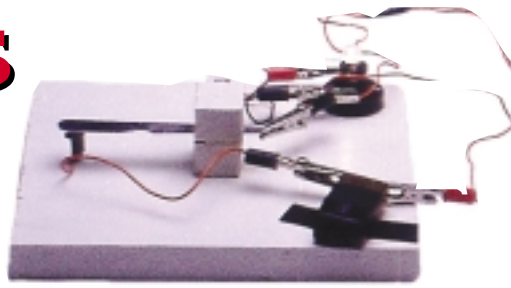


What's The Buzz?



Send secret messages with a **TELEGRAPH** you make yourself.

In 1837, Samuel Morse invented a telegraph, a way to send electrical signals through wire over long distances. He used a system of dots and dashes, known as Morse code, to represent letters.

Now you can also use Morse code with a telegraph you build yourself. Here's how:

YOU'LL NEED:

- (2) 8-inch-square pieces of wood, about 1 inch thick
 - (4) 1-inch-square blocks of wood, about 3/4 inch thick
 - sandpaper
 - paint (optional)
 - (2) metal fingernail files
 - (2) 9-volt batteries
 - bell wire (60- to 100-foot package)
 - (10) 2 1/4-inch alligator clips (6 black, 4 red)
 - (2) holders for miniature threaded light bulbs
 - (2) 7.5- to 9-volt bulbs
 - (2) 12-volt buzzers
 - (2) 1-inch nails
 - white glue
 - electrical tape
 - wire strippers or paring knife
 - small hammer
 - small screwdriver
- (Note: Items that aren't lying around your house can be found at hardware or electronics stores.)

STEP 1: Sand rough wood. Paint if desired.

STEP 2: Glue the fingernail file between two of the small

blocks of wood. The pointed end should overhang about 1/4 inch.

Repeat for second file. Set aside.

STEP 3: Attach the 1-inch nails to each 8-inch board about 1 inch from the outer side's center. The nail should stick out about 1/2 inch.

STEP 4: Tape the batteries to the boards with electrical tape. They should be diagonal from each other on the boards' inner sides.

STEP 5: Attach the buzzers. They should be on the opposite sides of the batteries toward the center.

STEP 6: Attach alligator clips to the red and black wires coming out of the buzzer. The red clip attaches to the red wire (the positive charge), while the black clip goes with the black wire (negative).

To attach: Remove the insulated cover from the clip's handle. Thread the bare wire (it should already be stripped) through the cover, through the handle and around the screw. Tighten the screw and slide the cover back into place.

These will be your **No. 1 wires**.

STEP 7: Decide on the distance between the telegraph sets and cut four pieces of wire that length. Use wire strippers to remove about 1/2 inch of insulation from the ends.

STEP 8: Attach lamp bases next to the inside corners of the boards, opposite the batteries.

STEP 9: Attach two wires to

USING YOUR TELEGRAPH

STEP A: Connect Set 1 to Set 2. Clip the red buzzer wire to the outside screw on the lamp base. Clip the No. 2 wire (with the red alligator clip) to the positive (+) battery terminal.

STEP B: Clip the black buzzer wire to the inside screw on the lamp base. Clip the No. 3 wire (with the black clip) to the pointed end of the nail file.

STEP C: Repeat these steps to connect Set 2 to Set 1.



the outside screws of the lamp bases. Fasten the red alligator clips to the ends of the wires. These will be your **No. 2 wires**.

