How to Build an Electric Slug Fence

by
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Introduction:
Why do I need an electric Slug Fence?

Ask any gardener- It's very frustrating to do all the work, have a nice, beautiful garden full of fresh green shoots- and to come out the very next day, and find your entire garden GONE!

Slugs, snails, etc., absolutely LOVE the fresh, tender leaves on your plants. Not only that, but they love mature plants just as much.

Now, it seems when to comes to garden slugs, people have as much advice and as many “cures” as they do for hiccups- Everyone recommends something different.

A few of these slug remedies include dishes of beer, or sugar water placed about your garden. A moat around your garden. One solution I read about advised a trough of salt surrounding your garden beds. There's only one problem with these “solutions”...

They all kill the slugs.

Believe me, as a gardener who has experienced having a garden destroyed by slugs in a single night, perhaps you might ask, “so what?” One might even derive a bit of satisfaction by killing the little buggers that killed your garden. But not only does this approach run counter to the spirit of organic gardening, it produces other adverse consequences as well.

Birds, frogs and other important species eat slugs. These animals also consume other pests that can harm your garden as well. Beetles especially. I would recommend that keeping the slugs out of your garden with non-lethal means is by far the more preferred method.

Besides, if you've ever had to clean the gross, slimy mess left behind by a dead slug, you'll definitely try to avoid having to do so again!

This following guide will show you how to keep the snails and slugs away, easily, inexpensively, and most important; effectively.

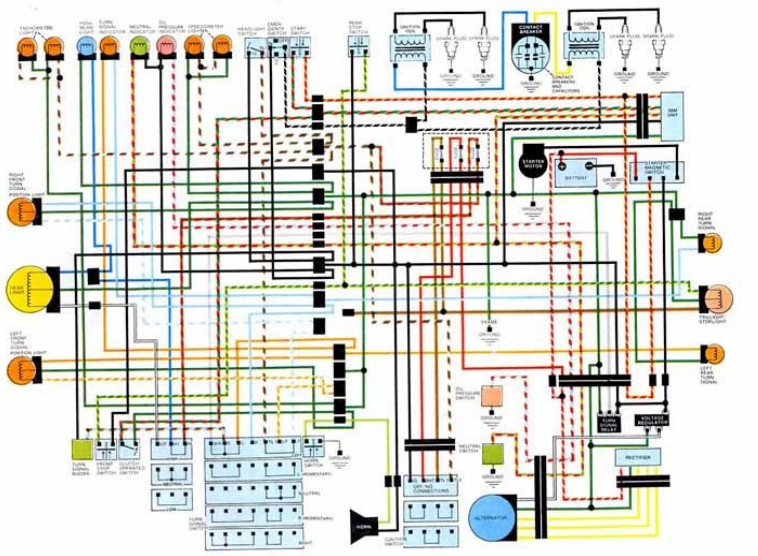
Part One:
Wiring Basics

There are a few people who, the moment they hear the word “electric”, become a bit concerned. Let me tell you right here and now:

You CANNOT get electrocuted by the by the systems I will show you here.

They are perfectly safe for you, your children...even your pets. The basic plans I will show you use a 9-volt battery. Usually the same type of battery you would use in your smoke alarm.

This battery produces about 500 mA (milliamps) I don't want to overwhelm you with technical terminology, but bottom line: Unless you swallow it or something, you can't get hurt with a 9-volt battery. Period.



Nope. Not this complicated.

In it's most basic form, we will be using a 9-volt battery, connecting the positive (+) terminal to a wire and the negative (-) terminal with a wire as well. The system will use no power until we create a “circuit”, which is when the positive and negative connect to one another.

It is the garden slug itself that will complete this circuit for us, should it try to enter our garden.

Let's get started!

Part Two:
The Materials and Tools

In the accompanying guide, “How to build a Raised Garden Bed”, I used the example of a garden bed with the dimensions of 6 feet in length and 2 feet in width. The materials list and instructions here are for a garden bed of that size.

