

<b>MEMBERSHIP</b>
<b>\$25.00 US</b>
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# The Crank Calls

June 2008

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<p>NEXT MEETING  June 21, 2008 at  Chabot College, building 1400  25555 Hesperian Blvd, Hayward 94545  Doors open at 9 AM  Meeting Starts at 10 AM</p>
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<p><u>Upcoming Events</u></p>
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## MEETING NOTES

**5-17-08**

**Carl Wilson**

We are settling into our new “digs” at Chabot College and at the May 2008 meeting of Bay Area Engine Modelers we had a nice turnout of members and their engines.

Don Jones reported that our treasurer, Ken Hurst, is on the “injured reserve” list and may have to resign his office. There will be more information at the June meeting.

Mike Rehmus gave a brief report on the North American Model Engineering Show held in Toledo, OH last month. He thought that there were more exhibitors of the usual high quality, but possibly 30% less attendance. Links to the best exhibits were printed in last month’s newsletter.

Mike talked about the proposed incorporation of the club into a 501(C)3 educational non-profit corporation. The bylaws (rules governing the operation of the club) are being mailed to all members of the club. There is a cover sheet that explains why we are proposing this change and what effect it will have on the club. We will vote on incorporation at the June meeting. You may vote in person or by mail. If you cannot be

at the meeting we have included a mail-in ballot for your use.

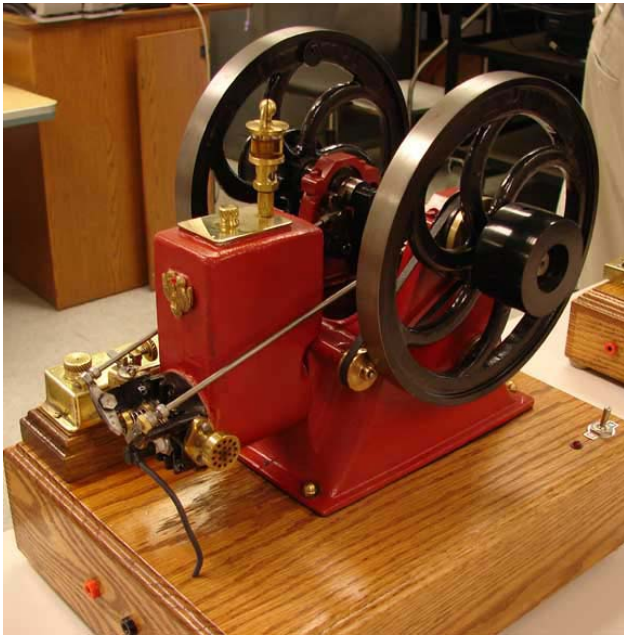
Super Morton: Mike also told us about a new cylinder design for the Morton aero engine. The design, by a group at Kiekhaefer Marine, will dramatically increase the power available from the original. All of the development has been to the cam, valve train, valves, and the intake and exhaust passages. The design group is on their fifth version and the engine is meeting their expectations. More information on Carl Kiekhaefer and his marine engine company: [http://en.wikipedia.org/wiki/Carl\\_Kiekhaefer](http://en.wikipedia.org/wiki/Carl_Kiekhaefer)

WEME Show: Pat O’Connor asked that club members pre-register as soon as possible. One of his major jobs is to assign exhibitors to the tables. He needs to know who will be there and how much space they need. The show managers are, as we did last year, asking for the contribution of “seed money” from the club members. This is a loan to the show and will be repaid from the proceeds of the event. He suggests a check made to WEME, and mailed to:

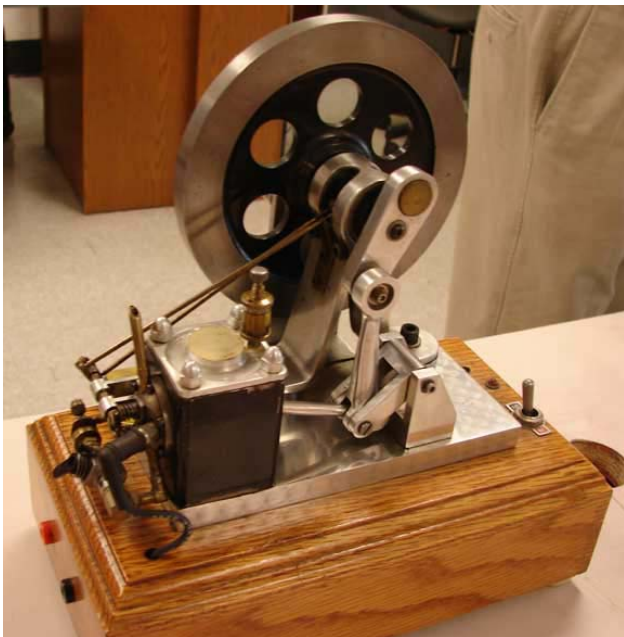
Pat O’Connor  
1521 Queenstown Ct.  
Sunnyvale, CA 94087

