A FRENCH SID

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by **John R**

Figure 1. Front view of the clock with a later Gothic-style bell frame.

Figure 2 (top). The i

Figure 3. Simple iron frame with
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Regular readers of *Clocks* will know that I have a fairly wide range of horological interests ranging from the earliest English lantern clocks to the makers of painted clock dials. While the high quality of carriage clocks, chronometers, precision regulators and the like is appreciated, they do not attract me as much as a simple 30-hour clock crafted by a rural clockmaker. Also clocks by Tompion, Knibb and the other great names have never really appealed to me, though to be honest this is largely due to them being way out of my modest budget.

However, clocks made in Britain can be rather stereotypical, so much so that we often do not appreciate that outside these islands things were often done in quite a different way. For instance warned striking was used almost exclusively in Britain, apart from the very earliest turret clocks, and this is often thought to be the only system used, ignoring the fact that warnless nag's head striking was widely used in regions like the Netherlands and the Germanic countries. As a result I have been drawn to Continental rural clocks, which have a wide range of technical features, and the clock discussed here is no exception.

Not only has the clock shown in **figure 1** an iron frame, large iron wheels, a verge escapement, a gravity-operated hammer, an external fly, a gathered countwheel, a latched movement bar, and a single iron hand, but also the pendulum swings on the left-hand side. It is all original apart from the later Gothic-style bell frame with leaf decoration in

DE PENDULUM

actly is it from?

obey, UK

ron fleur-de-lis hand.

a large aperture for an internal fly never fitted.

Figure 4. The central movement bar held with two latches.

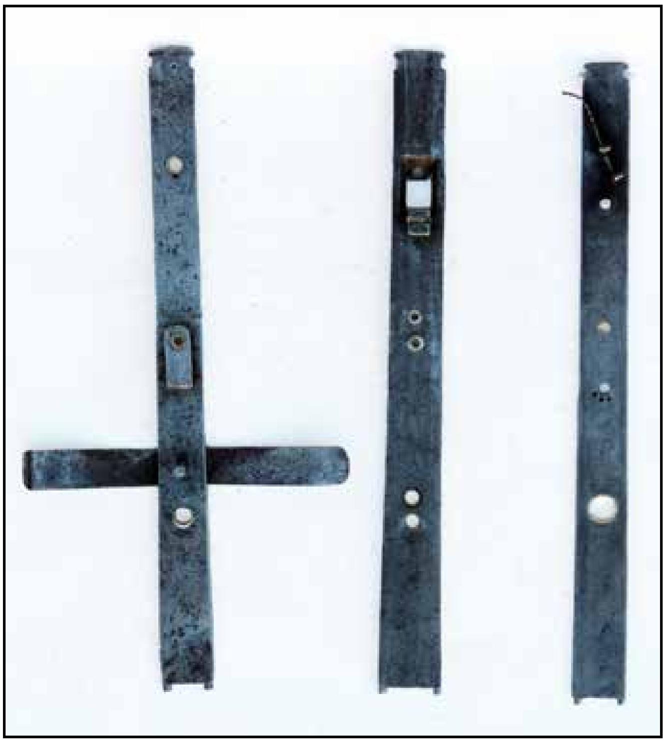


Figure 5. The iron movement bars. Note the clearance aperture in the central bar for the crownwheel pinion. The rear bar has spring cross arms to hold the countwheel in place and a cock for the rear pivot of the locking arbor.

an attempt to make it look older than it actually is. The original would be simpler, but still with the hammer pivoted above the bell and lifted by a wire link before falling under gravity to sound the hour. Also a missing passing half-hour strike has been restored. There are no side doors and the external fly precludes the use of a hoop for hanging on a wall, so it would have sat on a wooden bracket or been housed in a hooded wall case. The whole clock is made of iron, apart from the brass chapter ring.

