



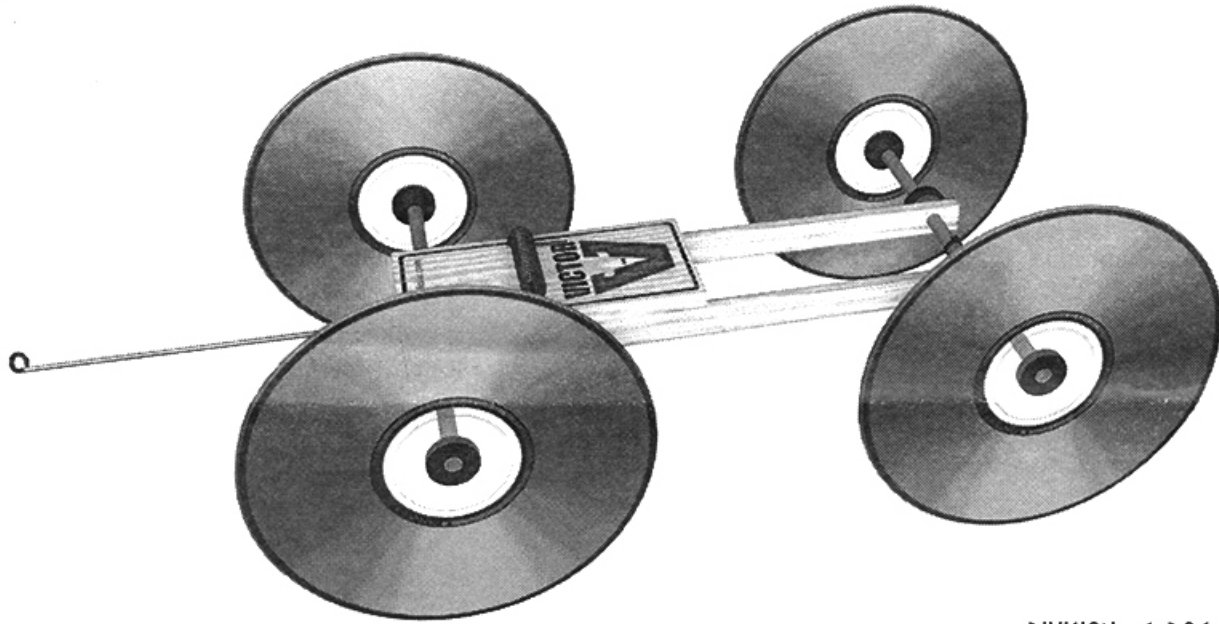
Doc Fizzix Presents

Kit # K-050-DF

LITTLE MOE - MOUSETRAP POWERED RACER!

ASSEMBLY and OPERATING INSTRUCTIONS

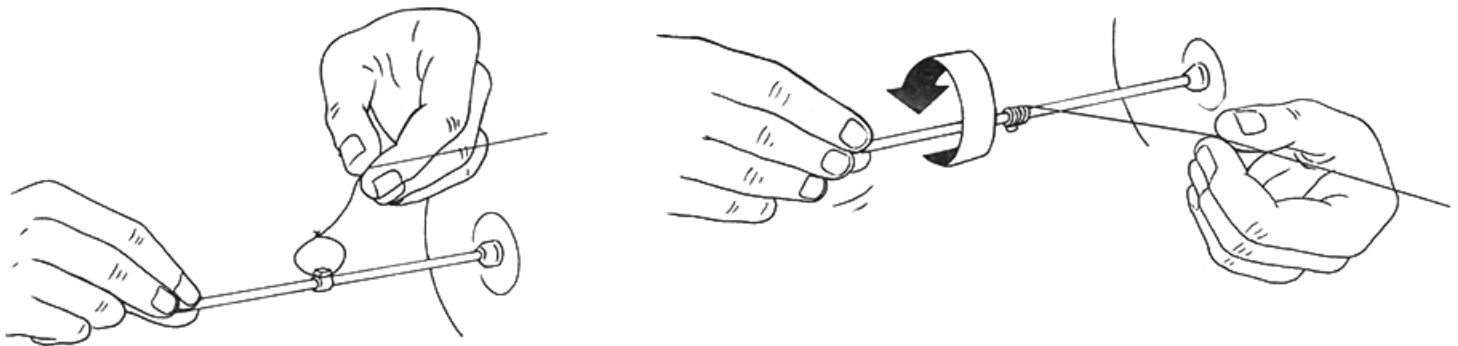
Made in the USA



DIVISION of DOC FIZZIX CORP.
© 2003 Doc Fizzix All Rights Reserved

WHAT IS A MOUSETRAP POWERED CAR AND HOW DOES IT WORK?

