associated with steel guys.
4. substantial reduction in guy-installation time.
5. no more cutting of steel cable to install insulators and cable clamps.
6. no more handling of steel cable; and no "fish hook" frayed ends to snag your hands.
7. non-corroding and maintenance-free.
8. high strength combined with lightweight, non-stretch and inherent flexibility.
9. a neater, more aesthetically pleasing tower appearance.
10. substantial reduction in ice loading.

**FIELD PROVEN:** More than 450 commercial radio & TV towers have been guyed with Phillystran.

Pourable resin provides convenient, highly efficient terminations.

Call or Write for Nearest Dealer or Technical Literature

**PHILADELPHIA RESINS CORP.**

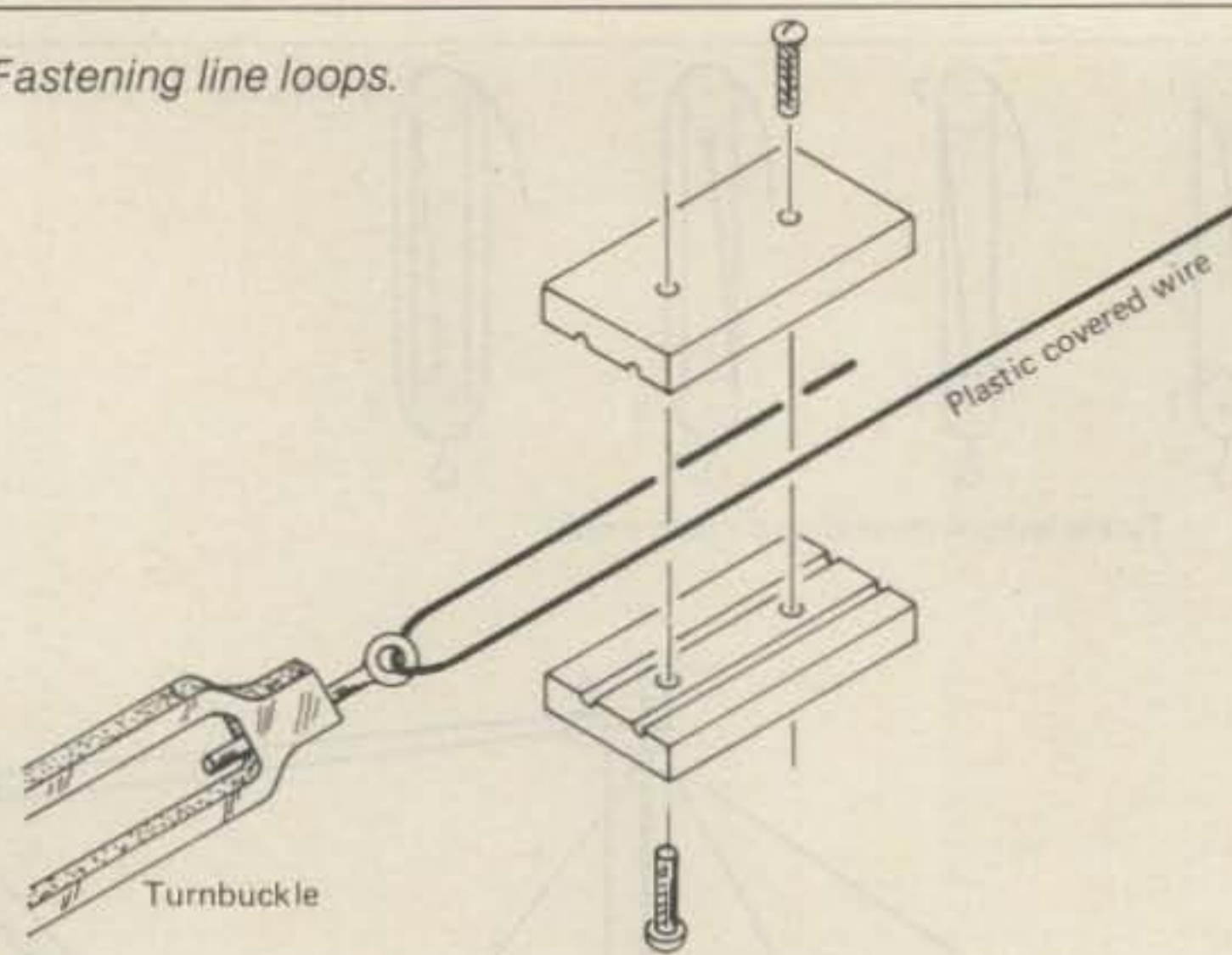


20 Commerce Drive  
Montgomeryville, PA 18936  
(215) 855-8450  
Telex 84-6342

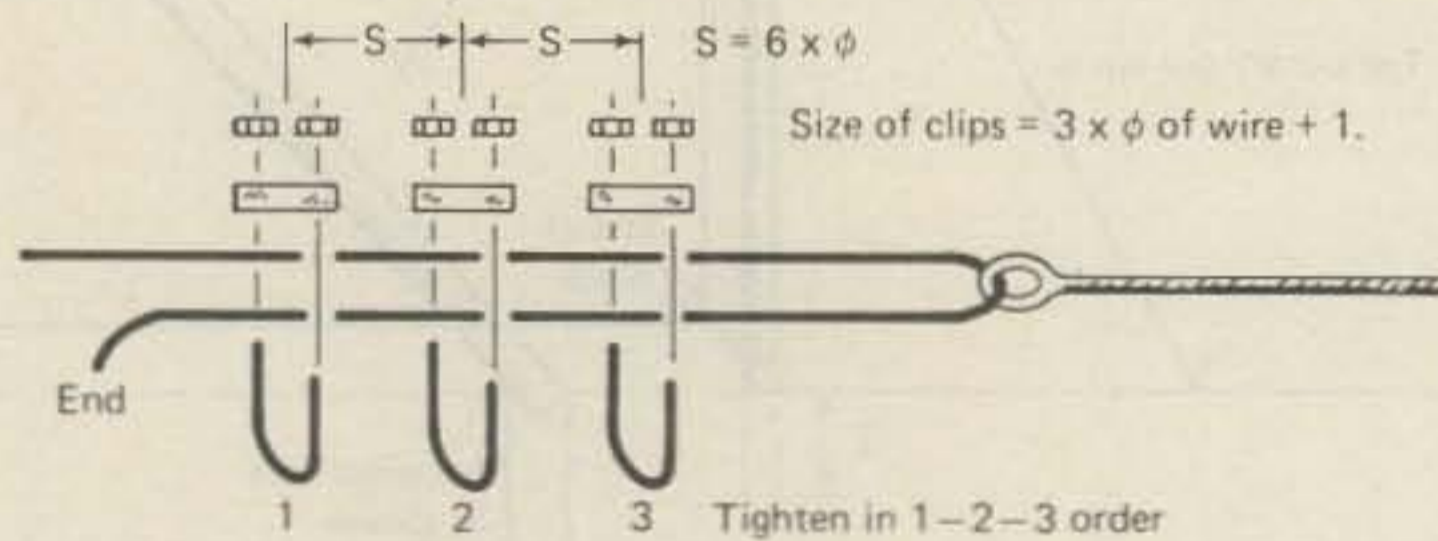


**DISTRIBUTORSHIPS AVAILABLE to qualified suppliers of amateur-radio equipment**

Fig. 8- Fastening line loops.



