

Let's Get Spherical

Dan Graham

Date

Everett Rock and Gem Club

Homemade Sphere Machine

"Save money"

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Date

Everett Rock and Gem Club

I like spheres...



I like spheres...



I like spheres...



But sphere machines are expensive



Three-Headed
Sphere Machine by
Covington

\$3,568.75

Kingsley North



Covington - Large Sphere
Machine

\$2,220.75



Covington 3-Headed Sphere
Machine

\$4,199.00

 Lapidary Mart

Someone sent me this:



I Built a Sphere Machine (and it Works!)

667K views • 1 month ago



Michigan Rocks

For years, I resisted the temptation to make spheres because of the cost and the time it takes to make a stone sphere. What I didn't ...

4K

◆ Summary Michigan Rocks built a sphere-making machine using...



- <https://www.youtube.com/watch?v=FSE1GE1mz2k>

So I started to plan

	A	B	C	D	E
1	Item	price	Quantity	Cost	Source
2	Drills	\$15.00	3	\$45.00	https://www.ebay.com/itm/293626970057
3	Power supply	\$115.00	1	\$115.00	https://www.motionrc.com/products/skyrc-efuel-540-watt-30-amp-power-supply-sk-200013
4	Power regulators	\$12.99	3	\$38.97	https://www.ebay.com/itm/204480440461
5	2 x 4 water treated	\$7.78	1	\$7.78	Home depot
6	Base Board (Plywood or plastic?)	\$12.00	1	\$12.00	Dunn lumber
7	U bolts	\$2.62	3	\$7.86	Home depot 5/16 in. x 1-3/4 in. x 4-3/16 in. Coarse Zinc-Plated Steel U-Bolt
8	Adjustable hinges SS	\$3.64	3	\$10.92	Home depot
9	Sliders	\$18.00	1	\$18.00	Amazon
10	Wire (12 guage black)	\$4.50	1	\$4.50	Amazon
11	Wire (12 guage Red)	\$4.50	1	\$4.50	Amazon
12	PVC end caps 1 inch	\$2.54	3	\$7.62	Home depot
13	PVC end caps 1.5 inch	\$1.55	3	\$4.65	grainger
14	PVC end caps 2 inch	\$4.54	3	\$13.62	Home depot
15	9 bolts	\$2.67	9	\$24.03	
16	Velcro pads 9	\$4.98	3	\$14.94	
17	Drip line	\$29.78	1	\$29.78	ebay
18	Bungee cord	\$5.00	1	\$5.00	
19	bungee spring stopper	\$6.00	1	\$6.00	
20	Grinding bits	\$9.99	3	\$29.97	ebay or amazon
21	Polishing pads	\$10.00	3	\$30.00	ebay
22	Storage bins for polishing pads	\$40.00	1	\$40.00	amazon
23	screws to secure velcro	\$8.00	1	\$8.00	Tacoma screw

The Drills



Skill 18V drill (no battery) =
\$15.00

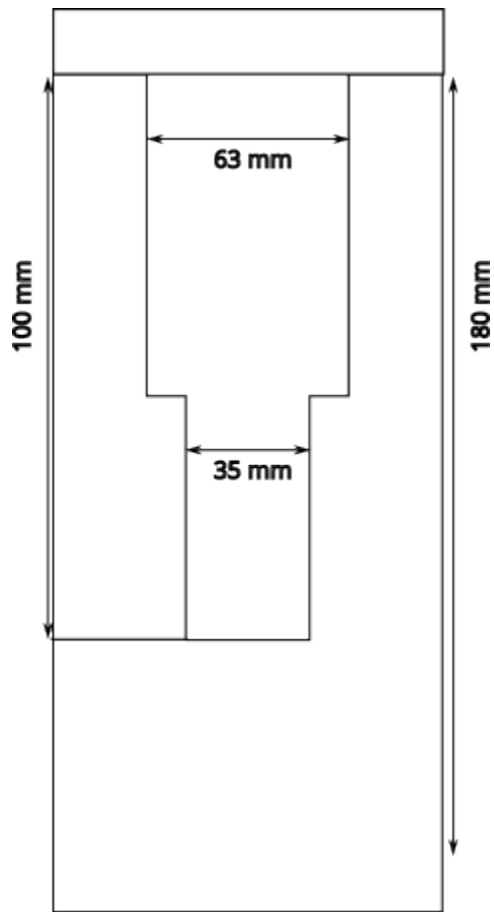


Open up and cut battery
connector off.



