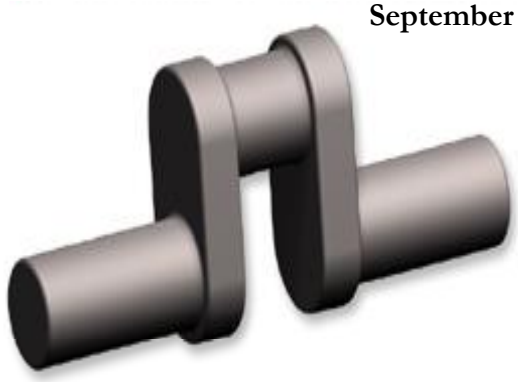
Bay Area Engine Modelers Club
www.baemclub.com

The Crank Calls

September 2024



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NEXT MEETING

Saturday, September 14, 2024, at the Golden Gate Live Steamers clubhouse site in Tilden Park, Orinda, CA

Gate opens at **9:00 am**

Meeting starts at **10:00 am**

Upcoming Events

- Sept 14: BAEM meeting at GGLS (Note: **date of meeting moved up a week**.)
- Sept 14 & 15: GGLS Fall Meet/Open House
- Oct 12: BAEM meeting at GGLS (Note: **date of meeting moved up a week**.)
- Oct 18-20: Maker Faire at Mare Island

See below for more details regarding events. Watch Crank Calls, BAEM emails and BAEM web page for updates. BAEM meetings are usually 3rd Saturday of the month except December.

MEETING NOTES

The Bay Area Engine Modelers met at the Golden Gate Live Steamers clubhouse on August 17, 2024. Paul Denham welcomed 18 members and guests. He noted upcoming adjustments to BAEM meeting schedules. The September meeting will be on the 14th, in conjunction with a GGLS open house. October meeting will also move up a week to Oct 12th to deconflict with the Maker Fair the following week.

NEW MEMBERS/VISITORS

BAEM members are reminded that visitors are welcome at our club meetings, and we're always looking for new members.

TREASURER'S REPORT

Paul Denham reported that the club's finances are in good shape.

2024 BAEM dues of $25 are payable. Checks can be mailed to Deirdre Denham at 1937 Merchant St, Crockett, CA 94525. Make checks payable to "BAEM".

CLUB BADGES

If you are a member in need of a badge, contact Mike Rehmus (editor@modelenginebuilder.com) who has offered to produce them.

SHOWS AND EVENTS

Engine shows and similar events provide an opportunity for BAEM members to display their craftsmanship to an appreciative audience. They also serve to publicize our club's existence to potential future members, helping build our membership.

BAEM encourages all its members to participate in shows. Your help is needed to populate our display tables. You don't need an impressive collection of model engines to display. In fact, you can help without anything at all to display, as we always need people to provide coverage. It's a lot of fun interacting with members of the public, explaining what the engine model building process is all about.

-GGLS Fall Meet and Open House

GGLS will be holding their "Fall Meet" on September 14 & 15. Our Sept meeting has been moved to the 14th for this event. BAEM members are encouraged to attend and display their engines to an appreciative audience.

