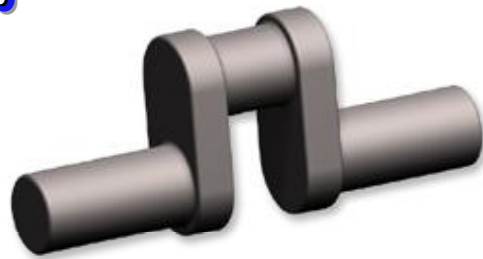


## The Crank Calls



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### **MEMBERSHIP \$25.00 US**

Contact Paul Denham at  
pedenham@comcast.net  
**Membership Dues are now  
due!**

### **NEXT MEETING**

**April 15, 2017 at  
Golden Gate Live Steamers  
Tilden Park  
Berkeley, CA**

Doors open at 9:00 AM  
Meeting starts at 10:00 AM

### **Upcoming Events**

BAEM meetings: 3rd Saturday of the month

Golden Gates Live Steamers Spring Open House on  
June 4th

### **MEETING PLACE FOR April 15th**

We will meet this month (April) at the Golden Gate Live Steamers meeting room in Tilden Regional Park, Berkeley, CA..

### **MEETING NOTES**

March 18, 2017

Bob Kradjian, Secretary

President Paul Denham called the meeting to order at the very nice Tech Shop facilities..

**VISITORS:** Chris Larson joined us. He did some metalworking in High School and wanted to progress to engine building. A friend told him about our group and he found us on the Internet. Welcome to Chris!

**MEETINGS:** We are making plans to join with the Golden Gates Live Steamers for their next Spring Open House Sunday meeting. The date will be June 4th. Those of us who joined with them last year had a great time.

The Knight Foundry in Sutter Creek will hold open houses from time to time. Check with their web site for additional dates at: knightfoundry.com for dates and history. The foundry dates to 1873 and operated until 1996. Volunteers have repaired the

damage, and plan to host the foundry as an operating museum.

**GROUP BUILD:** Steve Hazelton and other members are working on a group build and will keep us updated on progress.

Steve also reported on a group of engineers who were shown a connected rod. Only two of eight were able to correctly identify the object.

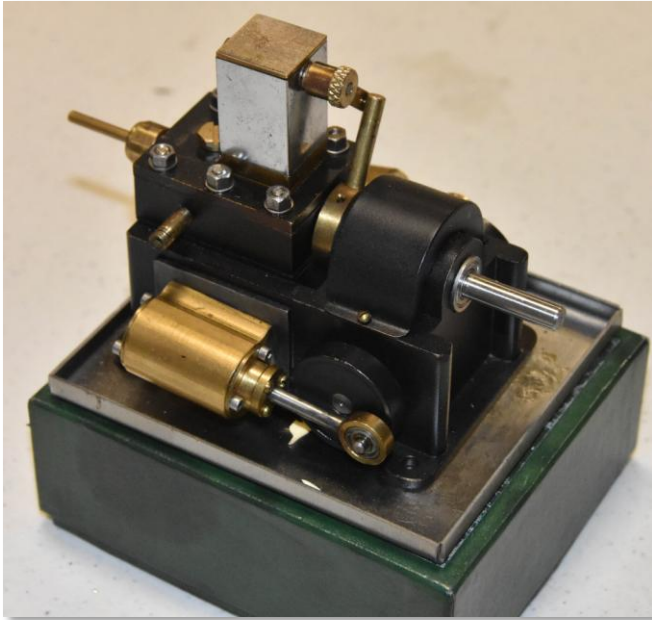
Another engineer was astonished to hear that the largest trucks on our roads did not have spark plugs.

**FIRST POPS:** There were no First Pops this meeting.

**TREASURER'S REPORT:** We're OK at this time and we have renewed our web site license for the WEME meeting this coming August.

**CLUB BADGES:** If you are a member in need a badge, contact Mike Rehmus (mrehmus@byvideo.com) who has offered to produce them.

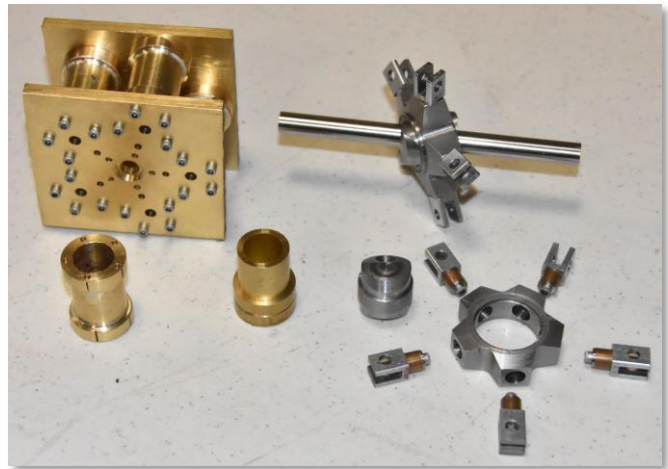
## BITS AND PIECES



Charlie Reiter builds mainly large steam engines. He showed us a small one used as a steering engine for a steam road roller. It is a simple “wobbler” engine style that operates a chain drive to the steering linkage.

