My Mobile Antenna

A. J. SPATOLA, W6DAE*

The 75 meter mobile antenna used by W6DAE has two novel ideas that should be of interest to mobileers; one mechanical and one electrical. —Editor.

On corners and fast stops most whip antennas, having their entire weight of the antenna on the spring, flip around like Douglas Fairbanks with a sword. If the *Master Mount* spring is moved from the bottom of the antenna and mounted at about the same height as the top of the car body, then when the antenna hits a tree or something and starts into action it is at a height where the average, dreamy jaywalker is not apt to be swung into the land of nod. The greatly reduced weight on the spring results in virtual elimination of the usual oscillation.

Figure 2 shows the mechanical construction of a special loading coil which allows the whip to be lowered into it a distance of three inches. Even this small amount of adjustability allows the antenna to be tuned over most of the band. The coil form is made from a piece of 7" X 1½" O.D. polystyrene rod (plexiglass or lucite will do as well). One half inch from each end of the rod a 13/64" hole is drilled to a depth of ½" and tapped with a ¼" SAE. Two ¼" brass bolts, ¾" long, with the heads sawed off are drilled lengthwise through the middle and tapped with an 8-32 tap. This operation gives you two bushings which will hold the set screws in the plastic.

Next, drill a hole on the bottom surface of the coil form to a depth of 1¼"; equal in diameter to the size of the shaft of the whip. This hole can be tapped if necessary to mount on the spring. A similar hole is then drilled in the top surface of the coil form to admit the top part of the whip to a depth of 3". Raising and lowering the whip into this hole permits the antenna to be resonated over most of the 75 meter band. Set-screws are put in the brass bushings and, when tightened, hold the antenna firmly. If you intend to QSY often the top set-screw could be made with a butterfly end for operation with the fingers rather than having to carry a screw driver or set-screw wrench with you all the time.

The next step is to wind the wire on the coil form. Number 15 cotton covered was used here.

*632 North 15th Street, San Jose 11, California.

The bushings on each end of the form can be used as terminals for the ends of the coil. When the coil has been pruned it can be covered with phenol or plastic paint so that rain will not bother it.

