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EUDAX EH-CJ-2

EUDAX DIY Dynamo Lantern Educational STEM Building Toy

Model: EH-CJ-2

Brand: EUDAX

1. INTRODUCTION

The EUDAX DIY Dynamo Lantern is an educational STEM building toy designed to teach children about the principles of energy conversion through a hands-on experience. By assembling this kit, users will construct a hand-cranked power generator that illuminates an LED light and powers a small fan. This kit promotes the development of hands-on ability, critical thinking, exploration, and creativity.

2. SAFETY INFORMATION

WARNING: CHOKING HAZARD – Small parts. Not for children under 3 years old.

This product contains small components that may pose a choking risk. Adult supervision is recommended during assembly and operation, especially for younger children. Ensure all parts are securely fastened to prevent detachment.

3. PACKAGE CONTENTS

Before beginning assembly, verify that all components listed below are present in your package. Some spare parts may be included.

Package included



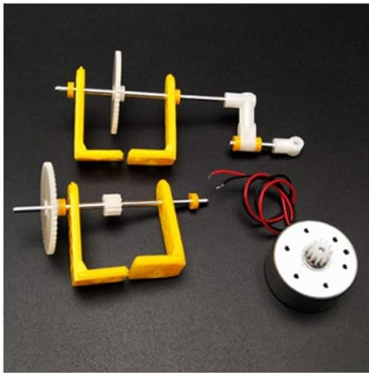
Figure 3.1: All included accessories and tools.

- Base Plate (Blue)
- Gear Mounting Tools (Yellow supports)
- Gears (Various sizes)
- Motor(s)
- LED Light Bulb
- Fan Blades (Red)
- Hand Crank Handle and Shaft
- Screws and Nuts
- Screwdriver
- Connecting Wires

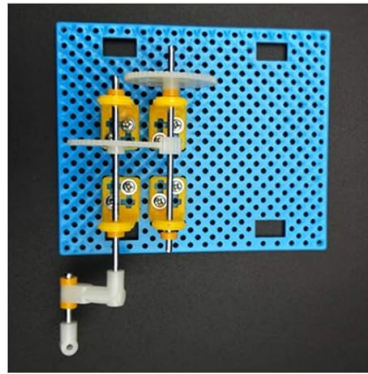
4. ASSEMBLY INSTRUCTIONS

Follow these steps carefully to assemble your DIY Dynamo Lantern. Refer to the provided images for visual guidance. The overall assembly process is depicted in Figure 4.1.

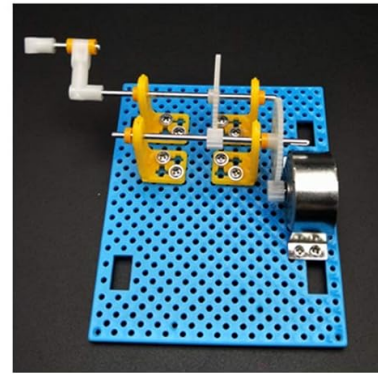
Manual for User



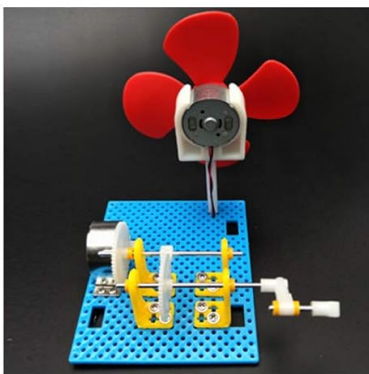
Step 1



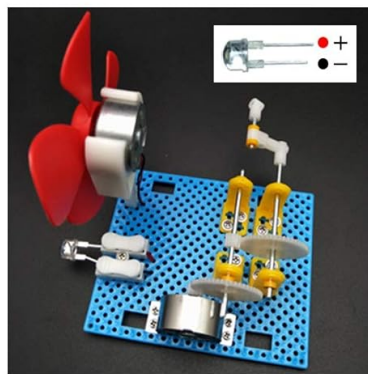
Step 2



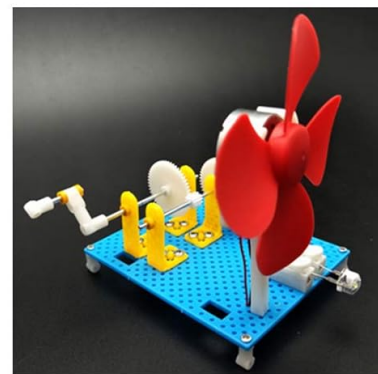
Step 3



Step 4



Step 5



Step 6

Figure 4.1: Overview of assembly steps.

