MULTIPLE BATTERY HOLDER for ELECTRICAL EXPERIMENTS

by **Thinkenstein** on July 13, 2009

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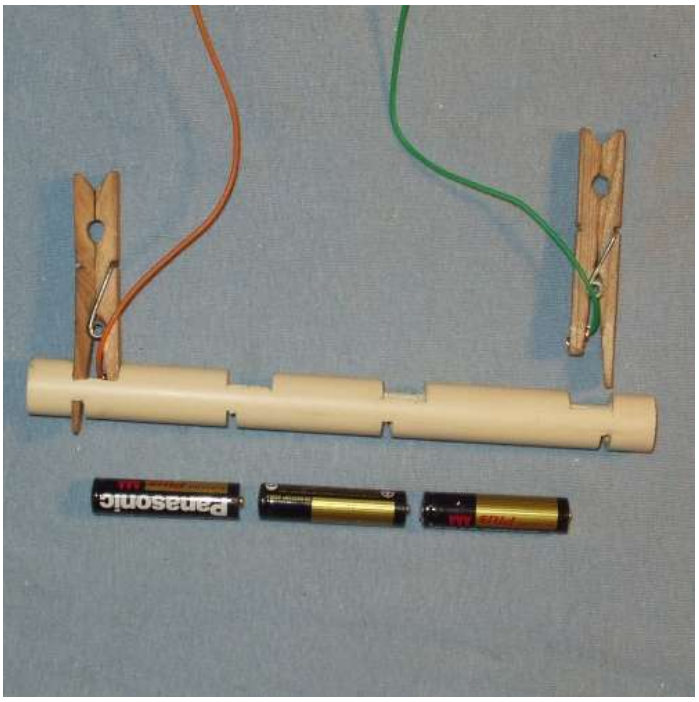
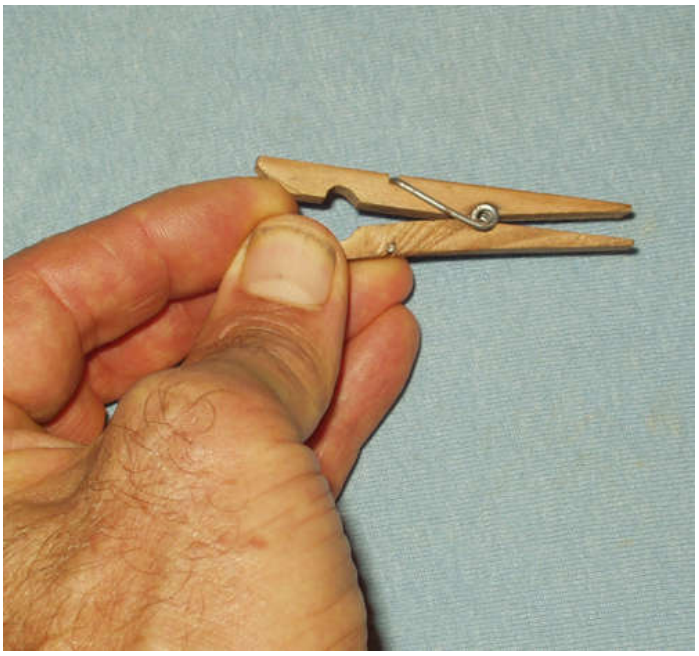
intro: MULTIPLE BATTERY HOLDER for ELECTRICAL EXPERIMENTS

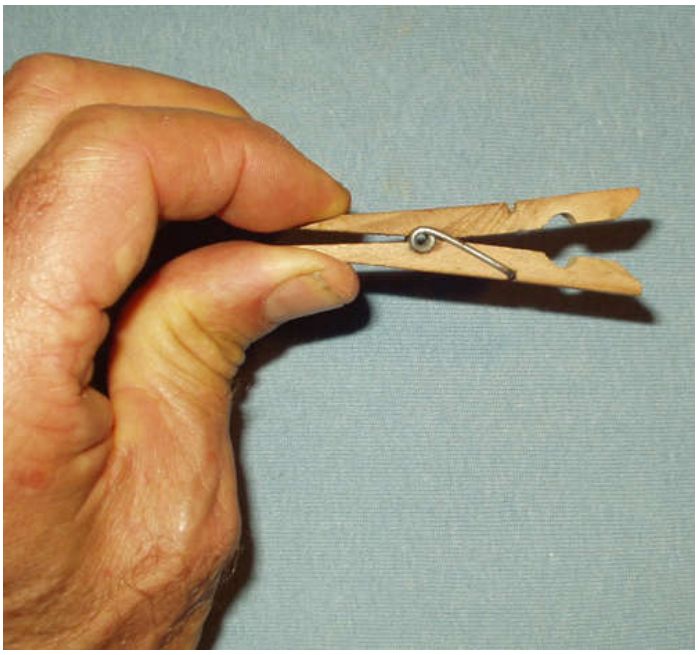
This battery holder will handle 1, 2, or 3 AAA batteries. It can be made longer to handle more.

