A TRIO OF FRENC

2. Saved from

PART 2 of 3

Continuing the theme of all-iron French clocks, **figure 1** shows an interesting example made somewhere in rural France, probably about 1680-90. This date, like that of nearly all unsigned country-made Continental clocks, is mostly guesswork, though it is certainly fairly early and probably not later than the first decade of the eighteenth century. Which region of France is also uncertain, but later brass-dial clocks from Lower Normandy often have a similar star pattern engraved in the centre of a dial, which might indicate its origin. The distinctive shape of the bell is also found on some early French Gothic clocks, and as discussed later, this clock was definitely in France during the upheaval of the Revolution.

The unrestored painted dial is 6¼in (160mm) tall by 5in (130mm) wide with the chapter ring 6¼in (160mm) diameter and extending beyond the basic rectangle. The total height, including the bell, is 13½in (340mm). The only decoration on the dial is a six-pointed star in the centre and there are small dots marking the half hours. It is fixed to the movement in a similar, but not identical, manner to English lantern clocks. Two tabs riveted to the lower edge fit behind the lower frame while a little tab at the top sits in the slot for the front movement bar and is held by a small wedge. This is a western method of securing dials and further east in the Germanic countries both iron and brass dials are normally held with screws. The superb original single hand, **figures 2** and **3**, is decoratively shaped and tapers from the thick central boss to the tips. Both ends have a stylised fleu-de-lis shape.

There are no front or side frets, side doors, rear cover, hoop or spikes. It either sat on a wooden wall bracket or was housed in a simple hooded case, or even in a primitive longcase.

The movement, **figures 4** to **7**, is made completely of iron, including the wheels, apart from the brass countwheel, which is probably a replacement, and the wooden centres of the winding pulleys. The posted

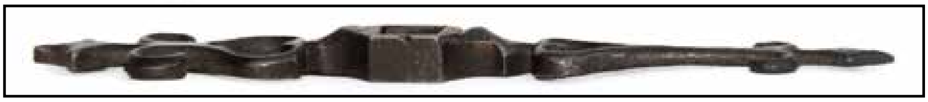
Figure 1. French iron clock with a painted dial and a Gothic bell.

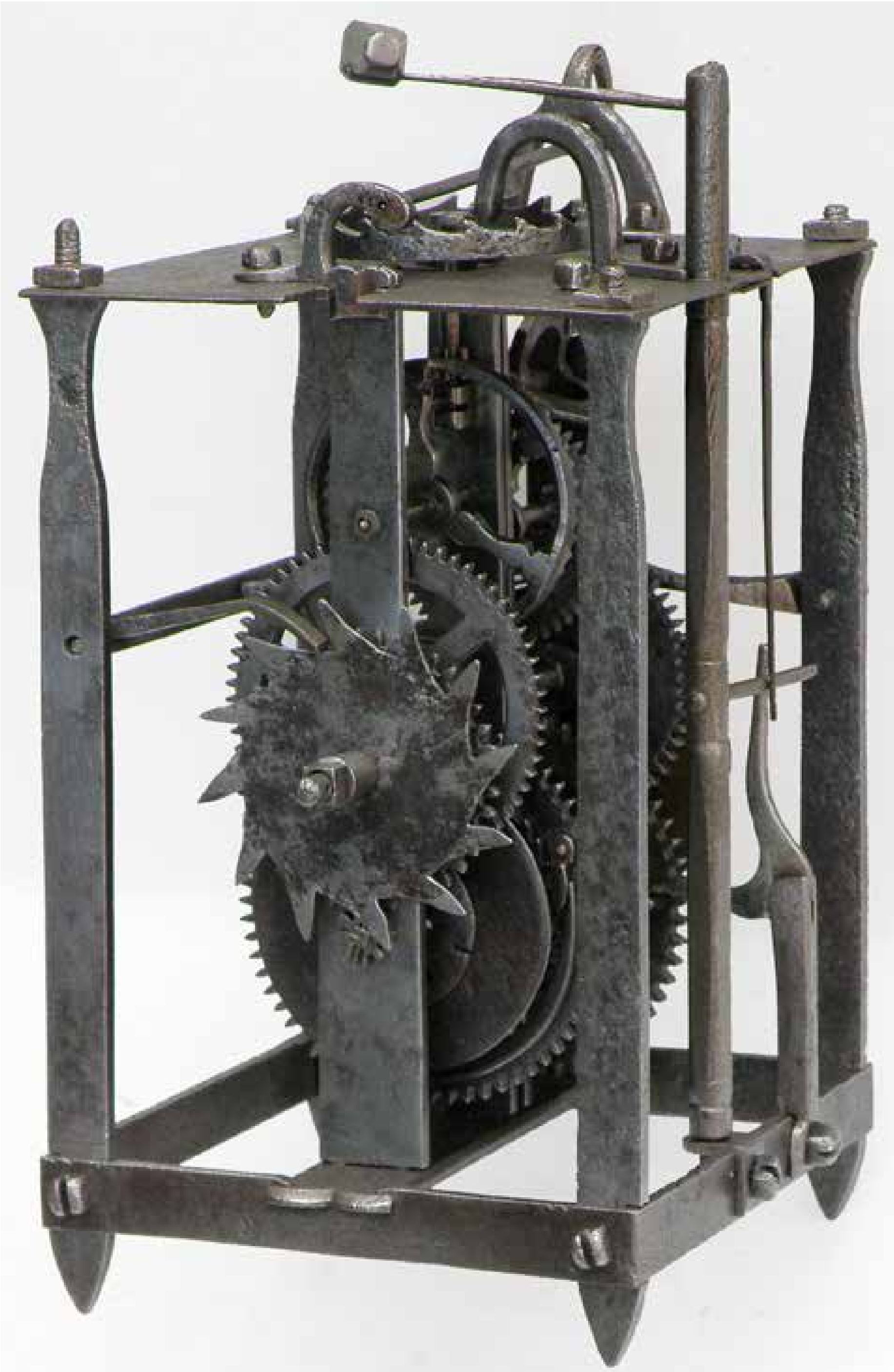
Figures 2 and 3 (opposite, top and centre). The decorative single hand tapers in thickness.