The rectangular unpainted iron dial, 6¼in (160mm) wide and 9¾in (250mm) tall, extends from the base of the clock to just above the top plate and is held to the front pillars by two small screws at diagonally opposite corners. There is a brass chapter ring with simple half-hour markers and quarter-hour divisions. The chapter ring has never been silvered, as was the usual Continental practice. The single iron hand is of the popular fleur-de-lis design, **figure 2**, the symbol of the French royal family. The dial is not signed, again a usual feature of Continental rural clocks, but since it has an original pendulum escapement it must date to after about 1660. About 1670-80 would be reasonable.

The thin iron pillars of square cross section are riveted to iron plates, with separate small notched lugs riveted to the corners of the top plate to hold the bell frame, but there are no feet. A large rectangular aperture has been cut in the top plate, **figure 3**, to accommodate an internal fly, but this was never fitted, indicating a change of plan at an early

Figure 6. The three-wheel striking train and the motionwork.

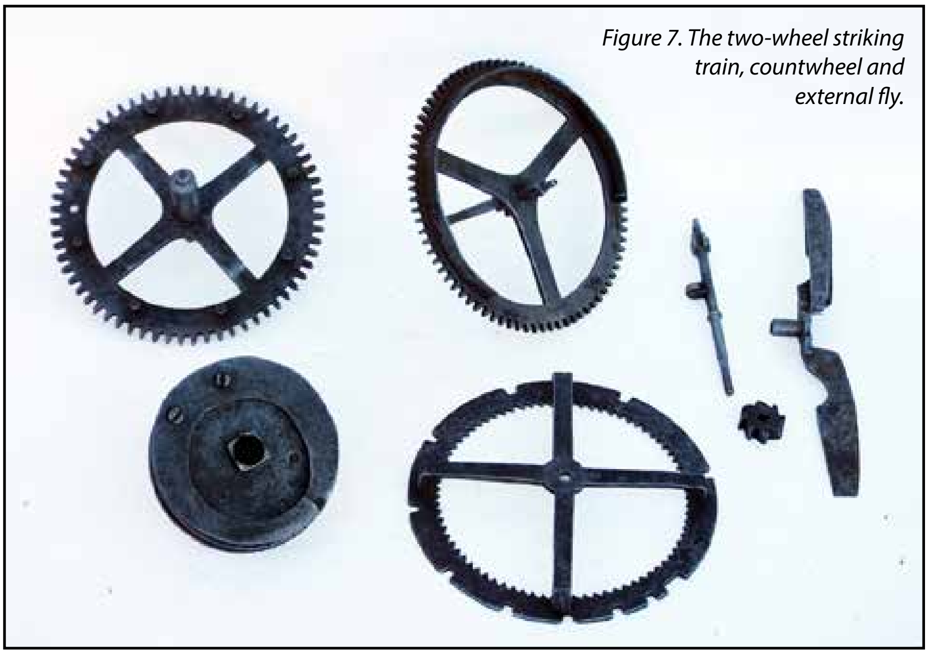


Figure 7. The two-wheel striking train, countwheel and external fly.

Figure 8. The cocks for the pallet arbor and the crownwheel.

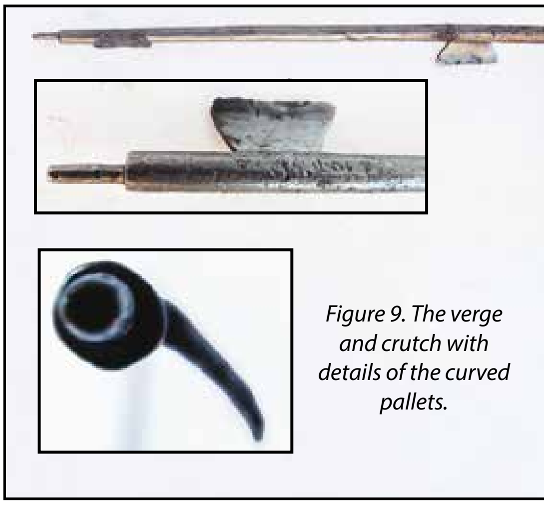


Figure 9. The verge and crutch with details of the curved pallets.

Figure 10. Undercut teeth of the large crownwheel.