(A) USING MARINE CABLE CLAMP



(B) USING U-BOLT CLAMPS

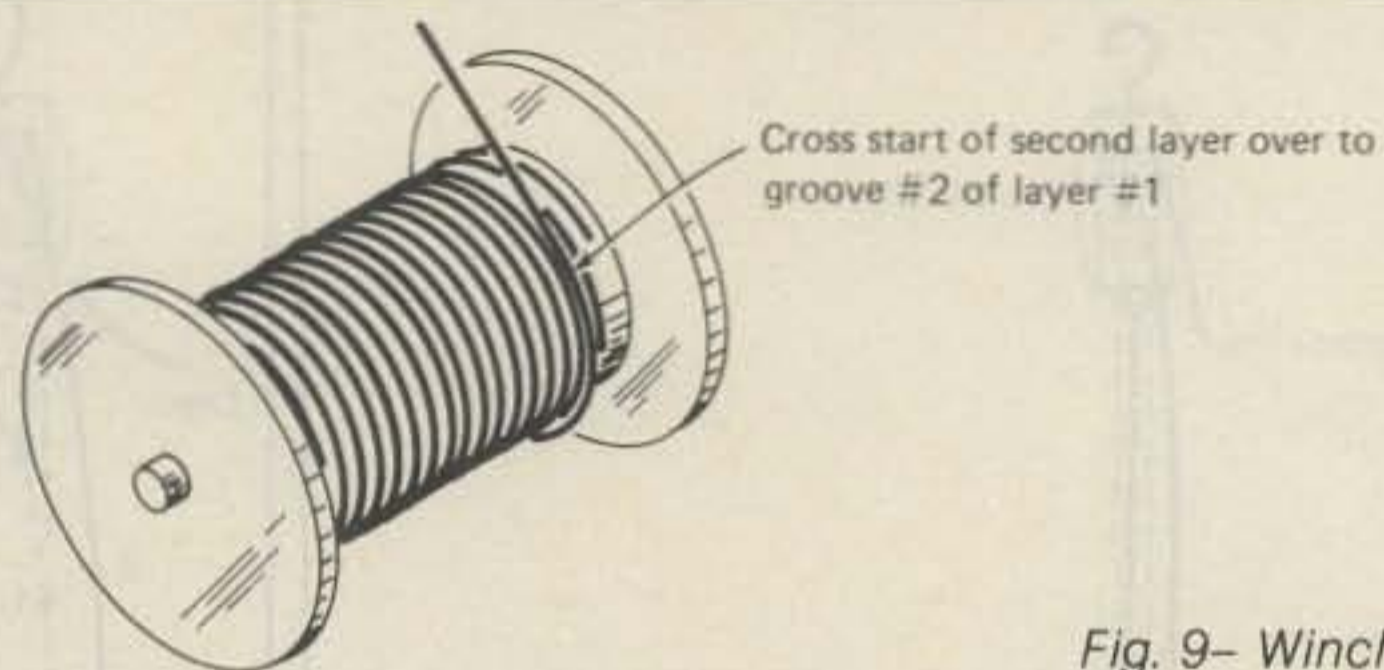
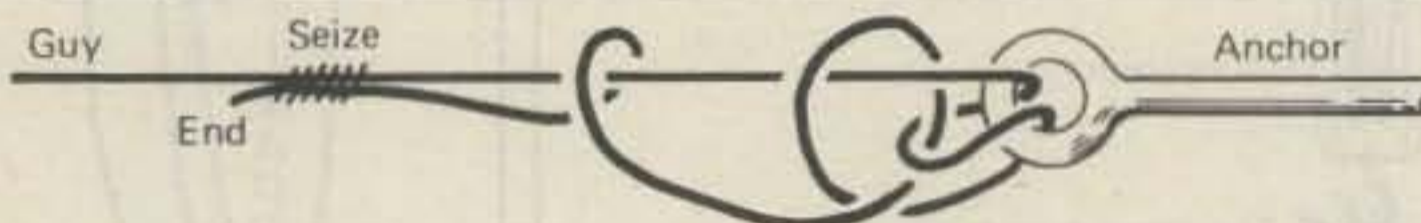
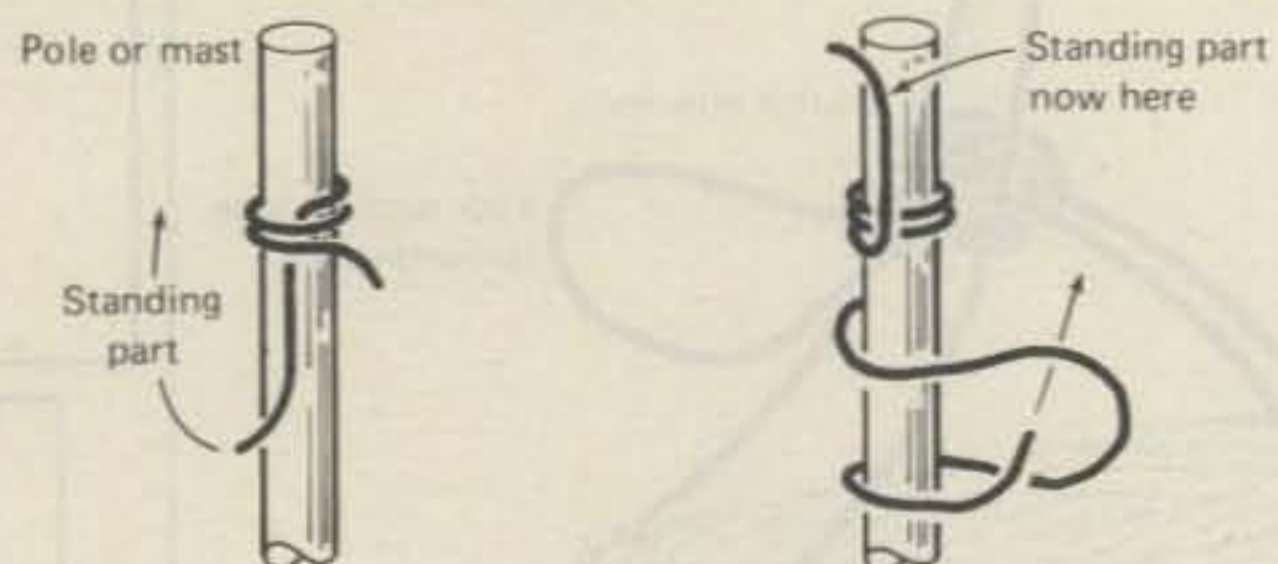