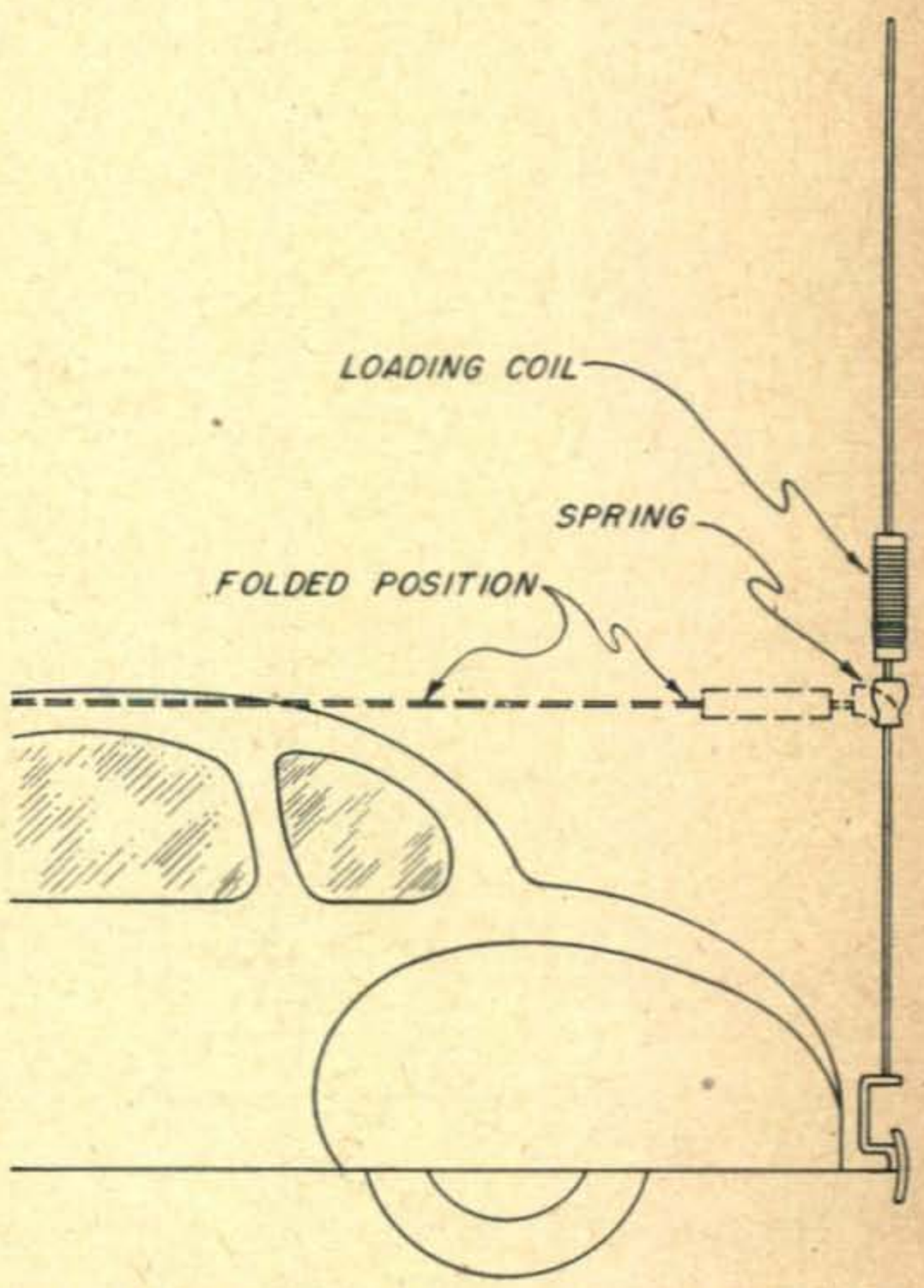


Fig. 1. If you disassemble your Master Mount mobile antenna and put the spring just below the loading coil you will be able to drastically reduce the "layback" and vibration.

The whip is pushed down into the form the full 3" and the coil pruned to 3995 kc by removing turns from the coil. A small transmitter or grid-dip oscillator will indicate resonance. In my particular installation the antenna resonates down to 3850 kc with the whip mostly out of the hole. Notches can be filed on the whip to indicate the resonant frequency adjustments.

For those of you that have not had experience with drilling plastics it is well to point out that this takes a bit of time, care, and a coolant on the drill,

