

## About the Artist:

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David C. Roy

Mechanics and motion have always fascinated me. During college I studied physics, engineering and chemistry to further my understanding of how things worked. I graduated with a degree in physics from Boston University in 1974. This intuitive understanding of motion and mechanics combined with the artistic influences of my wife, Marji, led me to the creation of kinetic sculptures. In 1975 we started “Wood That Works” and I became a full time sculptor. Since then I have designed and handcrafted over 200 different limited edition and one-of-a-kind kinetic sculptures. I have exhibited in numerous juried, invitational and group events. My work is displayed in galleries and private collections around the world. I currently maintain a studio in rural northeastern Connecticut.

Wood   
that Works

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## Elements-Fire • Directions

Kinetic Sculpture by David C. Roy  
©2023



## To the Owner...

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Hello,

Welcome to the world of Wood That Works. This Elements-Fire is a one-of-a-kind sculpture but part of 4 unique pieces in the Elements series. It was made by me during the month of \_\_\_\_\_ in 2023. I build, test and pack each sculpture myself. Designing and building kinetic sculptures like Elements-Fire has been my full time occupation since 1975. I hope Elements-Fire brings you and other viewers as much enjoyment as I've found in making it.

Elements-Fire has been mounted on a wall in my shop and running for at least 2 complete windings (many hours) before I pack it. I make every effort in design, construction and packing to make sure the piece will perform problem free for years to come. I use only the finest materials. Of course, problems can still occur no matter how hard I try to prevent them. My answer to this is a warranty to the original owner against defects in materials and workmanship for three years. See the guarantee section of this booklet for additional details.

It leaves me happy and satisfied to find that my work has made its way into new lives. I hope it brings you years of enjoyment.