Step 1: Install Gear Mounting Tools

Secure the yellow gear mounting tools onto the blue base plate using the provided screws. Ensure they are firmly attached and aligned correctly to support the gear shafts.

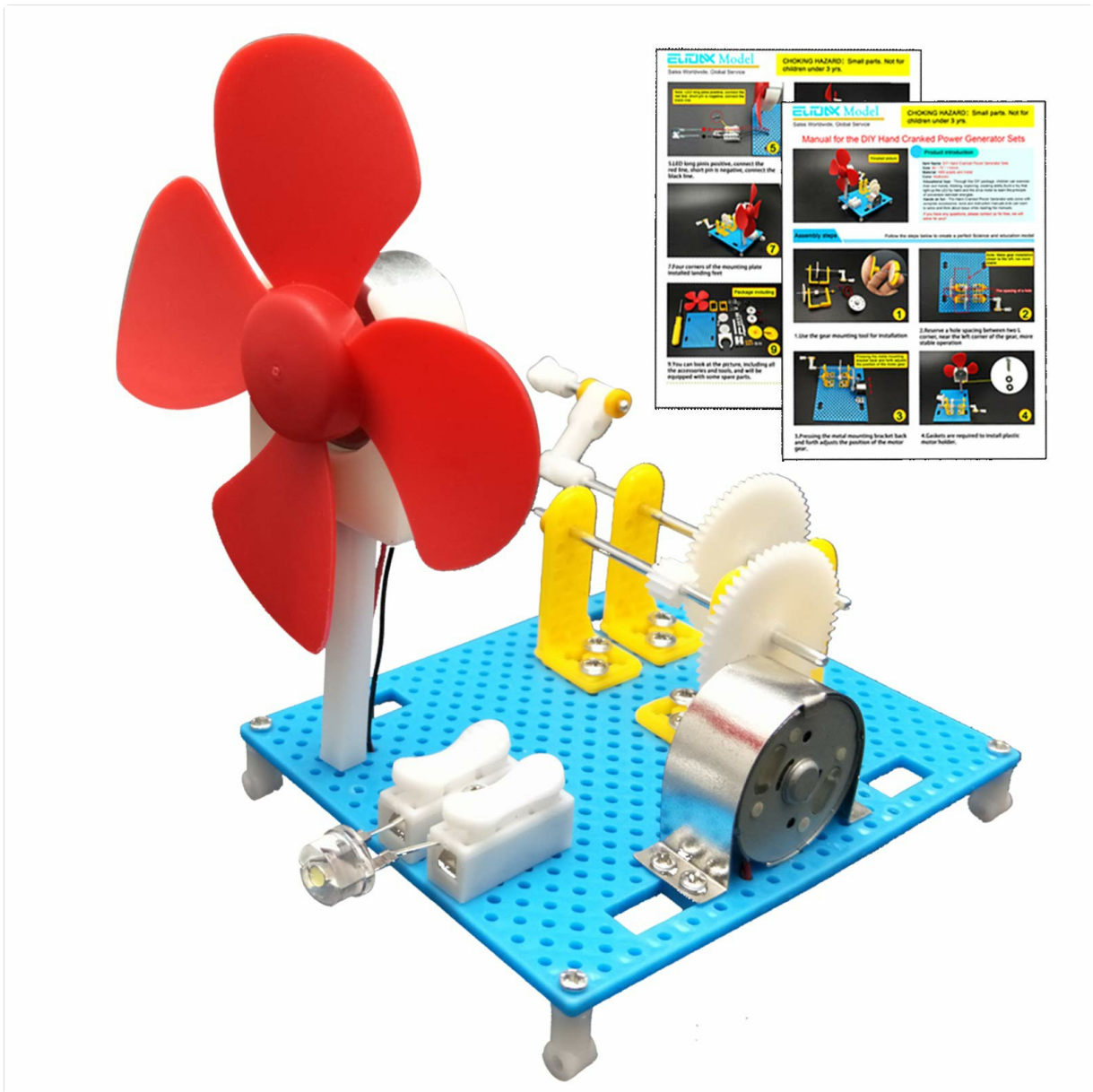


Figure 4.2: Gear mounting tool installation.

Step 2: Install Gears and Shafts

Insert the shafts through the gear mounting tools. Place the gears onto the shafts. For optimal performance, ensure the gear installation is closer to the left side of the base plate to provide more stability during operation. Leave appropriate spacing between the two corner supports for smooth gear meshing.

