

The J-Pole Love Affair

— not for CB

Would you like to try a nifty antenna for 2 meters that is inexpensive (less than \$5.00 usually), is lightweight and easily portable, exhibits gain over the typical 5/8-wavelength-type antenna, requires no ground plane at all, and nobody mistakes for a CB antenna?

Several years ago while attending business college at New Mexico State Uni-

versity in Las Cruces, I was bitten by the 2-meter FM bug. There was lots of 2-meter activity in town, and I, being limited in funds, began playing with various types of home-brew antennas. I stumbled on the J-pole section of the ARRL antenna book and began experimenting with various J designs.

I had seen a couple of old-timers using the J an-

tenna made from CB whips and they complained of the J's susceptibility to breakage when whacking trees or other overhead obstructions; they also complained of the difficulty in building a proper balun with which to couple the feedline to the antenna.

In my case, even CB whips were out of my price range, so I cast about for alternatives. I had often noticed the colorful fiberglass "bicycle flags" on the kids' bikes and how much they resembled antennas. I decided to try them. These rods are really very nice for all types of hamming needs. They are sometimes fiberglass and sometimes plastic, and of course the fiberglass ones are the best buy. They seem to cost around \$.99 to \$5.00 depending on whether they're on sale or not.

I was in love with the J design from the first. The first few I built were tricky to tune and quite fragile, but they worked well. I went through several designs before settling on the

present one. I discovered that doing away with the balun arrangements simplified the matching procedure, improved the antenna's performance, and greatly increased the longevity of the antenna (less to break or vibrate loose). As you may discern by looking closely at this antenna, there are several ways to construct it. Use your own imagination and ingenuity to make use of what you have to build it. You might wish to coat the whole antenna assembly with boat varnish or other sealant *after* the coax is attached and tuned satisfactorily.

See Figs. 1 and 2 for assembly details. You may note in Fig. 3 that I use the bike mounting bracket that comes with the pole. If it is mounted as shown, the mount will have a hinge action that will allow the antenna to harmlessly fold back when a low overhead obstruction is encountered, but keep the device erect while driving normally. Also, one of the great advantages of this antenna is