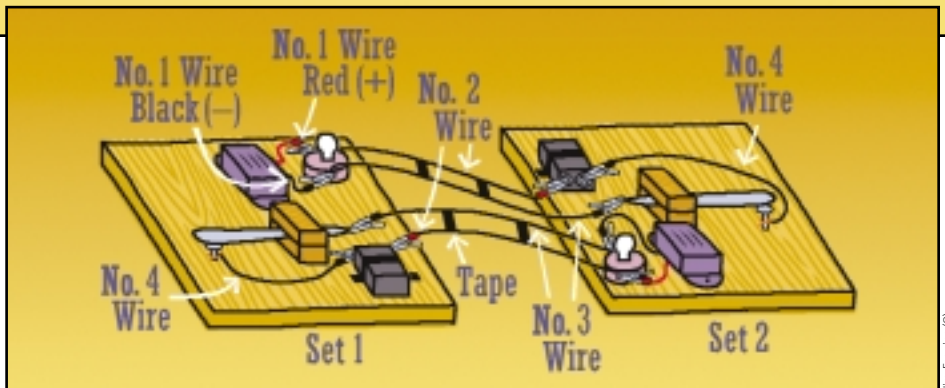
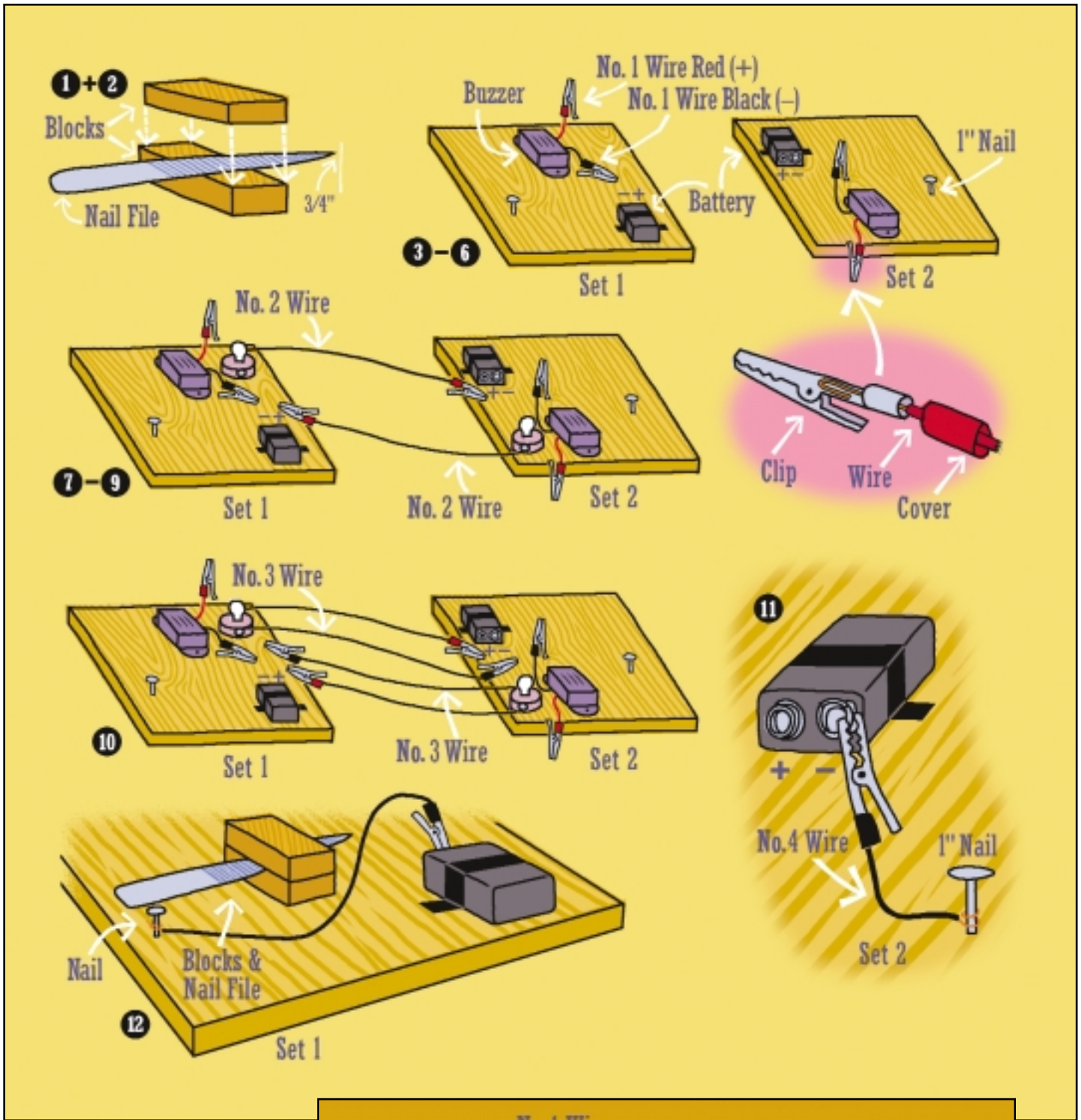
STEP 10: Attach two wires to the inside screws of the lamp bases, and fasten the black alligator clips to the ends. These will be your **No. 3 wires**.

STEP 11: Cut two 8- to 10-inch wires and strip the insulation from the ends. Wrap one end of one wire around each nail, and secure with electrical tape. Attach a black alligator clip to the other end and clip to the negative (-) battery terminal.

These will be your **No. 4 wires**.

STEP 12: Glue the block-and-nail-files to the center of each board so that the round end of the file is above the nail. ♣

—Kathy Walsh Deady



Jim Frazier (2)