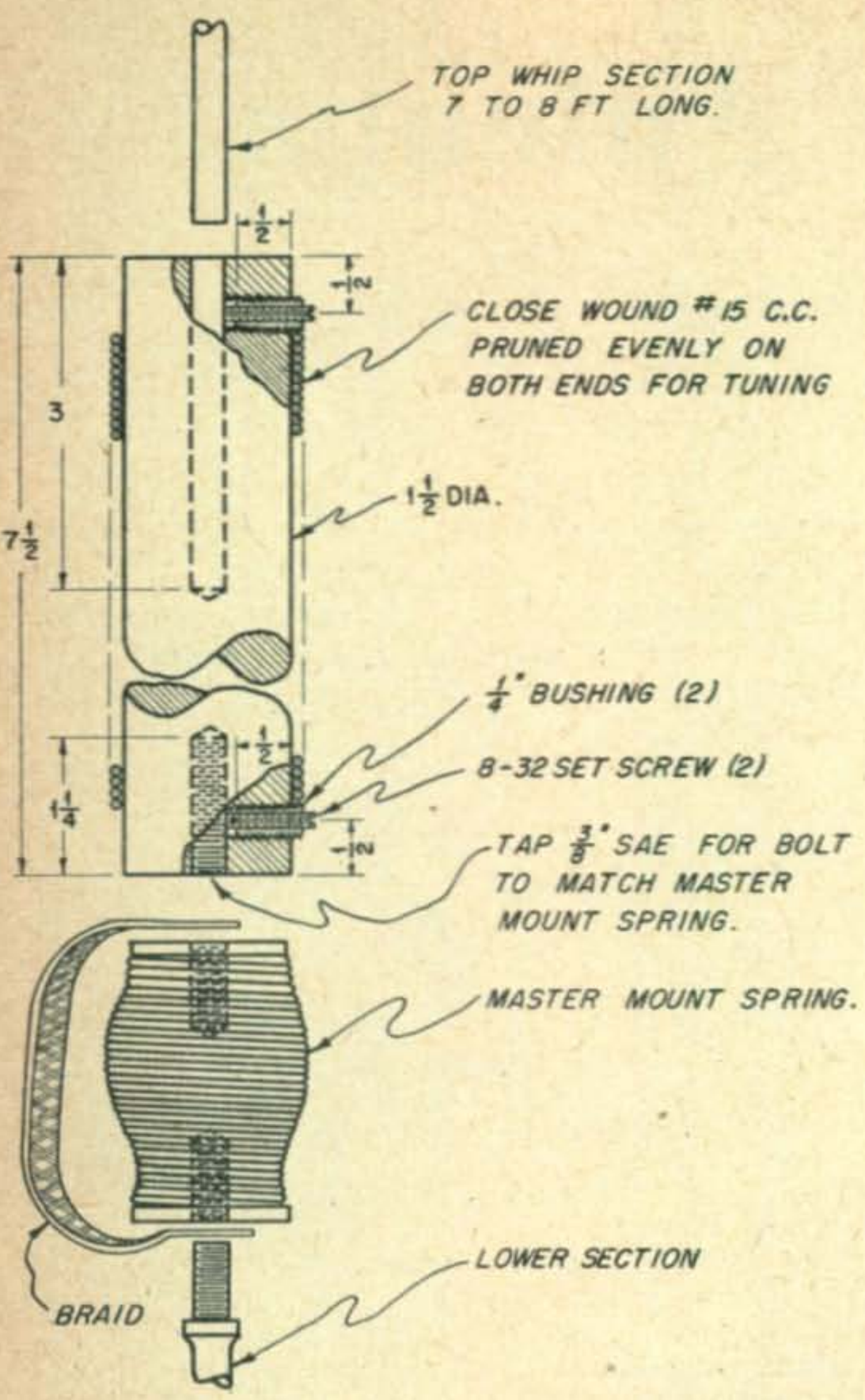


Fig. 2. This is the special loading coil that the author designed for use with his mobile.

such as soapy water. A chunk of poly this size is a bit expensive to make mistakes on.

Improved S/N with FL8

This is a very simple means of improving the signal-to-noise-ratio of any communications receiver employing a crystal filter.

Many amateurs have experimented with the well known FL8 filters, and found that they were somewhat unusable due to their extreme selectivity and consequent ringing. This was very noticeable using the filter in the "Range" position.

However, upon switching over to the "Voice" position, where the filter operates with a rejection frequency of 1020 cycles, a very desirable and noticeable attenuation of the normal crystal "ringing" of the receiver is found. This may be verified by simply switching over to the "Both" position of the filter which is its normal or "out" position.