-Maker Faire Bay Area

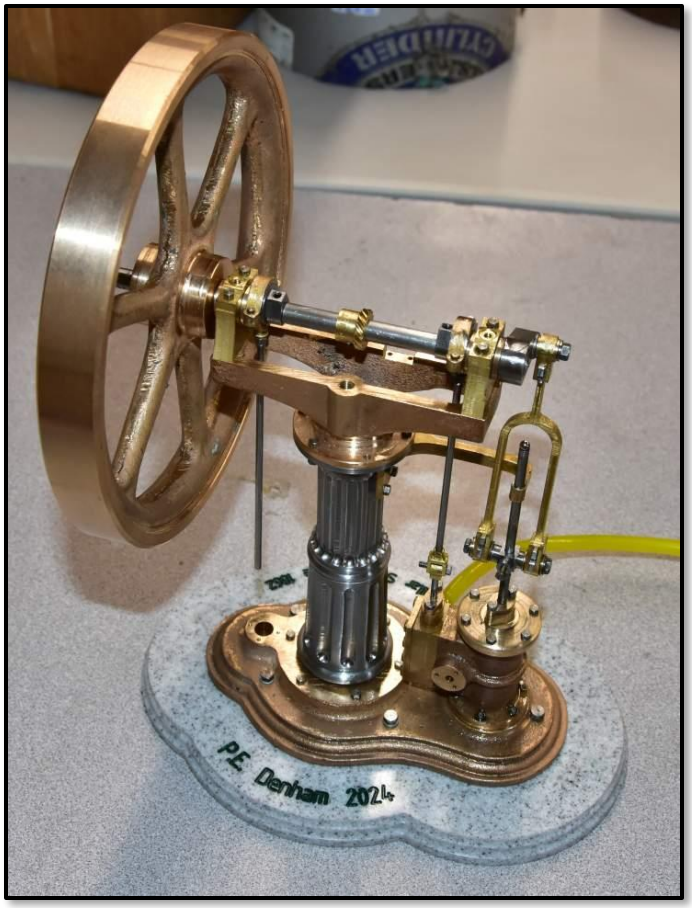
The Maker Faire Bay Area will be held at Mare Island Naval Shipyard on October 18-20, 2024. (We moved our October meeting up a week to avoid conflict with this event.) This is a very large show, with daily attendance in the several thousands. We will be showing our engines, and all BAEM members should consider attending.

Here's their website:
https://makerfaire.com/bay-area/

Steve Hazelton is coordinating our club's involvement, and can provide details about location, parking, free passes and any other aspects of this show. Steve can be reached at 707-501-3535, and his email is steve.hzltn@gmail.com.

FIRST POPS

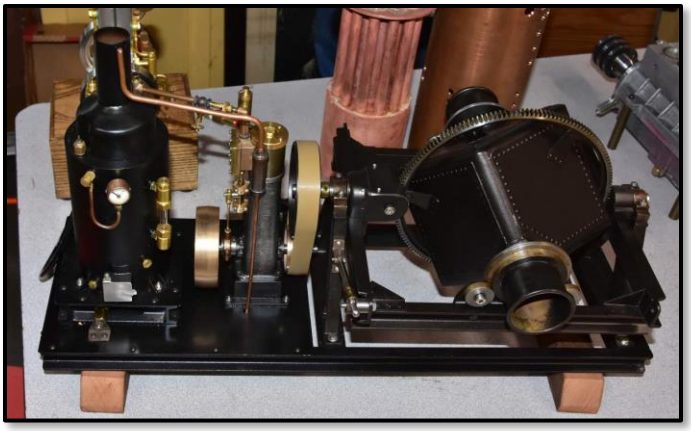
Paul Denham ran his newly completed model of an 1862 Benson Vertical Pillar steam engine (https://www.youtube.com/watch?v=pscmPQZXuqo). Paul acquired the Benson casting kit as partial compensation for machining a Stuart Twin Victoria. The engine was 1/12 scale, with a nice big 6" diameter flywheel. But making the small components proved to be a test of machining skill. The 2-56 screws were the BIG ones (~.078" diameter) and there were many 00-80 screws (~.060" diameter). Tapping screws as small as 00-80 without breaking a tap was challenging indeed.



Paul Denham's Benson Vertical Pillar steam engine. Fluted columns were a nice touch!

BITS AND PIECES

Charlie Reiter brought in a very impressive model of a concrete mixer with a "cube" rather than a spherical mixer. The operating boiler powers a steam engine made from PM Research castings. The steam engine rotates the mixing cube. The cube mounting fixture tilts to load cement and sand and then remove the mixed concrete. Charlie was inspired by a 1905 catalog that had a listing of the mixer he modeled (but no price). This type of cement mixer is thought to have been used in Panama Canal lock construction.



Charlie Reiter's Square Concrete Mixer

Charlie also brought in a partially finished large model boiler, and shared suggestions on how to braze boiler tubes and test them for leaks.

