Picture Gallery

A Miniature Italian Lantern Clock

Fig. 1. Small Italian lantern clock with a single-sheet brass dial.

Fig. 2. Rear view showing the countwheel for double striking 1–6 hours.

The interesting miniature Italian lantern clock with a verge escapement shown in Figs 1 & 2 exhibits many differences, both stylistically and technically, from its English counterparts. There is no English-style bell-frame, the finials are topped by tall spires, the feet are of the typically Italian squat shape and there are no side doors or a rear cover. There is no hoop or spikes for hanging on a wall and the clock sits on a bracket, with the spikes underneath the feet to prevent slipping possibly being later additions. There is an alarm, double-six striking with repeat of the hour strike a couple of minutes later (*ribotta*), warnless nag's head striking with let-off by pins on the going greatwheel and a fixed hand. Many of these features are a direct

Fig. 3. The miniature Italian clock next to a standard size lantern clock by William Selwood of Lothbury, London.

consequence of having *ribotta* with the striking controlled by a countwheel rather than a rack. The clock was probably made in the third quarter of the eighteenth century in Emilia Romagna, northeast Italy, perhaps in the region's capital Bologna. It is very well made, particularly the ironwork, which is neatly finished.

For comparison Fig. 3 shows it next to a London lantern clock of the 1640s. The single-sheet brass dial is only 4⅜ (110mm) tall by 3¼in (82mm) wide, the clock overall being 9in (230mm) tall. The dial and fret are filled with acanthus-like engraving and the wide chapter ring leaves only enough room for a very small single hand, it being just 1¼in (33mm) in total length including its tail. Both the dial and the fret are attached by a very simple arrangement: two lugs hold the bottom of the dial, while a tab on the fret fits into notches in the top plate (seen clearly in Fig. 8). A screw through the dial into the tab locks both firmly in place. The forged iron weights and counterweights (Fig. 4) may be original, but this cannot be confirmed. The duration is one day.

Fig. 4. The iron weights and counterweights with forged eyes.

The top and bottom plates are skeletonised, and since there is no warning detent or horizontal hammer arbor there is no need for cross arms to support them.

Fig. 5. Movement from the front showing the alarm let-off lever.

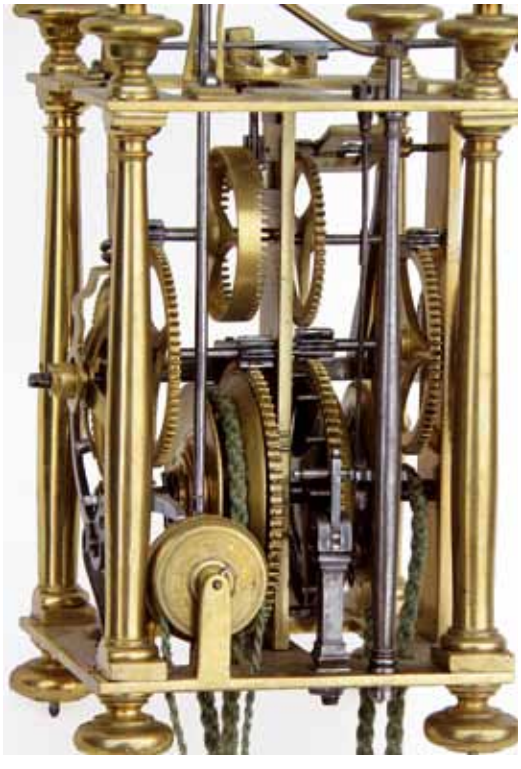

Fig. 6 The alarm crownwheel on the right-hand side. Note the swivelling vertical hammer shaft and the separately pivoted hammer tail.

