

The Friends of the Pine Creek Grist Mill

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I am very happy to report that the LED lighting project is finally completed. With the installation of LED fixtures in the country store display cabinets the entire mill now has modern and much better lighting. One of the changes we made is that the display cabinet lights are not wired to the first floor light switch. When the lights on the first floor are turned on, the lights in the cases come on as well.

The crew also worked on doors on the display cabinets in an effort to make them mouse tight without the use of tape or steel wool. The hope is that the interpretive staff can now change the displays in the case without having to reseal the case.

Speaking of varmints, my appeal to the park staff for assistance on the bats in the window problem paid off. Gwen Prentice was told that ammonia fumes would drive bats away. Gwen and Jordan soaked rags in liquid ammonia household cleaner and placed the rags in the window(s). The bats soon left and we were left with the messy job of cleaning out the guano the bats left behind.

Next up the damaged shutters had to be repaired to keep the bats from returning. Hank Mann has been working on that problem. One window shutter in the southeast corner of the mill has been rebuilt, next week work will begin on the other warped shutters to make them bat resistant.

Work on the three roller corn mill continues. Our understanding of how the machine functions and how to properly adjust it has increased. While we are not completely where we want to be with this machine, we are certainly a lot closer.

And this brings us to the painful subject of the \$60 nut and bolt and why standards are important. While studying how the fine adjustment of the rollers is accomplished Clarence Klauer discovered that one of the two bolts that set the spacing between the lower roller set had been broken off. This prevented us from making this critical adjustment.

Hank Mann was able to remove the broken bolt by rilling it and using a tool called an "easy out." Normally this process is anything but "easy." Hank did everything right and for once the broken bolt actually came out easily.

This is when things starting going from easy to difficult. We quickly discovered that the bolt was not a standard one. A little history lesson follows: During the First World War the U.S. Government asked Thomas Edison to be their scientific advisor. To everyone's surprise one of his first acts was to form an industrial standards committee (the Society of Automotive Engineers aka SAE) to come up with a mandatory set of standard threads for nuts and bolts.

Up to that time manufacturers could use any pitch of threads they wished on a fastener. This Edison wisely saw would hinder the war effort. From his work resulted the system we have today and that brings us back to our corn mill.

The broken bolt is 1/2" in diameter with 12 threads per inch. The SAE standard is 13 threads per inch! There are no 1/2" X 12 nuts or bolts commercially available. This meant we had to fabricate our own. Amazingly I was able to find a 1/2" X 12 TPI tap on line. With it I would be able to make a nut and then use the nut to test fit the bolt that would have to be threaded on my lathe.

Besides the critical tap, I also needed 12L05 alloy steel rod (it machines cleanly) for the bolt and 3/4" hexagonal steel stock to make the nut. Having the right materials makes any job a lot easier and in this case that is really true. So, \$60 later we have our 1/2" X 12NC nut and bolt ready for the corn mill.

We have also learned a lesson on how the machine's turning shafts are lubricated. I always thought that the oil cups on the shaft's bearings were simply packed with oil soaked rags. Instead they are packed with carefully folded 1/2" diameter round wool felt. One end extends down through a hole in the bearing and is in contact with the revolving shaft. The felt acts as a wick to supply oil to the shaft. Fortunately this special felt is still available (from the same supplier that had the odd ball 1/2" X 12NC tap). We will be replacing the old clogged felt on all of the bearings soon.

Future plans include more work on the corn mill, more shutter repairs and possibly a new "Kids love a crank" exhibit.



At left Tom Hanifan is being interviewed about the Friends restoration of the mill for a segment on KCRG TV's afternoon news program.

At right Clarence Klauer and Dick Stoltenburg are installing the new LED fixtures in the country store display cabinets.



Park Technician Jordan had the not so fun job of cleaning the guano out of the mill window prior to the shutter being repaired.



Above Hank Mann drills out the broken bolt with Clarence assisting. At left Hank is rebuilding a shutter.



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