

*Does your present lure fail to attract the fish to your line? If so, perhaps an illuminated lure will change your luck, and enable you to catch the big one that always seems to get away.*

It rained all weekend again. I had planned to go fishing but it just wasn't in the cards. So, I thought I would tinker around with my electronic stuff and wait for the rain to stop. Obviously, my heart wasn't in it, because what grew out of that weekend was a strange, but effective, fishing lure. Perhaps, it is stretching the definition of "electronics" to call it an electronic device, but it does use electricity and in some mysterious way it communicates with fish.

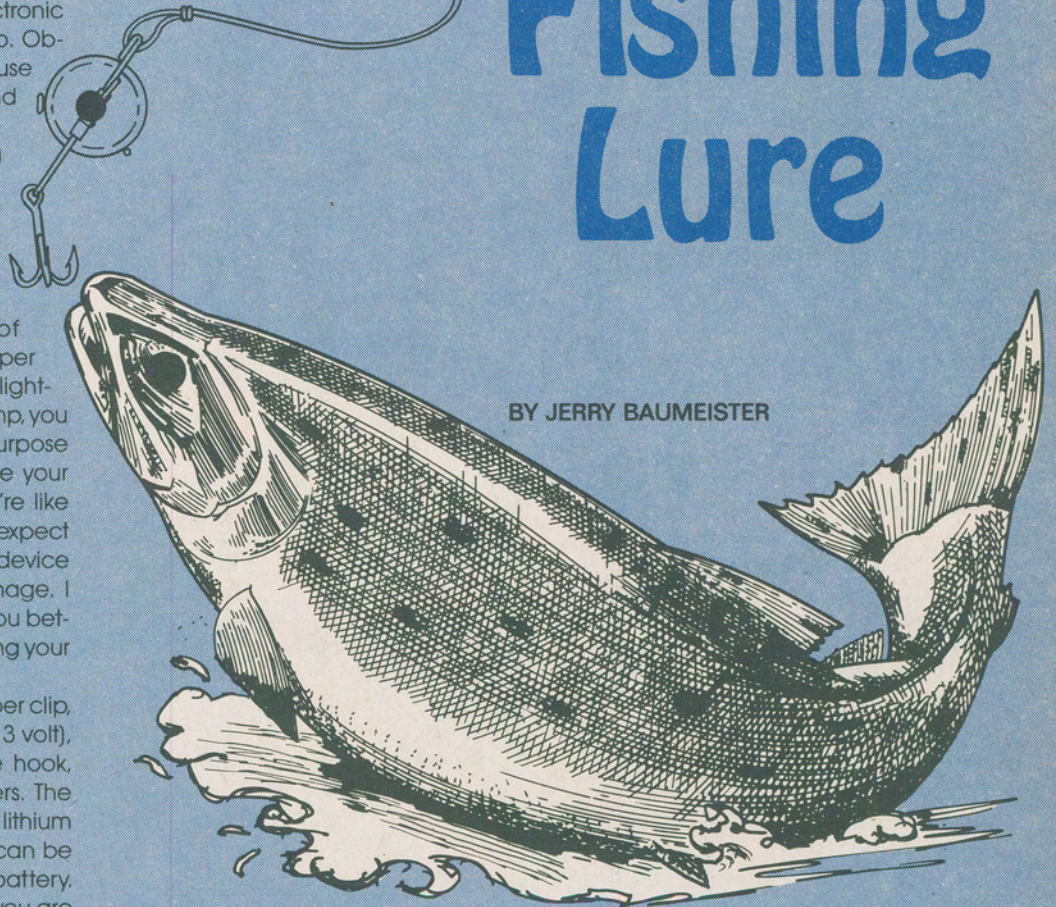
The lure is the essence of simplicity (see Fig. 1). Using a paper clip, a calculator battery, and a light-emitting diode (LED) or micro lamp, you can make an effective multi-purpose fish-catching device and amaze your friends at the same time. If you're like me, your friends have come to expect strange ideas from you and this device will certainly strengthen that image. I think it may even be legal, but you better check the local laws governing your favorite fishing hole to be sure.

The lure consists of a large paper clip, a flat, wafer-type battery (1.5 or 3 volt), an LED or micro lamp, a treble hook, and a pair of needle-nose pliers. The author's version uses a 3.0-volt lithium battery (CR-2430), but the lure can be modified to use any size wafer battery. There is one problem though; if you are going to use an LED as the light source, you'll need to use a 3-volt battery. It takes 1.6 volts of junction potential to "light" an LED and the 1.5 volt batteries just don't have enough voltage.

**How it Works.** The circuit behind the fish lure (see Fig. 2) is so simple—a battery, resistor, and a lamp—that it is almost not worth showing. A resistor can be added (as shown) to limit current through the light-producing element and to regulate the brightness of the light, but it is not usually needed because the internal resistance of the battery will keep the current at about 33 mA.