Figure 4 (opposite, main picture). Front view showing the ratch in front of the hour wheel and the vertical hammer.

CH IRON CLOCKS
the Revolution

by John Robey, UK





frame has an open lower sub-frame with a horizontal bar from front to back to support the movement bars, and a top plate. This has some similarities to earlier French and Flemish Gothic clocks. While Germanic Gothic clocks have open frames at both the bottom and the top, French and Flemish ones have a plate at the top. While the method of holding together the frames of Gothic clocks is quite different to this clock, it does indicate a continuing tradition of making iron clocks by a clockmaker skilled in forging iron, but not a village blacksmith making the occasional clock, as is sometimes suggested.

Notches in the corner posts fit over the sides of the lower frame with screws holding them firmly together, while the top plate is fixed with screwed nuts. The flat corner posts are shaped towards the top and extend at the bottom to form short pointed feet. The front and rear movement bars do not have cross arms for the strikework arbor, instead it pivots between the left-hand pillars. The movement bars are fixed in the western manner as found on English lantern and 30-hour posted-frame clocks, and is another divergence from Germanic practice. These differences have been discussed in a recent article in the September 2015 issue of *Clocks*.

Very unusually there are four movement bars, with each wheel train pivoting between its own pair of bars instead of sharing the middle one. The central two bars are close together with not enough space between them for a pendulum to swing. Some early seventeenth-century London-made turret clocks, such as the Dover Castle clock now in the Science Museum, London, as well as some French Gothic and turret clocks, have the countwheel rotating between two central bars, but this is not the case here. This extra bar seems to be an unnecessary expense in time and materials, though each central bar could be re-bushed without disturbing the other train. But if that needed doing surely the whole movement would be ready for a complete strip down. There are some