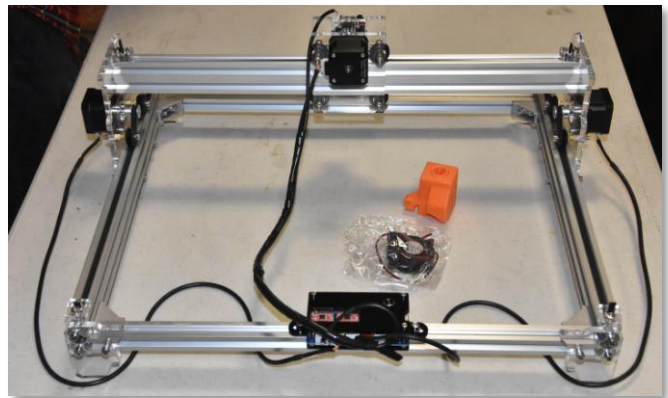


He also showed us a worn cross feed nut for his Clausing lathe that he rebuilt to be an adjustable nut that will not require replacement.



Peter Lawrence showed us a linear five-cylinder steam engine he is working on. It utilizes a swash plate connected to a drive shaft. It also has spider gears and a hub as well as multiple axial connecting rods. It will use a rotary valve to shuttle pressure between the two steam chests.

He then related a problem of misalignment with his cylinder bases. This was despite using a digital read out to drill the holes. After much sleuthing, he found that there was a tiny bit of twist drill drifting when the drill encountered a silver solder seam between two metals. There was no remedy but to start over again from solid with no solder seam.



Mike Rehms again showed us his two and a half-watt laser that is now transported in a sturdy carrying chest. The total cost of this unit was just a bit over two hundred dollars. It features a seven thou kerf. He purchased additional GRBL software package to run the machine. This was purchased from a programmer-hobbyist in Southern California. Larger laser heads with more wattage are available. The unit does produce considerable smoke and



requires careful eye protection for the operator and any nearby folks.



Dwight Giles gave us a masterful explanation of how to make his beautiful gas tanks. The ends are formed with dies that are pressed and the edges trimmed on a lathe.

He uses grade-five silver solder for the ends and soft solder for the outlets. The lower temperature solder is used last. His finished tanks show no staining from solder leakage, and have nicely crowned end plates.

Dwight recommends polishing before soldering the end caps.



Lacking the skills of Dwight, your secretary described a “quick and dirty” method of making a simple tank. It is simply comprised of a threaded rod securing two end plates to any tube you wish to use. The connection is sealed with an “O” ring. The compression creates a water or fuel tight seal. This method does not require the use of heat for soldering except for the outlet and filler pieces. The photos clearly show the construction.



Paul Denham showed us his version of Joel Tochtrop's Atkinson cycle engine. He changed the taper mount to a collet arrangement for mounting the flywheels. Since there were no counter weights on the crankshaft, Paul developed his own brass counterweights that appear to nearly perfectly balance the complex Atkinson actions.



Paul used titanium for the pushrods and rocker arms to reduce reciprocating weight. He is willing to admit that small titanium shavings blaze up brightly. Don't ask how he found out. The body

castings are thin and easily warped. He is using a nice flat metal base to keep everything lined up.



Pat O'Connor used Alibre to replicate a supercharger wheel for a Pratt and Whitney engine. He then sent it to Mike for 3D printing. He finished it using a slitting saw and a rotary table to cut the blades.

Mike described the use of PLA and 3D printers to make beautiful molds for lost wax (lost PLA?) type castings.

Ray Fontaine told us about his "new toy" at the last meeting. Ray, do you have any new developments to share?

At our February meeting, Dwight Giles made a remarkable offer to members. He would help them to grind the camshaft for a multi-cylinder engine on his machine. Have there been any takers?

The club "unusual engine" book listed below was loaned last meeting. It was read, and returned for another member to enjoy.

### **Power Pioneers: The Art of the Engine**

The meeting adjourned at 11:23 am.