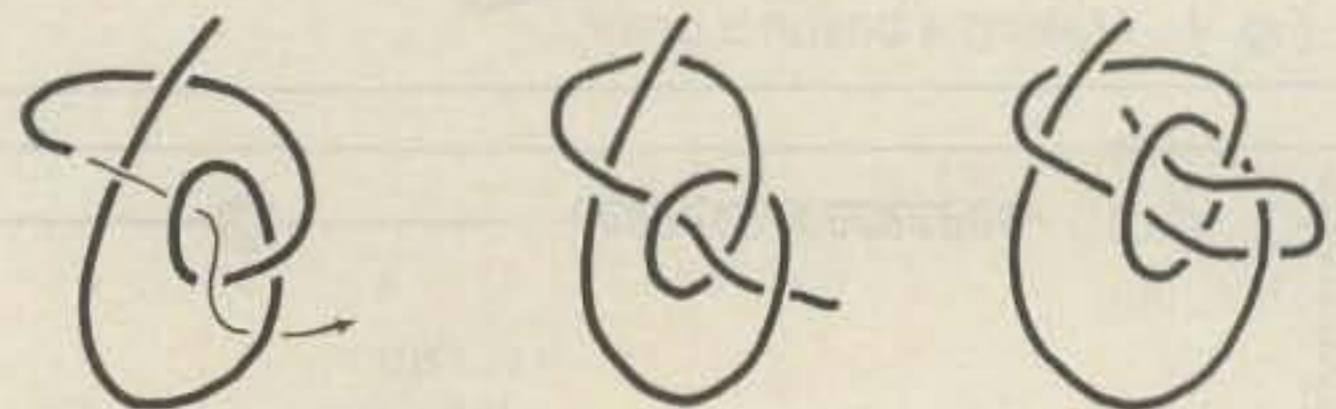
Fig. 9- Winch winding.