A mousetrap-powered racer is a vehicle that is powered by the energy of a wound up mousetrap's spring. The most basic design is as follows: one end of a string is tied to the tip of a lever arm that is attached to the mousetrap's "snapper" arm. The other end of the string has a loop that is designed to "catch" a hook attached to a drive axle. Once the loop is placed over the axle hook, the string is wound around the drive axle by turning the wheels in the opposite direction to the vehicle intended motion. As the string is wound around the axle by the turning of the wheels, the snapper's lever arm is pulled closer to the drive axle causing the mousetrap's spring to "wind-up" and store energy. When the drive wheels are released, the string is pulled off the drive axle by the mousetrap causing the wheels to rotate.



IDENTIFY AND CHECK OFF THE FOLLOWING PARTS FROM THE LIST BELOW

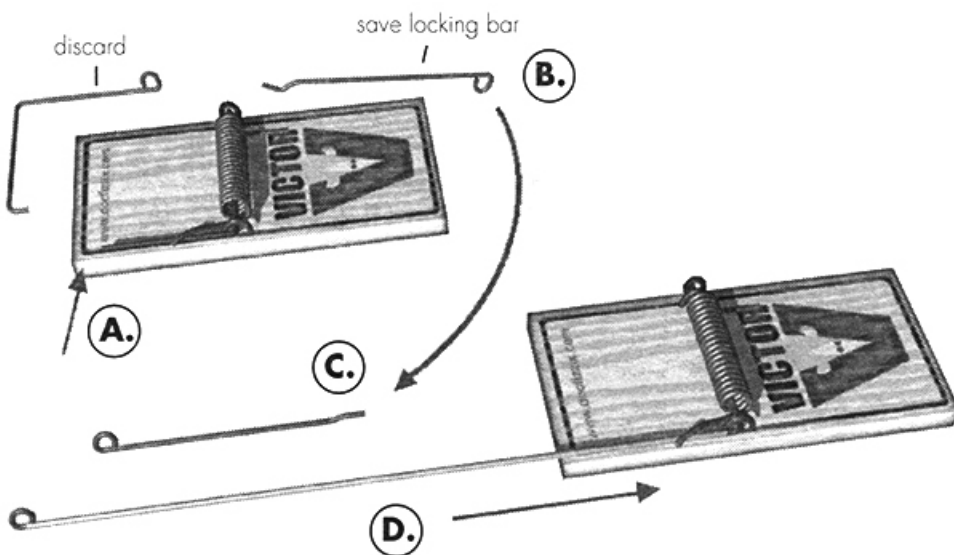
- ☐ 2 - Pre-Drilled Balsa wood Side Rails (8" x 1/2" x 3/16")
- ☐ 2 - Brass Axles (4" x 3/16" Tube)
- ☐ 1 - Brass Lever Arm (6" x 1/8" Tube)
- ☐ 4 - DVD Wheels
- ☐ 4 - Rubber DVD/CD spacers

- ☐ 4 - Metal Thrust Washers
- ☐ 1 - Victor Mousetrap
- ☐ 1 - Zip Lock Axle hook
- ☐ 36" - Kevlar String



1. PREPARING the MOUSETRAP

- ☐ A. Using a pair of needle-nose pliers, or a wire cutter, cut the mousetrap's snapper arm at the corner on the side where the mousetrap's spring is pushing against the snapper's arm.
- ☐ B. Remove the mousetrap's locking bar and save this part for the next step.
- ☐ C. Using a pair of pliers, straighten the non-loop end of the locking bar and then slide it all the way into one end of the thin (6" x 1/8" inch brass lever arm, **SUPER GLUE** in place.
- ☐ D. Slide the other end of the lever arm over the mousetrap's cut snapper arm making sure the tube slides under the mousetrap's spring arm at the base of the snapper, **DO NOT GLUE**.