David C. Roy

## Elements - Fire Specifications:

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One-of-a-kind

Size: 38"w x 53"w x 6.5"d

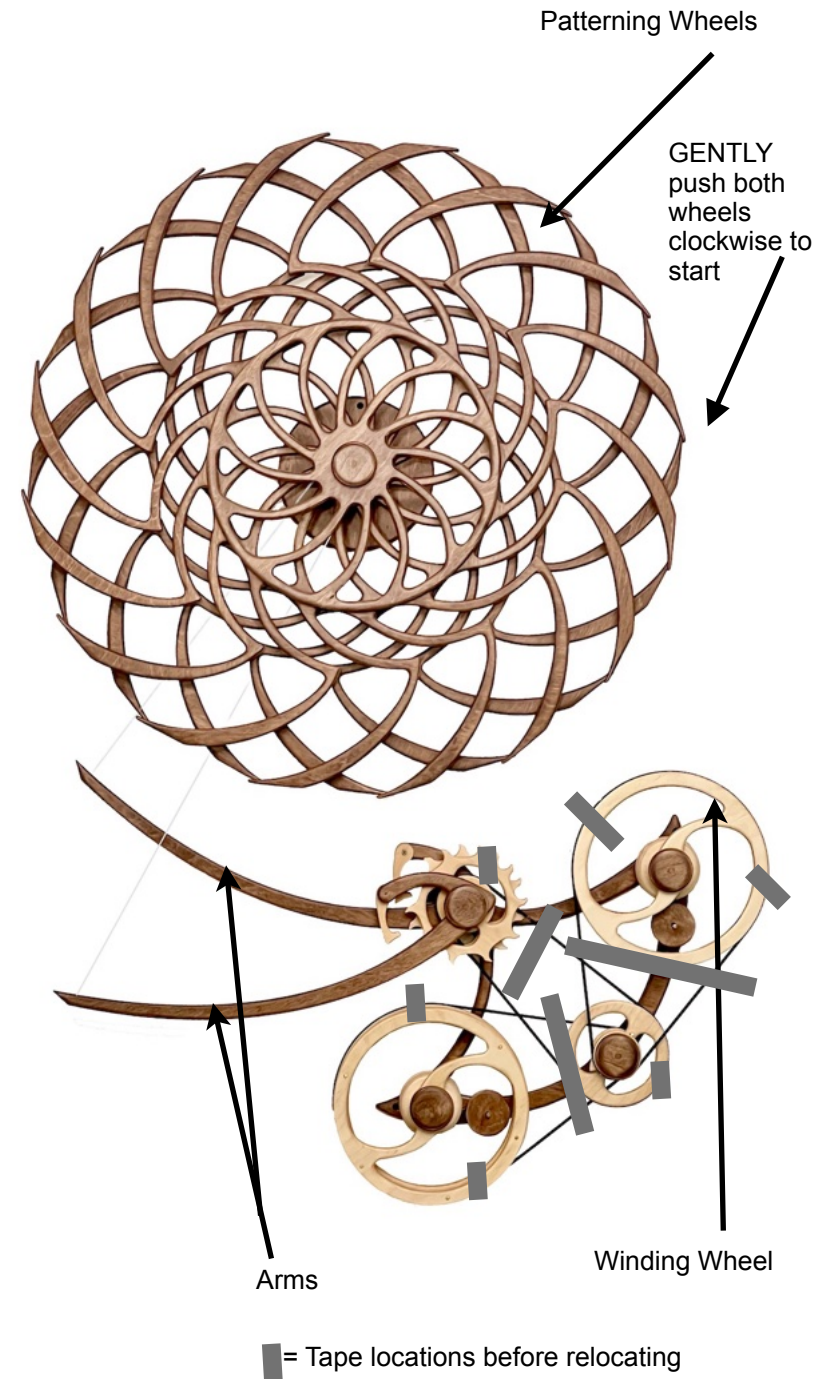
Power Source: negator spring

Approximate Run Time: 20 hours

Materials: hardwood plywood,

bearings, string

Elements-Fire ©2023



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### Care and Maintenance:

- There is care and maintenance information at our website at [woodthatworks.com/care-and-maintenance](http://woodthatworks.com/care-and-maintenance)

### Before Moving Sculpture:

- Always tape the spring-belts and strings in place before moving the sculpture. This will save a lot of aggravation when it is time to set the piece up again.
- See the diagram for the best tape locations. They are shown as gray rectangles.
- Remove the large patterning wheels before taking the sculpture off the wall in a reverse procedure to the installation.
- Be sure to save the small spacer. It is required.
- Never lay the sculpture on a horizontal surface for a long period of time without supporting the patterning wheels. I use crumpled newspaper to support and separate the wheels when packing the sculpture.

### Guarantee:

- My kinetic sculptures are guaranteed to the original owner for a period of three years. All warranties expire with transfer of ownership from the original owner. Damage of the sculpture from exposure to extremes of high or low humidity, or to adverse hot or cold temperatures, or damage caused by normal wear and tear, accidents, misuse, or modification will not be covered by the warranty. Shipping and insurance to and from Wood That Works is the responsibility of the purchaser.
- I will charge a reasonable repair fee if the sculpture was damaged by misuse or needs refurbishment from normal wear and tear.

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## About Elements - Fire:

Observe the fascinating world of moving patterns with my "Elements" series of kinetic sculptures. In this motion study I have used the same mechanism to power four pairs of counter-rotating patterning wheels but have incorporated subtle variations in each. Consisting of four distinct sculptures—"Elements Wind," "Elements Fire", "Elements Earth", and "Elements Water"—this series explores the mesmerizing changes of shape and contrast caused by small tweaks to the underlying form. My goal was to gain understanding of the visual impact these changes created.

At the core of each sculpture lies a shared mechanism, powering two 16-spoke wheels mounted on a central hub. The spring driven mechanism orchestrates both synchronous and counter-rotational movements of the wheels. The spokes, composed of two arcs, form intriguing patterns when set in motion. I manipulated the inflection point between these arcs in each design resulting in dramatic changes in the resulting optical effects. In "Earth", the inflection point lies just beyond halfway between the hub and the perimeter. "Water" exhibits a slight shift closer to the hub, followed by "Wind", and finally, "Fire" with the most extreme shift.

While the hubs remain uniform in size, I have also experimented with dark and light finishes, observing how they influence the perception of scale. Surprisingly, the dark hubs lend a perceived sense of slight reduction in size, adding an intriguing dimension to the sculptures.

