

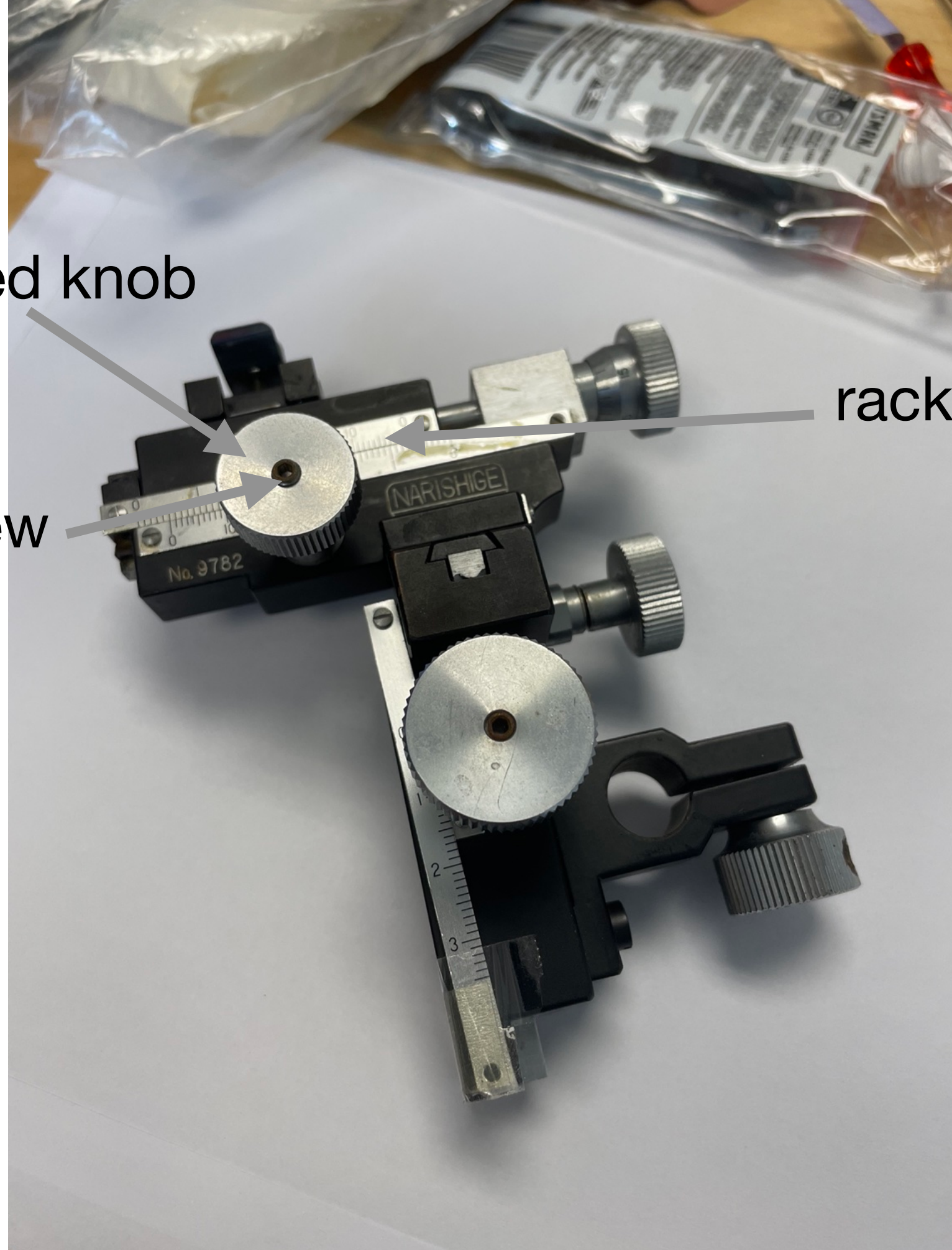
Cleaning the Narishige MM3 micro manipulator