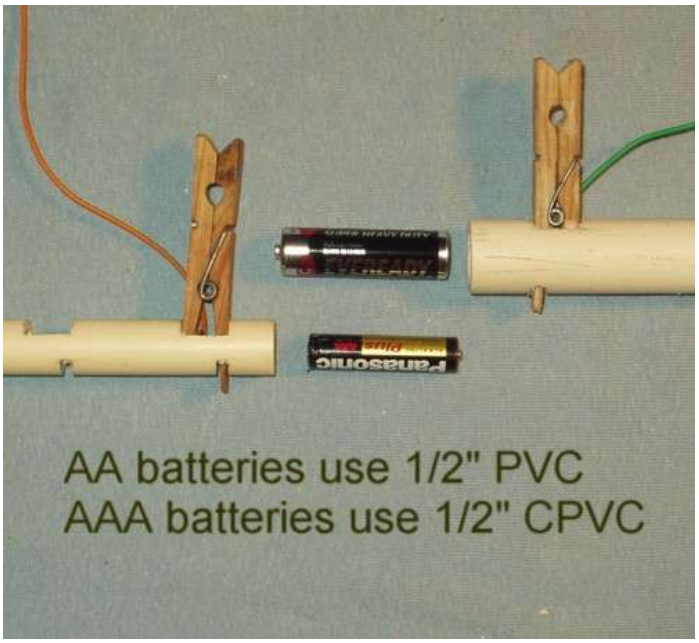
In the same way that a clothespin spring forces the tip of the clothespin shut, it forces the handle end apart. This outward pressure is used to keep the wires held firmly against the battery terminals.

PVC pipe comes in different diameters. 1/2" PVC is the right size for AA batteries. 1/2" CPVC (for hot water) is the right size for AAA batteries. I haven't tried this idea with larger batteries. With bigger pipe, the clothespins would eventually be proportionally too small to work.