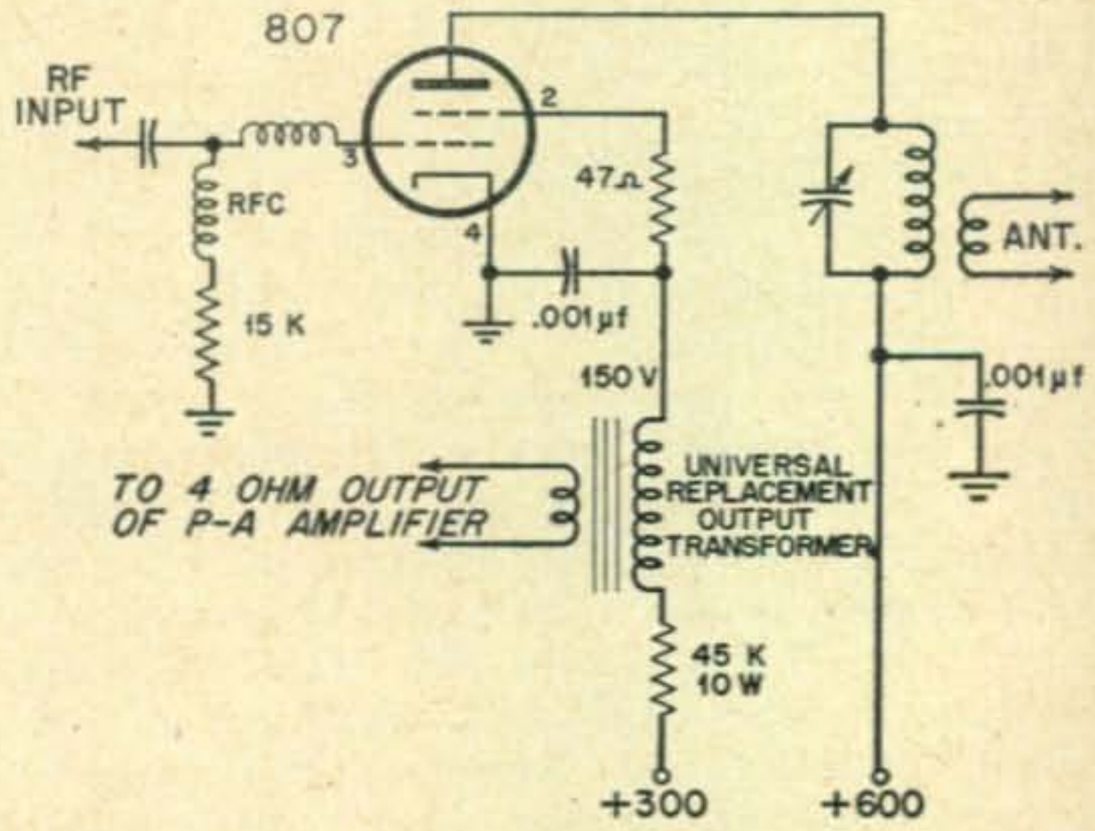
The user will immediately notice that there is no insertion loss detectable by ear, and that a great percentage of the crystal ringing (noise) is rejected.

This gimmick has been in constant use in the writer's receiving set-up for the past two years with a great deal of success. It also offers one the extreme selectivity of the "Range" position when needed and possible to be used. Users are cautioned that an impedence match is necessary for proper characteristics of the filter and no difficulty has been experienced by using any of the common varieties of high Z 'phones found in a ham shack. A 500-ohm speaker winding was tried without success. However, a 500-ohm input to the filter does not impair its efficiency.

MARV GONSIOR, W6VFR

A Lazy-Man's Screen Modulator

Wanting to screen modulate my 807 final on 75 meters, but not having enough time to build a clamp-tube or screen modulator, I began to look about for another method of achieving this end. The following idea was hit upon and put into operation. A 14-watt public-address type amplifier used here to play records and a universal replacement output transformer from the junk box were all that was needed. The voice coil secondary of the output transformer was attached to the 4-ohm output of the amplifier and the primary of the transformer became the secondary. The screen voltage is dropped to one-half its normal CW value through a dropping resistor and fed through the transformer to the screen. The only thing else that needs to be done is to increase the value of the screen by-pass condenser to .001 $\mu\mu$f in order to pass audio frequencies. If the replacement transformer secondary has taps, they should be chosen to produce a fairly high impedance in the screen lead. Values shown in the diagram are those I used, but are likely to be different with other tubes and voltages. Best adjustment is achieved by adjusting the screen voltage to the point where the plate meter kicks the least under modulation. The gain should



be set to that point where the plate meter just kicks on peaks. Two other points should be remembered. First, the loading of the final should be as heavy as possible and still have a dip in plate current at resonance. Second, the grid drive should be kept at minimum necessary to maintain output. This system has been in use for about a month now and reports are that the quality is excellent and the modulation seems adequate.

JAMES H. SCOTT, W9CWH