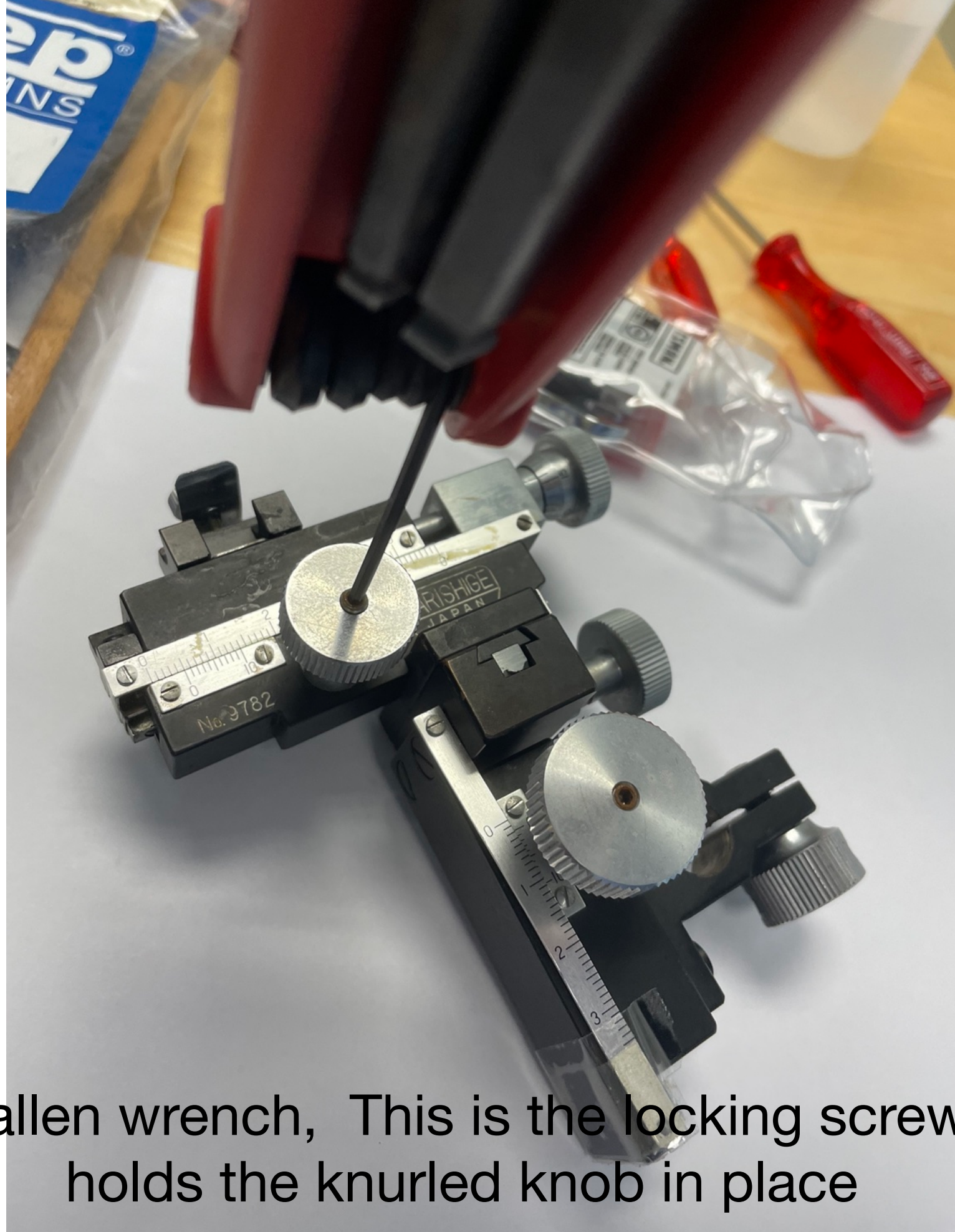
Every few years, it jams up, and you have calluses on
your fingers. Richard Harland