WEME “Employment” Opportunity  
Wanted: Show Host/Floor Manager for Western Engine and Model Exhibition to assist exhibitors, make safety

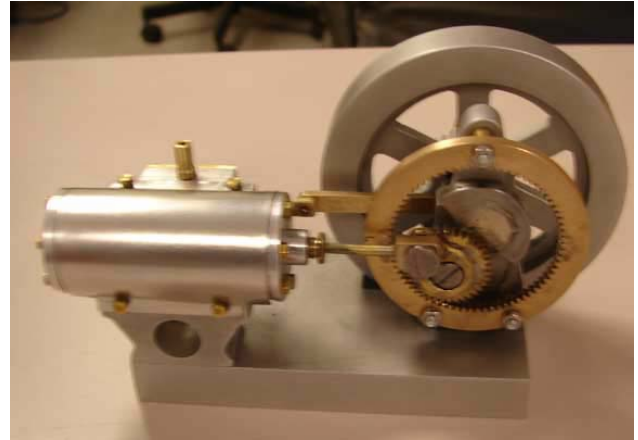
inspections, and respond to any emergencies. See Pat O'Connor for application forms.



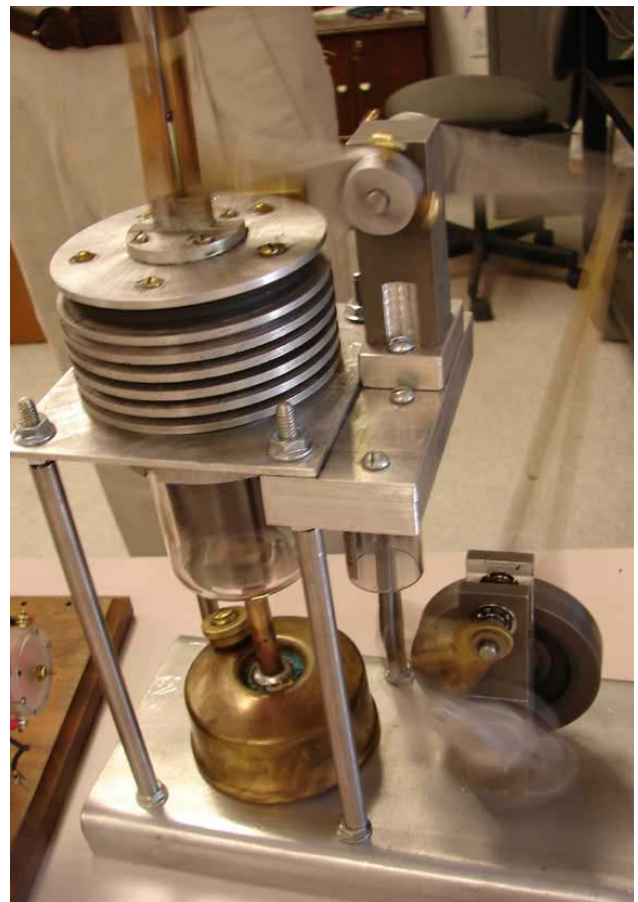
George Gravatt brought two Atkinson cycle engines. This bright red engine is from the design and castings by Joe Tochtrop.



George built this Atkinson cycle engine from plans in the Projects in Metal magazine Feb. 1996.