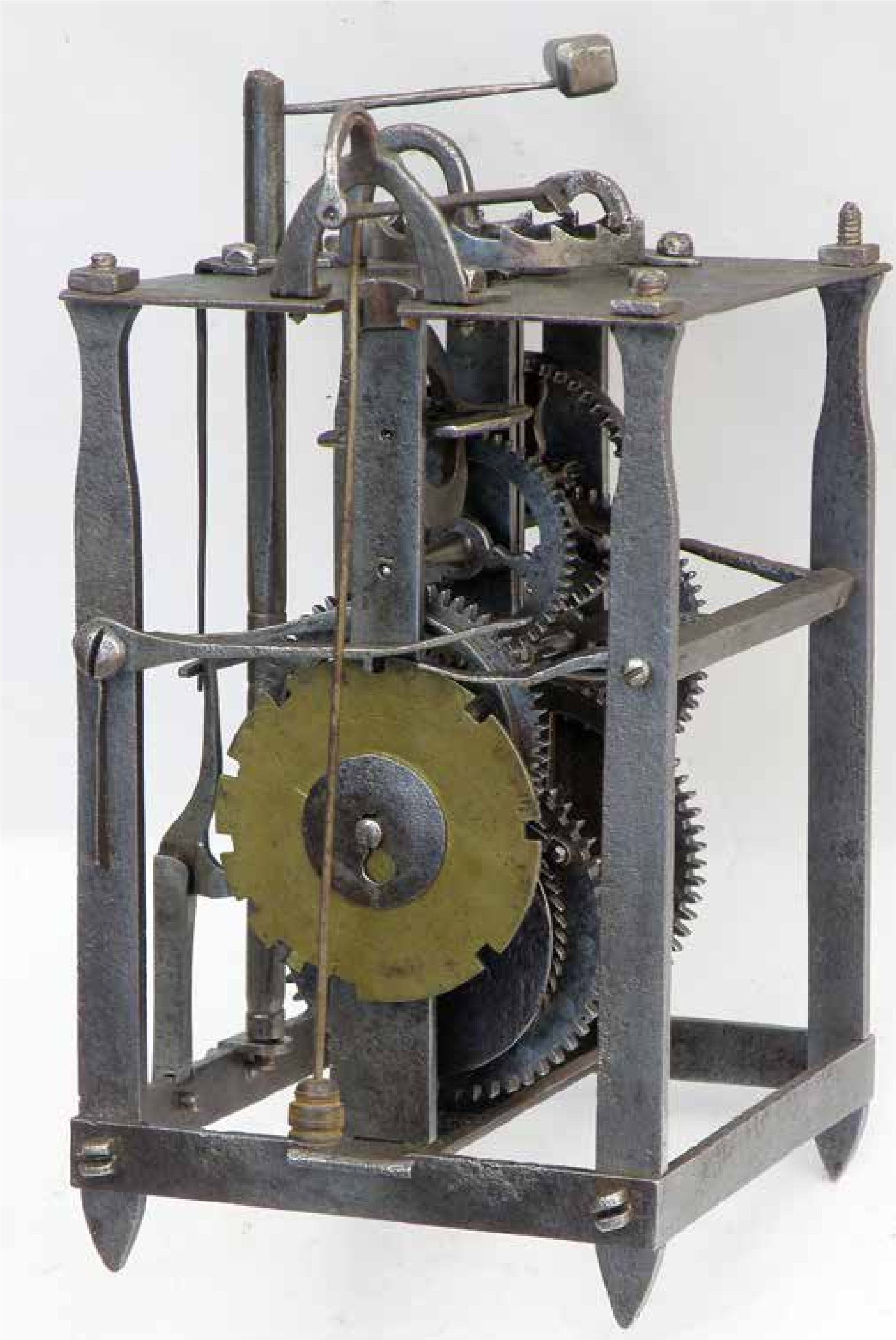


Figure 5. Rear view shows the later countwheel and its detent pivoting on the pillar.