Knurled knob

rack and pinion

set screw

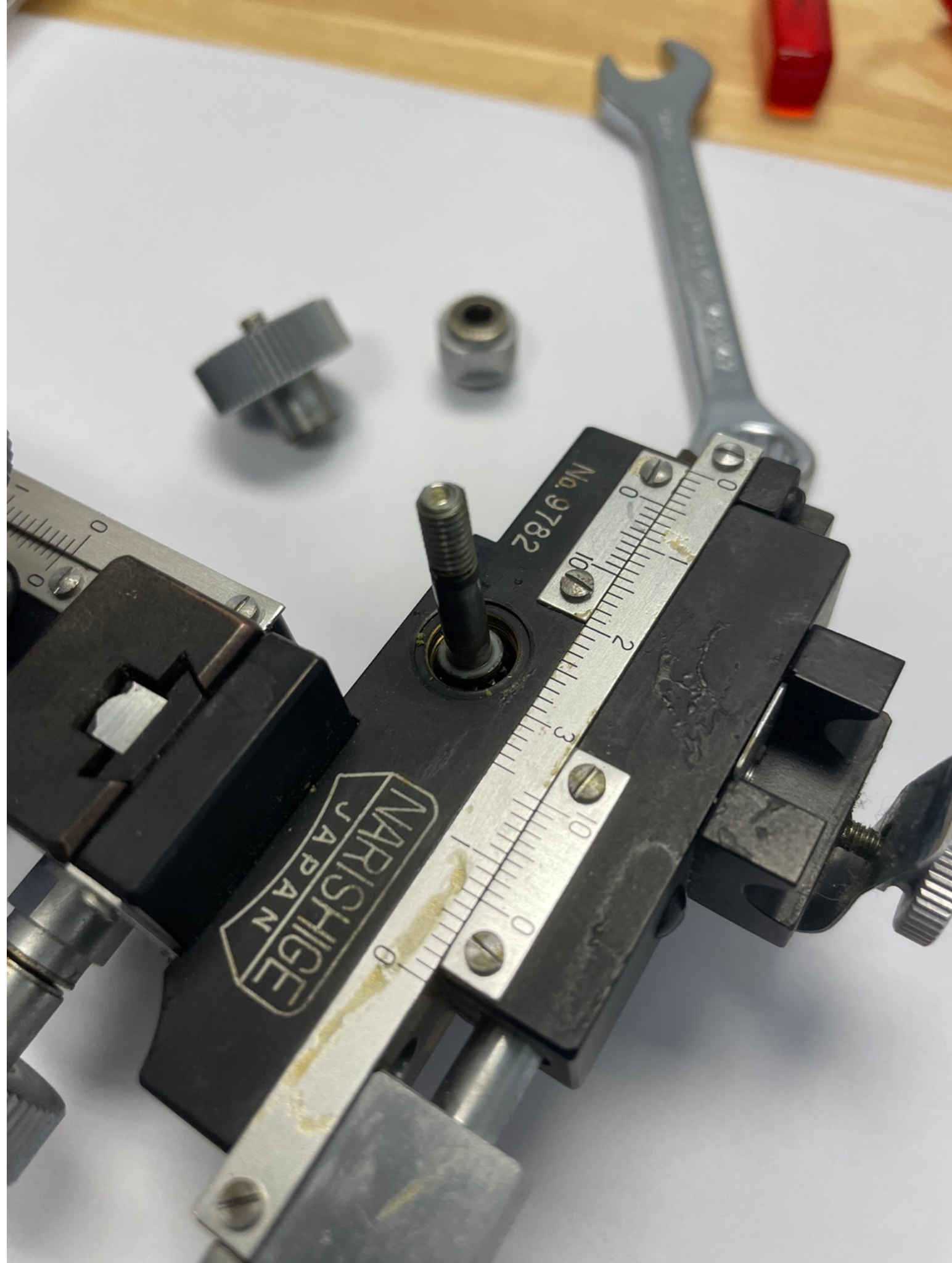




2mm allen wrench, This is the locking screw that holds the knurled knob in place