2. MAKING the FRAME

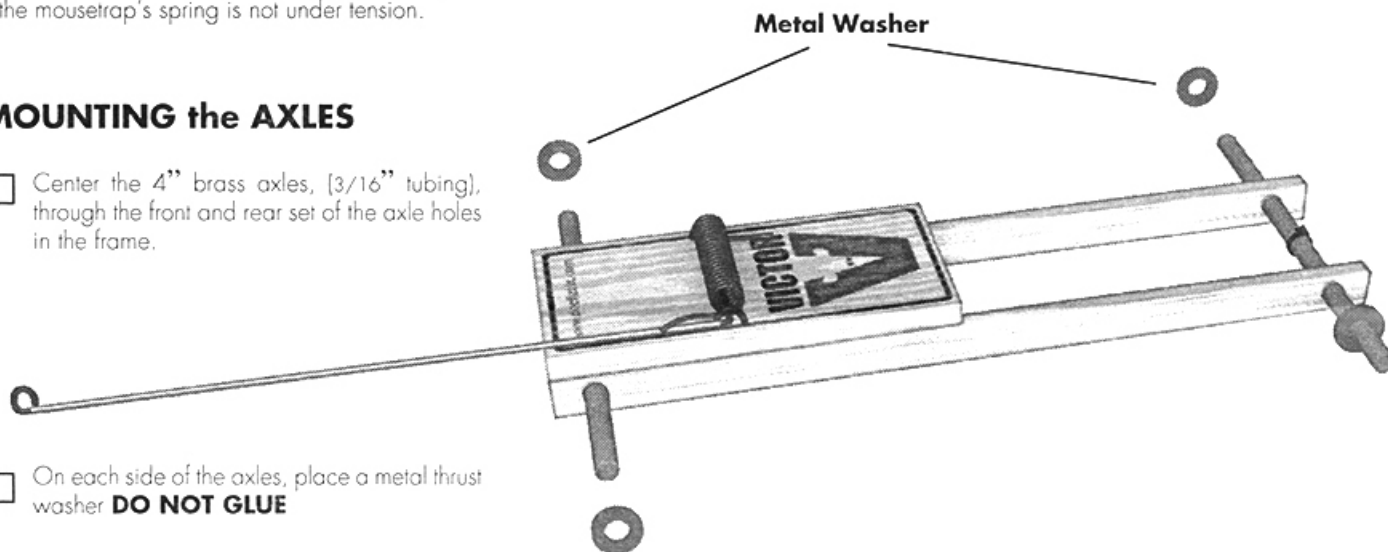
- ☐ A. The side rails are **glued** to the bottom of the mousetrap. Lined-up the ends of the side-rails with the front of the mousetrap.
- ☐ B. Optional: Lightly sand the frame and axle holes smooth with 400 to 600 grit sandpaper.



NOTE: The front of the mousetrap, and vehicle, is determined by the direction that the snapper arm is pointed when the mousetrap's spring is not under tension.

