Following his partial immersion in the garden water butt but having made a good recovery Don Pettican decided to call the 'Mob' together for a spot of work. Between them (there are oniy two in the team) they undertook the task of laying the many slabs that form the walking area of the steaming bays and the result is a joy to behold. No more twisted knees or, at worst, a dislocated hip. To both Don and Derek, thank you.

## BATTERY LOCOMOTIVE

Les Hammond
The appeal at the AGM for a member to keep an eye on the battery locomotive and its many bits and pieces, which fell on deafears, has now been answered by Hugh Plamplin. Hugh will carry out an occasional check on the equipment and batteries and report any problems to the Council, for their attention.

## WORKSHOP TIP

## Hugh Mothersole

The following is probably well known to most people, except me, but I include it in the hope that it helps someone else.
I have always been able to knurl but the knuris have not always picked up cleanly, sometimes perfect straight away sometimes with that irritating double knurl. My usual reaction was to wind on more pressure and that usually worked well although the heat generated as the metal deformed was considerable.

When the knurling tool is presented to the work the effect is the same as two gears meshing and if the circumference of the piece being knurled can be divided exactly by the tooth spacing on the knuri then the pattern should pick up cleanly every time.

As an example my medium knuri has 50 teeth round a $5 / 8^{\prime \prime}$ diameter which gives a tooth spacing of $0.039^{\prime \prime}$. If the work is $1 / 2^{\prime \prime}$ in diameter the circumference is $=1.571^{\prime \prime}$ dividing this by $0.039^{\prime \prime}$ gives 40.28 teeth i.e. as the wheel revolves instead of the tooth dropping in the previous hole it misses it by about 10 thou.. The correct diameter for an easy pickup is $0.497^{\prime \prime}$. The situation is made worse if a 10 thou skim is taken off the diameter as at $0.49^{\prime \prime}$ diameter as the tooth revolves it misses the previous hole by about half the width i.e. nearly 20 thou.
The situation is worse on my coarse knurl of 34 teeth which has a tooth spacing of $0.058^{\prime \prime}$ as if the tooth is half a space out then it misses by 29 thou or nearly $1 / 32^{n}$.

Once | realised this it makes life much easier as | can quickly check the required diameter and skim to suit and my knuring now picks up cleanly (or at least most of the time!)

To work out the diameter required start with the pitch of the knurl and divide that into the circumference of the work to get the number of teeth created in the work. This usually does not give a round figure so take the next whole figure down and multiply by the pitch of the knurl to get an accurate circumference, divide by 3.142 and that gives the work diameter.

Happy knurling!

