

# ENGLISH LONGCASE

by John Pepper, Biggleswade

---

by **John Robey**, UK

---



Figures 14 and 15. The damaged rack tail.

Figure 16. The straightened rack tail.

Turning now to the movement of the clock signed for John Pepper, the owner reported that although he had only recently inherited the clock there were problems with it not striking. Removing the dial revealed that the rack tail was severely bent and mangled, figures 14 to 15. This is often the result of an owner mistakenly not winding the striking weight in an attempt to silence the clock. It will do this of course, but if the

rack tail is not set up correctly its safety feature may not work properly and either stop the clock or cause damage. The rack

---

## Part 2 of 2

---

tail is deliberately made thin and springy so it will be pushed over the large step of the snail if, for whatever reason, there is

no strike at 12 o'clock.

The tail was gently straightened, figure 16, and checked that there were no cracks to cause problems in the future. It was then adjusted so that the sloping pin at the end just fell on to the steps of the snail and was easily pushed away by the 12 o'clock step. It is difficult to understand how the tail could have been so deeply engaged that it became severely distorted, but it is not an uncommon

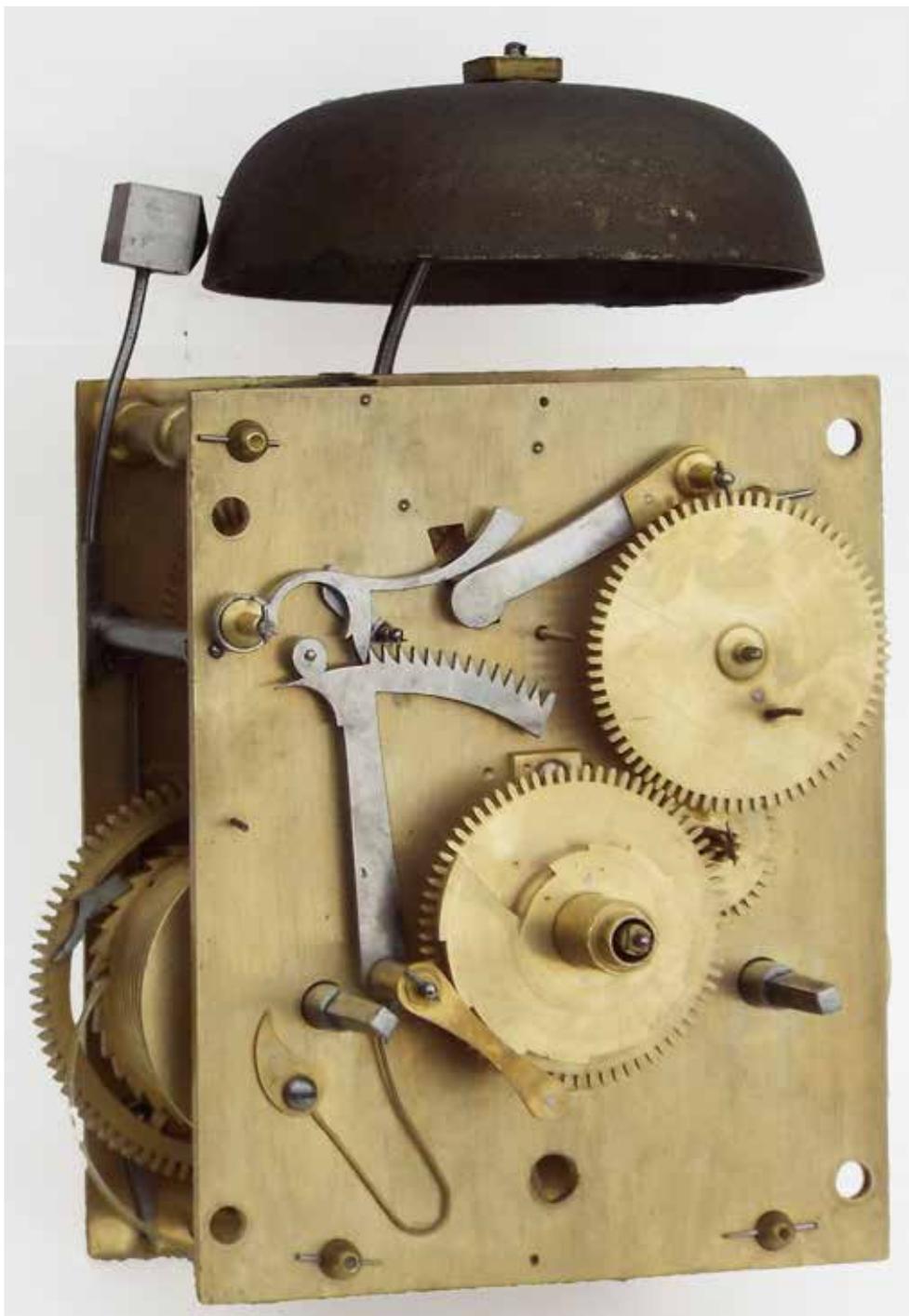


Figure 17. Front of the movement.



Figure 18. Movement with the moon wheel removed.

fault. This was my thinking when restoring the movement, but after several weeks of testing the strike failed. It was found that the brass-wire rack spring had lost its springiness and needed replacing.

The movement, **figures 17 to 19**, is instantly recognisable as a very nice early example made by Samuel Harlow of Ashbourne, Derbyshire. While these movements have conventional rack striking, they have a number of characteristic features, especially the elegant shape of the strikework,

**figure 20**. The rack hook is particularly distinctive, having a graceful curve to the free end, while near the pivot it is in the form of a C on its side. The right-hand end of this C curve combines with the hook to form a subsidiary hook. This has no practical purpose apart from serving as Harlow's 'trademark'.

The locking pin on the rack sits on a small 'island' or peninsula at the left-hand end, which is shaped to a point. The brass lifting piece has a fish-belly shape, while the warning flag is riveted

on to the rear of a rounded left-hand end. This method was used by some London makers, but the usual provincial method was to simply forge the end at right angles. The purpose of the large hole near the bottom of the front plate is not known, but it was probably made later.