Cut off bottom battery holder
and put back together.

The Drills



Frame for drills



Tools!



Frame with U-bolt and top pieces.

The Drills



Assembled in frames

The Drills

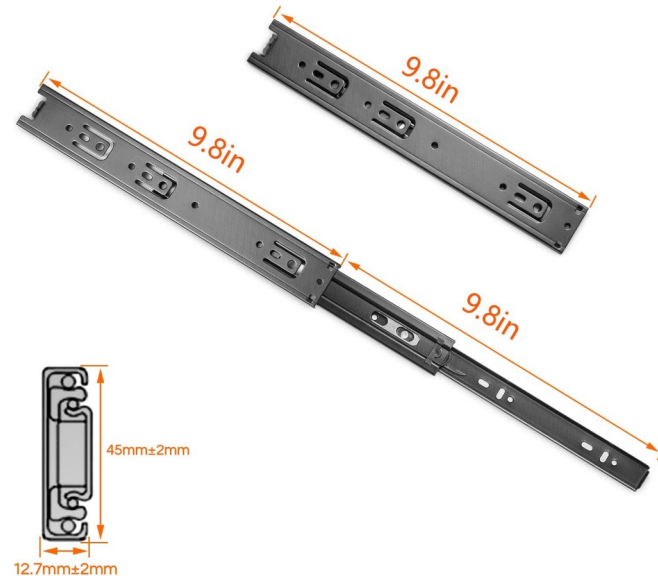


Assembled in frames

The Drills



Assembled in frames



Mounted them on 10" drawer slides to easily accommodate different sized spheres

Give Me Power!



I think that means I can build 15 more sphere machines!



An 18 V drill can draw around 4 to 8 amps during normal operation. So I got a 30 amp supply just in case.

It turns out it only draws around 2 amps total with all 3 drills because I'm not using them at full power.

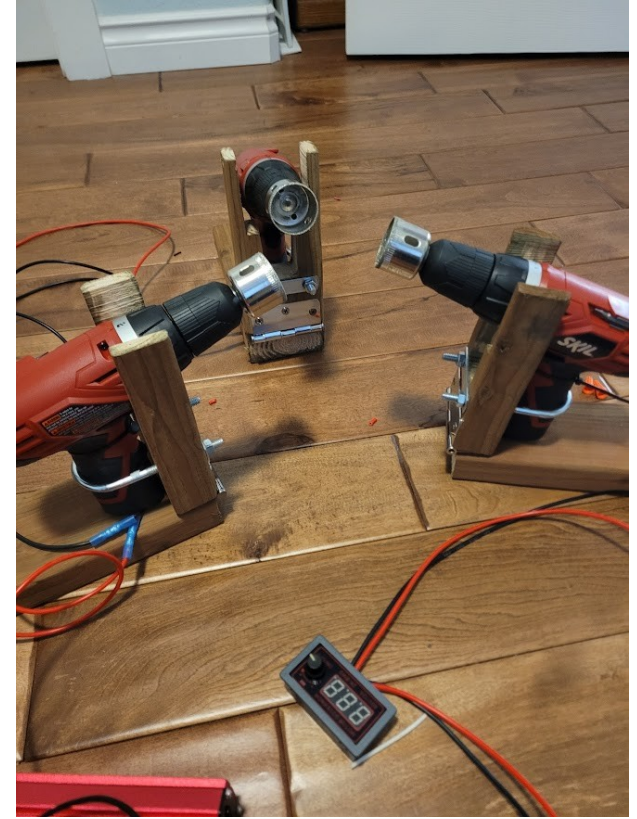
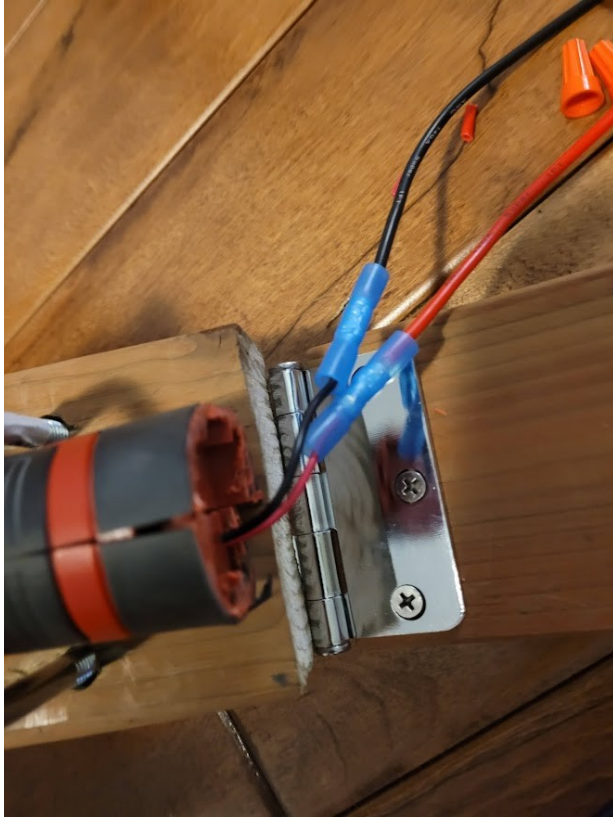
Give Me Power!

