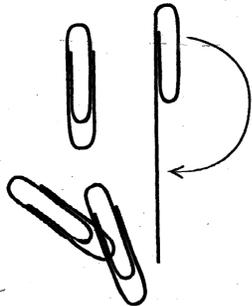
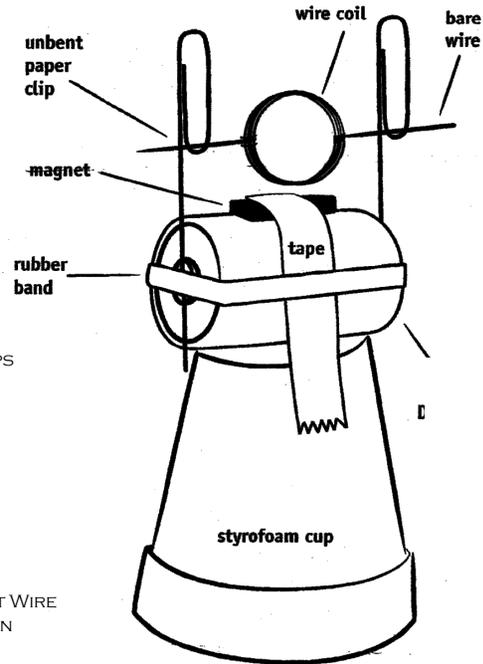




## HELP EDISON MAKE A SIMPLE ELECTRIC MOTOR!

### MATERIALS YOU WILL NEED:

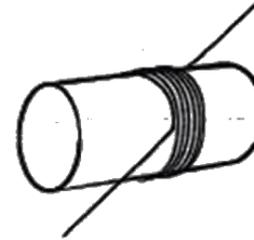
- > STYROFOAM CUP
- > D SIZE BATTERY
- > 2 JUMBO, UNCOATED METAL PAPERCLIPS
- > TAPE
- > LARGE RUBBER BAND
- > SANDPAPER
- > 3/4" DOWEL ROD
- > 3/4" DISC MAGNET
- > 24" #20-26 LACQUER-COATED MAGNET WIRE  
(YOUR PARENT MAY HAVE TO TAKE YOU TO AN ELECTRICAL SUPPLY STORE TO FIND THIS!)



### WHAT TO DO:

- 1) TIP THE CUP UPSIDE DOWN AND TAPE THE BATTERY SECURELY TO THE BOTTOM.
- 2) UNBEND THE OUTER WIRE OF THE PAPERCLIP TO MAKE A CRADLE WITH A LEG TO SUSPEND THE MOTOR COIL.
- 3) ATTACH THE PAPERCLIPS TO EITHER END OF THE BATTERY WITH THE RUBBER BAND. MAKE SURE THEY ARE SECURE SO THEY ARE NOT PULLED OUT OF PLACE BY THE MAGNET. IT IS VERY IMPORTANT THAT THEY DO NOT ROTATE.

- 4) CUT A 24 INCH PIECE OF MAGNET WIRE. USE A PIECE OF SANDPAPER TO REMOVE THE LACQUER FROM EACH END OF THE WIRE (ABOUT 2 INCHES).



- 5) LEAVE 2 1/2" ON THE WIRE STRAIGHT AND WRAP IT AROUND THE DOWEL 7 1/2 TIMES. THIS SHOULD LEAVE 2 1/2" STRAIGHT AT THE END OF THE WIRE TOO.

- 6) SLIDE THE COIL OFF THE DOWEL—CAREFULLY! WRAP THE STRAIGHT ENDS OF THE WIRE THROUGH AND AROUND THE COIL AT LEAST ONE FULL TURN (TIGHTLY AND EXACTLY OPPOSITE EACH OTHER). THE ENDS SHOULD BE STICKING OUT IN OPPOSITE DIRECTIONS. LIKE THIS:



- 7) PUT THE MAGNET ON TOP OF THE BATTERY—RIGHT IN THE MIDDLE.

- 8) TAKE THE COIL OF WIRE AND PUT IT INTO THE CRADLE CREATED BY THE PAPERCLIPS. THE BARE ENDS OF THE WIRE NEED TO MAKE CONTACT WITH THE PAPERCLIPS—WHICH WILL PROVIDE A CURRENT PATH THROUGH THE COIL AND MAKE IT ELECTROMAGNETIC!



*YOU MAY HAVE TO ADJUST THE HEIGHT OF THE PAPERCLIP CRADLE BY SLIDING THEM UP AND DOWN (JUST MAKE SURE THAT THE COIL DOES NOT TOUCH THE MAGNET). IF THE COIL IS BALANCED PROPERLY IT WILL START SPINNING ON ITS OWN—IF IT DOES NOT, GENTLY PUSH THE COIL TO START IT SPINNING. IF IT STILL DOES NOT START SPINNING—CHECK TO MAKE SURE THAT ALL OF THE INSULATION HAS BEEN SANDED OFF THE WIRES ON EITHER SIDE OF THE COIL. ALSO CHECK THE BALANCE OF THE COIL IN THE CRADLE—MAKE SURE THAT IT IS DIRECTLY IN THE CENTER AND EVEN.*

BELIEVE IT OR NOT, YOU'VE JUST RECREATED ONE OF MY INVENTIONS THAT ALLOWED US TO LIGHT THE WORLD! MY "LONG-WAISTED MARIANNE" WAS THE FIRST EFFICIENT ELECTRIC GENERATOR. AND A GENERATOR IS MERELY AN ENGINE IN REVERSE! IF IT WERE POSSIBLE TO ROTATE THE COIL IN THE OPPOSITE DIRECTION, YOU WOULD ACTUALLY RECHARGE THE BATTERY!