You can use the basics mentioned here for anything from a single flower pot, all the way up to a garden bed twice as big. For larger applications, I will provide some tips later in the guide.

Again, you can modify these directions to suit your budget, your unique circumstances, whatever you need. Here are the basic requirements:

1(one)- 9-volt battery: The cheapest, most basic 9-volt battery is fine. You can, for example, use a rechargeable battery, but you really don't need to go to the expense unless you want to. 1 battery will provide more than sufficient power to last an entire season.

33 feet (minimum) of non-insulated wire: Non-insulated simply means “bare”, that is, wire without a plastic coating on it. Any electrically conducting wire will work, but I prefer galvanized wire. Galvanized wire will resist corrosion. Since our slug fence will be exposed to the elements, this is a good choice. As I mentioned, you can use any wire, but chances are you will be replacing it when it rusts. (Although copper wire is an excellent conductor of electricity, and it doesn't rust; it does form a *patina,* or a coating of corrosion. This patina, once formed, will not deliver an annoying jolt to the slug)

1 battery connector: This is the part that allows you to both connect your battery and to allow you to easily change the battery once it's power is depleted. You can find this at any electronic or hardware store. The most simple, basic model should cost less than a dollar.

1 housing: Now here's where you can not only be creative, but you probably already have this part in your house! A small glass jar, a plastic box... Any waterproof container to house your battery in and protect it against the elements.

*If desired, you can purchase these two parts as combined into one, like this:

Tools:

Wire cutters

*If you have a pair of pliers, they will usually have wire cutters as part of the tool.

Staple gun (preferably with stainless steel staples- to prevent corrosion) Unfortunately, not an ordinary office stapler as it won't drive the staples deep enough into the wood, you'll need a heavy-duty staple gun.

Part Three:
Construction

Along the top of your raised garden bed, take and string a single strand of wire around the bed.

Place the wire on the wall of the bed, and staple it down. Make sure the wire lays firmly against the bed top, with no spaces. We don't want a slug to crawl underneath any wire.

Pulling the wire tautly, place one staple about every six inches. As mentioned, it's best to use stainless steel staples, as they won't rust. Not only do rusted staples look bad, they will eventually break, loosening your slug fence, or allowing it to fall off completely.

String the wire all the way around your garden bed, making sure to leave about a foot in extra length. We'll use this excess to wire to our battery. It's always better to have it too long than not long enough. We can always trim the length, but having your wire too short is way more problematic to deal with.

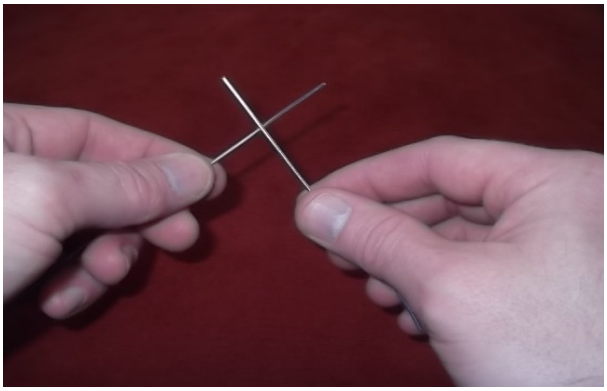
Try to make the wire as “even” as possible. You can mark with a pencil where your wire will go, if need be. This is important since we are installing two parallel wires, and the fence won't work properly if the right spacing isn't maintained.

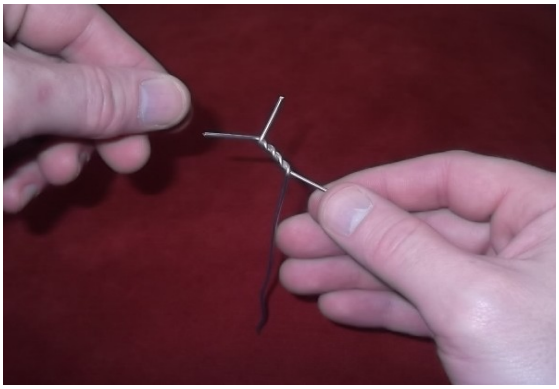
Once you have your first round of wire in place, do the same with a second strand of wire. This second strand should be no more than ½ inch away from your first strand. But make sure the wires are NOT touching. This spacing is very important. If the wires touch anywhere, we will not get our proper circuit. Not only will the fence not work in certain parts, but it will drain the battery in just a few hours.

