

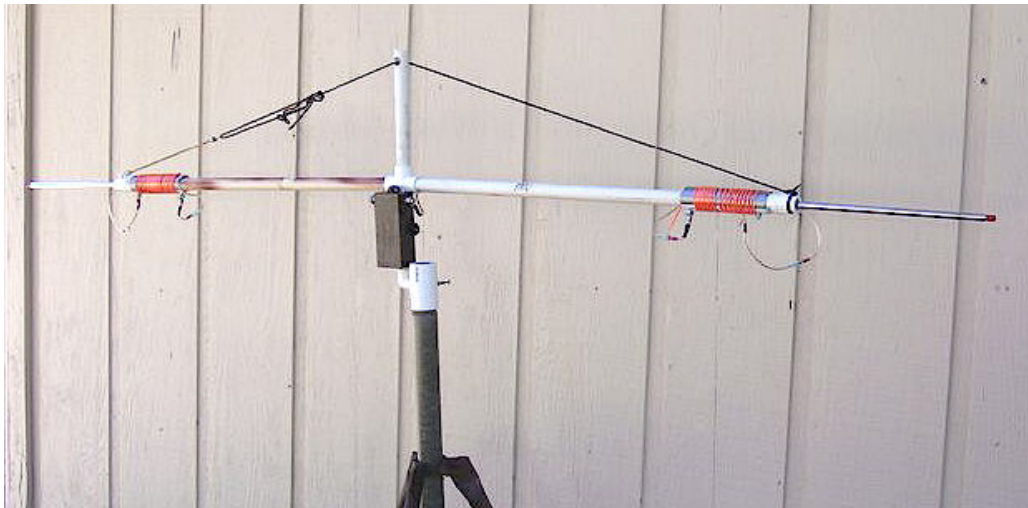
Building Coils for a Portable Dipole Using A Novel Method of Winding Coils with Weedeater cord!

A COIL WINDING TECHNIQUE THAT LENDS ITSELF TO A PORTABLE DIOPLE
CONFIGURATION

By K4MMG

WHY?

It all started when I priced a 10 inch air inductor!
Here is my way of saving money!



OBJECTIVE:

Build a coil that will use the materials that I have on hand, saving money, will be fairly rugged, and allow use from 17 through 10 meters. Most importantly, the coil wire needs to be bare so that a clip lead method can be used to adjust taps as the frequency is changed, and the coil wire turns can not short to each other.

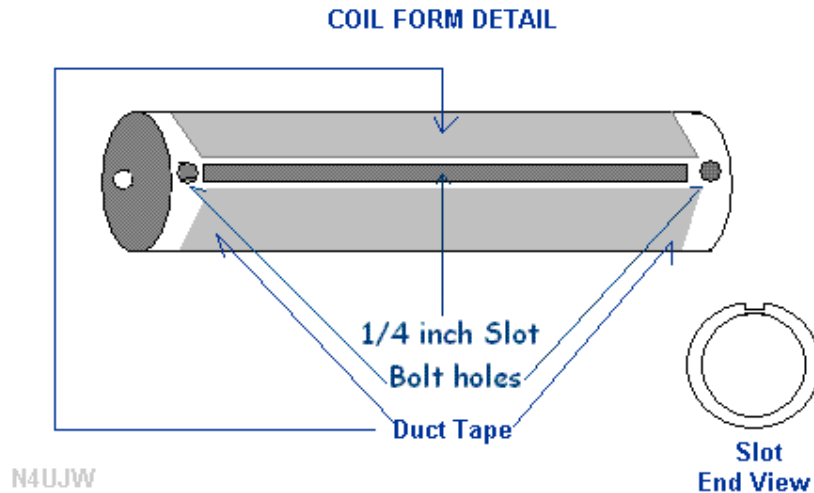
While the coil described is used in a dipole configuration, it can be adapted for other applications as well. Remember this article is slanted more towards how to build a coil than how to build an antenna, and to save on the cost of an air wound inductor that in addition to price , does not lend itself to be rugged enough for portable use.

CONSTRUCTION:

Using a 12 inch ,1-1/2" diameter plastic section of a sink drain pipe, cut it in half. So that the wire turns will not slip too easily, add a strip of duck tape on one side, then the other. On one side , and in line with each other, drill two holes that will clear a

6/32 bolt 1/2 inch from both ends. Repeat this for the opposite side as well. You should have 4 holes all together.

So that you can connect to the coil windings with a clip, there will need to be a slot cut on one side of the coil , between the two holes about 3/8 inches in from each hole (see drawing below).



Mark the slot to be cut out , secure the drain tube so that it won't move when you are making the slot. Use a Dremel type tool , or a solder iron with a cutting blade to cut the slot. **What ever method that you use please observe all safety precautions.** With two of the holes on the same side, and on the same side as the slot, insert a 6/32 bolt and nut, (configure so that the threads are protruding from the side that the wire is to be wound). Have two washers and another nut available.

At this point you need to decide if you want to wind a coil so that taps can be used or not.

If not, then wind the turns as tight as you can get them.

If you will be using taps, wind the turns firmly so that they can slide a little.

The wire that I used is # 18 Alcotec Part # ER 5356, 1/16 dia. welding wire.

In the photo below, it is the silver color..... not the orange!

YOU CAN ONLY BEND THIS WIRE ONCE IN A HOOK CONFIGURATION.

