



SCHSM

Southern California Home Shop Machinists

July 4, 2020

OFFICERS

President	Doug Walker
Vice President	John Miller
Secretary	Ron Gerlach
Treasurer	Jim Endsley

COMING EVENTS

July Virtual Meeting
 Sat, 1 August 2020, 2:00p.m.
 via Zoom

PREFACE -

The virtual July meeting of the Southern California Home Shop Machinists was called to order a little past 2:00 p.m. on Saturday, July 4, 2020. We met in the cloud from our individual homes via Zoom. There were 25 members in attendance. Of these 25, 3 were guests and one was an unidentified member.

CLUB BUSINESS –

Doug called the meeting to order and expressed confidence that a picnic would be held next year.

Ed mentioned that the official El Camino position is still for an October 17th resumption of any on-site class activities. However, he noted that USC had just canceled all face-to-face on-campus classes for the Fall semester. This was important because El Camino tends to follow in the tracks of USC for such policy type issues and decisions.

Mike Lucek reported that he still has not made much progress on the web site but did predict that he would have the single page for SCHSM.com up by the following day, July 5th. SCHSM.org would just direct users to SCHSM.com. The hosting costs are expected to be on the order of about \$10 to \$12 per month.

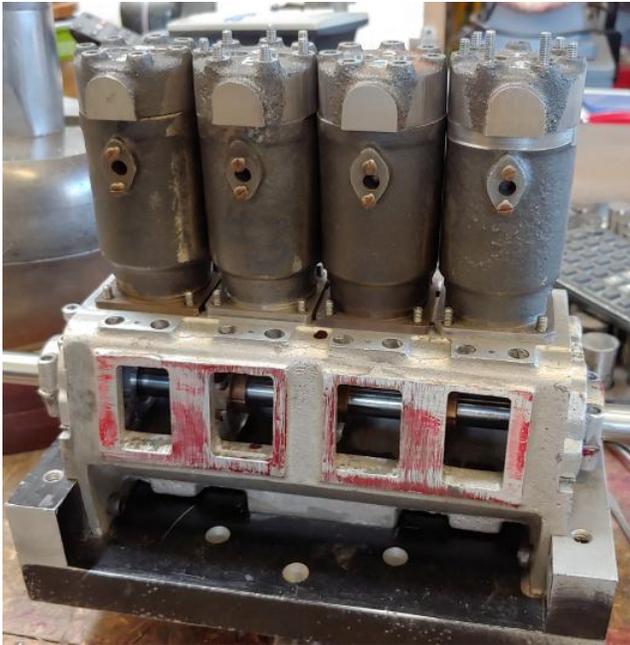
Doug spoke about suggestions made by Matt to add some regular categories to the monthly agenda. Some of the suggestions involved members presenting odd, unusual or rare tools to see who can figure out or identify them. Another category might be Interesting Tool Finds or Unconventional Work-holding Techniques.

SHOW and TELL

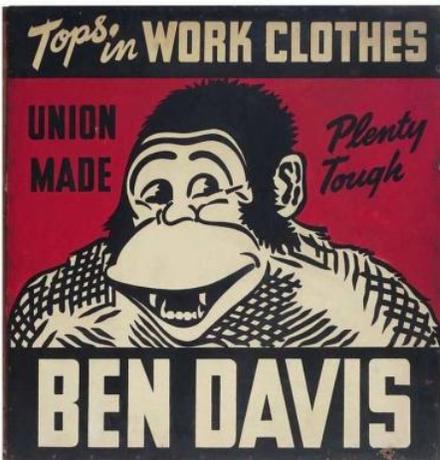
Don Huseman presented a miter fixture he was making for his green wheel carbide grinder. He was questioning how to get the device mounted so the traversing slot was parallel with the grinding wheel axis. It was pointed out to him by several members that this was an unfounded requirement since as he traverses the grinding wheel surface, the distance between the work piece and the closest grinding surface will always remain the same. In other words, there will only be one contact point/plane between the wheel and the work. The high points on the wheel will eventually wear away and the contact plane will become wider but will, by necessity, remain the same distance to the work.