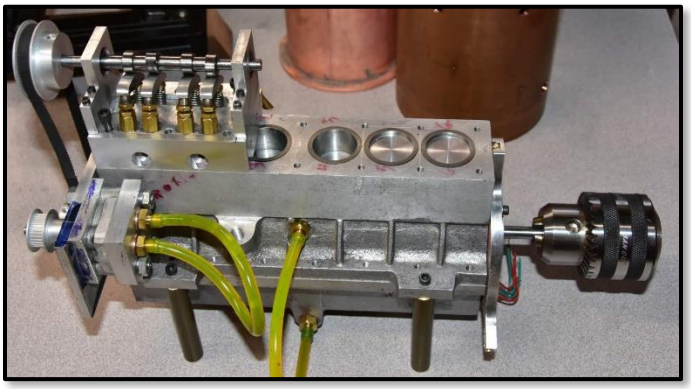
Charlie's boiler parts.

Ray Fontaine is working on a Martin Models Mary engine casting kit. He discovered the required 50T and 150T spur gears were no longer available from Martin. Ray is exploring production of gears for Martin, and showed a prototype of the crank gear and a fixture for machining the timing gear. He used a rotary indexer and mill to machine the prototype.

Ray Fontaine described the steam-powered model constructed using old-style sewing machine parts.

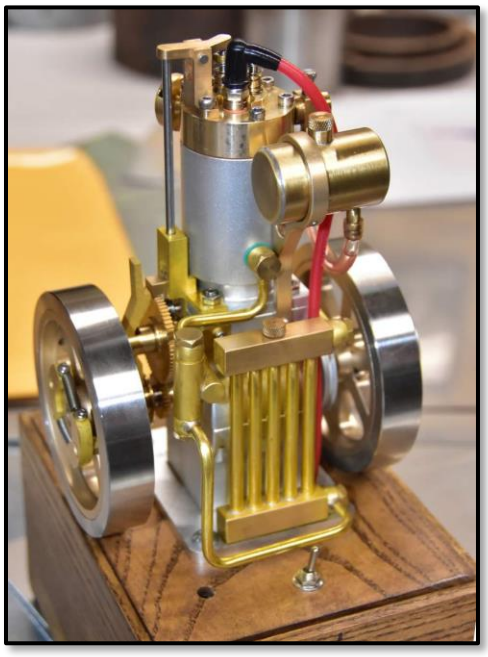
Ray also brought in an unidentified model he acquired at an Early Days Gas Engine show. He believes the steam engine is set up to drive a power takeoff drive wheel that is repurposed from a trundle sewing machine. The steam engine machining was not yet completed. It was not clear what might have motivated this project or its intended application.

George Spain has made progress on his interesting in-line six-cylinder engine project, an original design. He acquired the crank shaft, cylinders and crank case from Dwight Giles and is reverse engineering a design. The somewhat unusual crankshaft is set up to operate three pair of pistons with timing that is 120 degrees apart. Geoge had fabricated a test set of valves and lifters for one pair of cylinders. We look forward to learning more about this project as it progresses.



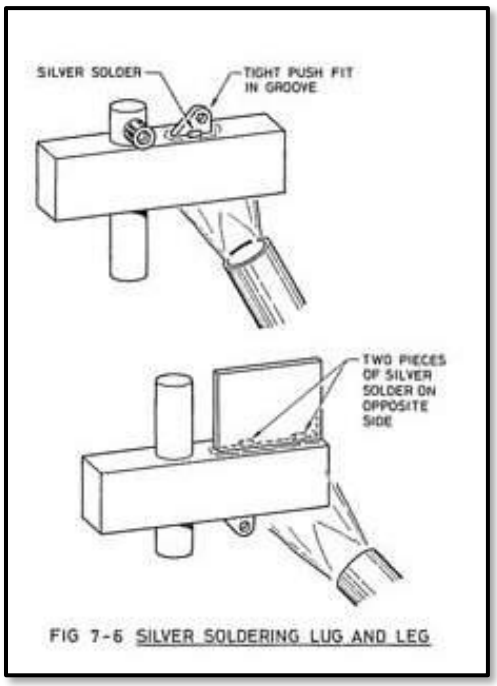
George Spain's six-cylinder project.

