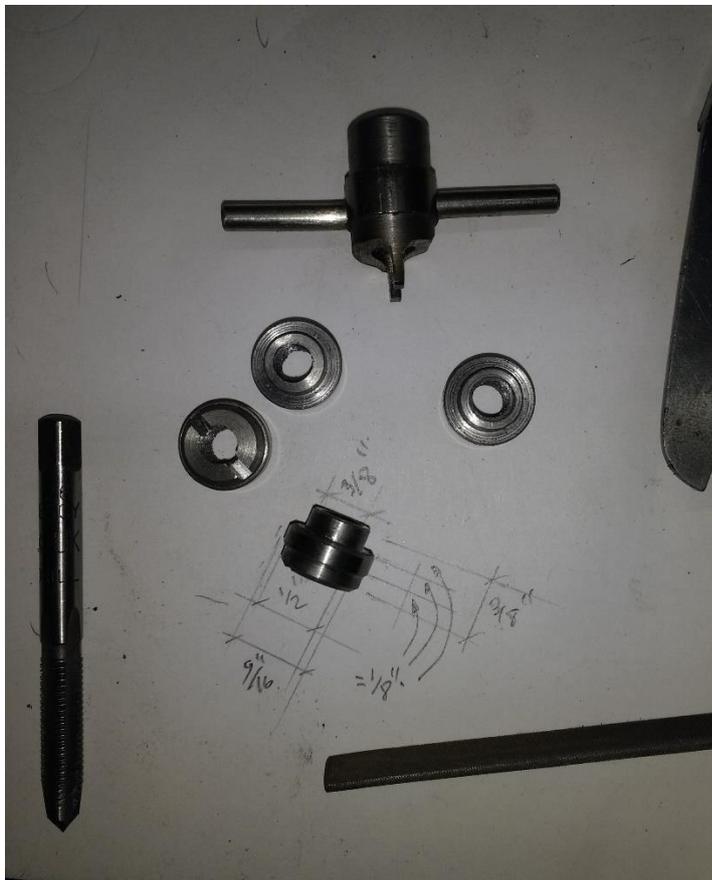


NSD Clutch Springs

Although the clutch was in good order, the spring compressing nuts had gone missing at some time and had been replaced by $\frac{1}{4}$ " nuts and washers which are difficult to assemble (need to compress each spring before the nut can be engaged). The detail doesn't show in my fizzy parts list illustration, so I made up some nuts similar to those I've seen on other bikes.



Starting with $\frac{9}{16}$ " diameter silver steel bar that I picked up at an autojumble for £1, I machined up these nuts, each $\frac{3}{8}$ " long with $\frac{1}{8}$ " sections $\frac{3}{8}$ " diameter (to fit the springs' ID), $\frac{1}{2}$ " dia., and $\frac{9}{16}$ " dia. A little chamfer on the outside and hand cut slots using hacksaw and needle file. While I was at it, I made up a little tool (top of picture) to engage in the slots and drive the nuts.

I thought of heat treating (hardening and tempering) to give a bit more resilience but I really didn't think this necessary. The silver steel would take some hardening but has a Brinell Hardness of 270 HB

At $\frac{1}{4}$ " cycle threads (26 tpi) have the same pitch as BSF but the form is slightly different (60° for BSCy v 55° for BSF). This often doesn't seem to matter and I tend to use BSF taps and dies which are more available. However, the old Triumph clutch studs did not want to take the 55° form, so I recut the threads with a BSCy tap. This was only carbon steel compared with my HSS BSF taps so I feel this is a reasonable compromise – cut with the HSS and finish with the CS. It worked nicely, and I now have nice fitting nuts.

For information, the springs are 30 mm long, $5\frac{1}{2}$ turns at pitch 5.5 mm, 14 mm OD, 10 MM ID, wire diameter 2mm. I quote in mm because this is what the springs seem to be. I don't know if these are correct as I haven't found a source for this data. The clutch didn't slip in operation but did when using the kickstart on a hot engine if the vale lifter was not used. I'll see how it all works when I have it careful reassembled and adjusted. There may be scope for new springs, I'll see.