Bernie Wassinger, visiting member from Arizona and also former club president, showed a model Holt 4 cylinder engine he was working on lately. He had the complex crankcase, the four wet cylinders and heads to show. He also shared the results of two attempts at a crank shaft. The first was cut away from solid stock. This one suffered some sort of unmentioned catastrophic failure. The second was built up from

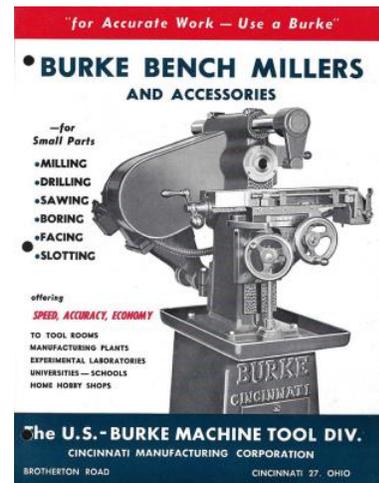
individual rod section and flat stock pieces. This one looked great but suffered from an unacceptable amount of runout. He was going to make another stab at it using a variation on the built up technique where long rods are used for the shaft and throws and then sections are cut out once the cheeks have been soldered/ brazed and pinned in place.



Matt Rulla showed a Ben Davis brand shop apron he had picked up. They are identifiable by the image of a monkey on the front.



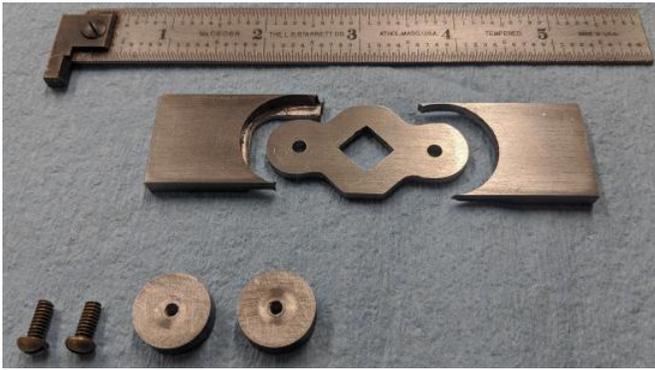
He then discussed a repair he made to an old WWII era No. 4 Burke Mill. The image to the right shows a brochure for one of these mills in a common configuration. His actual mill is configured differently with a belt driven 4-speed gear box made by Lima Electric Motor Co.. The gear box in turn drives the mill via a second drive belt. The shifter lever used to change gear ratios suddenly stopped working. He opened the unit up and found that a small part, made of folded of sheet metal, had failed.



He fabricated a replacement which was much more robust than the original and should last for many years. He cut several parts from steel using



his CNC mill and then brazed some of the parts together. A little file work to clean it up and he had a good useable part.



The last image shows the new part mounted in the gear box with one of the round protrusions engaged in the slot of the shifting mechanism.



In the theme of unusual tools, Don showed a cool looking tool that several members quickly identified as a gear caliper used to measure the critical dimensions of gear teeth. It was made by Starrett and was one of two he picked up because there is an A and B group size, for different size gear teeth.



He said he paid \$5.00 for them but refused to take a generous offer of \$10 from a member who was just trying to help him by doubling his money on the investment.

Doug then showed an old tool with a fine rust patina that was surmised to be a sheet metal thickness gauge. It was crude but likely served its purpose in the day.



Jim Endsley then popped back into his window and showed a similar yet different looking tool. I don't think anyone guessed what it was and Jim pointed out that it was an instrument for measuring the carat value of diamonds. This notion was quickly poo-pooed by several members but then after further discussion and someone doing a little on-line detective work it was clarified that the instrument was indeed intended to measure some critical dimensions on a cut diamond stone. Armed with a few key dimensions and the type of cut it was possible to refer to the tables in a little book which listed the approximate weight in carats. These meetings always lead to further knowledge.

Someone brought up the question of appropriate tool RPM for cutting metal. Ed refreshed everyone's memory of the useful formula:

$$RPM = (CS \times 4) / D$$

Where: RPM is Revolutions Per Minute of the cutting tool; CS is the cutting speed (in Surface Feet per Minute) for the type of material being cut; D is the diameter of the cutting tool in inches

This same formula can be applied to lathe turning work by substituting the diameter of the work for D. The calculated RPM results for any of these types of calculations represents the upper limit of cutting speed that will allow fast and efficient stock removal and still result in reasonably long tool life. A variety of conditions and situations can dictate slower speeds than this formula predicts.