# Build an Electronic Fishing Lure

BY JERRY BAUMEISTER



The prototype unit used a 1.5-volt lamp powered from a 3-volt battery. That's a bit over the lamp's designed voltage, and tends to shorten both battery and lamp life a bit. However, the extra brightness is attractive to the fish and since catching fish is what this is all about, operating the lamp a little "hotter" than the lamp designers had intended seems a worthwhile tradeoff.

You can use either an LED or micro lamp. You can even use one of those flashing LED's, but make sure it can operate from a 2.5-volt source. I have found that in the waters around my

home, diffused yellow LED's work best for black bass. (I don't know why, I guess it's just part of the mystery that makes fishing so interesting.)

Water proofing was not necessary for the ponds where I fish. The resistance of local pond water around here is about 10,000 ohms per cm. Since the resistance through the lamp circuit is about 11 ohms, most of the current flows through the lamp circuit and not the water (current follows through the path of least resistance). The resistance of the circuit using an LED instead of a micro lamp is a bit higher, but it is still low

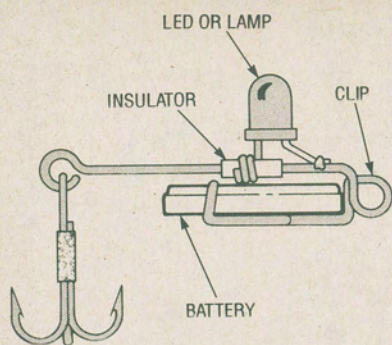


Fig. 1. The Electronic Fish Lure was created from an ordinary paper clip twisted so as to hold the leads of an LED in contact with both poles of a battery.

### PARTS LIST FOR THE ELECTRONIC LURE

LED1—Light-emitting diode or micro lamp  
 R1—Optional, see text  
 B1—1.5–3-volt, flat wafer-type, calculator battery, see text  
 Paper clip, cellophane tape, thin-plastic or film insulating material (see text), treble hook, fingernail polish (see text), etc.

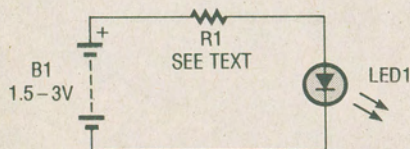


Fig. 2. Here is the simple circuit that comprises the electrical portion of the Electronic Fish Lure. Note: The resistor (R1) may or may not be needed; that will have to be determined by experimentation.

enough to feed the lion's share of the current through the lamp.

In chlorinated water, water that has a high ionic concentration, or in salt water, water proofing is necessary. A little fingernail polish works just fine. Just paint the entire lure, battery and all. You can even use different colors to jazz it up a little. I favor yellow lures with red dots, but use whatever color scheme or pattern that works for you.

The lure can be turned on and off by removing the battery or by sliding a small piece of plastic or film between the battery and the point where it touches the lamp lead. Push the film in to turn the lamp off, remove it to turn the lamp on.

**Construction.** The wire clip is everything. Take your time and get it right. Start, as shown in Fig. 3, by straightening a large paper clip. Figure 3A shows the