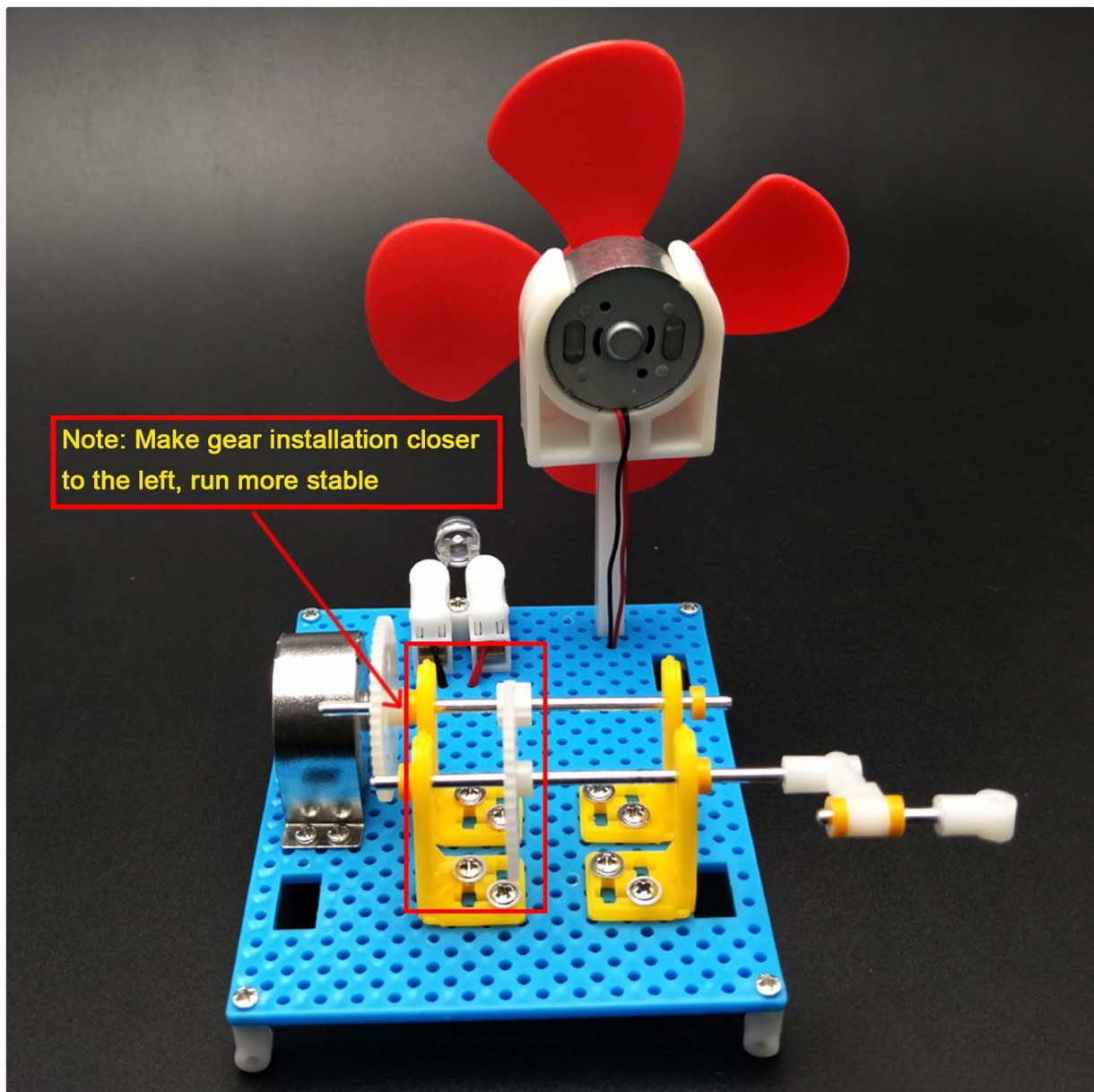


Figure 4.3: Gear installation and spacing.

Step 3: Mount the Motor

Attach the motor mounting bracket to the base plate. Press the metal mounting bracket back and forth to fine-tune the position of the motor gear, ensuring it meshes correctly with the main drive gear. Secure the motor in place once alignment is achieved.

Step 4: Install Plastic Motor Holder and Fan

Install the plastic motor holder to provide additional support for the motor. Attach the fan blades to the motor shaft. Ensure the fan is securely fastened and can rotate freely.

Step 5: Connect the LED Light

Connect the LED light bulb using the provided wires. Pay close attention to the polarity: the **long pin** of the LED is **positive** and connects to the **red wire**. The **short pin** is **negative** and connects to the **black wire**. Incorrect wiring will prevent the LED from lighting up.

