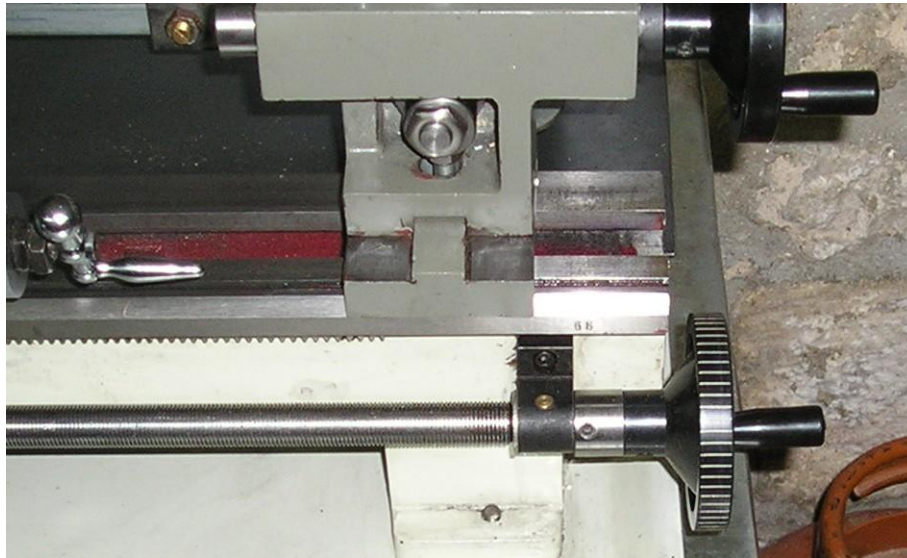


7 x 12 Saddle Fine Feed

By Magic Brian

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A very useful mod to have when you wish to traverse the saddle a measured amount.

Or need a delicate touch not possible with the normal hand wheel.

MATERIALS REQ.

One hand wheel (available as a spare)

50 mm x 8 mm studing

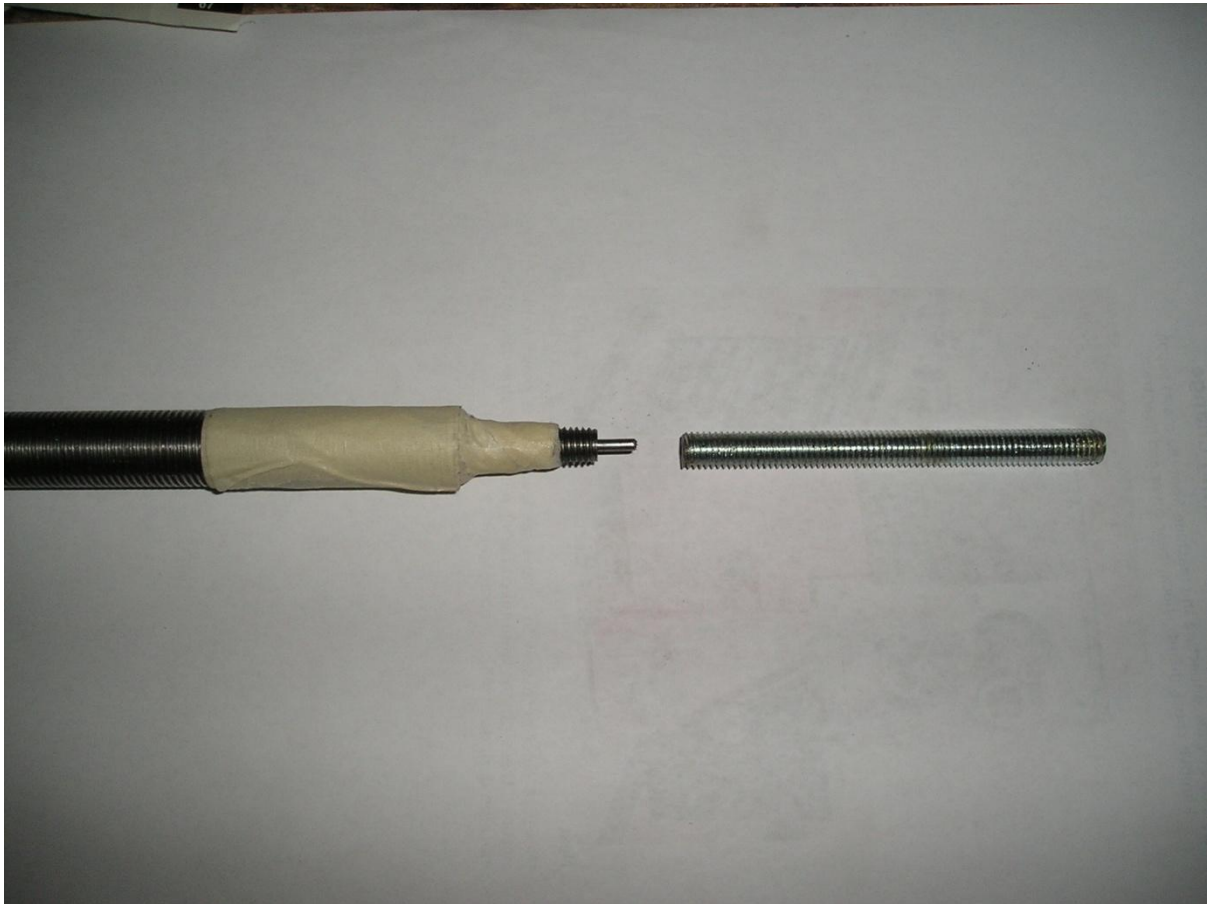
25 mm 25 mm mild steel bar.