(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 relieved.



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

Fig. 10- Handy knots.



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

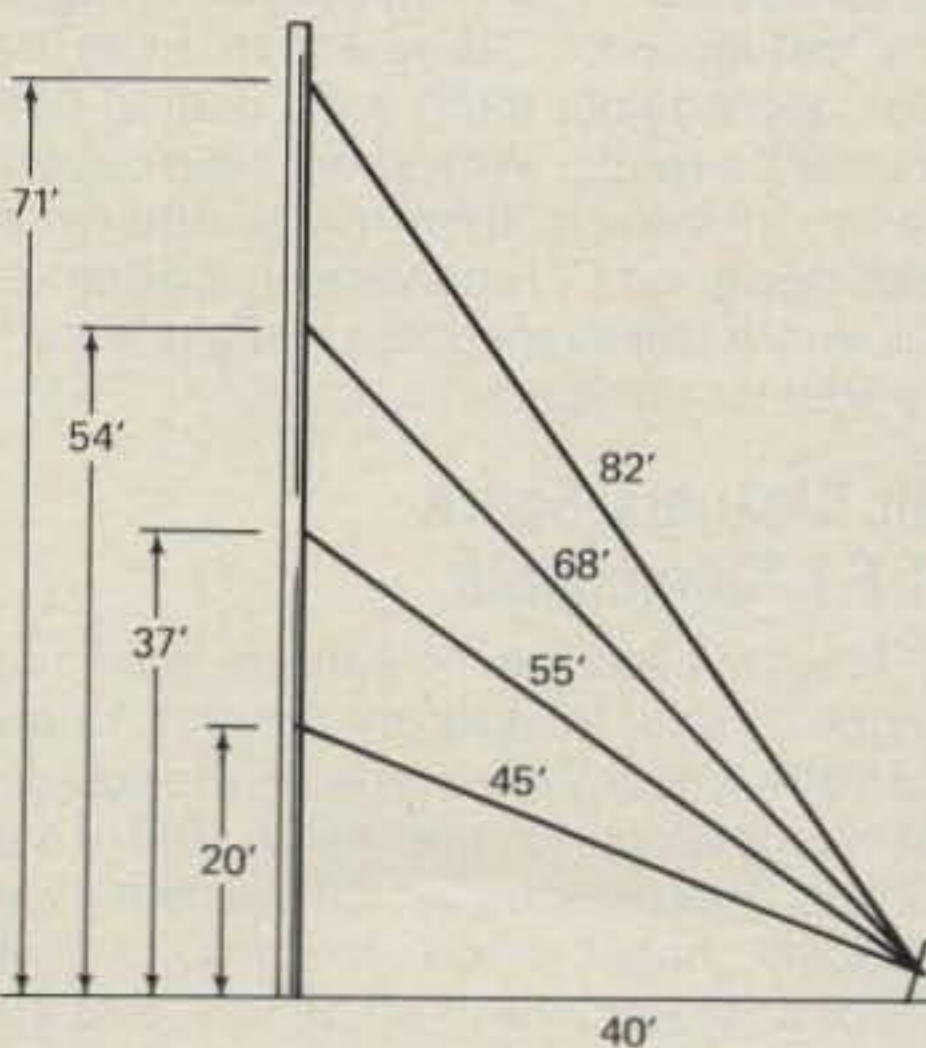