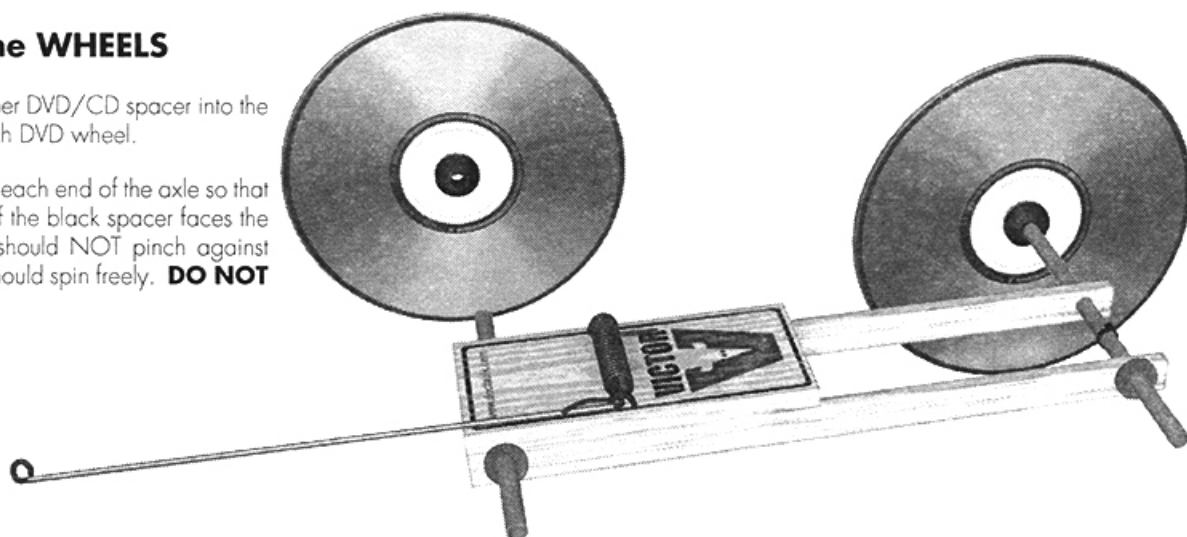
3. MOUNTING the AXLES

- ☐ A. Center the 4" brass axles, (3/16" tubing), through the front and rear set of the axle holes in the frame.
- ☐ B. On each side of the axles, place a metal thrust washer **DO NOT GLUE**



3. ATTACHING the WHEELS

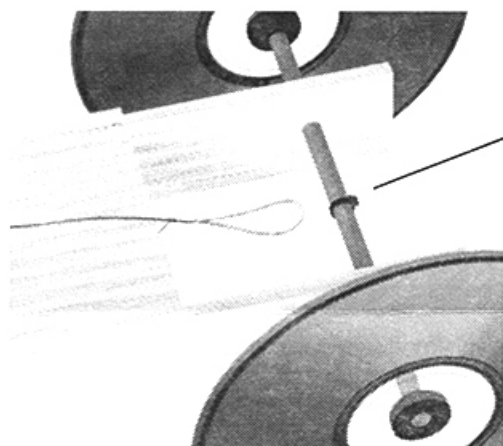
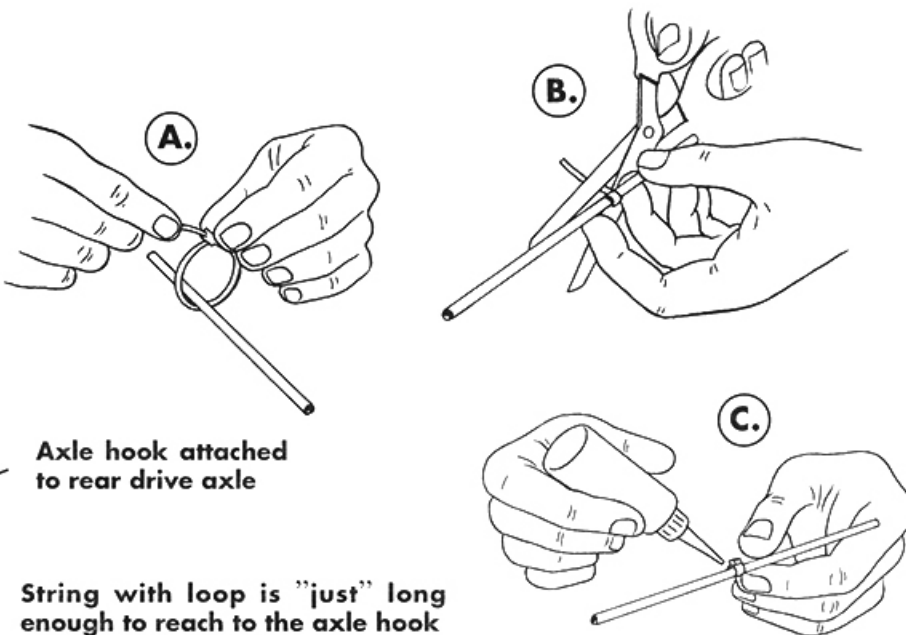
- A. ☐ Insert a black rubber DVD/CD spacer into the center hole of each DVD wheel.
- B. ☐ Position wheels at each end of the axle so that the pointed end of the black spacer faces the frame. Spacers should NOT pinch against the frame, axles should spin freely. **DO NOT GLUE**