This mod was done on a Real Bull version of the 7x12 where the lead screw end float is adjusted by a threaded collar at the end of the lead screw.

Owners of Stieg lathes would have to drill the end of the lead screw and add a length of studding.

First remove the lead screw it is not necessary to remove the left hand bearing just the drive gear and draw it through the open half nuts.

Put the lead screw in the 4 jaw chuck close to end. Then pay attention to the remaining portion protruding from the rear of the head stock this must be well supported in line with the spindle.



Centre drill the end of the shaft and then drill 3 mm to take a mild steel pin (I used a old pop rivet shank) this must be a good fit to ensure accuracy.

Now do the same to the 8 mm studding.

To ensure that the threads line up after welding you must provide a jig to hold them in the correct alignment during welding.

This can be achieved by cutting a 8 mm nut in half to align the threads and hold them as close as possible during welding

It is also necessary to protect the end of the shaft from welding splatter | bound the end of the shaft with masking tape .

MIG weld the thread by tacking with the nut in position remove the nut then tack the other side check for straightness and complete the weld. Don't have a heart attack if the shaft is not perfectly in line it can be straightened by supporting the bearing surface and end of the studding and tapping the studding straight with a plastic hammer.



Gently file the welded section round and run a die down to unite the thread

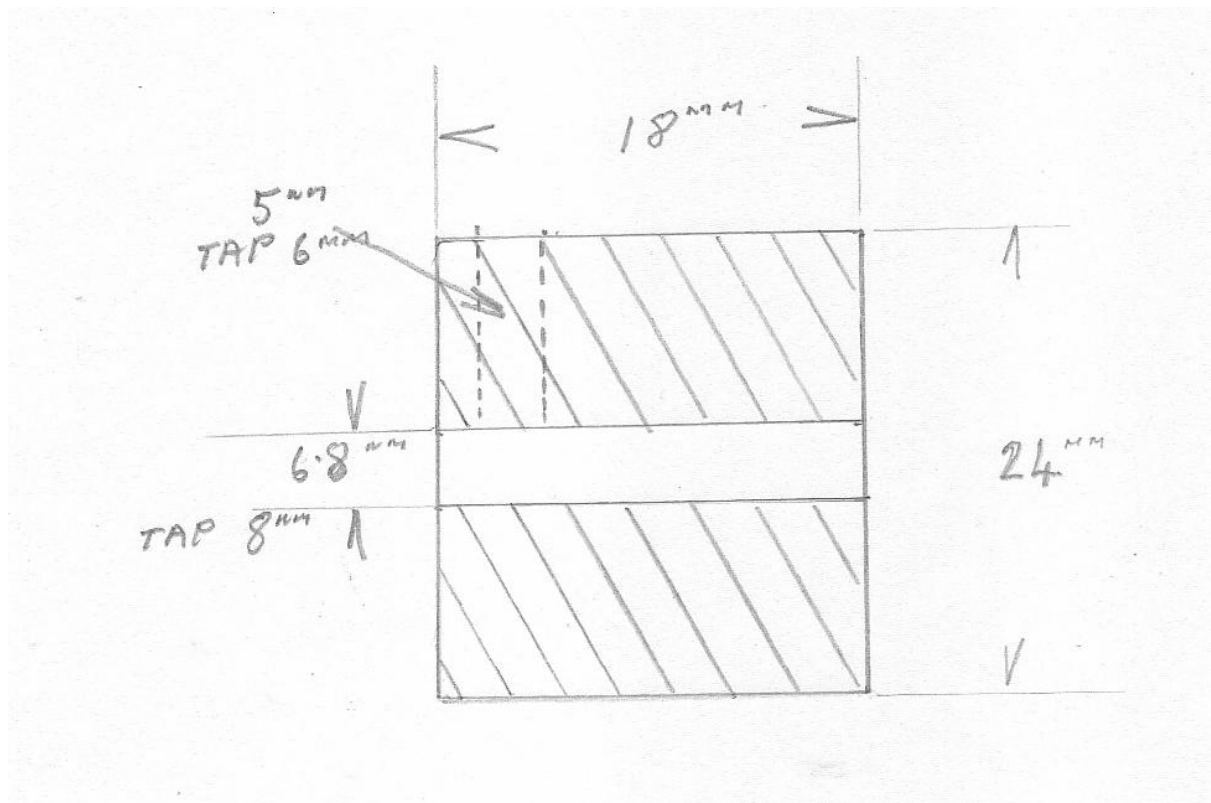
OK start breathing again. Not happy? See appendix for different method.