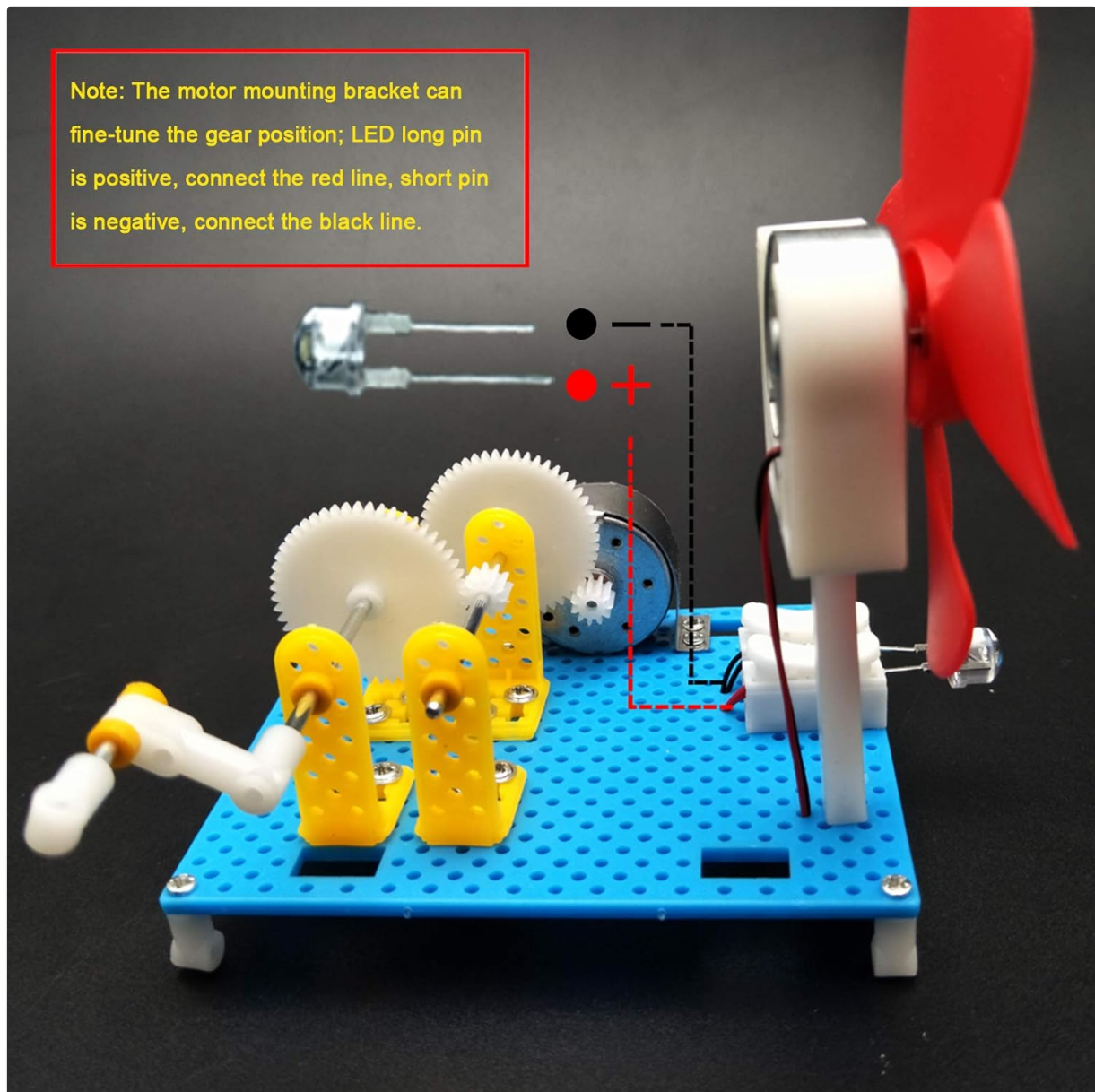


Figure 4.4: LED wiring diagram.

Step 6: Attach the Hand Crank

Attach the hand crank handle to the designated shaft. Ensure it is securely fitted and allows for smooth rotation of the gears.

5. OPERATING INSTRUCTIONS

Once assembly is complete, operate the dynamo lantern by rotating the hand crank. Turning the crank will engage the gears, which in turn drive the motor. The motor converts mechanical energy into electrical energy, causing the LED light to illuminate and the fan to spin.