IMPORTANT: Axles should spin freely without binding on the frame. There should be a small amount of side-to-side play between the axle and the frame. Make sure spacers are not pushed against the frame.

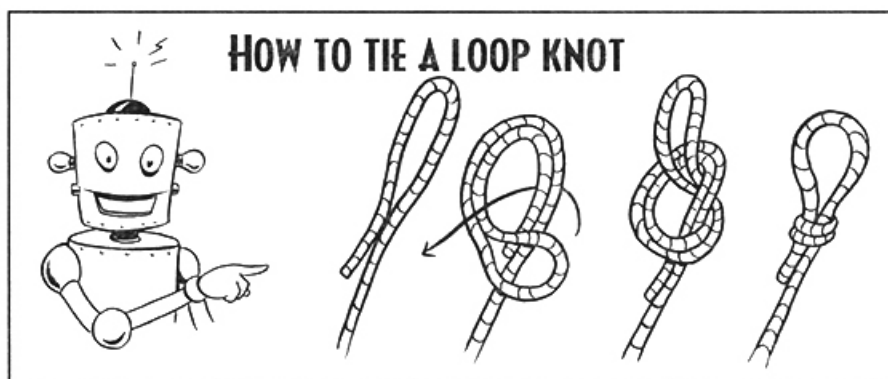
4. ATTACHING the AXLE HOOK

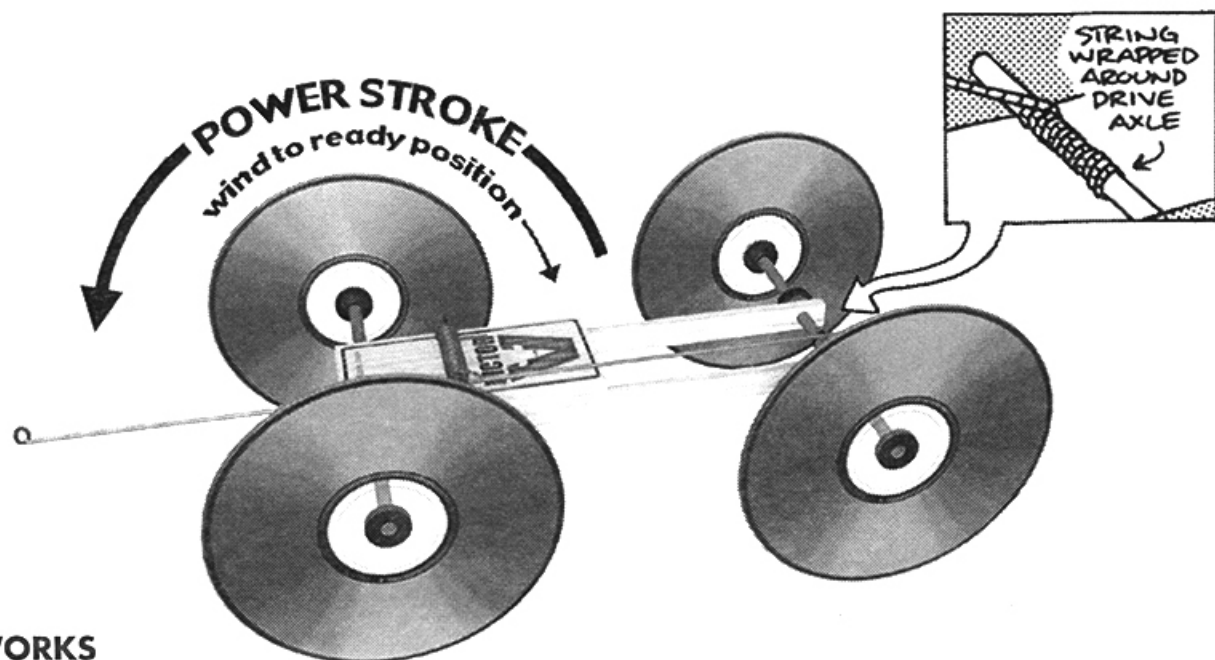
- A. ☐ Tighten the small zip lock around the center of the drive axle by insert the thin end of the zip tie through the clasp and then pull tight.
- B. ☐ Use a pair of scissors or an Exacto knife to trim the excess zip lock flush with the clasp.
- C. ☐ Place a couple of drops of **SUPER GLUE** on the zip lock to bond it with the drive axle.