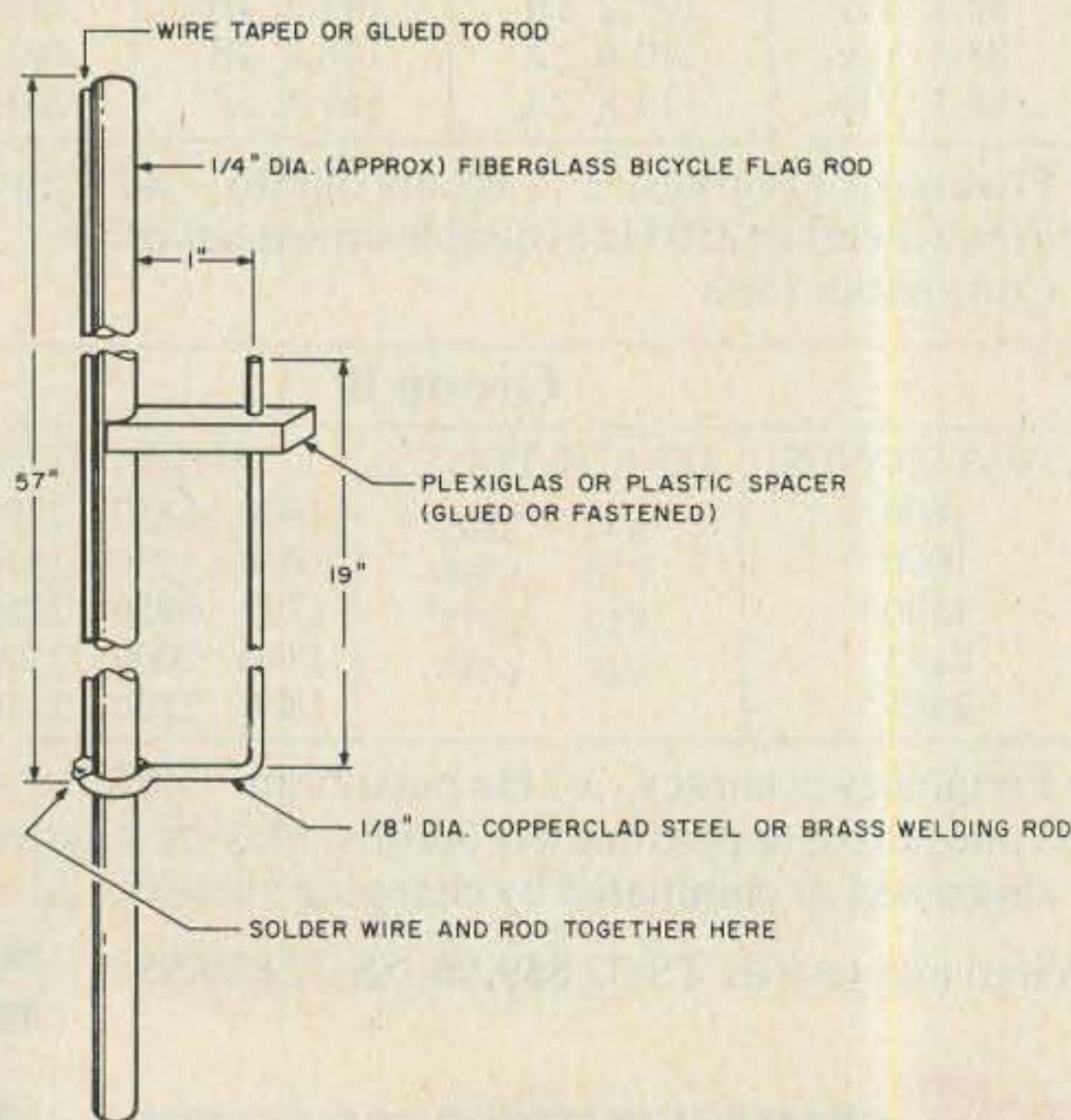


Fig. 1.

that, requiring no ground plane, it may be placed essentially anywhere on the vehicle you wish without adversely affecting its performance. Offered in Fig. 3 are 3 variations in mounting that should adapt to most vehicles. The bolt-action mount saves the antenna (and your car) when you hit tree limbs, etc.

This antenna has several natural applications: motorcycles and bicycles, 18-wheelers and recreational vehicles, backpack frames, as a hand-held for great gobs of gain with portables, bumper or headache-rack mounting on any vehicle, easy mounting on light bars for public safety vehicles, and installation against the window in a motel or apartment!

To adjust the antenna for lowest swr, merely slide the shield and center conductor up and down on the lower portion of the J until the lowest swr point is found. The wire and welding rod need to be scraped and clean for this procedure. Solder the connections

when you find the right point. If you have any difficulty, try reversing the shield and center conductor connections. The antenna will work either way as long as you can get it to match properly.

I have compared this antenna to many of my own friends' 5/8-wave 3-dB gain antennas. I haven't seen one yet that this J-pole will not compare to or outperform. Usually the J-pole, mounted or held near the competing antenna's former location, exhibits about an S-unit gain on receiving a weak repeater. Try it sometime. (By the way, one S-unit compares roughly with 1 dB on all the imported radios I've checked.) I keep a spare antenna around the house for motel mobile and it's easy to walk out to a friend's car, get a meter reading on a distant repeater, then remove his antenna and hold the J-pole temporarily near the same spot. Usually the J-pole will have noticeable gain. I theorize the greater height of the J-pole plus the

lack of ground sensitivity account for the difference.

I have shown this antenna to several engineer-type friends who shake their heads in disgust over its simplicity and lack of balun, etc. However, they all agree that for some reason it works well... and that's what it's all about, isn't it?

It would not be fair to ignore some disadvantages with this antenna. It is *not* as sturdy as most commercially-made antennas. Weather, vibration, wind, and corrosion will necessitate repairing the antenna occasionally—depending on your climate. (Usually the soldered connections give the most frequent trouble. I usually have to repair mine every 9 months or so.) This antenna may exhibit some minor directivity. However, *all* antennas on vehicles are directive to

some degree, depending on the mounting location. Depending on the rigidity of your rod, you may find under road speeds the swr changing as the antenna bends backward. I have good luck in mounting the antenna with the stub facing forward or sideways so the spacing of the stub doesn't change as the antenna flexes.