Additionally, if the wires are TOO far apart, a slug encountering the fence will not touch both wires when crawling towards your garden. If the slug does not come into contact with both wires, we won't complete our electric circuit, and the slug won't be repelled.

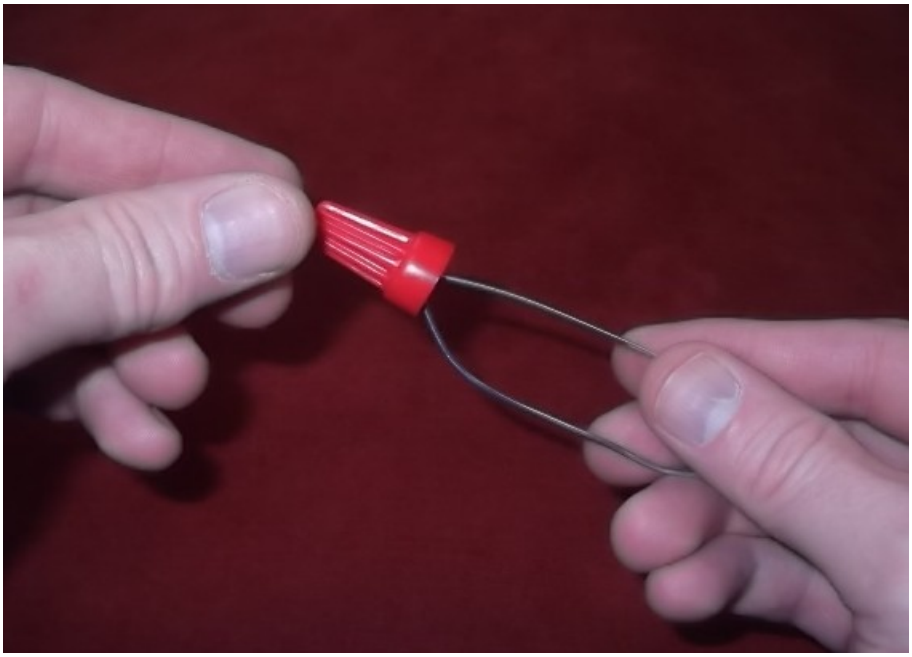
After you have properly strung your wire, make sure you have enough left over to connect to your battery connector and reach into your housing. Leave enough wire so all these connections are “loose”, that is; no tension on them.

Now, take both ends of the top wire, and “twist” them together , do the same with the bottom wire.





After you have connected the wire ends looped around your bed , connect one of each of the battery connector wires to your wire loops that surround the bed. You can merely twist the wires together, use connector caps or alligator clips if you wish.



Don't forget to make sure the wires are kept separate- not touching at all!

You now have a working electric slug fence!

However, we still need to make sure that our battery assembly is protected against the elements. Not only weather, but even the UV rays from the sun will degrade and destroy the battery connector in a very short time, especially if you're using the most basic, cheap connector.

For the purpose of this instruction set, not to mention simplicity, I will describe making our weather-proof housing with a glass jar:

Simply tape your battery into the jar, with the wires facing towards the open end. Turn the jar upside down. Insert a dowel rod or similar stick into the ground adjacent to your garden bed, and slide the open end of the jar on it.

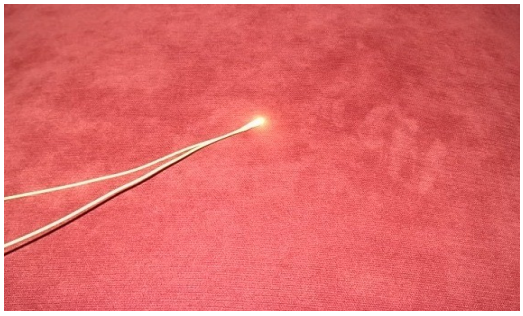
If you wish, you can merely cut the bottom off a a two-liter soda bottle for this, but the plastic will rapidly degrade in the elements.