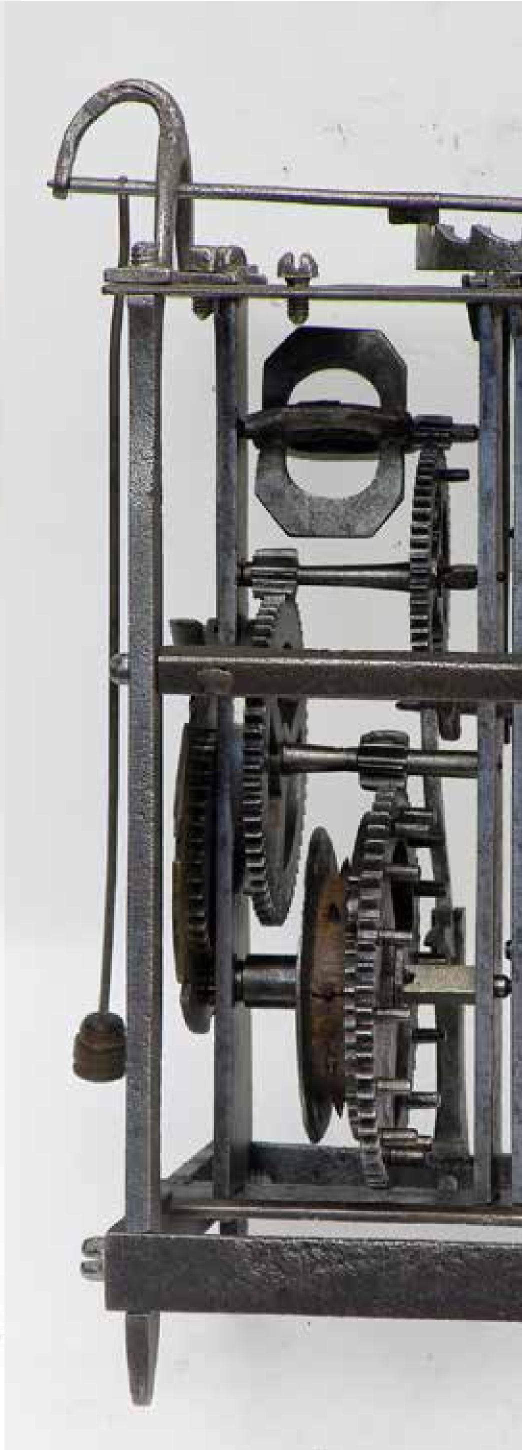


Figure 6. Left-hand side. Note the four-vaned fly and the square arbors of both greatwheels.

brass bushes but these are almost certainly later repairs and originally the pivots would have run directly in the iron bars.

There is a verge escapement so the going train, **figure 8**, has four wheels instead of the three found in 30-hour clocks with an anchor escapement. All the wheels in both trains have just three crossings, which are forged on to the separate rims. This can be seen on the second wheel of the going train and in the close-up of the contrate wheel. The crossings of both the contrate and the crown wheels are decoratively shaped, **figure 9**. The greatwheel has a separate click engaging with ratchet teeth cut round the edge of the inner cheek of the pulley, not the brutal spring click acting on the crossings that is found on English clocks. There is a separate pinion on the arbor of the greatwheel, not a pinion-of-report filed from the arbor.

Most of the wheels of both trains have dots punched on to the tips of the teeth, showing that they were marked out using a dividing plate and then slit and filed by hand, rather than being cut on a wheel-cutting engine, which is only suitable for brass wheels. The counts of the going train are:

crownwheel	17 — 6
contrate wheel	48 — 6
second wheel	64 — 8
greatwheel	64 — 8
hour wheel	40

This gives a beat of about 0.36 seconds and a theoretical pendulum length of 5¼in (130mm).