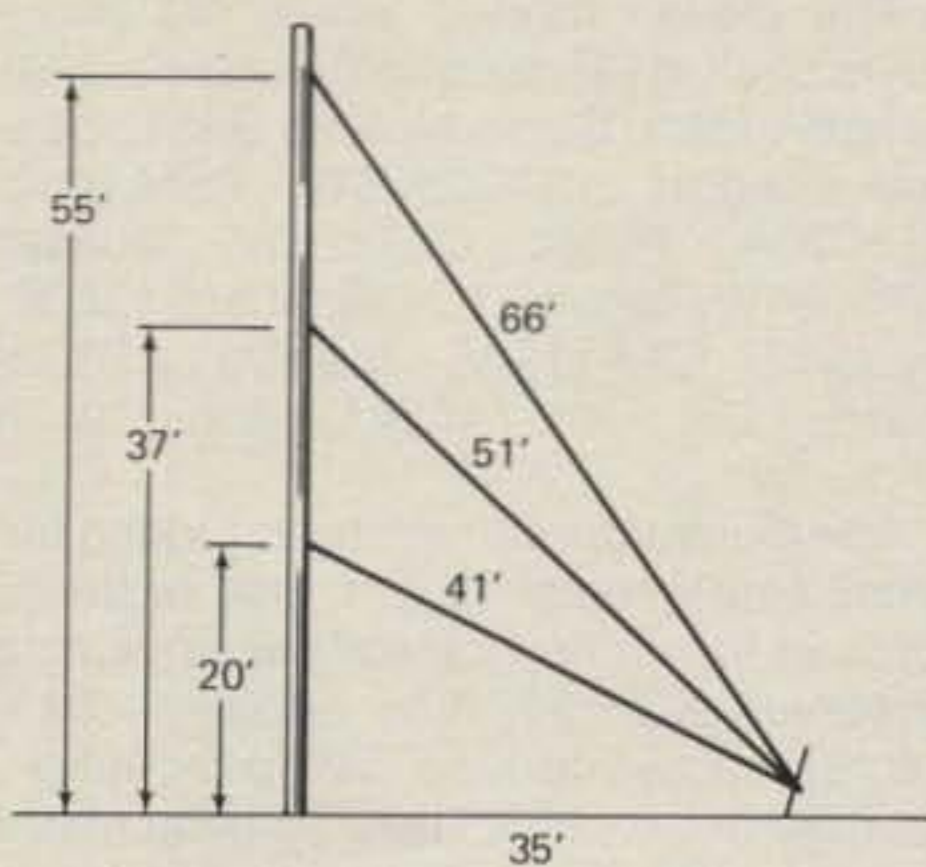
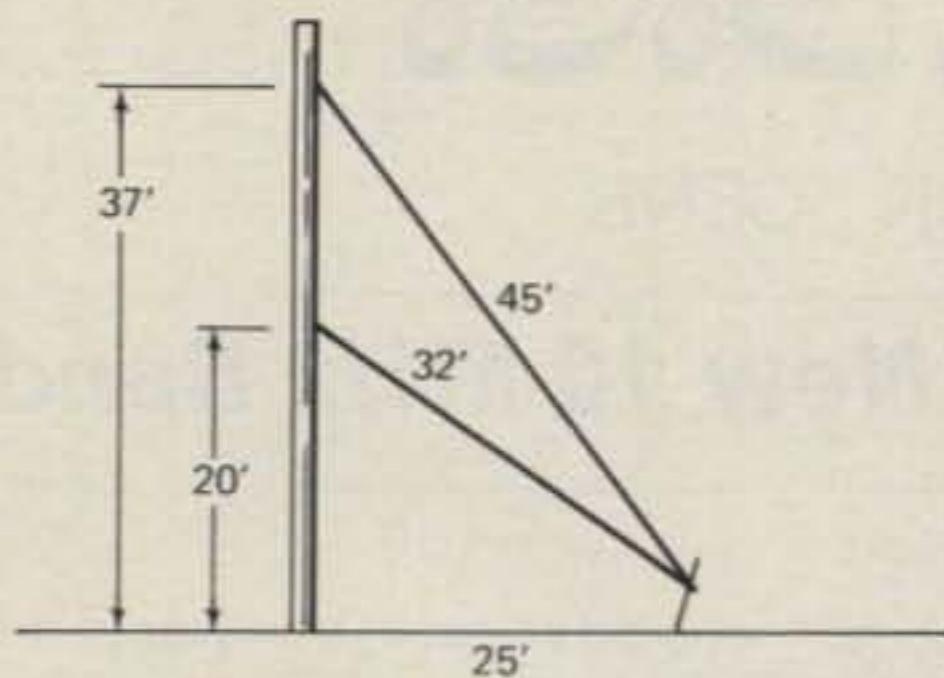
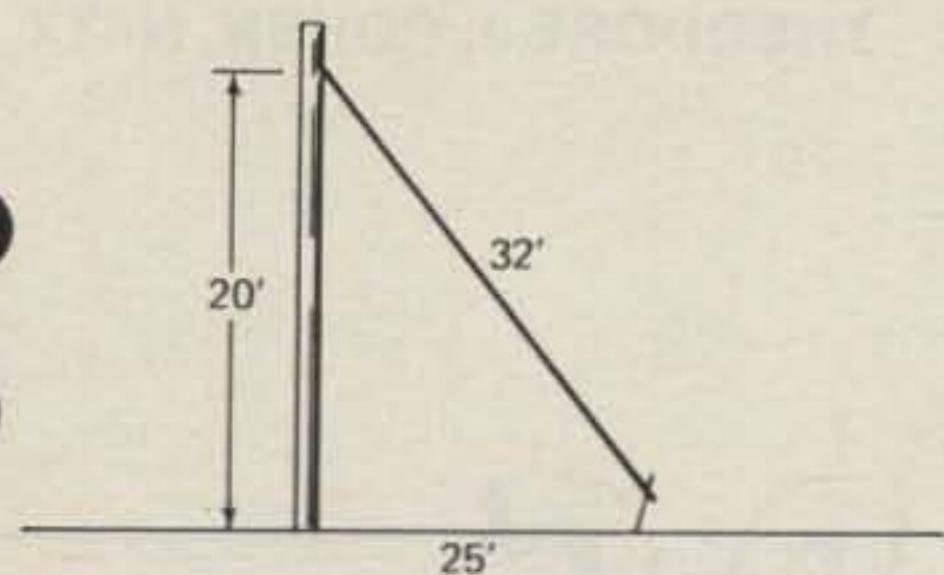
There are only two ends to a line—the live end and the dead end—no matter how many blocks it reeves through.