The origin of these movements would never have been discovered if Samuel Harlow had not published a 12-page booklet in 1813 called *THE CLOCK-MAKERS' GUIDE*, **figure 21**. It has long been recognised as a valuable source



Figure 19. Movement from the rear.

of information about longcase clock movements and was reprinted in 1978. For some unaccountable reason the numerous engravings were re-drawn, thereby not only losing the character of the original engravings but also introducing inaccuracies, including missing off altogether the vital double hook.

Not only that, there was an introduction that repeated earlier inaccurate history of the firm and made unsubstantiated statements regarding the booklet's

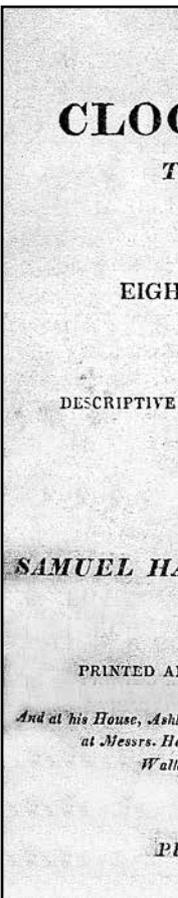
contents. It was claimed that Samuel Harlow's illustrations of eight-day and 30-hour movements and their parts were to standardise movements, so that painted dials would fit without the use of a falseplate. There is actually no such claim, and while there are templates that would assist in fitting dials, it is much more likely that the main purpose of this booklet was as a catalogue of the movements, brass clock castings, iron pinions and other forge-work supplied by the firm. It was also inaccurately claimed

that the parts were interchangeable, which is certainly not the case. While made to a general standard layout, Harlow movements were made in small batches by hand, not mass-produced by machinery.

Harlow's booklet is very rare with only two copies known to have survived, one in the British Library and the other in the Birmingham Central Library. All the original engravings and transcripts of the text can be found in *THE LONGCASE CLOCK REFERENCE BOOK* (2013), as



Figure 20. The characteristic Harlow strikework.



well as examples of the different types of movements that were made, together with information on the history of the business.

Though the strikework is the most characteristic identifier of Harlow movements, there are also other features that were used, though they are not exclusive to Harlow's work. For instance the bridge for the hour wheel has square ends and is set a few degrees anticlockwise from the vertical, while the aperture for the warning flag is a rectangular slot, rather than round as used by many other makers. Some characteristic features are not shown in the Harlow booklet, but invariably occur on Harlow movements. These include the bell stand passing through the back cock and the click springs being set edge-on with two short tabs riveted into holes in the rim of the greatwheels.