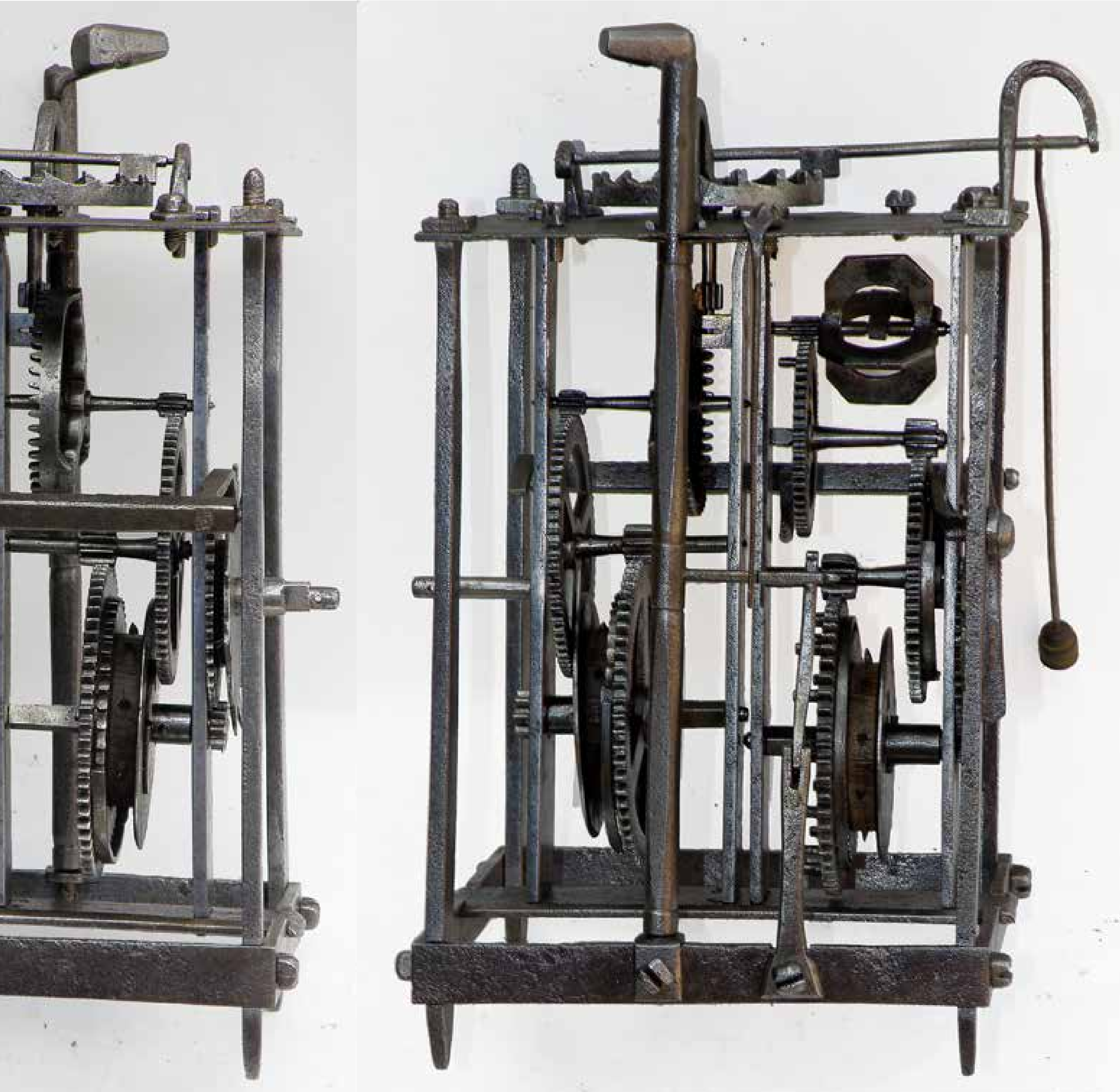


Figure 7. Right-hand side showing the vertical hammer, hammer tail and spring.

One very unusual feature is the way the hand is set to indicate the correct time. On most single-handed clocks the starwheel, also known as the ratch, for letting off the strike is firmly fixed to the hand arbor. The hour wheel sits over the arbor and is held friction tight by a flat spring that either slips into slots in the arbor or is sometimes held with a cross pin. Here there is a ratchet of 56 teeth riveted to the starwheel and a click on the hour wheel, **figure 12**, so the starwheel sits in front of the hour wheel. A starwheel at the front is sometimes seen on Continental clocks, but the English tradition is to position the starwheel at the rear with the hour wheel and friction spring in front. It should be noted that on single-handed clocks with iron dials a hollow hand arbor usually sits on a post, while with English brass dials a solid hand arbor pivots between the movement and the dial itself. The ratchet means that the hand can only be advanced in steps of just more than one minute, but that is no real disadvantage for a single-handed clock. An added advantage is that the hand cannot be moved backwards. The only other similar arrangement that I know of is used to set the alarm hand on the iron timepiece described in *Clocks* October 2014, pp17-22.

The short pendulum of the verge escapement, **figure 10**, swings at the rear, emphasising that the cowtail pendulum that was popular in Germany is not found on French clocks, although there is always the possibility of an exception. The verge pivots between a small curved iron cock at the front and a bridge at the rear, **figure 11**. This is

Figure 8. The going train with a separate pinion of report.

quite different to the arrangement found on Germanic clocks as exemplified by the one shown in the September 2015 issue of *Clocks*. The rear end of the verge has a conventional pivot, as usually found on Continental clocks, not a knife-edge suspension. The knife-edge is a specifically English

Figure 9. The decorative crossings on the contrate wheel (left) and the crownwheel (right).

method (though it is known on a few French lantern clocks) designed to take a heavier pendulum bob which would cause too much friction with a conventional pivot.