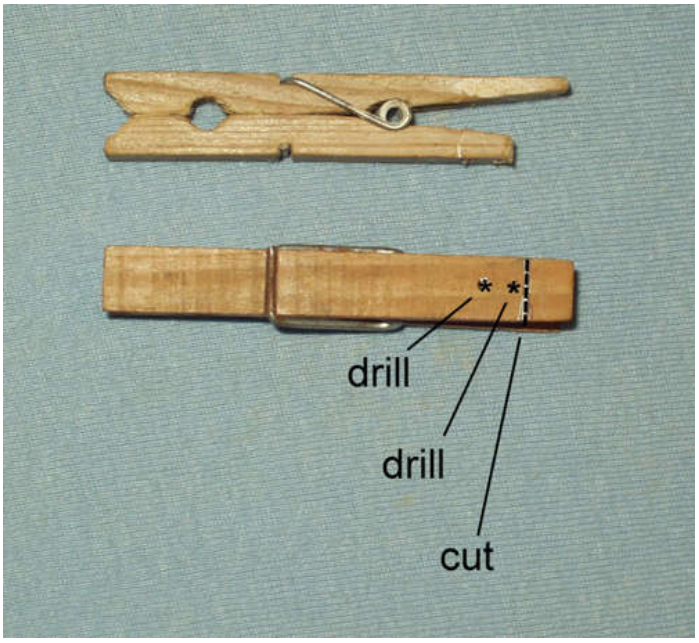


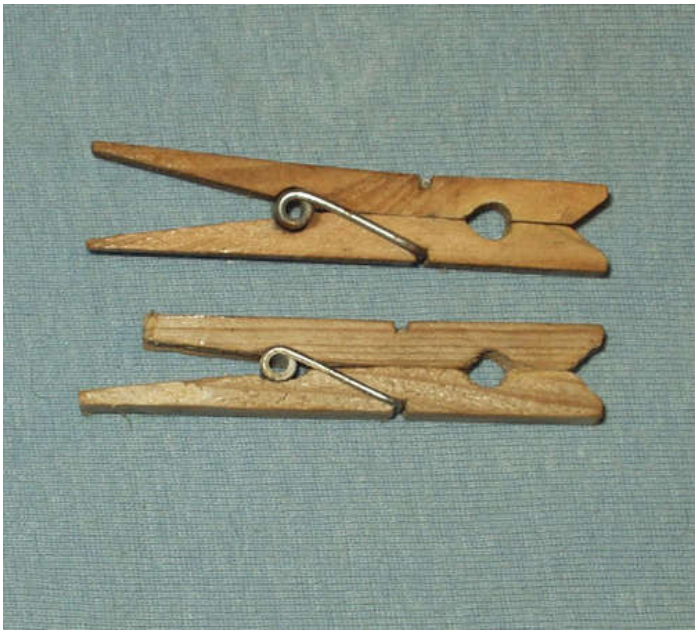


step 1: CUT AND DRILL THE CLOTHESPINS

The wires are attached to the shortened leg of the clothespin through two small holes. The long leg sticks through a hole in the bottom of the pipe and helps hold the clothespin firmly in place. The short leg exerts pressure against the batteries.

If you don't have a tiny drill, you can hammer in and remove a 3/4" finishing nail to make the holes. Sometimes the wood splits. Sometimes it doesn't. To avoid splits, you are probably better off making the holes before you cut off the extra wood.





step 2: CUTTING THE HOLES IN THE PIPE

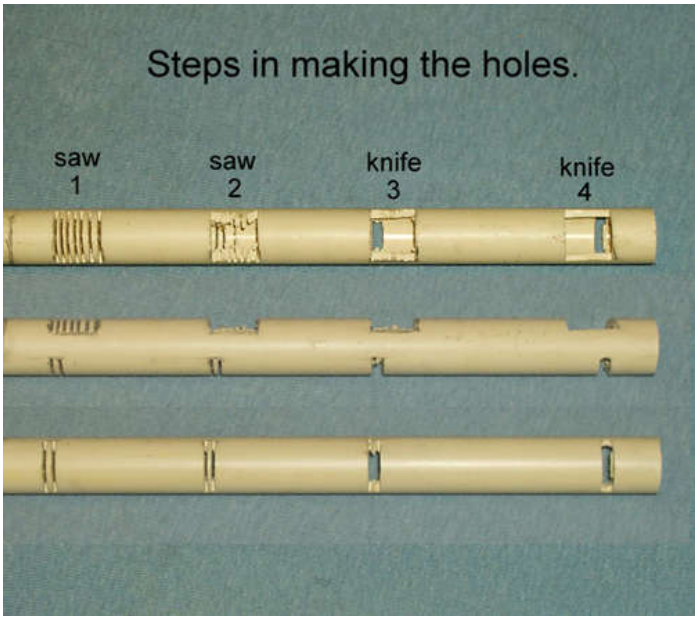
Now that you have the clothespins, make the holes in the pipe to fit them.

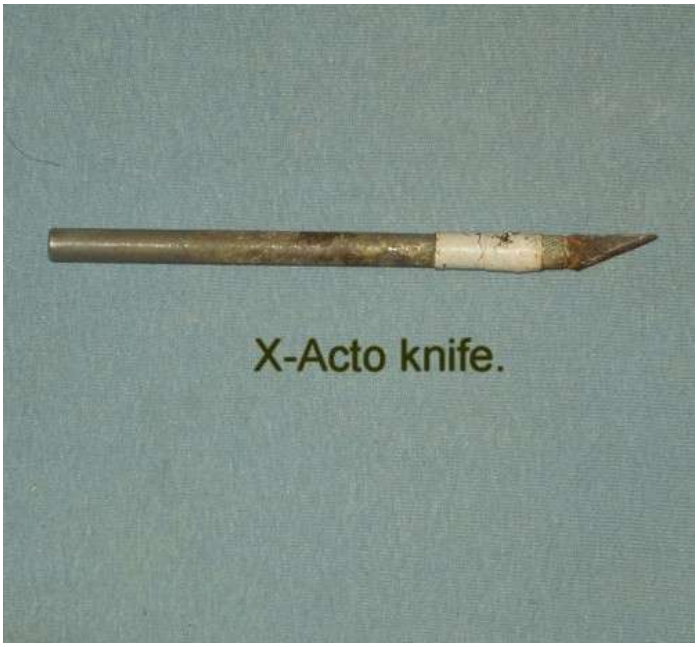
To make the rectangular holes, you need a hand saw and an X-Acto knife. It also helps to have a vise to hold the pipe while sawing and cutting.

