DRILLING A CENTRE ARBOR

In which a longcase arbor is extended

by Guy Gibbons

Sometimes I don't know how a dealer gets away with supplying a clock embodying a poor repair. Perhaps it is ignorance of the wool being pulled over their eyes by their repairer? Perhaps the dealer does not want to pay for a proper repair, or perhaps the repairer doesn't know any better? Or perhaps it is that the owner doesn't want to pay a fair price, but whatever the reason, such poor workmanship upsets me.

Look at the main image in **figure 1**, which, at best, demonstrates pure hope that the centre seconds pipe could ever remain pushed onto the short extension remaining on the escape wheel arbor. How could the crimped (flattened) end of the tube ever remain in situ when supporting a rotating mass in the shape of the second hand cantilevered out by a full 1½ inches (inset, top left)? In fact the arbor had no extension remaining; it had been broken off and the bit sticking out was actually the forward extension of an overlong bearing surface of the pivot.

The clock was brought in because the rack tail had got mangled up, probably when the hands had been turned backwards against the snail and the safety feature failed to come into action. Re-securing the seconds hand was a secondary job as the owner had done without it for many years.

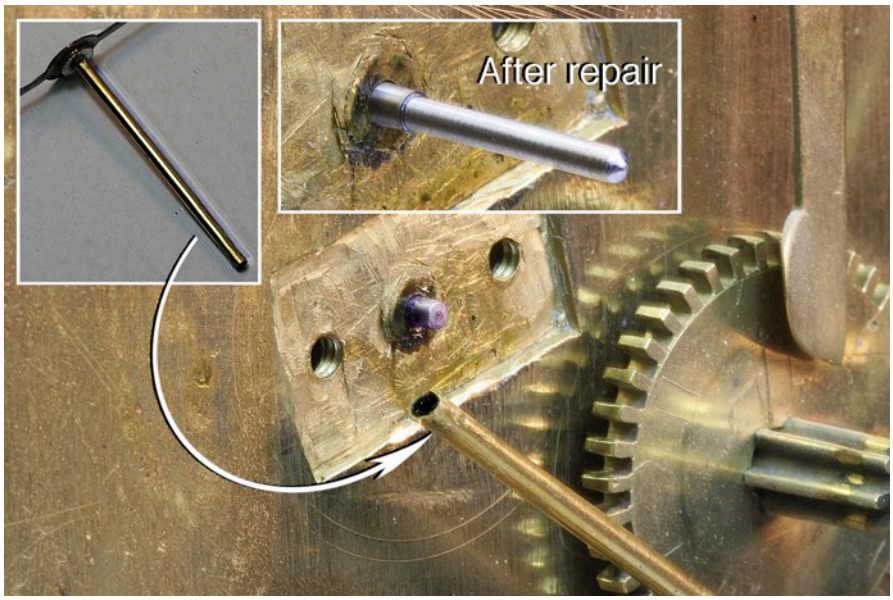

Figure 1. The escape wheel arbor before and after repair. The centre seconds hand and crimped pipe are also shown

Anyway, to me there was only one course of action possible: fit a new arbor extension, which is what I did (inset upper centre). To do this needed the arbor to be centrally drilled, and in this case a relatively large 1.5mm diameter hole was needed. To drill it I used my own design and manufactured sensitive drilling attachment, and the set-up I used is shown in **figure 2**.

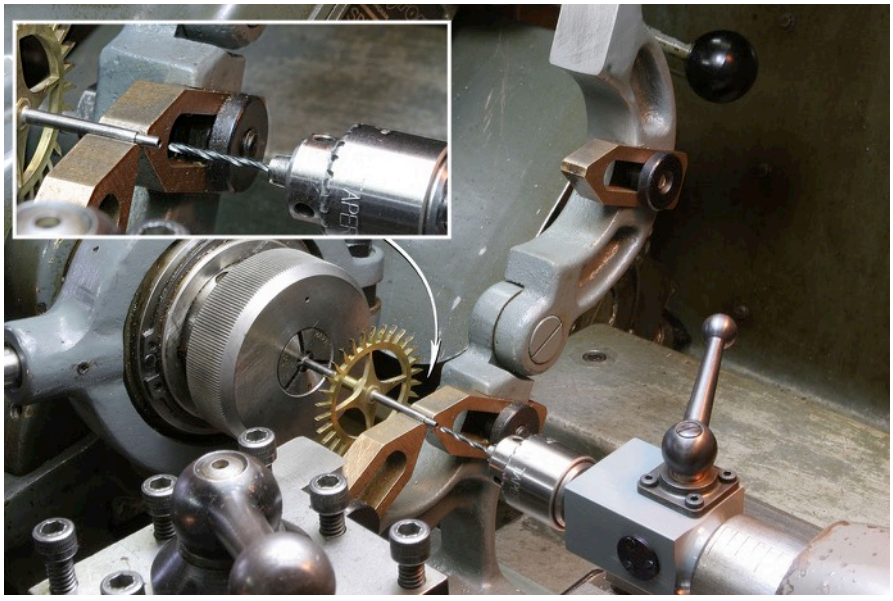

Figure 2. The set-up for drilling the arbor to take the new extension

The 7-tooth pinion was held in a 9/32 inch collet and the other end supported in the lathe steady (the upper arm is lifted for photographic purposes). Ideally the steady would run on the pivot, but I did not want to risk scoring it; anyway, for the purposes of the second hand pipe, any slight eccentricity would be acceptable. The centre was 'caught' in the faced-off end of the arbor with a graver resting on my Geo H Thomas hand turning rest. (Why? Because I had broken my last small (Slocombe) centre drill and replacements had not yet arrived.) Students of horology will know how to catch a centre (which is described in any good watchmaker's lathe text), and it is worth practising the skill – not least because it is quite often more accurate, especially if the centre drill is slightly blunt on one tip (side) or the end of the arbor is not perfectly flat.

As an aside, my sensitive drilling attachment was a great success (**figure 2**, lower right), and I shall be making the design available for constructors in the very near future.