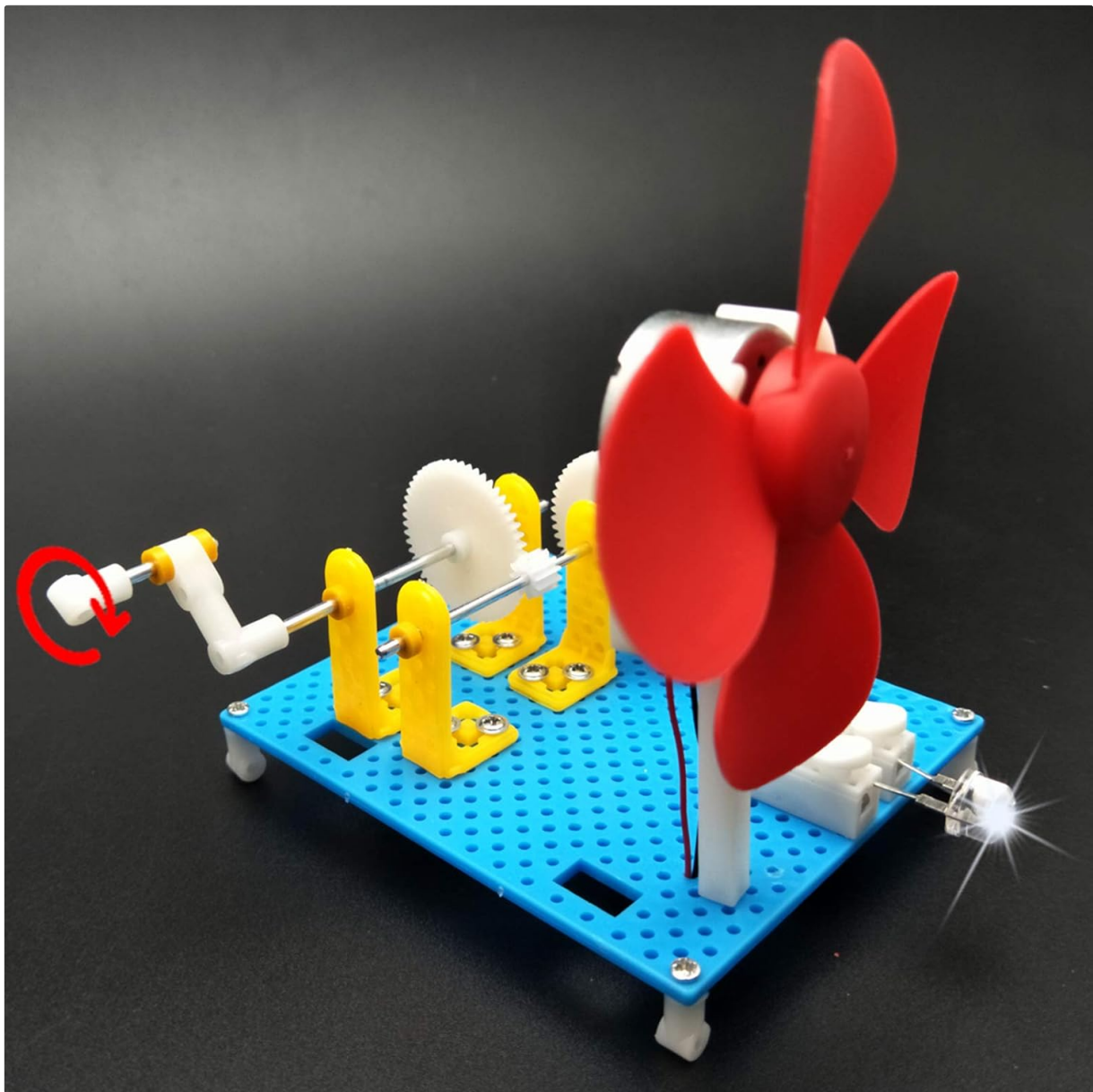


Figure 5.1: Operating the hand crank to generate power.

Experiment with different cranking speeds to observe the effect on the brightness of the LED and the speed of the fan. This demonstrates the relationship between mechanical input and electrical output.

6. MAINTENANCE

- **Cleaning:** Use a soft, dry cloth to wipe down the components. Avoid using water or chemical cleaners, as they may damage the electronic parts.
- **Storage:** Store the assembled toy in a cool, dry place away from direct sunlight and extreme temperatures.
- **Inspection:** Periodically check all screws and connections to ensure they remain tight and secure. Loose parts can affect performance and safety.

7. TROUBLESHOOTING

- **LED not lighting up:**
 - Check the LED wiring for correct polarity (long pin to red wire, short pin to black wire).

- Ensure all wire connections are secure and not loose.
- **Fan not spinning or spinning slowly:**
 - Verify that the motor gear is properly meshed with the drive gears. Adjust the motor position if necessary.
 - Check for any obstructions preventing the fan blades from rotating freely.
 - Ensure the hand crank shaft and gears are rotating smoothly without excessive friction.
- **Gears slipping or chattering:**
 - Re-check gear alignment and spacing. Ensure gears are securely fastened to their shafts and not slipping.
 - Confirm that the motor mounting bracket is stable and not flexing.
- **Difficulty with assembly:**
 - Refer to the detailed images and instructions for each step.
 - Ensure you are using the correct screws for each part, as some components are small.