Powering these unique sculptures is my signature "silent escapement mechanism," which made its debut in the 1975 sculpture, "Anticipation". Evolving over time, the current version in the Elements series differs significantly in appearance but retains the fundamental spring driven operation of two arms connected by a slow pawl to cog transfer. This refined interaction ensures the sculptures operate with an enchanting near-silence. Moreover, the mechanism imparts a dual visual experience while rotating the pattern wheels, creating two distinct patterns with a seamless transition. When the wheels turn in opposite directions, a mesmerizing moiré effect unfolds, captivating the eye. Conversely, when the wheels rotate in the same direction at varying rates, a more tranquil, ever-changing pattern emerges, offering a hypnotic allure of its own.

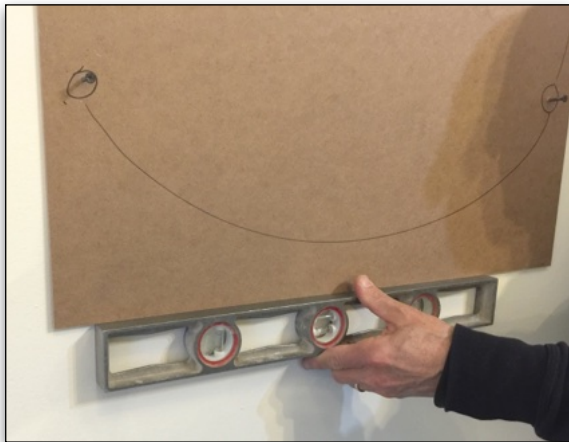
Experience the journey of motion and visual delight with the "Elements" sculpture series—an exploration of form, movement, and the subtle intricacies that shape our perception.

## Directions:

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### To Mount on Wall:

- This sculpture must be mounted inside on a vertical wall (not slanted).
- DO NOT remove the tape holding the spring-belts, strings or friction clutch in place until directed to do so.
- Hold the lower template against the wall at the desired location. Note the clearance distances required (see diagram to right).
- Place a screw through the left hand screw hole in the template and screw it part way into the wall. This is to mark the location and to create a pivot point for leveling the template.
- Use a level to level the bottom edge of the template. Partially screw in the right hand screw at this point to temporarily hold the template to the wall. Mark the center screw hole position.
- Hold the upper template on top edge of the bottom template. Line up the cross marks. Mark the screw hole positions.
- Remove the templates from the wall.
- Install wall anchors at marked holes if necessary.
- Attach the lower part of the sculpture to the wall using 3 screws.



### To Wind- (continued):

- Start the sculpture. GENTLY push BOTH patterning wheels in a clockwise direction. (See diagram) Let the sculpture run all the way down to make sure it is working properly. A short run will show you if the sculpture is set up and running properly.
- If it doesn't run as expected email David at [david@woodthatworks.com](mailto:david@woodthatworks.com).

### Subsequent windings:

- Pay close attention to the top of the light colored wood spool directly behind the winding wheel. Stop winding as soon as you see the red tape appear on the metal band. This is placed about 1 turn from the end. *Winding beyond this point may damage the sculpture.*
- Turn the winding wheels in a clockwise direction 22 turns.
- The cog hooks connected to the cog keep the springs from unwinding. One hook must always be connected when the sculpture is wound. NEVER touch the hooks after the sculpture is wound. The spring can release and damage will probably result.

### To Start:

- If the sculpture does not start by itself after winding, GENTLY push BOTH patterning wheels in a clockwise direction. On the image on the next page the correct “push” point is noted with an arrow.

### To Stop:

- Slow the motion of both patterning wheels with your hand and let them come to rest.

### Caution:

- NEVER force or spin the front wheel counter-clockwise. That will damage the friction clutch and disable the sculpture.