But let me regulate it!



Used regulators to control the speed of the drills.

Test run



Test run

Polishing Cups

- Used 1", 1.5" and 2.5" PVC threaded end caps
- Drilled hole in center and used bolt as madrill
- Used dremel tool to bevel edges
- Attached segments of velcro
 - Tried E6000 glue, but some pieces came loose over time
 - Secured them with #4 3/8" screws

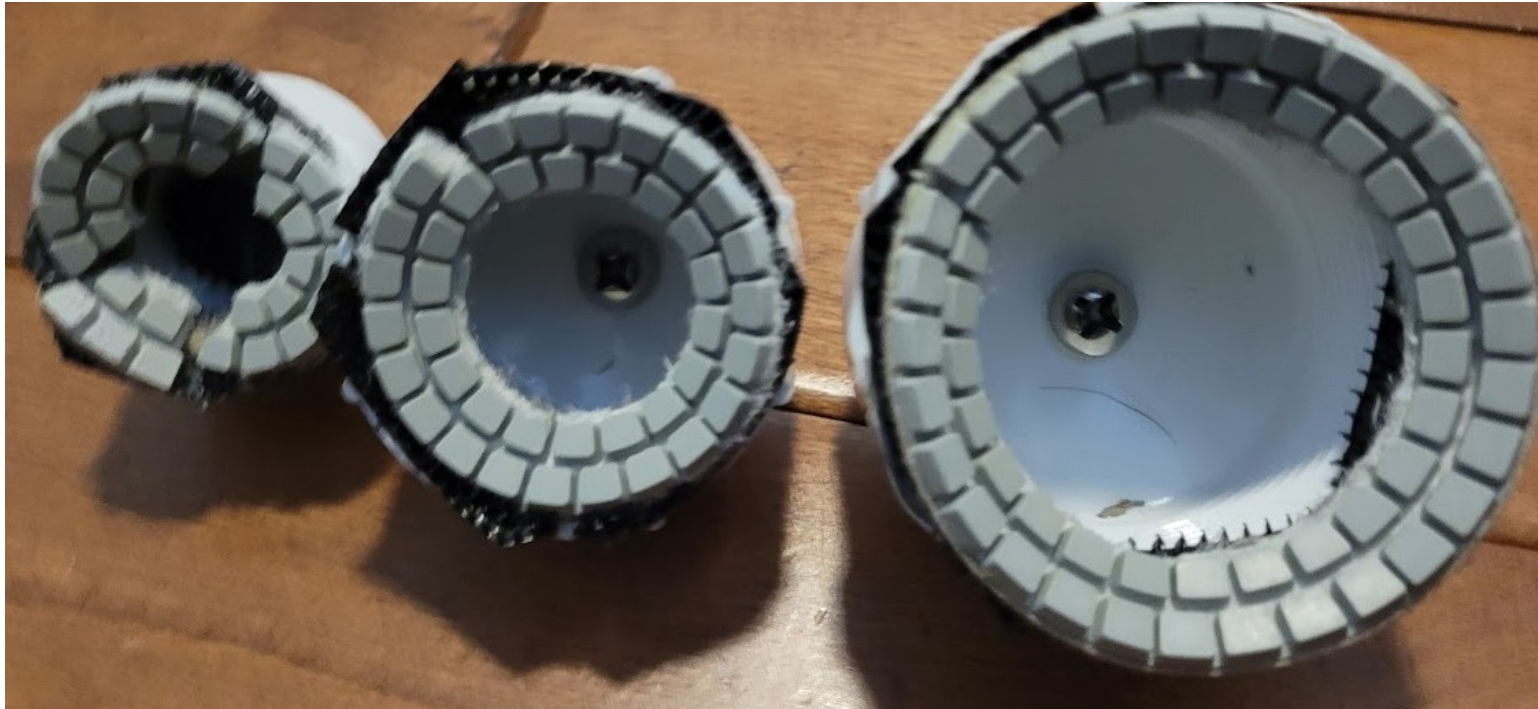


Polishing pads

- Started with 3" diamond polishing pads
 - Cut outer 2 rings for 2" cups
 - Cut out 5 segment section
 - Cut next 2 rings for 1.5" cups
 - Cut out 2 segment section
 - Cut remaining rings for 1" cup
 - Used scraps from above to fill gap



Polishing pads

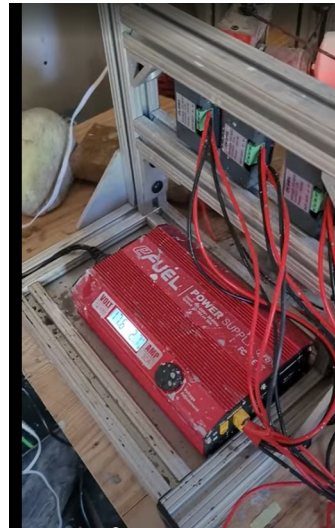


Polishing pads



Water Drip System

- Costco sized Peanut butter M&M container
- Loc-Line hose with valve (crazy expensive unless you buy on aliexpress)