8. SPECIFICATIONS

Item Name	DIY Hand Cranked Power Generator sets
Model Number	EH-CJ-2
Dimensions (L*W*H)	90 * 75 * 110mm (3.54 * 2.95 * 4.33 inches)
Material	ABS plastic and metal
Item Weight	5.6 ounces
Recommended Age	0 - 12 years (with adult supervision for younger children due to small parts)

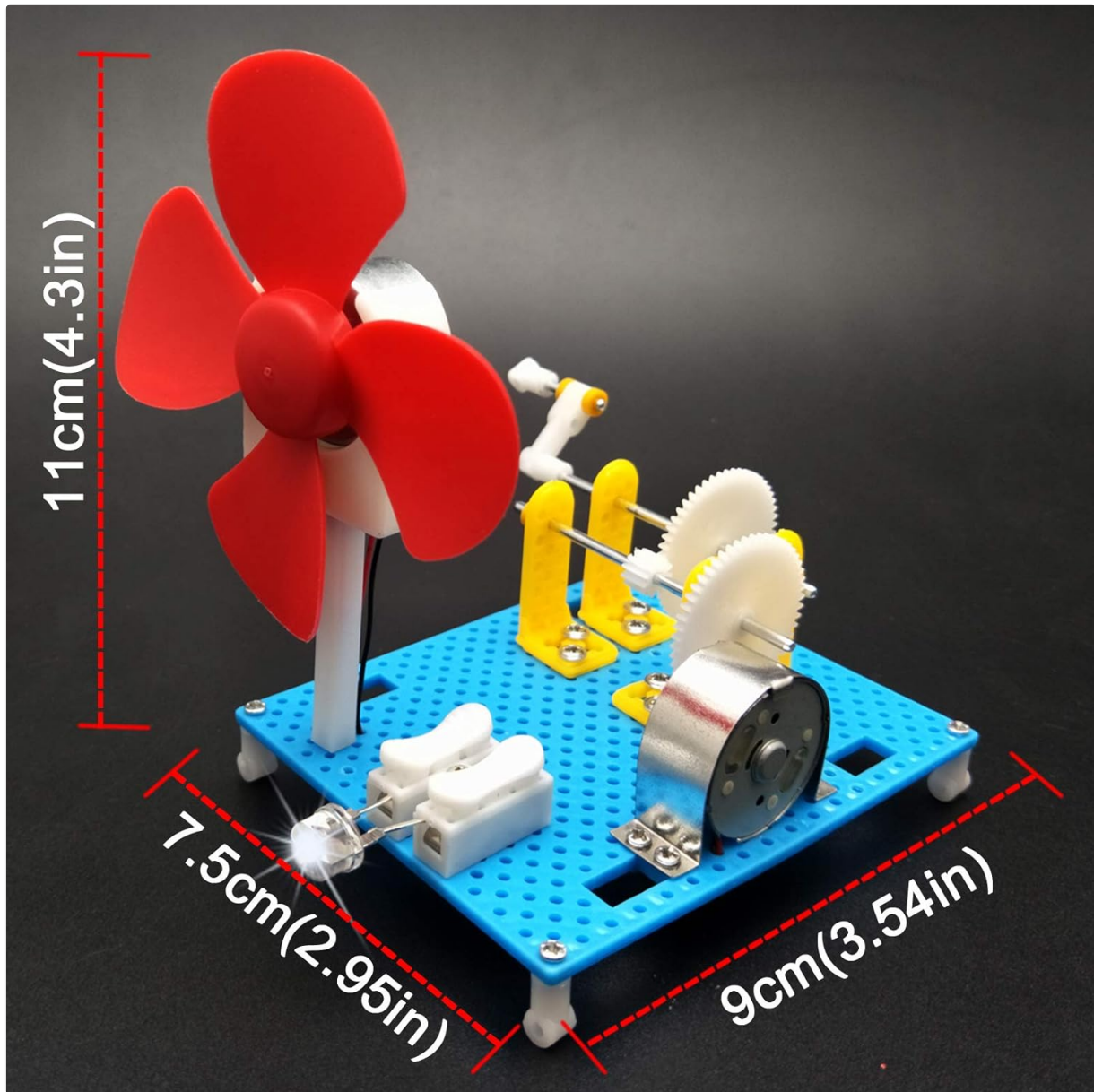


Figure 8.1: Product dimensions.

9. WARRANTY AND SUPPORT

For any questions, concerns, or assistance with assembly or operation, please contact EUDAX customer support. While specific warranty details are not provided, EUDAX is committed to providing high-quality products and services. Please refer to your purchase documentation for any return or exchange policies.