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.



### LEGEND:



H = Height to attaching point (not total mast height)  
G = Length of guy, disregarding insulators or end wraps  
S = Radius to anchor

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

# Full Color SSTV!

Simulated TV picture

## Announcing the K/W SC-422A 3-Memory SSTV Scan Converter System \* ... The World's First FULL COLOR SSTV with Motion Animation and Colorflash!

The K/W SC-422A Scan Converter System now makes it possible for you to transmit and receive both FULL COLOR or BLACK and WHITE SSTV with selectable 128 or 256 pixel resolution!

**FULL COLOR PICTURES CAN BE DISPLAYED:**

- \* On an RGB Color Monitor
- \* On a Standard Color TV set with the K/W Color Encoder Model #CE 1101
- \* Or on a Standard Color TV set using a K/W Interface Board.

Color pictures can be put into the three memories of the K/W SC-422A Scan Converter with a standard black and white TV camera using Red, Green, and Blue filters!

A tunable signal sync control assures painting of off-frequency stations without retuning the VFO.

The dual-speed switching circuit between memories #1 and #2 provides motion animation.

In addition, the "fantastic" KB 422A Keyboard Graphic Generator and LP 422A Light Pens allow you to produce great color graphics.

Now you can add FULL COLOR SSTV to your system at reasonable cost.

For detailed technical and ordering information, contact: Mr. Walter Giesser WB20WX, R & D Manager, Ext. 207.

\*Built in Germany by Volker Wraase Elektronik to K/W Control Systems specifications.

## CONTROL SYSTEMS, INC.

South Plank Road, Middletown, New York 10940  
Phone: (914) 355-6741 TELEX No. 13-7428

CIRCLE 93 ON READER SERVICE CARD