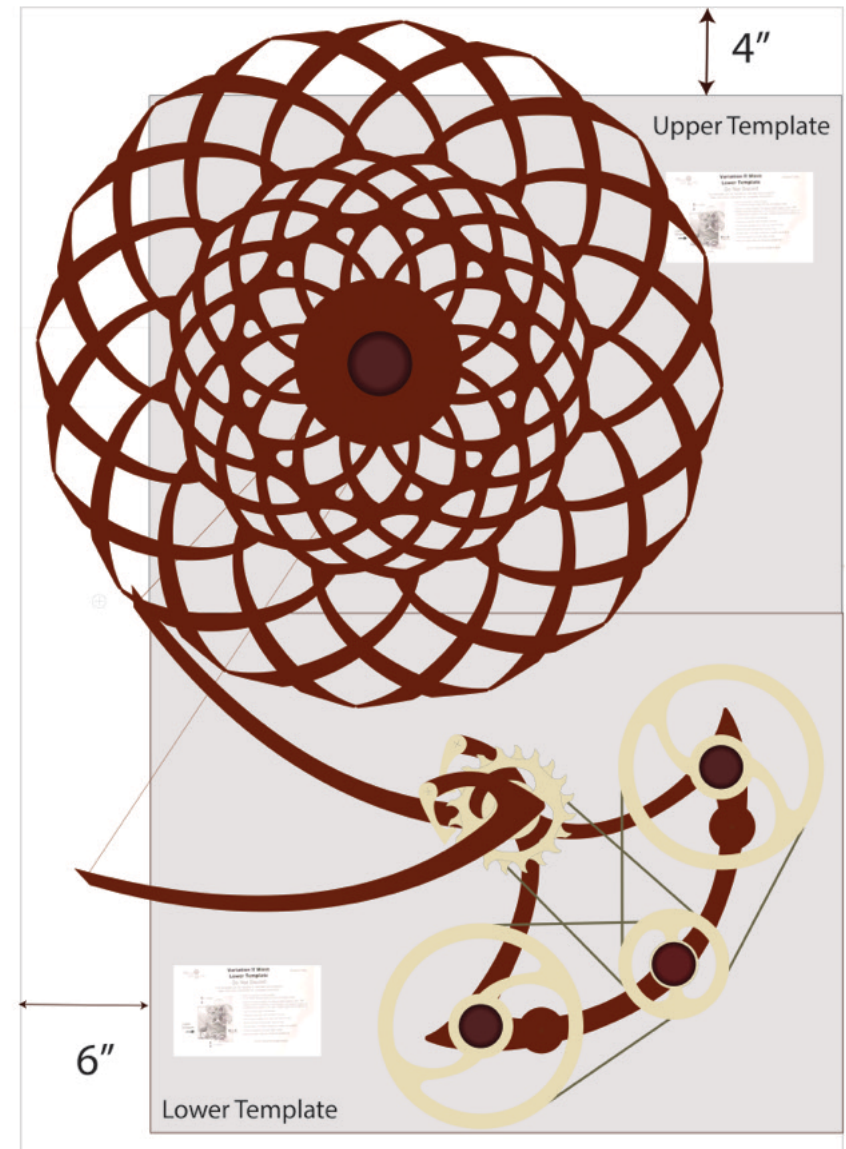
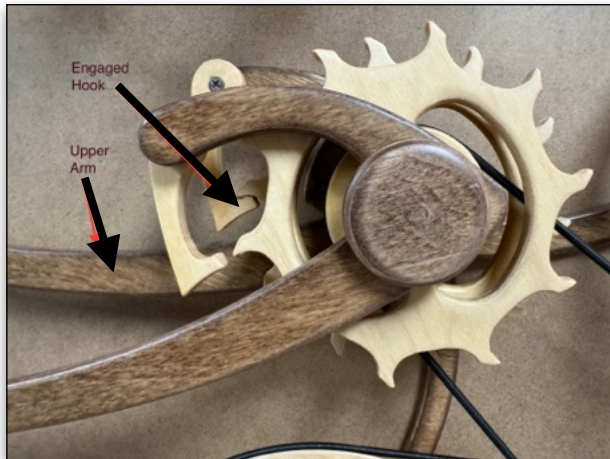
## Installation Directions (con't):

- NOTE: The number of times the string is wrapped around the spool is very important. When one string is totally unwound, (that is when it is pulled straight out from the spool) the other string must be wrapped around the spool 3 times. It ships this way.
- Remove the tape holding the spring-belts in place on the lower portion of the sculpture