WHEEL COUNTS

Going train

crownwheel	35	7
contrate wheel	70	7
greatwheel	70	5
hour wheel	60	

beat 0.51 seconds

Striking train

fly		5
locking wheel	80	8
greatwheel	64	
countwheel	78	
hammer pins		8

duration $^{1}/_{2}$ day

OVERALL DIMENSIONS

18in tall x 10in wide x 7$^{3}/_{4}$in deep (458mm x 254mm x 197mm)
frame: 9$^{1}/_{4}$in tall x 6in wide x 6in deep (235mm x 152mm x 152mm)

stage in the construction. The front and rear movement bars are held at the top by the usual wedges, but since the crownwheel arbor is very close to the top of the central bar, it is held by two latches, which is a very unusual method which I have never seen before, **figure 4**. In addition to the usual potence to support the vertical crownwheel arbor, the central bar has a clearance aperture for the crownwheel pinion and a supporting piece for the front fly pivot riveted to the rear side. The rear bar has a horizontal spring strip to help support the countwheel and prevent it wobbling about, and a cock for the rear pivot of the locking arbor, **figure 5**.

Whereas a 30-hour clock with an anchor escapement has three wheels in both the going and striking trains, there is an extra wheel in the going train of

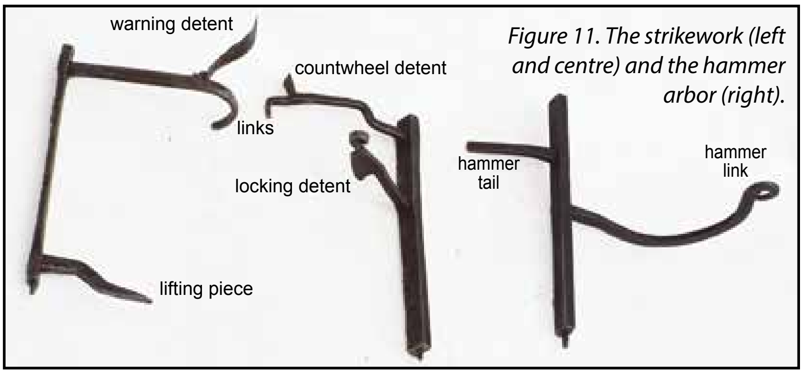


Figure 11. The strikework (left and centre) and the hammer arbor (right).

Figure 12. The hoop wheel with decoration where the spokes meet the rim.

Figure 13. Internal saw-shaped teeth on the countwheel, gathered by a pallet on the rear end of the locking arbor.

a clock with a verge escapement. This extra contrate wheel is necessary to drive the vertical arbor of the crownwheel. But on this clock both trains have fewer wheels than normal: three for the going train and only two for the striking train, **figures 6** and **7**. Apart from the solid hour wheel, all the other wheels have separate rims and crossings. Both greatwheels and the countwheel have four crossings, all the other train wheels have three. The contrate wheel is pinned to its arbor, while all the others are riveted and without collets. The circular winding clicks are fixed to the pulleys with two screws, instead of the more usual rivets.

All the wheels are large, the going greatwheel being 5in (126mm) diameter with a five-pronged pinion-of-report. The pallet arbor pivots in iron cocks, **figure 8**, and sits across the movement, with the crutch on the left-hand side, the pendulum being suspended by a thread. The rather long fish-tail shaped pallets are curved, **figure 9**. The very large crownwheel is $3^5/_8$in (92mm) diameter with 56 undercut teeth and fills a good proportion of the top plate, **figures 10** and **19**. The duration is only half a day, which is not usual for clock with a pendulum.

Striking uses the western system of two-stage locking and warning with a hoop-wheel for locking, the detent having a small decorative scroll. The warning detent is lifted by a link on the countwheel detent and blocks a stub arm on the fly arbor. This warning arm has a very unusual brass roller to ensure that the train is released promptly. The arbors of the strikework and the hammer tails are of rectangular cross section, with the locking / warning and locking / countwheel detents on opposite sides of the frame, instead of above each other as found on English posted-frame clocks. The hoop wheel is the only one with any basic decoration, filed where the crossings join the rim, **figure 12**.