Structurally, the weak points in this design are the bridges on either side of the top and bottom holes. Try to not make the holes larger than necessary, to leave as much material in the bridges as possible. Also, if you only want a holder for a particular number of batteries, eliminate the holes in the middle. That will leave the pipe stronger and save you some time.

Your clothespins may not have the same measurements mine do, so you will have to calculate your own distances between holes. Put one clothespin in hole #4. Then set the batteries next to the pipe and imagine where the other clothespin has to be to exert the correct pressure. Too far apart and there will be no pressure. Too close and the batteries will not fit. Both clothespins have play. I had to open both clothespins to get the batteries loaded. Once loaded they are firmly held.

Remember that the small bottom hole at #4 is turned around from the others. Holes 1, 2, and 3 give you options for moving the second clothespin, thereby accommodating different numbers of batteries. One clothespin always goes in hole #4.

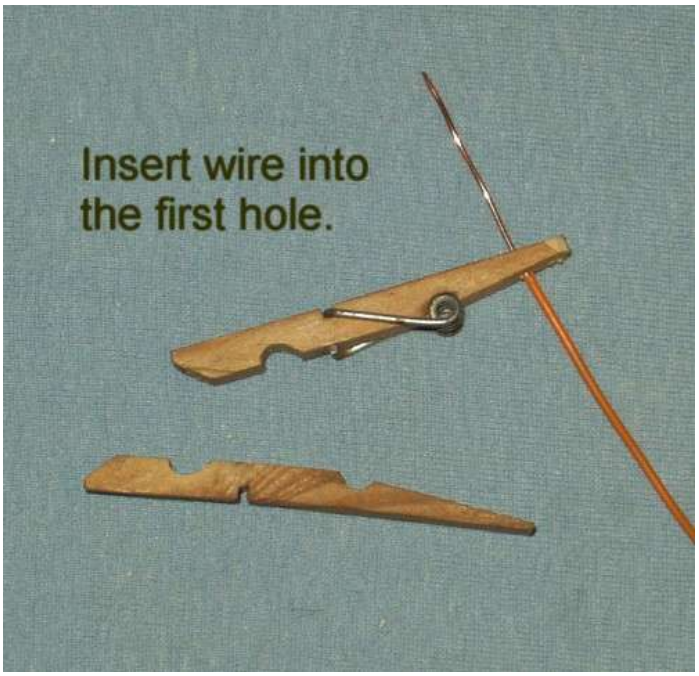


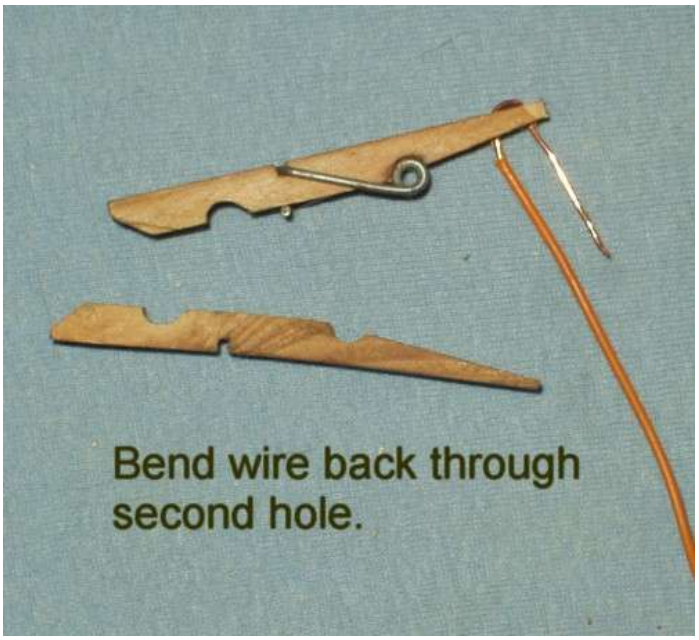


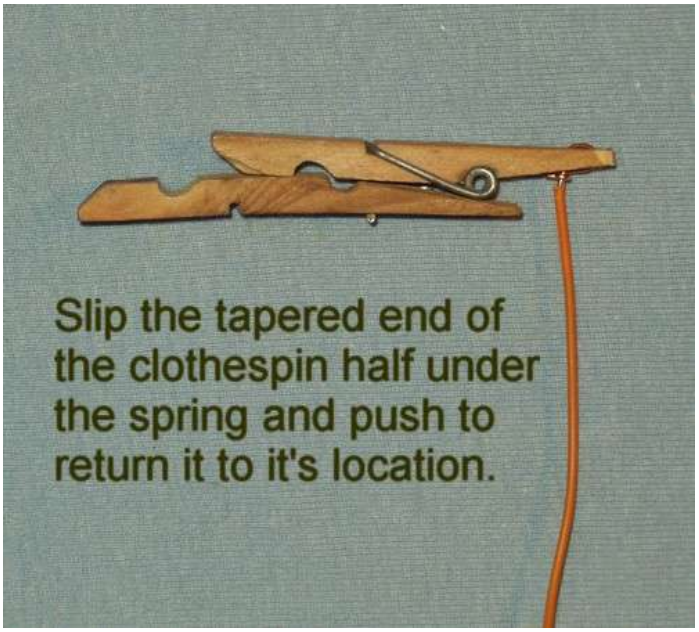
step 3: ATTACH THE WIRES TO THE CLOTHESPINS

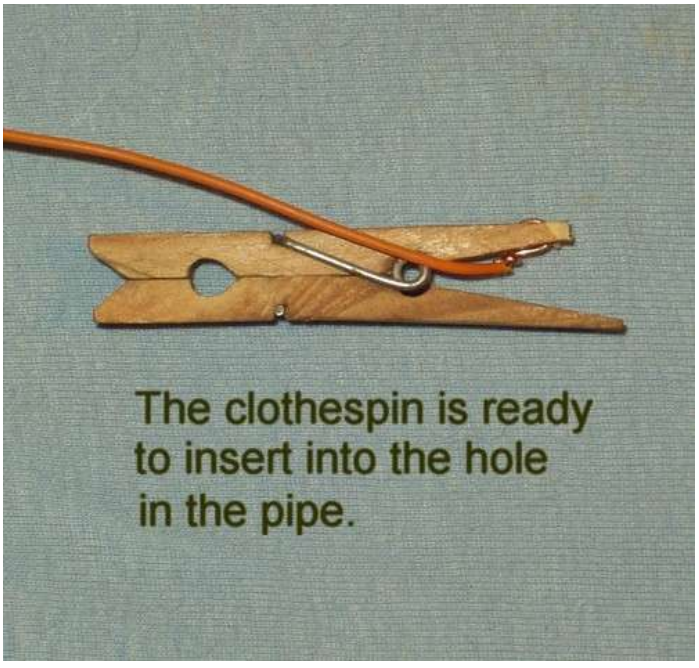
To attach the wires to the clothespins, first disassemble the clothespin, if it is not already apart. Clothespins come apart easily by sliding one half sideways out from under the spring. Strip the insulation off the wire, run it through one hole and back through the other. Twist the end around the wire.

To reassemble the clothespin, it is easiest to start by lifting the spring a little with your fingernail. Slip the wedged end of the clothespin under the spring and push until the parts snap together.