Comparison of the movement of the Pepper clock shown in figures 17 to 18 and 20 with Harlow's engraving in figure 22 shows the similarities very clearly. There is the same method of advancing the moon by means of a wheel driven by an hour wheel of identical size and tooth count. The warning detent is shown separately, as is one of the winding clicks

at the bottom, and also the wheel counts of the motionwork. The same design was used until the firm was sold in 1851 to William Davenport, who continued to make movements into the twentieth century.

There were some detailed changes over time, primarily cosmetic, for instance the left-hand end of the rack changed from pointed to rounded, but all the characteristic features can still be recognised, even on relatively late movements. As the firm grew and more people were employed, said the be about 46 by the 1840s, though this is not confirmed, some variations occurred. The rack hook might have a wider end or be more steeply curved, or the warning piece might be straight or have a curved upper or lower edge. This was probably to identify a movement made by any individual worker in case it was returned for any reason.

This raises an interesting question about how the workshop was organised and the division of labour. Presumably the most experienced clockmakers would mark out the position and drill the pivot and other holes using a template or 'calliper plate', fit the wheels on their

arbors, round and depth the wheels and pinions, set up and adjust the escapement and test the movement. The pinions would have been pre-slitted by the pinion maker and some workers would have specialised in slitting the wheel teeth using a wheel-cutting engine. Apprentices would have undertaken some of the preliminary processes, such as filing and scraping the plates smooth and to size, turning the pillar castings, as well as filing the rough strikework forgings to shape. If each master-finisher had his own distinctive shape for the various parts of the strikework, this implies that the apprentice shaping these parts worked closely with the finisher as a team. The brasswork such as plates, pillars, back cock and bridge were not specific to any particular clockmaker so they would be filed up as stock components to be used by those actually assembling the movements. This is, of course, only speculation and there is still much to learn about the clock trade.

Inspection of the movement photographs reveals how well made and finished they are. All the surfaces are flat and smooth without blemishes, and all the ironwork is polished with sharp

**THE  
CLOCK MAKERS' GUIDE**  
TO PRACTICAL CLOCK WORK;  
WITH A STATEMENT OF MOST OF THE ESSENTIAL ARTICLES  
FOR MAKING  
EIGHT-DAY AND THIRTY-HOUR CLOCKS,  
WHICH ARE DISPLAYED IN  
**ELEVEN PLATES,**  
OF THE PROGRESSIVE MODE OF MANUFACTURING THEM;  
WITH DIRECTIONS FOR THE  
**Dial Makers;**  
BY  
**S. HARLOW, Clock Maker, and Clock Brass Founder.**

**Stratford-upon-Avon:**  
AND SOLD BY ORTON AND HAWKES SMITH, 27, NEW-STREET;  
SOLD ALSO BY THE AUTHOR, SUMMER ROW,  
Derbyshire; in London, by Longman and Co. No. 39, Paternoster Row;  
and Messrs. Handley and Moore's, Clock Makers, Clerkenwell Close; and at Messrs.  
Clerkenwell and Son, Tool Shop, No. 49, Red Lion-street, Clerkenwell.

ENTERED AT STATIONERS HALL.

PRICE THREE SHILLINGS AND SIX-PENCE.