5. ATTACHING the STRING

- A. ☐ Tie one end of the string to the locking bar loop sticking out from the tip of the lever arm.
- B. ☐ Measured from the tip of the lever arm, the string should be "just" long enough to reach to the drive axle or even a little shorter. Tie a loop knot in the free end of the string so that the loop will "just" reach the axle hook.





6. HOW it WORKS

One end of a string is tied to the tip of a lever arm that is attached to the mousetrap's "snapper" arm. The other end of the string has a loop that is designed to "catch" a hook attached to a drive axle. Once the loop is placed over the axle hook, the string is wound around the drive axle by turning the wheels in the opposite direction to the vehicle intended motion. As the string is wound around the axle by the turning of the wheels, the snapper's lever arm is pulled closer to the drive axle causing the mousetrap's spring to "wind-up" and store energy. When the drive wheels are released, the string is pulled off the drive axle by the mousetrap causing the wheels to rotate.

Top Secret

PERFORMANCE TIPS



There are MANY things that can be done to a mousetrap-powered racer to change the speed and/or distance of traveling. Try to find a harmonious balance between improvements that have a positive effect on the performance of your racer, experimenting and testing is the key to success.

- ☐ Do not put slack in the string as it is wound around the drive axle by holding down on the mousetrap. The string should be pulled tightly by the mousetrap's lever as it is wound around the axle.
- ☐ The string should be "just" long enough to reach from the tip of the lever arm to the drive axle's hook. If the string is too long it will not fully unwind from the drive axle causing it to tangle around the drive axle then stopping the vehicles motion.
- ☐ Graphite powder will reduce the friction on those moving parts where it is applied causing the vehicle to move faster and farther. Use graphite powder between ALL moving parts that touch one another.
- ☐ Straighten out the wheels so they do not wobble. Not all the rubber spacers are the same, some holes might be off center, experiment with the rubber spacers by switch them out in order to find which ones work best with the wheels and produce the smoothest ride.
- ☐ If a vehicle is "spinning-out" at the start try the following trick: cut out the middle section of a balloon so that it forms a band that can be stretched around the outer edge of a wheel. Use ONLY on the drive wheels in order to keep the rotation inertia low.

- ☐ This is a GREAT race time tip for a vehicle that needs a little extra speed or torque, wrap masking tape around the drive axle, a thicker drive axle will generate more torque and/or speed. Make sure that each wrap of tape goes on smoothly and tightly, you will have to attach a new axle hook over the tape. If your vehicle is "spinning out" after adding the tape, try removing some of the layers of tape.
- ☐ Steering can be a big problem and there are several reasons why a vehicle may not travel straight, a courses might be sloped and/or have bumps that throw-off a vehicle's line of travel, a vehicle's axles might not be aligned with one-another causing it to drift towards one direction. Unless your vehicle has adjustable steering there is little that can be done to change the alignment of an assembled vehicle. Learn to play the curve! If a car curves to the right, start the car on the right hand side of the course and aim it towards the left side in order to obtain the largest possible arc of travel. Find out where to start your racer along the start line and in which direction it should be aimed in order to obtain maximum results

HOW TO REACH DOC FIZZIX

Telephone: 512-218-0454

E-mail: support@docfizzix.com

Web site: www.DocFizzix.com

Address: P.O. Box 5507
Round Rock, TX 78664