Ron Gerlach showed a video of his running engine that he recently posted to Youtube. It was a Fuller & Johnson Farm Pump Engine. It was easy to start even with the considerable amount of compression from the new piston, rings and cylinder boring. For anyone who might be interested, the video can be seen by using the following link:

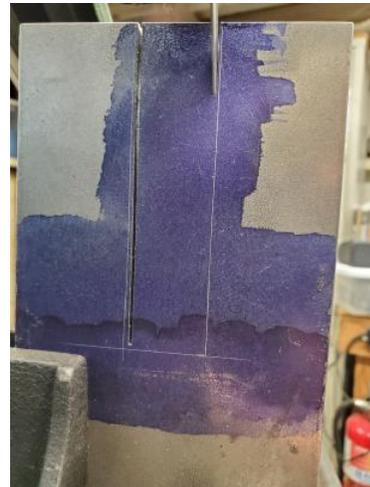
<https://www.youtube.com/watch?v=SrWbPCngdxk&t=294s>

Matt was working on a new project that utilized a round aluminum plate made from some of Chuck Norton's donated scrap stock. The 6" aluminum flywheel (for a slow speed diamond lapping machine) had a tapped hole that unfortunately ate his tap. It was broken off down in the hole and was impossible to access with conventional tools of removal. He decided to dissolve the broken tap. He initially tried using a heated solution of Aluminum Sulfate and Sulfuric acid (per an article in a recent Home Shop machinist magazine). When the part was submerged, the solution did have a reaction with the broken tap, but it worked too slowly. He then heated the part with a propane torch until it was too hot to touch and using a glass syringe, applied a slow stream of sulfuric acid to the tap. The tap dissolved within 1 hour and the aluminum part was saved, except for a slight a mat finish.

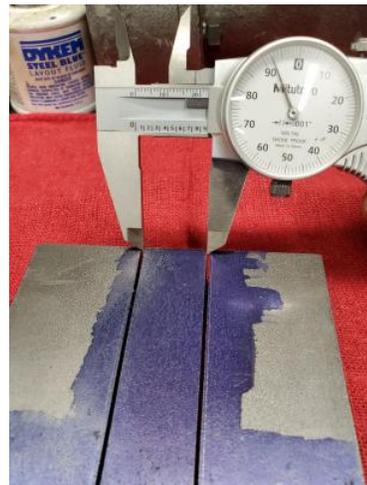
Butch Sherrick described the repairs he carried out on his Century Tool bandsaw to straighten the cut. The original design had the arm pivoting on two points permanently mounted to the base. One mounting point hole had been miss drilled and there was no way to adjust for this error between the base and the arm. So, he removed one of the pivot points and made a new pivot point that could be adjusted by means of shims. Here are a couple shots of the mounting base mods:



In order to determine the correct shims, two long vertical cuts were made in a piece of steel, from opposite sides of the steel. That yielded two non-parallel cuts. The deviation between the two cuts



was used to determine the per-inch error. Knowing the distance between the two pivot points as well as the per-inch correction needed, the necessary shim thickness could be calculated.



Don started a discussion on how to eradicate gophers. The suggestions ranged from explosives to poisons. It was noted that the old technique of piping the exhaust pipe of a running car engine would no longer be effective because of the dramatically reduced levels of Carbon monoxide in newer cars. Don expressed a desire to ignite an Oxygen/Acetylene mixture in the hole and received encouragement from some members to go this route. We cannot wait for the follow up report.

SCHSM welcomes presentations by members or guest speakers on any subject related to metal working activities. If you have some knowledge or experience you feel may be of interest to our members, or if you know someone that may have something interesting to relate, please consider making a presentation at a meeting. Presentations may be a little longer and more detailed than a show and tell, and may be accompanied by slides, video, or physical displays. Probably every member has some experience they can share, and this is the purpose of SCHSM. Please contact President Doug Walker to make arrangements to give a presentation.

SCHSM met in Classroom AJ115 on the first floor of the Industry and Technology building of El Camino College, 16007 Crenshaw Blvd. Torrance, California, at 2:00 p.m. on the first Saturday of every month until March of this year. Meetings are now held via Zoom. This will continue until at least October of this year.

If you would like to contribute an article to this newsletter, or make a comment, contact the editor, Ron Gerlach. He can be reached via the SCHSM Groups.io Group, or at r7734g@hotmail.com.

Find us on the web at www.schsm.org.