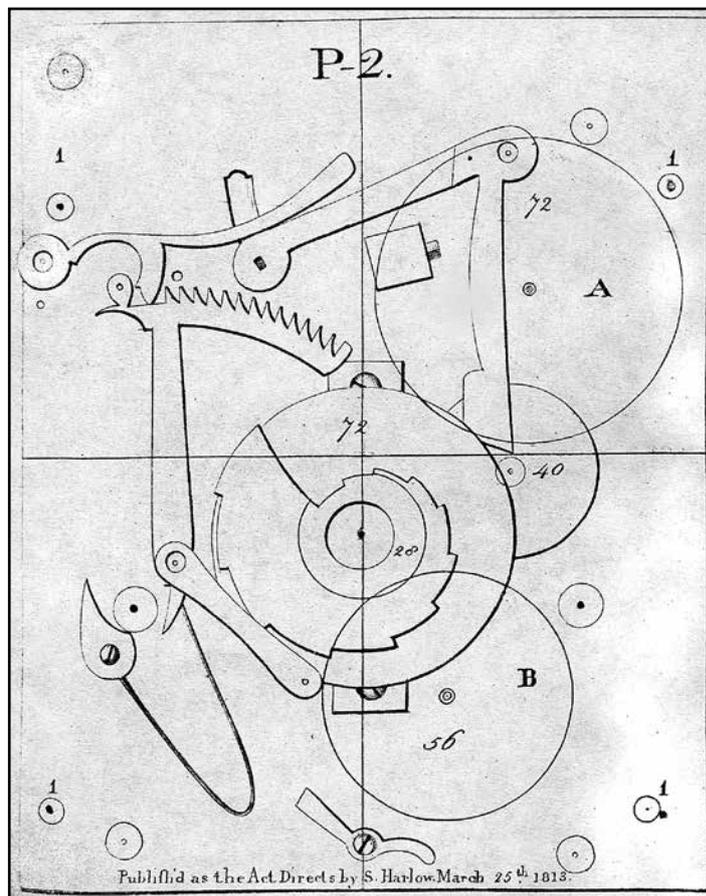


Figure 21. The title page of Samuel Harlow's *THE CLOCK-MAKERS' GUIDE* published in 1813.

Figure 22. The front plate layout of an eight-day longcase clock shown in Harlow's booklet.

edges. The finish is as good as any of the top London makers and much better than an average eighteenth-century London movement or other provincially-made movements. Final polishing would have been done using various grades of rottenstone powder. This is powdered silica, formed from the breakdown of chert nodules that are found in some limestone strata. In the eighteenth and nineteenth centuries it was an important by-product of some of the lead mines near Bakewell in the Derbyshire Peak District, as well as in Wales. It is finer and produces a more glossy polish than pumice.

Finally, and by no means least, are a couple of inscriptions scratched on the front plate. Whenever cleaning a clock, both the movement plates and the rear of the dial should always be examined very closely for marks left by repairers and others. They can often give important historical data, and this clock is no exception. Very faintly scribed on the front plate is 'W Day fecit 1806'. Firstly this gives a positive date for the case, the dial, the hands, and the movement. It is the earliest datable Harlow movement recorded so far, and confirms that this design was being made

seven years before *THE CLOCK-MAKERS' GUIDE* was published. Samuel Harlow's earliest eight-day clocks all seem to have different details to the design shown in his pamphlet, including one that has internal pin countwheel striking. It is thought that he was experimenting with alternatives to determine which type would be more reliable and easier to make, before finally deciding on the type shown here..

W Day is William Day, who was born in Bedford in 1787 and apprenticed in 1799/1800 to John Pepper of Biggleswade for the usual seven years. He subsequently moved back to Bedford, where he was recorded as a watchmaker. As he does not appear in directories he probably worked as a journeyman for other tradesmen. He died in 1846, aged 59.

'Fecit' translates literally as 'made it', but it was widely used by clockmakers who were selling the work of others, in which case it means 'made for', or even used by owners to mean that they commissioned it. In this case William Day had clearly not made the case, dial, or movement, or any other part of the clock. so here it means 'assembled and set it up'. He was almost out of his

apprenticeship in 1806, so he would have been experienced enough to fit the dial and hands on to the movement, and make sure that the calendar and moon advanced correctly, then attach the seatboard and fit it into the case. After adding the weights and pendulum it would be left on test until it was ready to be delivered to the new owner.

The movement front plate also has 'JP 27/3/44', which is probably 1844, but the initials are not certain as they are scrolled together and not easy to decipher. The rear plate has 'T Selby Nov 78', which is probably 1878, but I have not managed to identify him or where he worked.

This is a splendid example of a clock where the dial manufacturer, the movement maker, the apprentice who put it all together and the retailer are known, as well as when this was done. The only other major piece missing from the jigsaw is the maker of the case, who probably worked in Clerkenwell, London, which was the location of several makers of longcases of this design. It now lives just a couple of miles from where the movement was made, to be appreciated and enjoyed by another generation of owners. 🏠