Chuck Klor acquired an engine from BangGood (https://usa.banggood.com). The listing description is: *"Eachine ETX Hit & Miss Gas Vertical Engine Stirling Engine Model Upgraded Version Water Cooling Cycle Engine Collection – Silver".* The engine, however, looks like a hit-and -miss and Chuck's experience suggests the shipping packaging was also a hit-and -miss. His engine arrived with considerable damage, and it took three months to get the replacement parts. Of interest, BangGood is now offering a wide variety of model engines that appear to be based on the David Kerzel Hit & Miss design. The engines look nice but sometimes take considerable help from Paul Denham to get them running.



Chuck Klor's nicely done engine.

Earlier in his model engineering career, Peter Lawrance built a Kozo Hiraoka A3 locomotive. Peter greatly admires Kozo's fourth book, "The Pennsylvania A3 Switcher," and he's especially fond of the hand-drawn illustrative technical drawings, which have a clarity rarely found in technical literature.



A sample of Hiraoka's style.

Peter puzzled over what made the drawings so appealing, and ultimately concluded that the use of "dimetric projection" was a significant contributor to their appealing clarity.

Orthographic projection is a means of representing three-dimensional objects in two-dimensions, such as the flat paper you are reading. There are a variety of projection methodologies, such as isometric, dimetric and trimetric. All involve foreshortening of straight lines and viewing circles as ellipses. If you'd like to immerse yourself in the mathematical world of graphical projection, here's a place to start:
https://en.wikipedia.org/wiki/Orthographic_projection

Peter would like to emulate Hiraoka's style when manually drafting his own illustrations. While modern CAD programs will generate isometric, dimetric, and trimetric projections, Peter was unable to find a derivation of the linear algebra tools needed to allow him to sketch dimetric projections. Peter derived his own tools, and posted them on Home Model Engine

Machinist forum: (https://www.homemodelenginemachinist.com/threads/dimetric-drafting-ellipses.36367/). He shared a white-board version of his findings. Perter derived that the solid model axis rotations for dimetric projection are X – 70 11', Y – 410 25' and Z foreshortening .9428. Peter showed ellipse templates for different rotation angles and learned that they are also available for dimetric projection angles.

We look forward to seeing Peter's technical illustrations!

Dwight Giles gave an impromptu tech topic on drilling holes in crank shafts, typically to permit the distribution of lubricating oil. His recommended technique for drilling angled holes is to mill a flat so the drill always enters the work at a 90 degree angle. Dwight recommended using new cobalt drill bits with lots of lubrication and using "peck" drilling to extract chips. Dwight cautioned that one should take particular care at breakthrough, as this is when drill bits are most likely to break. See the Dwight Giles/Ken Hurst article, "Making Multi-Plane Crankshafts" in Model Engine Builder, Issue 30, for a more complete discussion.

RAMBLINGS

A friend of Paul Denham forwarded some information about a new approach to fabricating sheet metal panels into 3-D curves. No more mallets and sandbags, English wheels or planishing hammers to get the curves just right to fit over the wood form. Check it out on this YouTube video: https://www.youtube.com/watch?v=ou5wPy56B3I Of course, one suspects this machinery is rather costly, and it will be quite a few years before Grizzly offers a reasonably priced knockoff. In the meantime, Ron Covell training videos are quite a bargain and will unlock the secrets of making sheet metal fit the shapely curves of our dreams.

Working on an interesting project? Got a great BAEM story? Share it with us here. Send us pics and project details, and your hard work will be shared with the entire club.

FOR SALE

Got something you'd like to sell? Your ad is free and will be seen by likely customers.

NEWSLETTER CONTRIBUTION

Your contributions to this newsletter are appreciated: workshop reports, tech articles, reviews, historical pieces, whatever. You contribute, we'll figure out how to post it. Send your contributions to either or both of us. Thanks!

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