The striking train is shown in **figure 14** and like the going train there is a separate pinion on the greatwheel, while the crossings of the third wheel are decoratively shaped. The fly has four forged vanes and since the countwheel is the only brass component in the clock its originality is open to doubt, though it certainly looks old. The greatwheels of both trains and the hoop wheel (which has two locking slots) are squared on to their arbors and held with taper pins, while all the others are riveted. Both greatwheels turn in the same direction, yet both have clicks. Was the intention to have the option of running the clock with separate weights or a single weight on the Huygens' loop principle as the owner preferred? This arrangement is known on a number of other French posted-frame clocks. Both spiked pulleys have wooden centres.

The counts of the striking train are:

fly	6
warn wheel	58 — 8
hoop wheel	60 — 8
greatwheel	56 — 7
(14 hammer pins)	
countwheel	39

There is the two-arbor warned striking system, not the single-arbor nag's head method used on the much earlier clock in Part 1 and further east in the Germanic countries. The strike-work is unconventional: one arbor pivots between the left-hand pillars and carries the lifting piece, warning

Figure 10. Top of the movement showing the escapement with a large crownwheel and the verge pivoted in a cock and a bridge.

detent and a link piece, **figure 13**. The countwheel and locking detents pivot on a shouldered screw in the rear right-hand pillar with an extension that is lifted by the link on the other arbor. The hammer is the swivelling type, popular on Continental clocks, but rarely seen on British ones. The vertical shaft pivots in a hole in the top plate and in an L-bracket screwed to the lower frame, the hammer head striking the inside of the bell. The separate hammer tail pivots on a vertical arm, also screwed to the frame.

Then we come to the most prominent feature of this clock: the bell, **figure 15**, which, instead of the usual dome shape, has the profile of a church bell, which is also the shape used for musical hand bells. Having visited the Klok & Peel Museum at Asten in the southern Netherlands a couple of years ago, on a tour organised by the Antiquarian Horological Society, I thought that they might know if there is a special term for this shape. Indeed there is—the museum's curator informed me that it is called a Gothic bell. While a bell museum seems rather specialist it is actually very interesting and well worth a visit if you are in the area. It has quite a number of turret clocks, including some early ones and an enormous one with a carillon.

This bell had originally been of the lugged type with a lug or tongue at the top which passed through a slot in the two-armed bell strap and would have been held by a cross pin. The lug had broken off and had been replaced by a brass block and a screw thread. Close inspection showed that as well as the decorative rings round the bottom there were three areas where cast decoration has been almost filed away. Even closer inspection showed that while one had been completely obliterated the shape of a fleur-de-lis could be distinguished on the other two. Photography proved difficult, but careful outlining of the remaining pattern shows the original design.

The fleur-de-lis has been the symbol of the French royal family since medieval times. However, during the Reign of Terror of the French Revolution any connection or sign of support for royalty or the aristocracy would get you into a great deal of trouble with the revolutionaries. Hence symbols such as the fleur-de-lis were hastily removed from public view. Displaying the royal symbol was not only inadvisable in Paris and the other cities and large towns, but the fleur-de-lis was hated even more in the countryside. The revolutionaries were especially strong in those areas where the population had been

Figure 11. The pendulum and verge pallets, the cocks for the pivots at the top of the crownwheel and the front of the verge and the bridge for the rear verge pivot.

Figure 12 (inset). Hand setting is by a fine-toothed wheel riveted behind the ratch and a click on the hour wheel.

Figure 13. The strikework (left to right): arbor with lifting piece, warning detent and link; countwheel and locking detents; hammer tail on a vertical support; hammer spring; vertical hammer shaft.