Obviously, if you have elected to use the combination connector/ housing unit, this won't be relevant. Again, just be sure that the open side faces down towards the ground, so during rain (or if you water by hand), the water runs down and off of our housing, rather than inside it.

Part Four:
Optional Add-Ons:

By following the previous instructions, you will have a fully -functioning, effective electric slug fence that will keep your garden free of damaging slugs. But if you want to go a little further, or you have some different requirements, this section will introduce you to a few.

Test Light- How do you know if your battery still has power? One really simple way is to buy a small lamp or LED at your electronics or hardware store. Make sure it's rated for 500 mA or less. Simply touch the leads of the lamp to each of the wires of your electric slug fence. If the lamp lights up, you're good to go!



Multimeter- If you have one of these, chances are you already know plenty about electrical systems and wiring. Just the same, if you want to invest in one of these devices to test your fence, (and they are awfully handy for many other uses around the home as well), just set the dial for either DCV 200mV or DCA 200 mA or however your particular multimeter is graduated, and touch the leads to each of the wires of your fence. As long as you see at least 5 volts or 200 to 250 mA, your fence should be generating enough electric to repel slugs and snails.

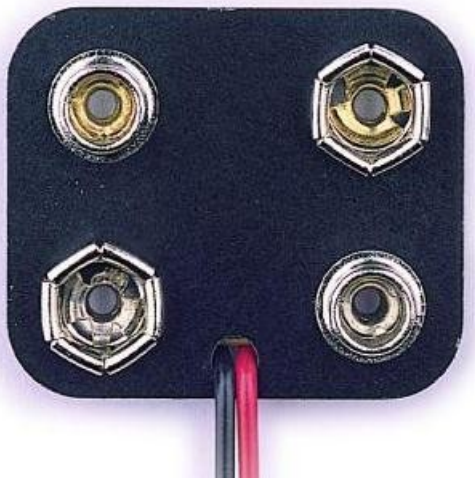
If you see values smaller than this, it's time for a new battery.

Larger Garden Beds- The power from the example described is more than sufficient for the size of garden bed described, even if your garden bed is a bit larger, it will do.
However, if you have an exceptionally large bed, you may need a bit more power.

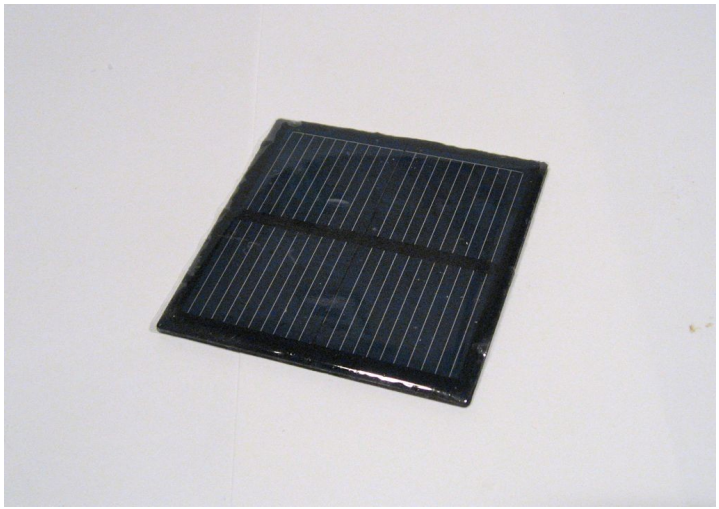
The solution is simple: Add a battery. Obtain another connector, and wire them together like this

*Make sure you connect red to red and black to black!