Since the countwheel has internal teeth The crossings are offset, as often found on early iron clocks, but instead of being advanced by a pinion-of-report on the end of the greatwheal arbor, it is gathered by a pallet. There are 78 internal saw-shaped teeth that are advanced after every strike by a pallet at the rear of the locking arbor. This method is known on at least one French Gothic clock and is found on a few English 30-hour clocks. One of its advantages is that the countwheel can be reset to strike the correct number of hours without having to go through a large number of strikes to synchronise with the time indicated by the hand. The large fly is outside the

Figure 14. Left: a weight from a nineteenth-century steelyard. Right: a cast-iron ball from a small deck gun used as the striking weight.

frame and instead of a friction spring to avoid damage when the train is suddenly locked, there is a small ratchet and spring click as usually found on large clocks such as turret clocks. Since this external fly would foul the free swing of a pendulum at the rear of the clock, the pallet arbor is positioned across the movement and swings on the left-hand side.

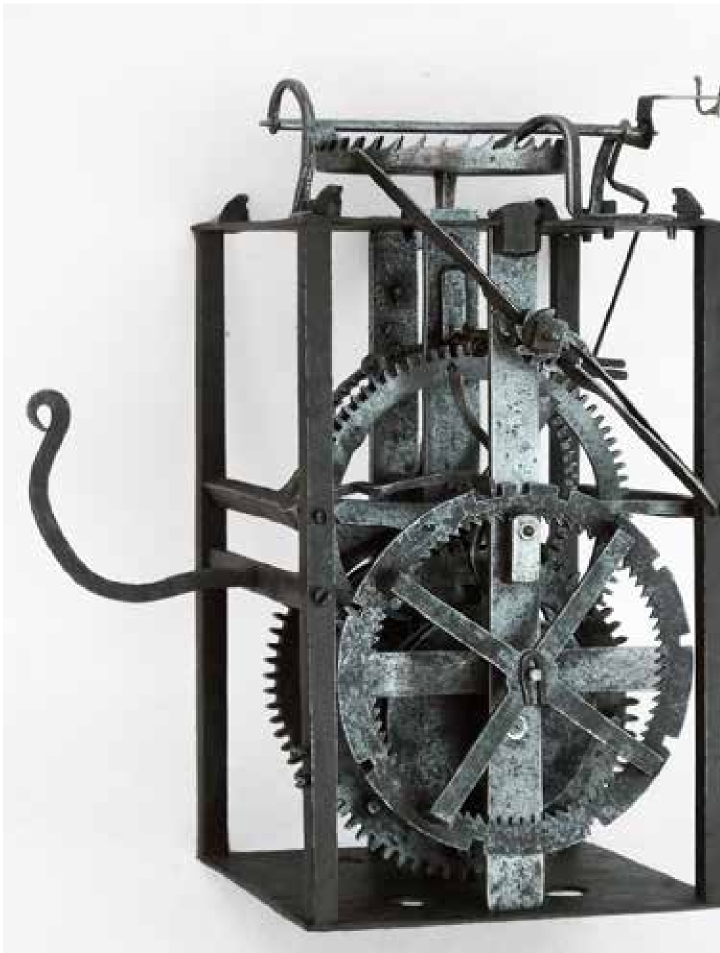
A long curved arm connects via a wire link to a hammer pivoted on the top of the bell frame and falls under the force of gravity. There is no evidence for a hammer spring or a stop on the movement frame and this system, used on French Gothic clocks as early as the mid-fourteenth century, was the original method used here. A stud and a spring on the front movement bar indicate a former passing half-hour strike, which has now been restored.

Both weights hang on the left, the going one being a cast-iron ball with an integral hanging eye from a nineteenth-century French steelyard, sitting in an iron cradle with lead added underneath, **figure 14**. The weight alone calculates at 1kg, the total being almost 1½kg (3¼lb). The striking weight and its cradle are much older, and with added lead on the top and underneath, the total mass is 2kg (4½lb). The ball is very roughly cast, approximately 2¾in (2.6 French inches or pouce) in diameter with a calculated mass of 2.83lb (2.62 livre); it may be from a small-calibre top-deck gun from a French frigate. The very roughly forged and riveted cradle indicates that it is probably contemporary with the clock, about 1670, or shortly after. The complete movement is shown in **figures 15** to **19**.