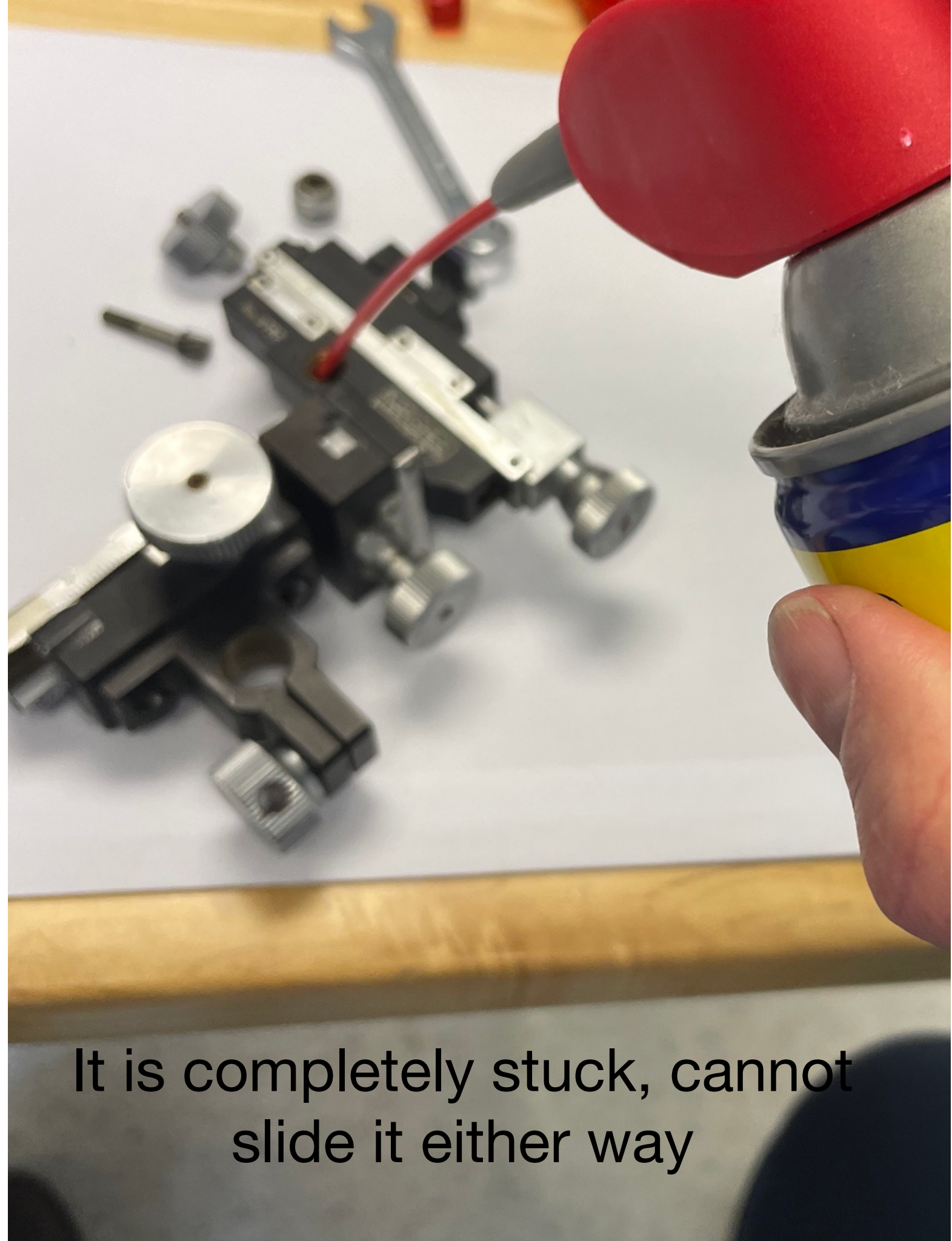




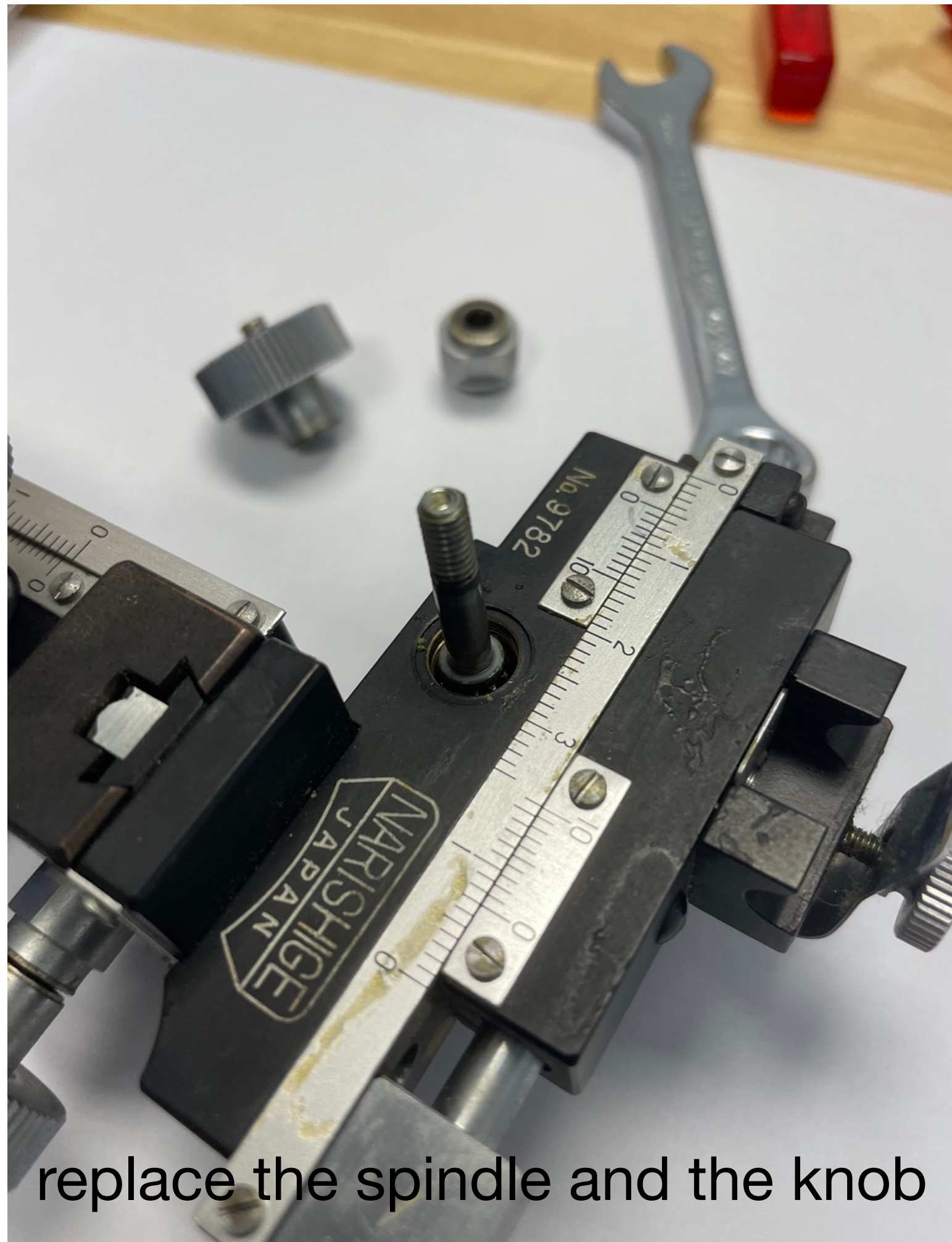


pinion

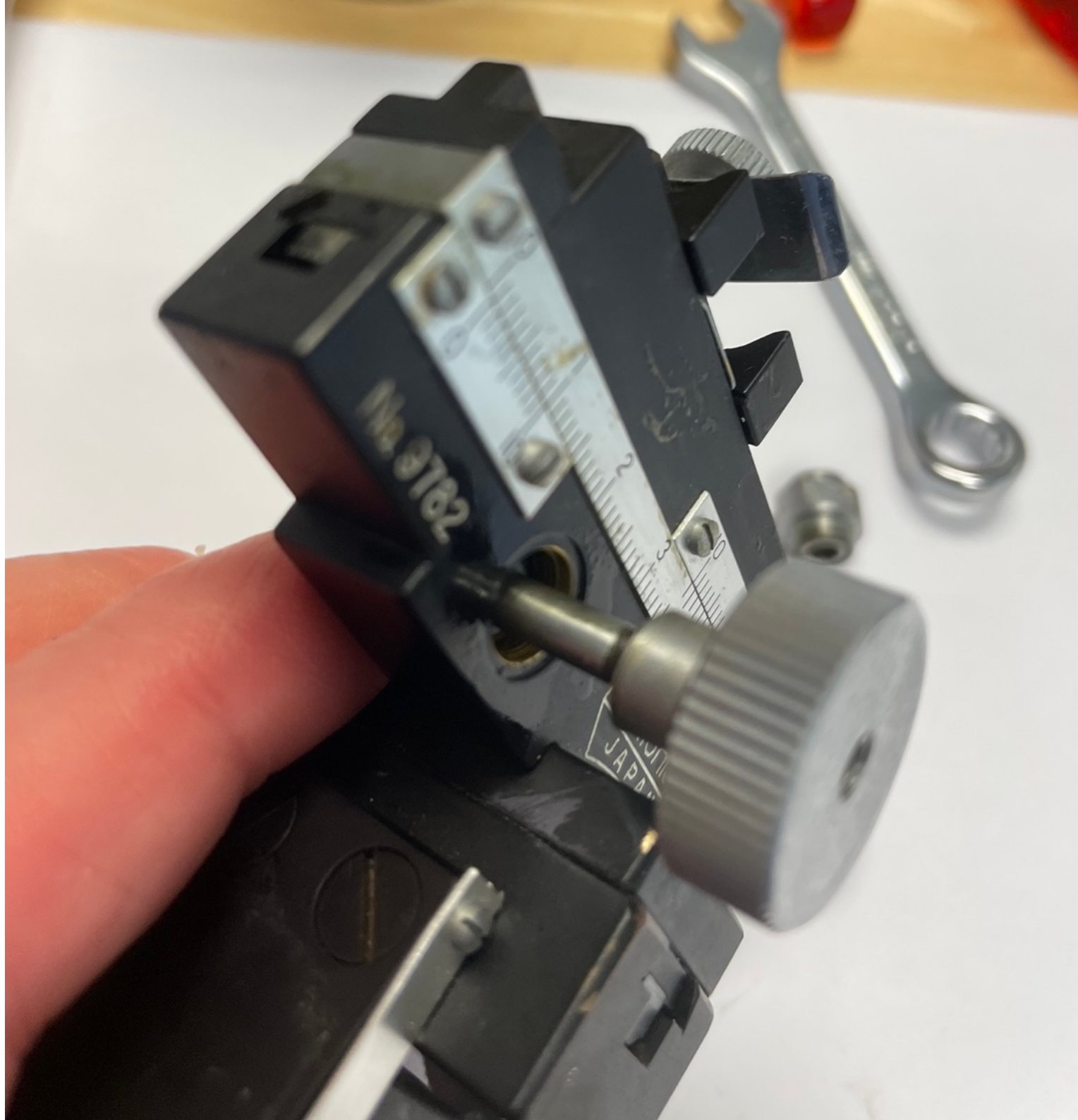




It is completely stuck, cannot