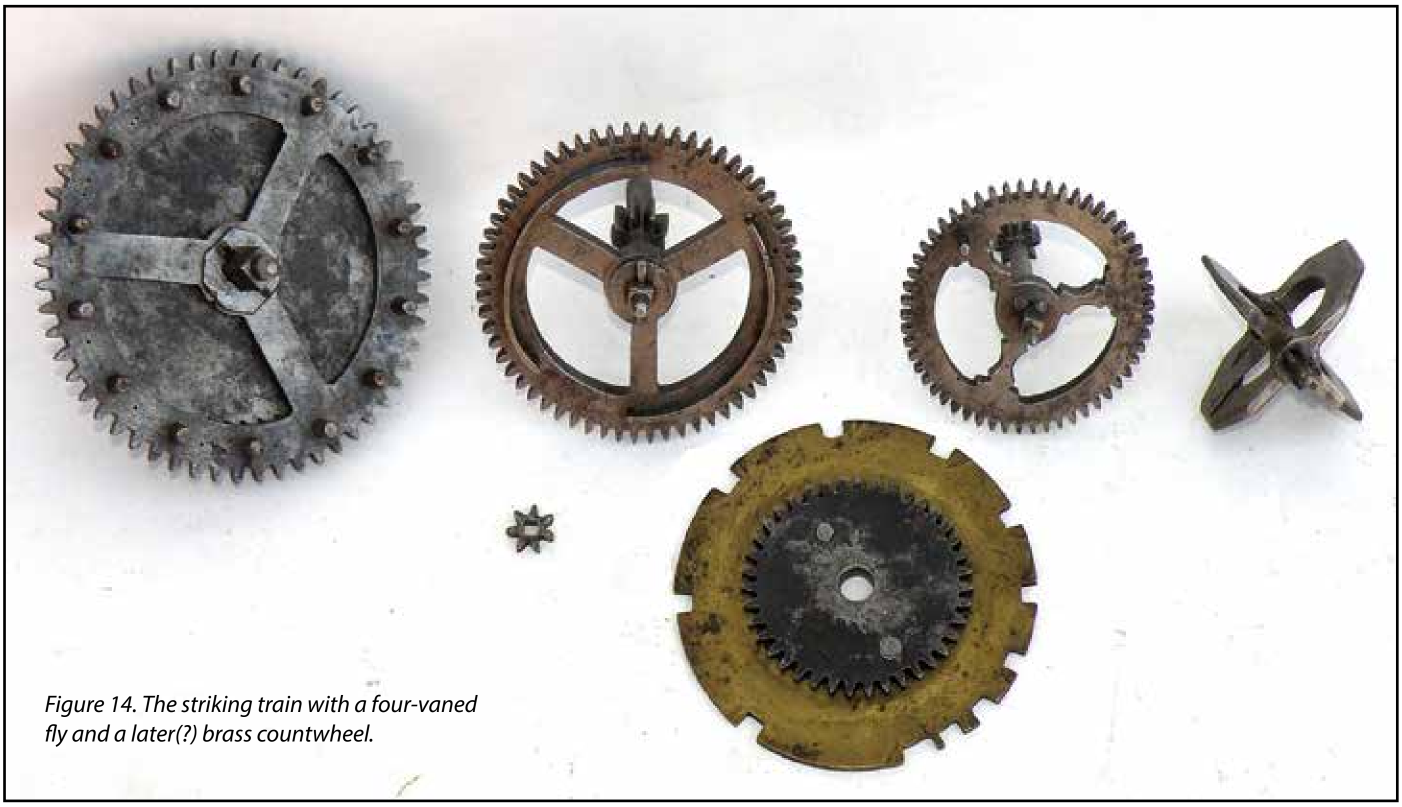


Figure 14. The striking train with a four-vaned fly and a later(?) brass countwheel.

exploited and oppressed by the local aristocracy.

Not wishing to end up in prison or even worse be taken to the guillotine, the owner of this clock got to work with a file to keep on the right side of the new laws. Other examples of this practice are known, including removal of the fleur-de-lis from the cast frets of early Comtoise and French lantern clocks and no doubt it happened on other types of clock as well. Fortunately the hand, which also displays the fleur-de-lis, was left untouched. What the defacing of this bell does show is that the clock was in France during the last decade of the eighteenth century and the start of the next one, when it would have been about 100 years old and probably still in regular use telling the time, perhaps in a large farmhouse.

Not only is this an interesting rural clock, continuing a tradition of making iron clocks that stretches back to the earliest Gothic clocks, but it has a number of interesting and unusual features. In addition it witnessed the upheaval that we now call the French Revolution—if it could talk what fascinating tales it would tell of how its bell was hurriedly defaced to save its owner from persecution. In the twentieth century it made its way to America, then it was bought by an Italian collector and now resides in England.

Next month another interesting French iron posted-frame clock, made a little later, will be discussed. Though it shows more similarities to an English brass 30-hour clock, it has very unusual and possibly unique movement bars.

Figure 15. The Gothic bell with one of the almost obliterated fleur-de-lis outlined in white.