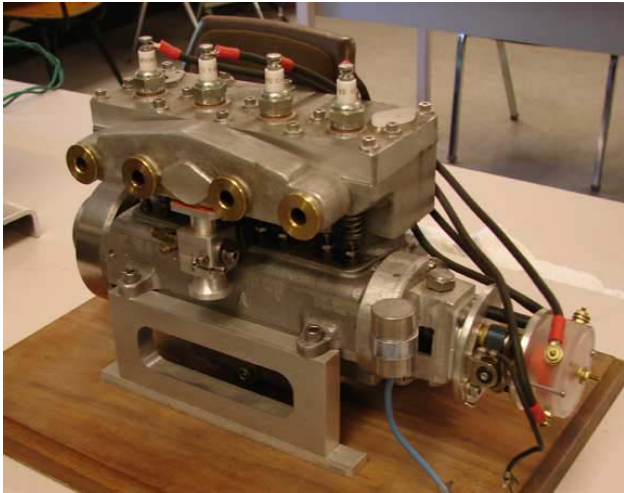
Jaime Quevedo showed this very nice epicyclic engine, designed by Elmer Verburg. The engine is a double acting "steam" engine and has a gland seal where the piston rod exits the cylinder. The major design feature, the ring gear and pinion, provides a straight-line motion for the piston rod at the gland. It runs on 20 psi air.



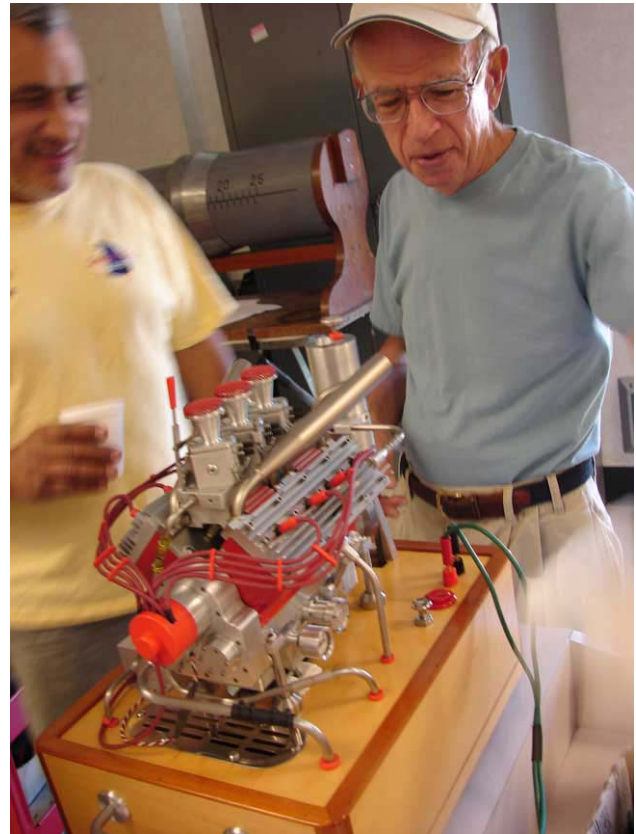
Robert Rasmussen designed and built this free-lance Stirling hot air engine. The power and displacer cylinders are glass: at the right is the



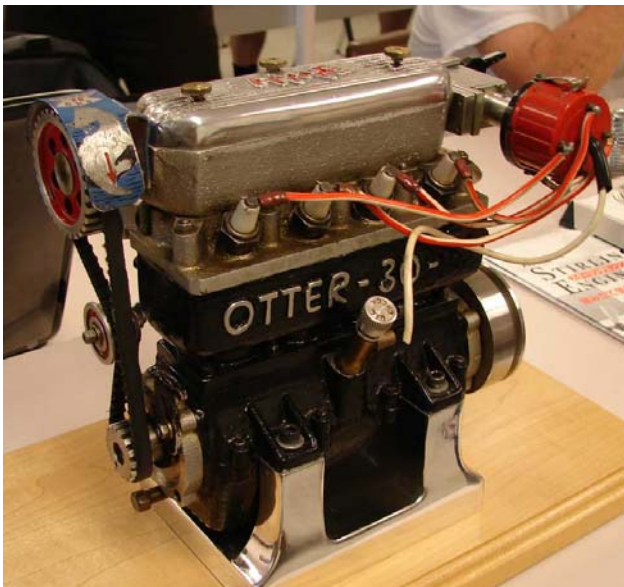
power cylinder made by Airpot: a glass cylinder and very closely fitted graphite piston. At the left is the displacer cylinder which started life as a laboratory beaker.