slide it either way



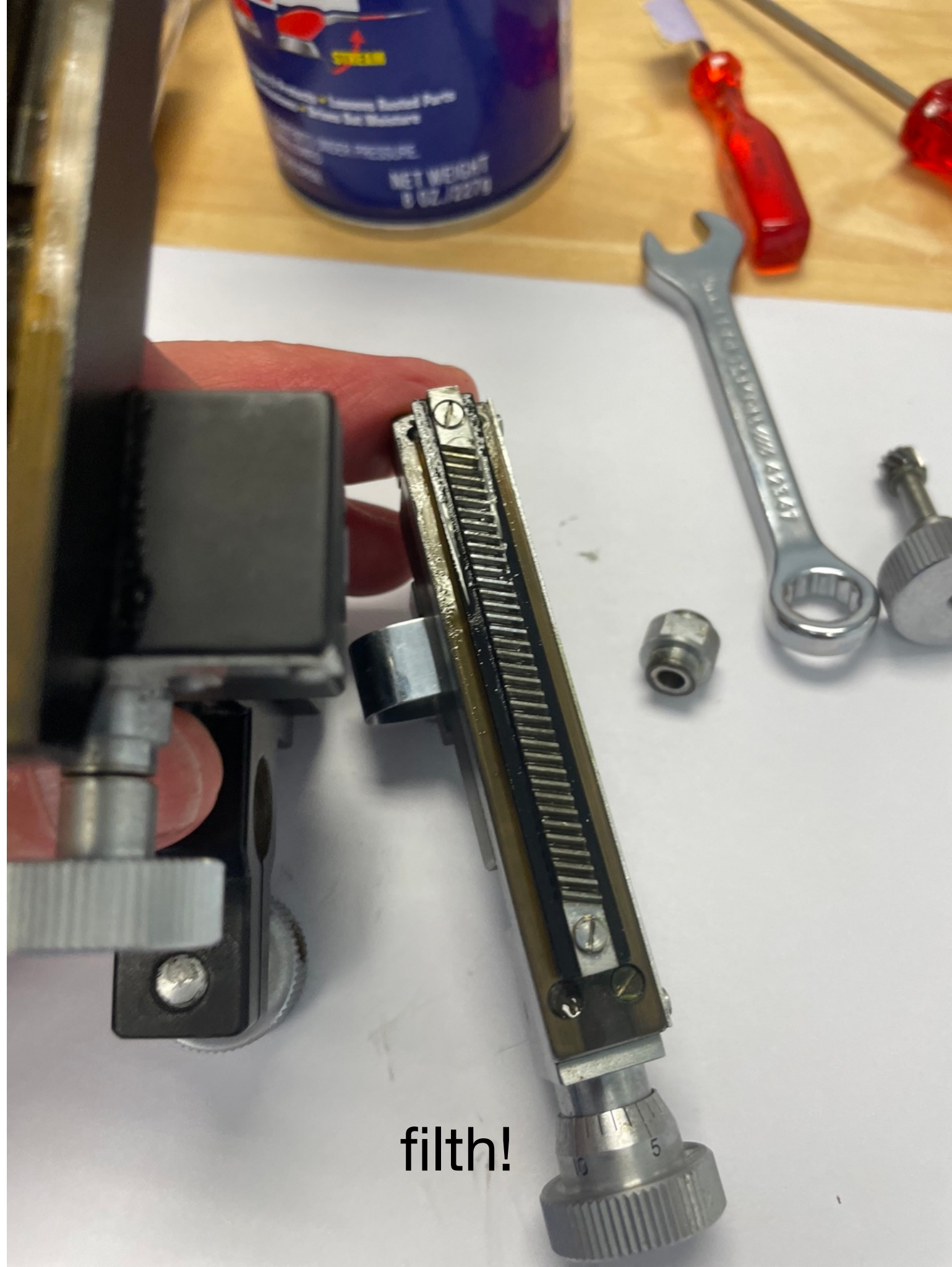
replace the spindle and the knob



Now with the pinion and knob in place, turn the knob (with set screw tightened) to move the rack. If it stays stuck leave penetrating oil overnight



slide the rack all the way out (the pinion usually prevents this)



filth!

