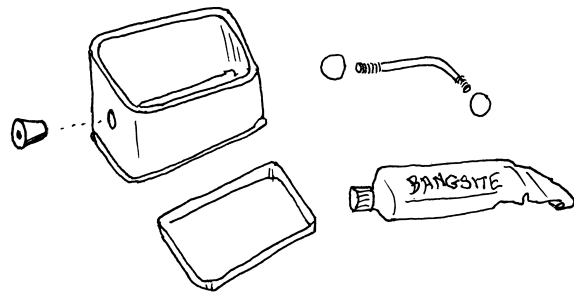


Volta's Pistol

A **Volta's pistol** is the central feature of a Thunder House. They got the name because Alessandro Volta invented them, and the early ones were shaped like pistols. They are a container with a lid that can hold some pressure, but not much. Fill the container with an explosive mixture of gases (air and acetylene work wonderfully) and fasten on the lid. Make a spark inside the container. The gas mixture will explode, and when the pressure is high enough, the lid will fly off with a bang.

If the container is inside a properly-made model house, it can blow the house to pieces. The pieces can be put back together for another explosion. This has been used for over two hundred years to demonstrate lightning rods.

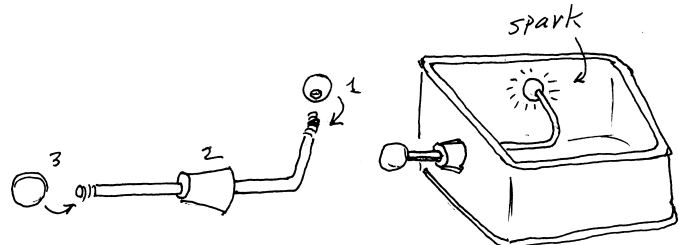
It's easy to make a modern Volta's pistol, using items found in grocery and hardware stores. For the body, get a container of **General Foods International** flavored coffee mix. It's a rectangular can with a plastic lid. Drink the coffee, use the empty can and lid.



At a hardware store, get a **5/32" brass rod**. (They come in foot-long pieces.) Get two **brass balls** of the sort you screw onto lamps to hold the lampshade on, the ones that are threaded **8-32**. Get a **rubber cork**, tapered, about a half inch in the middle. It should have a hole running its length to hold the brass rod tightly.

Now comes the part that needs somebody with a bit of a metalworking shop, and the knowledge to use it. Cut a 3" piece of brass rod. Bend one end to a right angle, so you have a piece of rod about 2" long on one leg, and 1" long on the other. Thread each end to 8-32. Make a hole in the center of one end of the can, the right size to hold the cork tightly. Make the bend a fairly wide curve – for a sharp bend, you might have to heat the rod with a propane torch at the place you want the bend.

Screw one lampshade ball onto the short leg of the brass rod. Push the long leg through the rubber cork, then screw the other lampshade ball on. Push the cork into the hole in the end of the can, with the short leg of the brass rod inside the can. Adjust until the inside ball is about 1/8" from the side of the can. That will be where your spark happens. You may need to trim the end of the rod a bit, or bend the rod some. When it's properly close, the exact distance can be adjusted by moving the rod and cork around a bit.



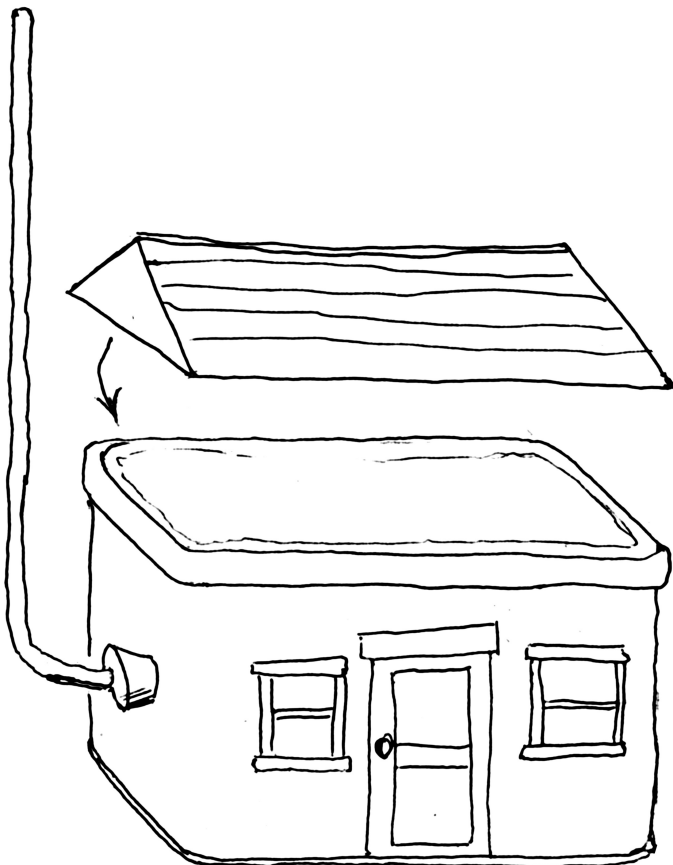
Note that the ball is next to the **side** of the can. The bottom of the can will have fluids in it, and isn't reliable.

For the explosive gas, get a tube of **Bangsite**. (Google it. It's calcium carbide, prepared for this use, in a sealed tube. A company that makes toy cannons sells it.) Mix it with water, and it makes acetylene gas. . Put just a little bit of water in the can. Place the plastic lid beside the can, inner side up, and put a pinch of Bangsite in the center. Then turn the lid over, spill the Bangsite into the can, and snap the lid on. Shake the can gently from side to side to make sure all the Bangsite mixes with water.

Have a charged Leyden jar available. Ground the outer foil of the Leyden jar to the base of the can, using a wire or chain, then bring the ball at the top of the jar to the ball sticking out of the side of the can. There should be a spark, and an explosion.

It takes experience to get just the right amount of Bangsite. Start with a very small pinch. Then work up to larger and larger pinches, until you get a decent explosion you're comfortable with. That's the amount *you* want to use. Other people may like larger explosions, or smaller – adjust to suit.

With a little extra work, the Volta's Pistol can be a Thunder House all by itself. Paint the can to look like a house, and make a posterboard roof to fit over the lid. If it's made well, it can be used many times.



Use the remaining brass rod to make a lightning rod. Bend one end to make a short leg 1" long, and thread it 8/32 for a brass ball. Push the long leg through the hole in the rubber cork. Then bend the other end (at right angles to the first bend) so it is vertical – that will be your lightning rod. Adjust and prepare as before, then set on the roof. Ground the Leyden jar to the can (or to a metal base it sits upon). When you bring the charged Leyden jar near the lightning rod, the house will blow up. If you drop an extra chain from the bottom of the lightning rod to the ground, there'll be no explosion. This shows how necessary it is to ground the rod properly.