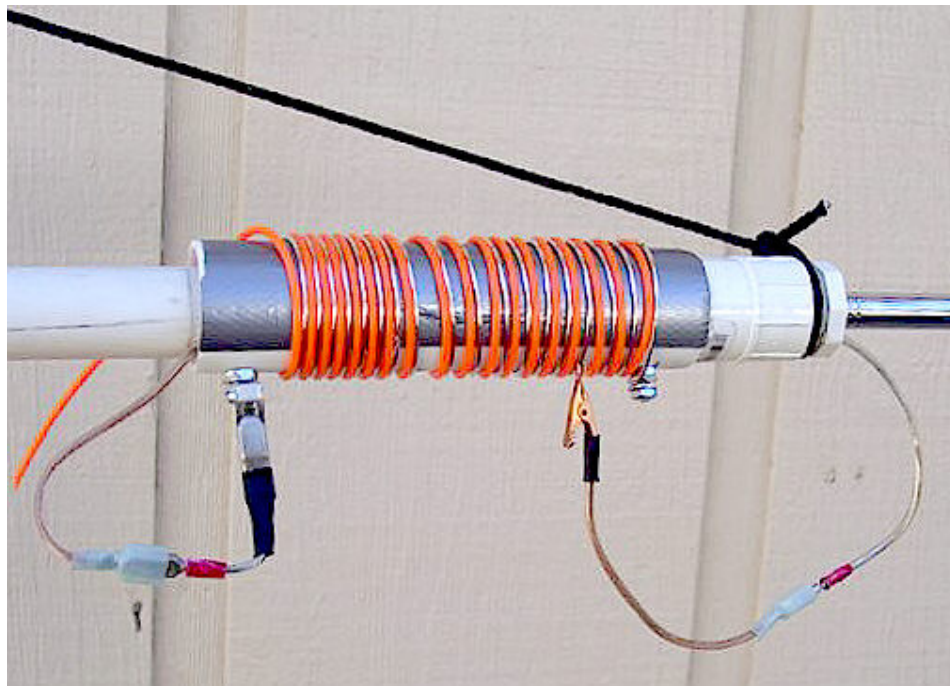
Now bend the hook on one end of the wire, place it over the 6/32 bolt, using a washer then the wire , washer and finally the nut, tighten.

Continue winding the turns until you get 28 turns as evenly spaced as you can. When you reach the other 6/32 bolt, make a hook and tighten the wire between the washers. Look at your coil, if you are satisfied, and no turns are shorted proceed to the next winding sequence.

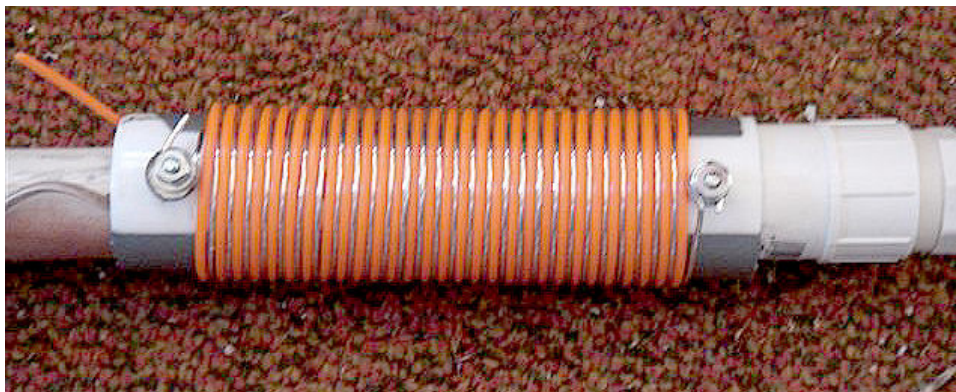
When you reach the other 6/32 bolt, make a hook and tighten the wire

between the washers. Look at your coil, if you are satisfied, and no turns are shorted proceed to the next winding sequence that is the "secret" to the success of this coil!

Locate a roll of "weed eater" .095 line. (Orange in photo below)
In the hole on the opposite side of one of the 6/32 bolts insert one end of the line, wind it so that it goes between the wire coil already wound. Pull each turn as tight as you can, when you reach the end, thread the line through the remaining hole. Leave a few inches protruding from each end. The weed eater cord is used as the insulator between the wire coils. You now have a non shorting fairly rugged coil for portable banging around with.



Prototype example of coil details showing welding wire with weed eater cord between coils.



Completed 28 turn coil

MY APPLICATION:

The reason that I selected this particular size coil form was that it fits nicely over the $\frac{3}{4}$ end cap that supports the 4 foot telescoping antenna used on my dipole, as pictured above.

My use was for 17 through 10 meters mainly because of the height above ground required.

For me, portable operations for 17 meters was doable. The antenna pictured has supported 100 watts SSB. I'll only use the FT-817 in conjunction with it for portable use however. This 28 turn coil allows operation from 11-30 Mhz.

If you decide to build a dipole, make sure that some type of isolation transformer is used at the antenna feed point.

CONCLUSION: Use all known safety precautions. This is an amateur experiment and should be treated as just that. As with all experimental projects, your results may vary depending on your particular situation.

The welding wire that is noted has been in use on my HF quad for 8 years looking as new as the day it was placed into operation.

I think this method of winding these coils is more functional and proves that "Necessity is the Mother of Invention"!

ACKNOWLEDGEMENT:

As you can determine from one of the photos, the configuration is similar to that of the widely popular, "[Buddipole](#)" by W3FF. [How to build your own Buddipole](#) is described in detail on the W3FF web site, along with the for sale commercial version details. Make sure you check out the commercial version! It's a winner with reviews to prove it!

My configuration is a variation of this do it your self information, excluding the previously described coil of course.

MATERIALS: for the coil only

12" plastic sink drain pipe, 1.5" diameter

roll of # 18 Alcotec Part # ER 5356, 1/16 dia.welding wire

roll of weed eater line .095 diameter (chose your own color)

6/32 flat washers

6/32 nuts

2- 6/32x3/4" bolts.

Questions or comments email to Steve k4mmg@hotmail.com