### To Wind:

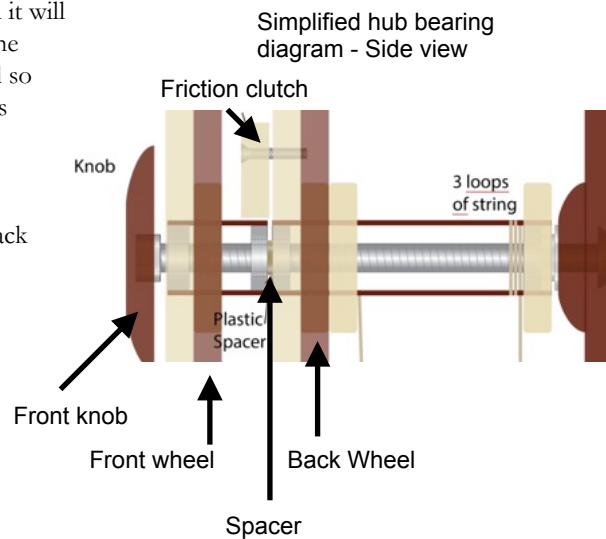
- Important First Time winding instructions:
- The first time you wind up this sculpture after unpacking requires special attention. Shipping may have caused parts to move unexpectedly.
- First look for and fix obvious things that might have come out of alignment in shipping. (Belts out of pulleys, strings out of slots, hooks flipped upside down, etc.)
- Only wind each spring winding wheel TWO clockwise turns for the first run. Make sure the metal band is winding inside the larger spool walls. If it isn't, shift it so that it does. It should be fine for all future windings. After you finish winding, while your finger is still holding the winding wheel, start backing off the clockwise pressure and make sure the cog and hook on which ever arm is

higher is engaged before releasing the winding wheel. See photo to right.



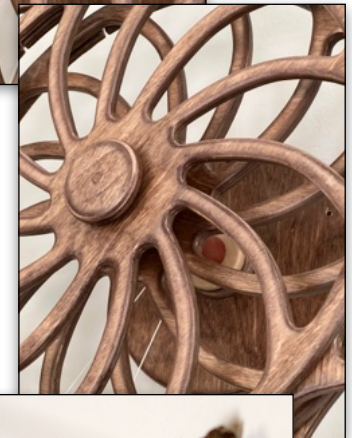
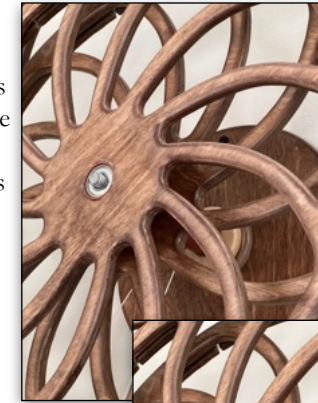
## Directions:

- Attach the the round upper base to the wall in the upper screw holes using 3 top screws.
- Remove the tape holding the small plastic spacer in place on the upper base shaft. Remove the spacer and carefully put it aside.
- Carefully slide the large patterning assembly wheel onto the long shaft on the round upper base. There are 2 bearings in the hub, one at the back and one at the front. (See hub diagram). As you slide the assembly on it will move easily if the assembly is held so that the bearings are in line.
- Slide the small plastic spacer back onto the shaft.



## Installation Directions (con't):

- Slide the front wheel onto the shaft. It also has 2 bearings that need to be aligned. Rotate it slowly clockwise so that it drops into place by the friction clutch.
- Screw the front center knob on the shaft until you meet resistance and stop. Please note it does NOT go tight against the bearing assembly. There MUST be at least 1/16" of play front to back to allow for expansion.
- Remove the tape holding the strings to the back wheel. Attach the rear (closest to the wall) string to the rear arm. There are two hooks on the inside of the rear arm. The end loop on the string goes over the inner hook to secure the string. The string then passes under the hook at the tip of the arm. (See string attachment diagram.)
- Attach the front string to the front arm in the same manner.



(con't on next page)