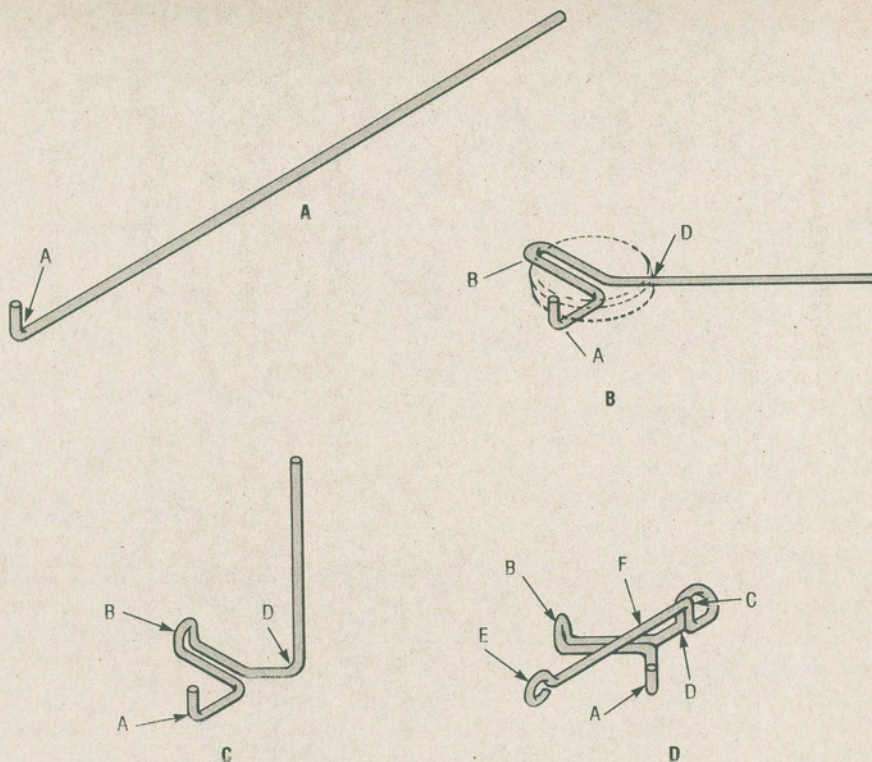
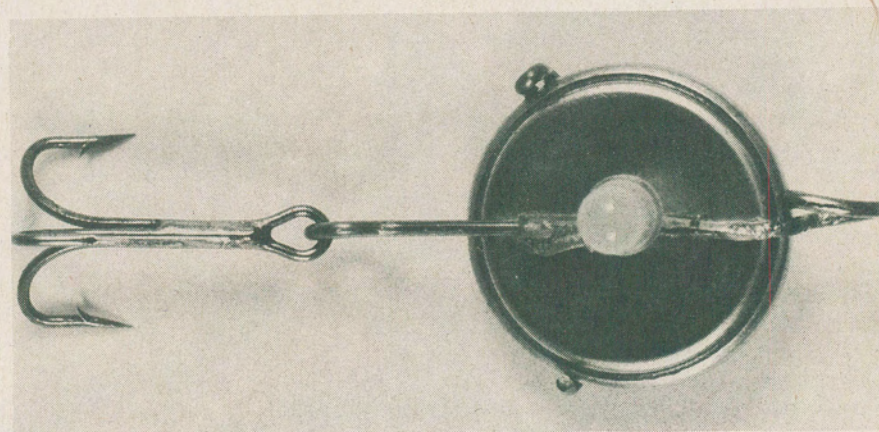


Fig. 3. Follow this clip-bending diagram to form the battery holder for the Electronic Fish Lure. Starting with a straightened large paper clip, make a bend at point A (A), follow by the bend at point B (B), and then the bend at point D (C). Then form a loop at point C and another at point E (D).



Here is the finished lure. Under some circumstances, depending on the conductivity of the waters you fish, it may be necessary to insulate the electrical portion of the unit. Should insulating be necessary, a coat or two of fingernail polish works well.

first bend, a 0.2-inch, 90-degree bend. With the bend pointing toward the ceiling, bend the wire to conform to the diagram in Fig. 3B. Next bend the last 0.2-inch of the double wire at point B in the same direction as point A (toward the ceiling).

Lay a battery, with cellophane tape covering the negative side, on the wire form. The cellophane tape is to keep the battery from shorting during construction. You will need to remove the tape before using the battery in the finished lure. The positive (+) side of the battery should be resting on the wire

and firmly against the bends at points A and B.

Next bend the wire at point D toward the ceiling forming a 90-degree bend tight against the battery (as shown in Fig. 3C). Bend the wire at point C and form a loop as shown in Fig. 3D. At the point where the loop reaches point D, bend the wire 90 degrees to the vertical and then again 90 degrees at a point 0.2-inch away to extend over the negative side of the battery. Finally, bend a loop in the wire at point E as shown.

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## ELECTRONIC FISHING LURE

*(Continued from page 40)*

The battery should be held in place by the clip. If not, remove the battery and adjust the bends at points A and B so that when the battery is slipped into place, it "clicks." Once you have the battery clip working correctly test the assembly. To test it, simply tie it to a string and spin it around. Make sure there are no breakables or anyone else in the room. If the battery doesn't fly out, you've made a good clip and can continue on to complete the lure, if not adjust the bends until you get it right.

Take a 1/2-inch piece of 1/4-inch wide cellophane tape and wrap around the wire as shown in Fig. 1 at the point labeled "insulator." Make the wrap several layers thick. Next wrap the negative leg of the LED or the micro lamp around the cellophane-tape insulator. Flow some solder on the windings on the side that contacts the battery. Solder the other wire to the clip just beyond the cellophane-tape insulator.

The lamp or LED can be mounted to face in a variety of directions—for example, pointing directly out away from the battery or, perhaps, pointing toward the hook end of the lure. The switch is the essence of simplicity—a thin piece of plastic or film slid between the battery and battery-contact lead of the LED. Cut the plastic or film into a strip about 1/8-inch wide and an inch or two long.

**Use.** Use the lure as a spinner bait by attaching a treble hook to the loop at point E and your fishing line at the other end. Cast it out, let it sink a little, and reel it in with a jerking motion. If you are a bait fisherman, especially one who likes to fish at night, position the lamp to point towards the loop at point E. Fasten a leader with hook on loop-point E, bait the hook with a live minnow, and your bait will be swimming in the spotlight. ■