- My son built me a stand for the water supply and holder for the power supply and regulators



System in action...

A brief intro to making spheres:

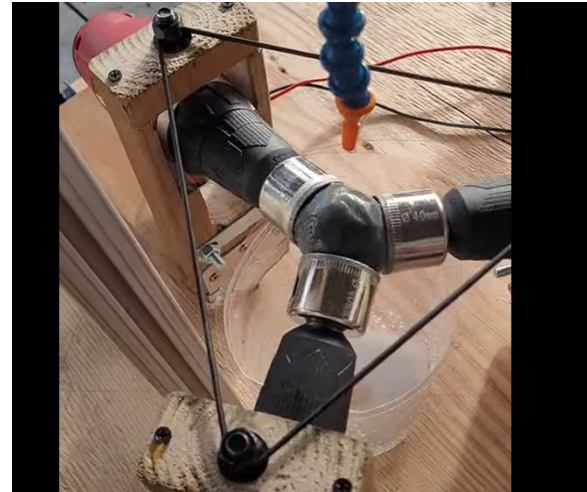
Step 1

- Option 1
 - Start by cutting rock into a cube
 - Then cut the edges and continue to cut edges until it's mostly roundish
 - Takes more cuts and time, but you can use any rock saw
- Option 2
 - Use a core hole drill and cut a core from a rock
 - Then cut the core and continue cutting until it's mostly roundish
 - Equipment for this is more expensive

A brief intro to making spheres:

Step 2

- Grind the rock with diamond cups until it is a nice looking sphere



A brief intro to making spheres:

Step 3

- Polish the spheres until they look amazing
 - I find you do have to baby sit the rocks occasionally
- I do this series of grits:
 - 50
 - 100
 - 300
 - 500
 - 800
 - 1000
 - 1500
 - 3000
- Time depends on the hardness of the rock



Questions?