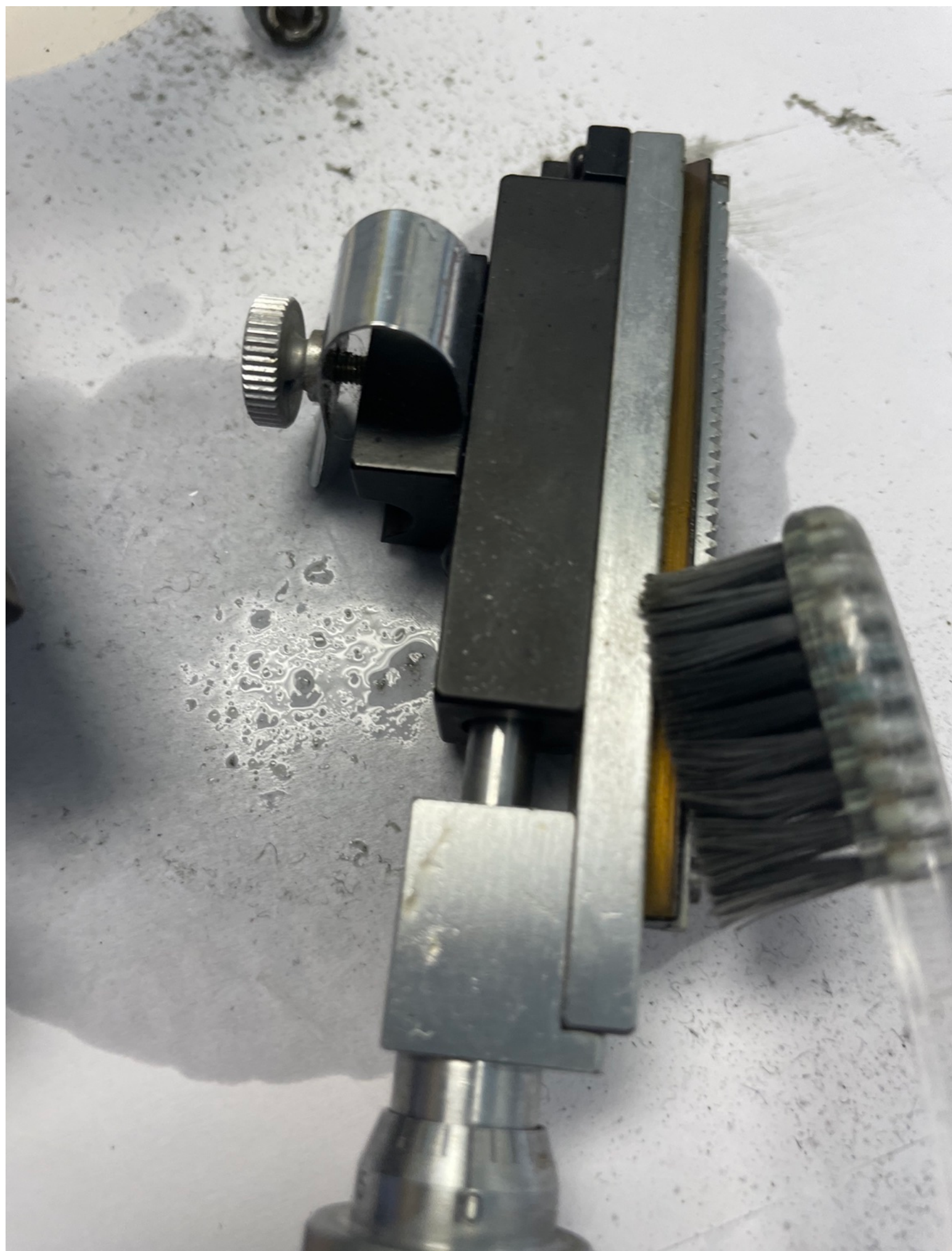
a handy lab cleaning solvent







And clean all the rails





cotton swabs



Don't forget to clean the pinion



Thumbnail and kimwipe



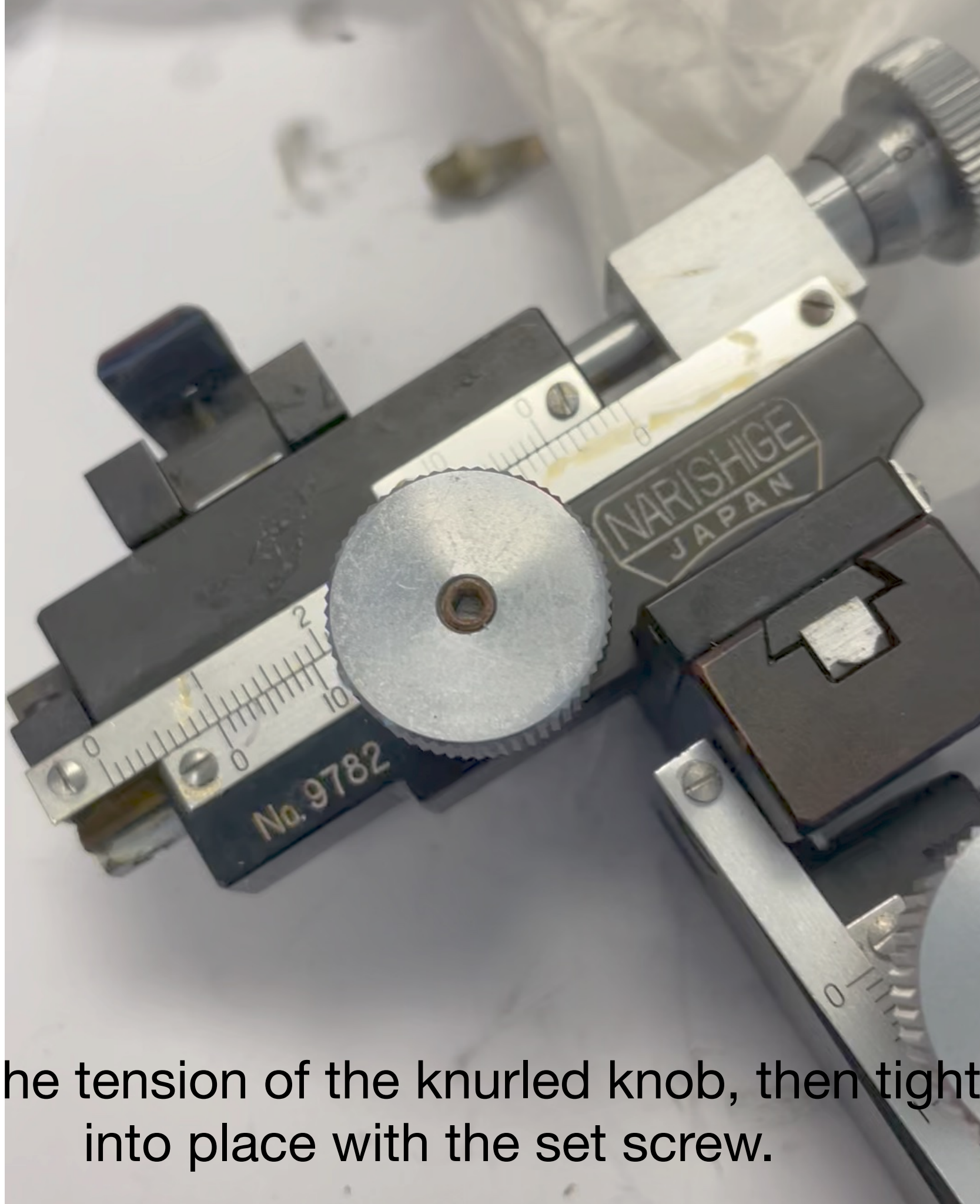
yuck



after clean and wipe dry, apply a dry lubricant
just a drop! wipe off excess



reassemble (not too tight!)



Adjust the tension of the knurled knob, then tighten into place with the set screw.