In conclusion, I have presented here a simple, inexpensive, and very effective 2-meter antenna. It can be adapted easily to 220 or 450 use by experimentation and scaling of the dimensions. None of my antennas has ever been stolen and no one has ever asked me if I monitored channel 19. It may be, as some engineers insist, much like a bumblebee (too heavy to fly). However, if you try it, you will agree it works anyway! ■

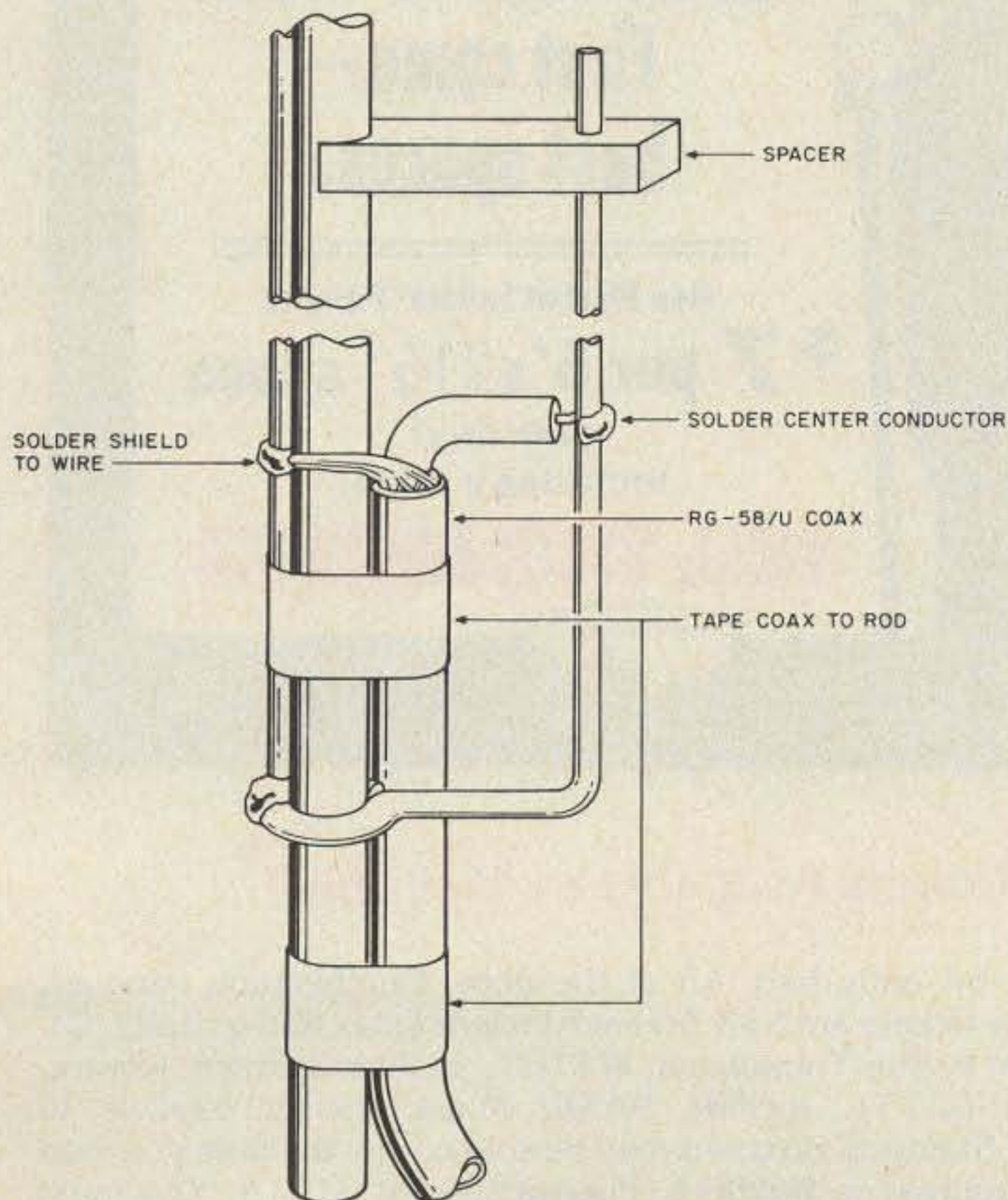


Fig. 2.