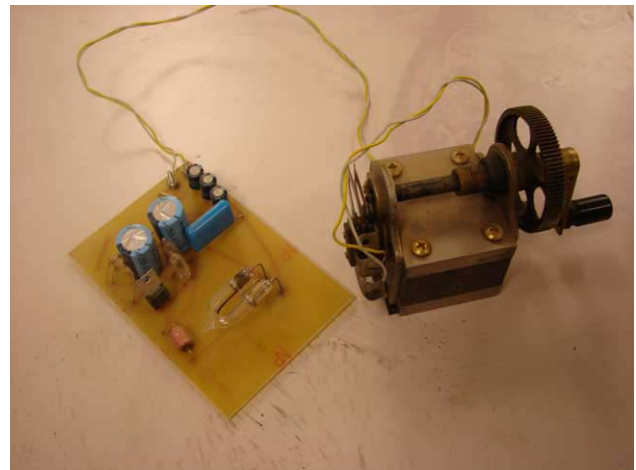
Paul Bennet said that this Wall 50cc. 4-cylinder engine is nearly box stock. The only change was relocating the distributor to the end of the crankshaft to reduce the height of the engine for use in a boat.



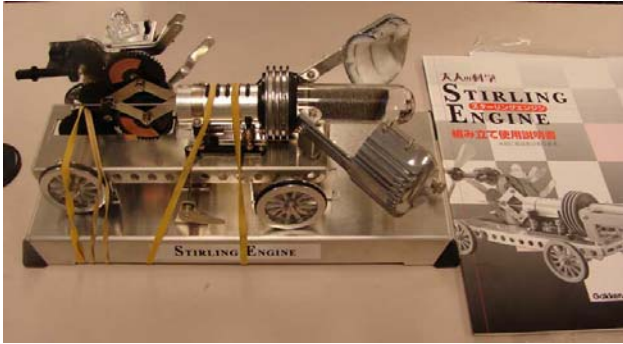
Dick Pretel (right) joins us in admiring his Challenger V-8. Dick said that this one is “highly modified:” the crank is mounted in the oil pan rather than being bolted to the block; there is an oil filter; fuel is supplied via 3 single barrel carburetors operated sequentially; and spark is created by a C&H electronic ignition triggered by a Hall effect device.



Bob Kradjian brought this Otter 30 cc, 4 cylinder, OHC with rocker followers rather than buckets. The design of this engine was by D. Haycock. An interesting design feature is the distributor cap made from a bottle cap and the points are not in the cap but located at the other end of the distributor drive shaft.



Peter Lawrence cranked a few turns of his Signal Corp telephone hand crank magneto generator. I failed to note what the circuit board did with those electrons: is that a flash tube?



Steve Jasik bought this commercial kit of a rhombic drive beta Stirling hot air engine at the Maker Faire.

### **TECH TOPICS**

Dennis Mead brought his box of form tools and told us that grinding tools for turning complex shapes on the lathe is easy if you follow his method. Select a HSS tool bit that is wide enough for the shape. Most of the bits that you will have will be square cross-section and will be too thick to easily grind the shape: too much material to remove. So get that excess material out of the way by grinding a sorta square section out of the bottom of the tool bit to leave a cutting edge that is 1/8" – 3/16" thick and long enough to grind the entire shape.

Now to layout the shape: Dennis suggested two ways: draw the shape directly into layout ink on the top surface; or draw it in a CAD program and paste it onto the tool bit. Dennis uses rubber contact cement (Pliobond or Weldwood

Contact Cement) because that will withstand the high temperature generated by grinding.

That's all of the preparation. Now take a Dremel or similar high speed die grinder and attack the tool bit with diamond burs and reinforced cutoff wheels. Be sure to grind clearance below the cutting edge in both directions – not just in the direction of infeed of the tool bit. Form tools should use a smaller than usual clearance angle to prevent the tool from “grabbing” the work: 3 degrees is a good figure.

Form tools have a long cutting edge that can easily chatter. Dennis suggests several things that you can do: use 2 or more tools to generate the shape; “wiggle” the lathe saddle from side to side a little bit so that the tool is cutting on a shorter surface; or support the work with a live center. If your lathe will run in reverse without unscrewing the chuck, you can place the tool behind the work and feed it toward you. Or put the tool upside down in the normal position and run the spindle in reverse. Last, put the tool behind the work and upside down and run the spindle forward. Use a cutting speed that is one half to two-thirds of normal: you will probably have to play with the feed rate to find what works with your setup.

## **Stuff for Sale**