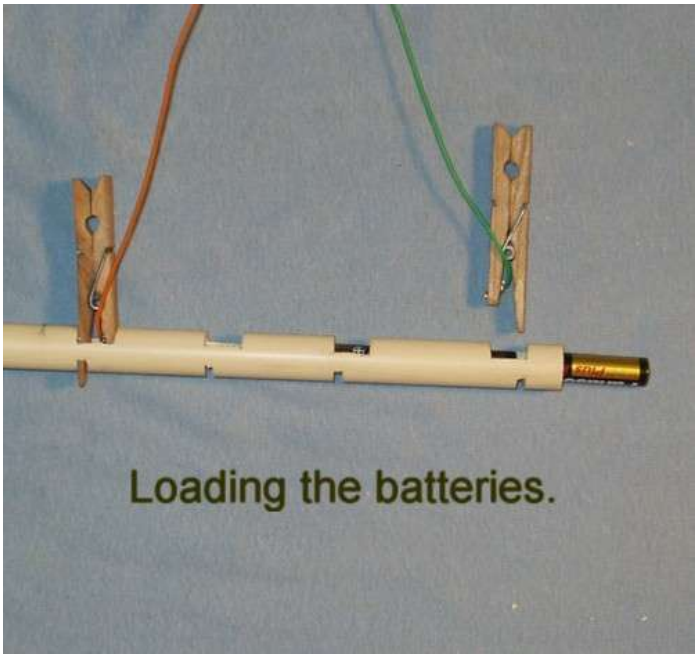


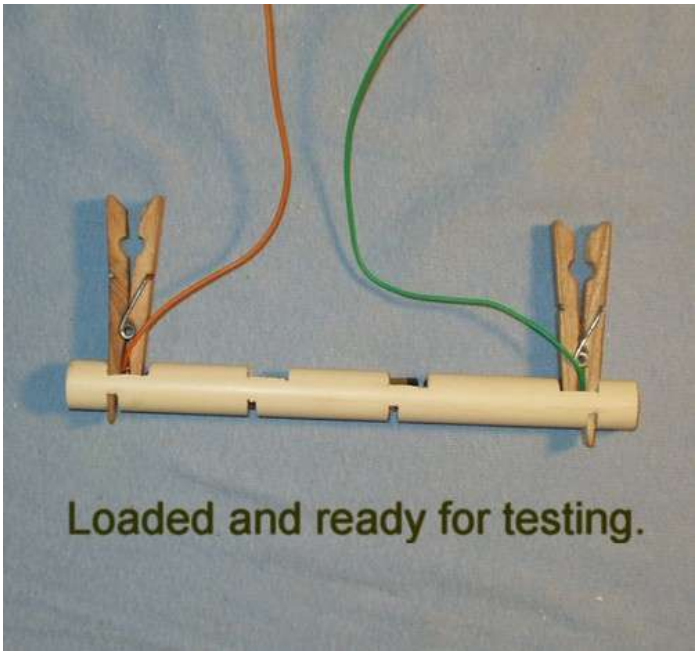


step 4: LOADING THE BATTERIES

Loading the batteries involves some dexterity opening the clothespins and loading the batteries at the same time.

I tilted the holder vertically, so gravity helped. Squeezing the bottom clothespin let the batteries fall a little farther, allowing the second clothespin to be inserted over top of them. Note how both clothespins in the picture are forced open by the pressure. This is the kind of tight fit you want. It applies maximum pressure to the batteries.

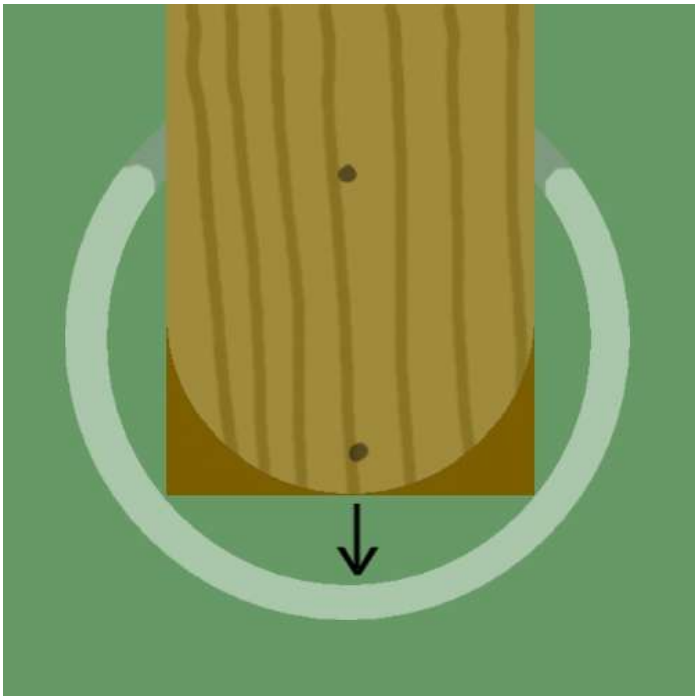




step 5: TESTING THE CIRCUIT

The tester proves the circuit is complete.

If your wires do not make good contact with the battery terminals, you can get some vertical adjustment of the pins by rounding off the square ends inside the pipe. That will let the clothespins and the wires drop down a little.



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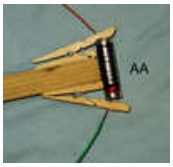

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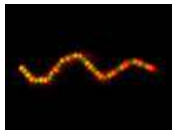

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