Spacing collar.

The Spacing collar also acts as the end float adjuster for the lead screw

It is locked in place by a 6 mm grub screw which is positioned so it tightens on the original part of the lead screw. A small brass disc is necessary under the grub screw to stop damage to the thread.

The 24mm diameter was to match the hand wheel, so if you use a different hand wheel change the diameter to match.



Indexing the hand wheel

The metric lead screw has a pitch of 1.5 mm so if we divide the wheel into 60 divisions

It will read the same as the hand wheels on the cross and compound slides.

Turn off the power to the lathe.

Mount the hand wheel on an arbour in the 3 jaw chuck.

Provide some means of indexing the main spindle. In my case I used a Chester HHV150

Dividing head. To get 60 divisions fit the "A" plate and use the 20 hole ring. Divide every one turn and 10 holes.

The marks are cut by a piece of hacksaw blade sharpened and mounted in the tool post.

After dividing fill the marks with white paint.



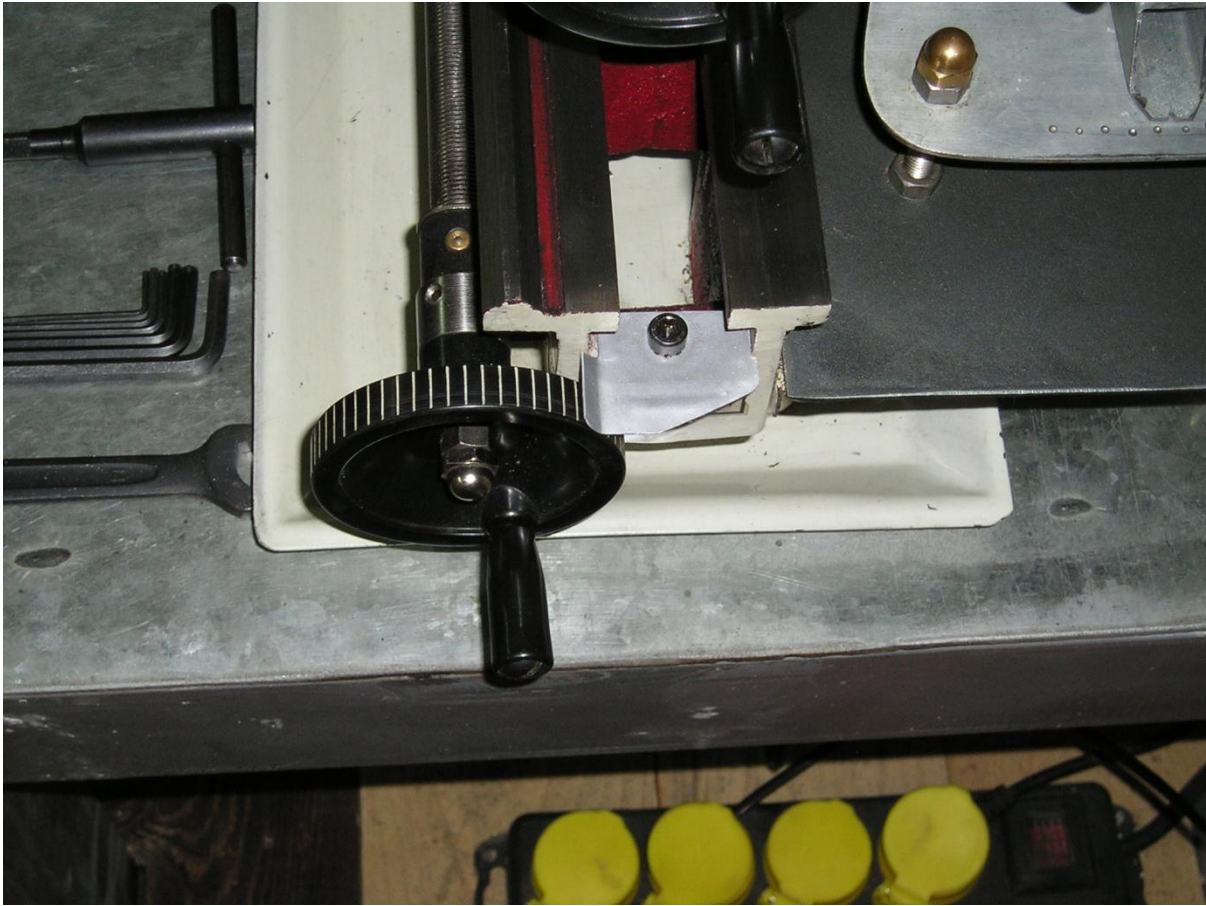
So you don't have a dividing head?? Don't worry dividing can be had by using

The change wheels Take a piece of broom handle turn a spigot to take the 60 tooth gear then taper the other end to fit snugly in the rear of the main spindle.

Provide a simple pointer to index by, and all is OK at no cost.



Reassemble the lead screw on the lathe. Adjust the end float .do NOT put the drive gear back on the lead screw. Test for freedom of operation, you possibly will be able to detect errors of bearing alignment that you never noticed previously. Re align bearings as required.



Provide a plate or pointer to index by, and you are finished.

Note you must disconnect the change wheels when you want to use this facility.

In the future I intend to make a single tooth clutch to do this, but for now just remove the gear.

APPENDIX