With very little on the dial to indicate where it was made, and no similar clocks known to the author, are there any constructional or technical features that give clues to indicate in which area of France it it was made? Eighteenth-

Figure 15. Movement from the front.

Figure 16. Rear view of the movement.



century iron-framed lantern clocks made in the Massif Central have verge escapements with the pendulum on the right-hand side. But since the clock shown here has its pendulum at the side due to the rear position being occupied by the external fly, this is a necessity rather than a design feature. Hence the Massif Central is unlikely to be the origin of this clock. The riveted frame suggests an origin in northern France bordering on Flanders, now roughly the area of present-day Belgium, but the lack of feet rule out Normandy where very tall feet were usual. Clocks from the northern region also often have the two strike-work arbors pivoted on opposite sides of the frame. This may not seem to be very positive evidence, but it is the best we have, so northern France or Flanders is my best guess.

This clock is another example of the wide variety of rural clocks originating in Continental Europe that are often quite different to those made in Britain and are a fascinating area of interest for horologists, researchers and collectors. The only regret is that they are rarely signed or dated, which would provide very useful information.

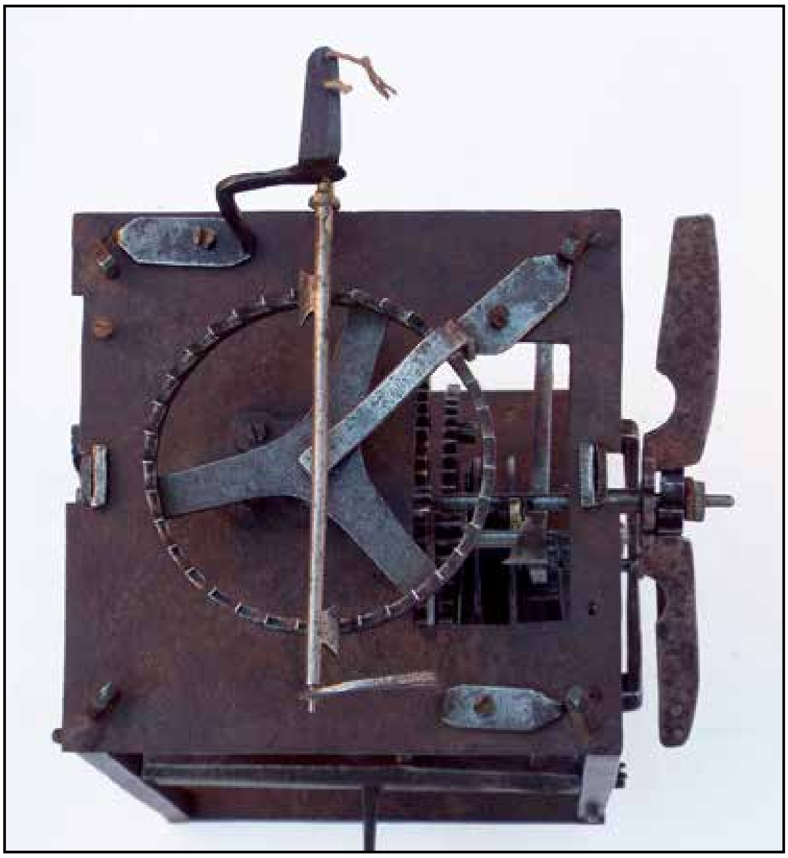


Figure 19. Top of the movement showing the very large

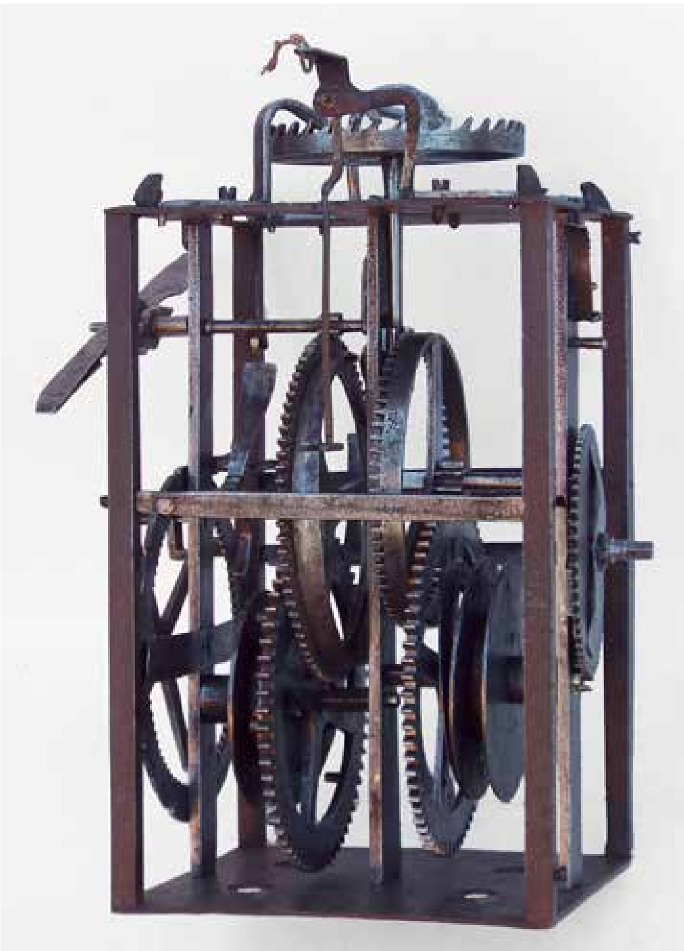


Figure 17. Left-hand side of the movement.

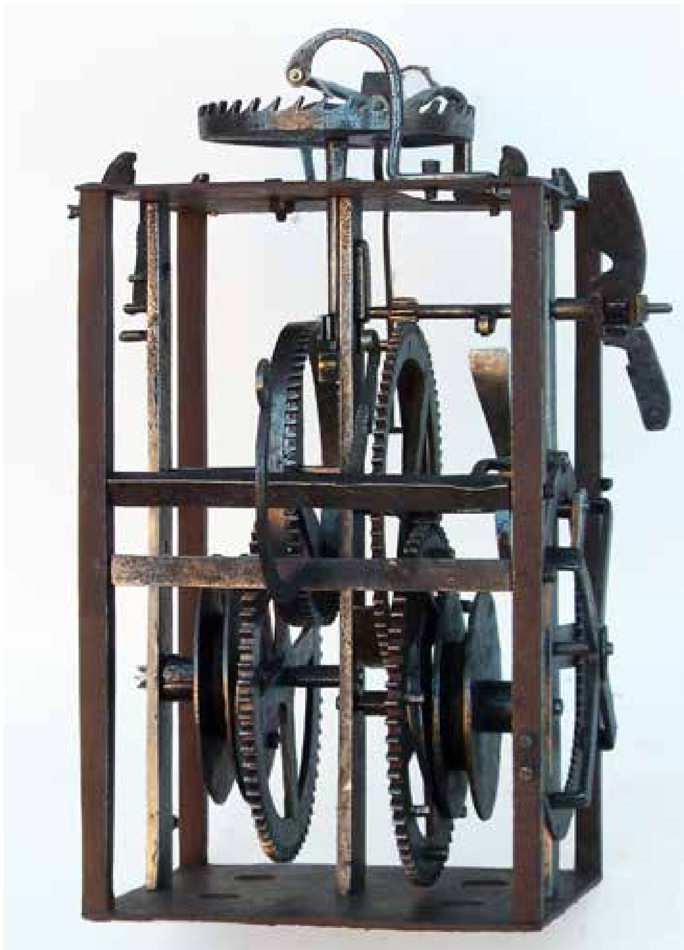


Figure 18. Right-hand side of the movement.