Or, you can obtain a battery connector specifically designed this way:



Solar powered slug fence- Although a bit too involved to go into here, it's fairly easy to make a solar powered slug fence. I don't recommend it, as it's hard to tell if you're getting enough charge to operate your slug fence. Plus, it's a lot of unnecessary expense, as you'll need to buy a rechargeable battery as well.



500 mA solar panel

Non-electric slug fence- I'm only including this information here in order make the guide complete, and for those who may wish to give it a try. I have tried it and found it less than satisfactory; it seems to affect some slugs, but not others. You use a strip of copper, about 4 inches in width, and mount it around you garden bed, just as you would the electric slug fence.

Supposedly, as the slug tries to traverse the copper, it will get a minor electric shock from the galvanic reaction between the copper and the slug's foot. Perhaps it does annoy the slug, but I have watched a slug continue to climb right over. If you're feeling adventurous, give it a try. Perhaps this is a regional or breed-specific event, but I prefer and recommend using the electrical fence.

Nematodes: That is *Beneficial* nematodes. Go grab a handful of soil. You are likely holding a couple of thousand of these microscopic worms in you hand. You can purchase nematodes at most garden supply houses or over the internet. And they not only work on slugs, but many other pests as well.

They are a parasitic worm that feeds on many pests and their larvae as well. The only problem is that by the time they kill the slugs in your garden, you won't have a garden.

Nematodes enter through the mouth (or, the other end) of numerous pest insects.

But this process takes time. And in that time, the slugs will have long consumed your garden.

Part 5
FAQ's:

Q: I followed the directions exactly, but I still have slugs in my garden. What gives?"

A: Did you thoroughly check your garden bed *before* you installed your electric slug fence? What about slug eggs? They typically look like this:

The picture on the previous page is a close-up for illustrative purposes. Slug eggs are quite small. Here is a picture with a slug in the frame so you can get an idea of the scale.

You will very rarely find slug eggs in plain sight. They are usually located underneath leaves, or in other shaded areas.

If you have the luxury, remove the egg clusters from your garden and put them out into plain sight; birds and other predators will feed on them.

Otherwise, simply remove them from your garden, and dispose of them as you see fit.

Q: “Won't rain or other water short out my electric slug fence”?

A: No. First, the electrical current running through your fence is so low, that the chance of a short is virtually non-existent. Second, it's a common misconception that water is a good conductor of electricity. It isn't. It's what's IN the water that determines it's conductivity. Mere rainwater is usually quite pure and is not conductive.

Q: “Can I power my Slug Fence with household current”

A: Whereas you can, I strongly recommend against it. Not only will it take many more components to achieve a suitable voltage, it is *extremely* dangerous. The current that comes out of the outlets in your wall can be DEADLY.

There is simply no reason to risk a fire, the safety of you and your family and pets to use voltages and amperages that are completely unnecessary. A simple 9-volt battery provides more than ample power, it's not like you'll be replacing the batteries every week.

In all my years of operating electric slug fences with batteries, I've yet to have one that didn't last an entire growing season.

Q: Do I have to have a raised garden bed to use an electric slug fence? What if I grow my plants in individual pots?”

A: Certainly not! You can not only scale up your electric slug fence for larger projects, but you can scale it down as well. I have built slug fences for my wife's flower pots.

Q: My plants have grown large enough to where leaves are hanging over the side of my raised garden bed... Will the electric slug fence harm them?

A: No, not at all. The current is far too low to affect your plants at all. However, under the right conditions, moist leaves touching both wires of your slug fence will drain your battery and maybe even reduce the current to some sections, making it possible for slugs to invade your garden.

Simply reposition the leaves, or, if this is a continuing problem, re-mount the wires of your fence lower on your bed if possible.

As you can see, it is quite easy to make your garden slug-proof in an economical, safe and most importantly; organic manner. Just a little innovation, and it's not too difficult to protect your organic garden without harmful pesticides.

Remember, you are bound by the directions here only if you want to be. You can tailor your electric slug fence in whatever way works best for you. Don't be afraid to experiment and explore!

I hope you have had as much fun reading this guide as I had making it!

Good Luck and Happy Gardening!