Some of you may not be happy with welding the extension but a perfectly good joint can be made by silver soldering. Silver solder looks expensive but the amount used is very small so a little goes a long way. For those new to engineering do not confuse silver solder with soft solder commonly used in electrical joints.

Firstly prepare the components in the same way but start with about 140 mm of studding. Do not tape the end of the lead screw

You will be using the lathe align the components so the more space we have the better.

Turn off the power to the lathe.

As you already have the lead screw off it's an easy job to slide the saddle off the end of the bed and put carefully to one side. Replace the tailstock with its chuck.

Mate the two components with the pin by placing the lead screw in the 3 jaw with approximately 100 mm protruding. Place the studding in the tail stock chuck similarly, Only do up the tailstock nut lightly so any expansion will simply push it back

Ensure the mating surfaces are clean and free from oil.

Put a small amount of Easyflo flux powder in each hole.

Mate with the pin and align the threads using the half nut.

It is necessary to stop the head stock from revolving; a small wooden wedge pushed behind the chuck gives sufficient friction. Remove the plastic safety guard.

Protect the lathe, Empty beer cans, top and bottom cut off and split length wise will clip over the bed. Aluminium cooking foil, 2 layers minimum. over any exposed surface, do not forget the splash back.

Check again with the half nut but do not leave in place.

Coat the joint with flux, Heat with a small propane blowlamp until dull red , touch the joint with the silver solder, it should flash round the joint immediately by capillary action. Turn off the gas.

Go away and have a cup of tea.

When all has cooled down clean up and proceed as before. Trim the studding to length as necessary.

DO NOT FORGET TO REPLACE THE SAFETY GUARD.