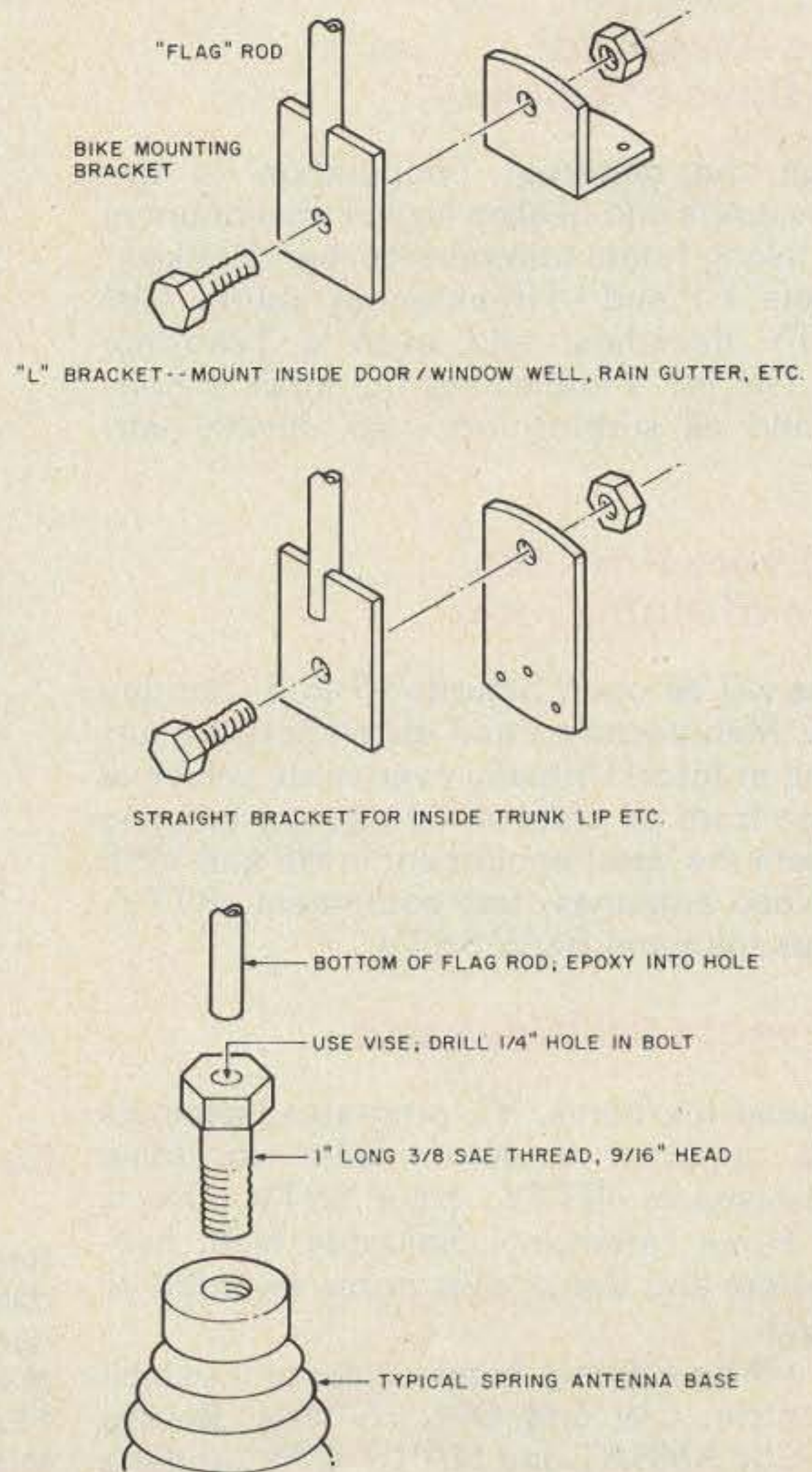


Fig. 3.