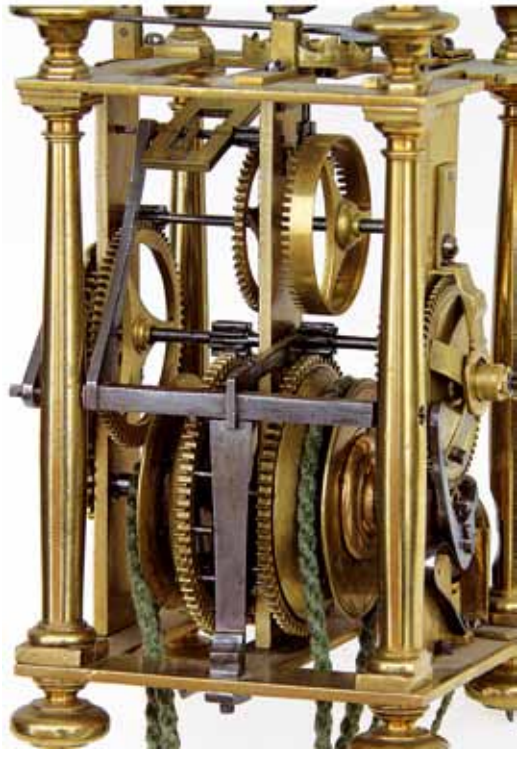

Fig. 7. The left-hand side showing the single strikework arbor.

The single arbor for the strikework pivots between the left-hand pillars (Fig. 7) with a screw-in pivot at the front. The alarm is let off by a pin on a cruciform clutch spring lifting one arm of the alarm lever (Fig. 5), while the alarm crownwheel is supported in a cock on the bottom plate just behind the dial (Fig. 6). The pallet arbor pivots at both ends in adjustable brass cocks (Fig. 8), a knife-edge rear suspension being a specifically English method not normally used elsewhere.

The repeat of the strike a few minutes after the hour requires the lifting piece to be tripped twice. This can be readily achieved by a pin on a wheel rotating once an hour, as on a two-handed clock such as the well-known French Comtoise clocks. However, there is no such wheel in the motion-work of a single-handed clock and strike let-off is normally by a starwheel rotating with the hour hand. Some Italian clocks have a six-hour dial and a six-armed starwheel with double points to give *ribotta*,

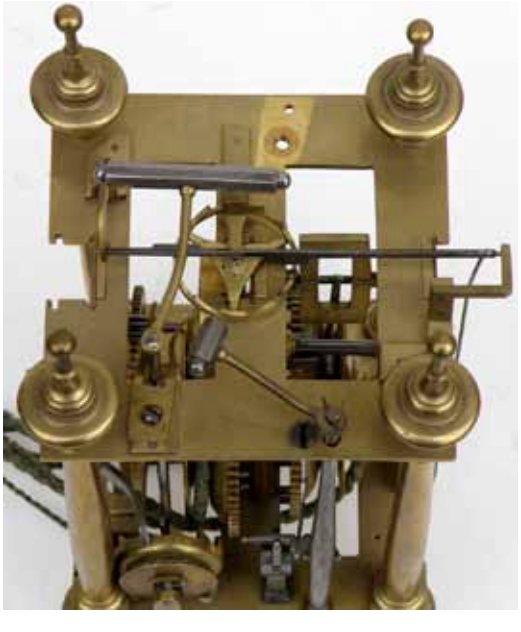

Fig. 8. Top of the movement showing the verge escapement and the hammers for the hour strike and alarm.

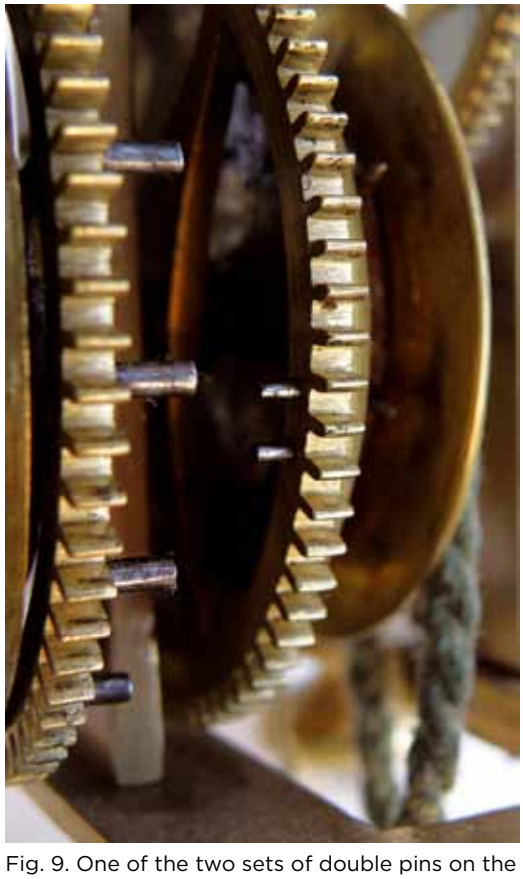

Fig. 9. One of the two sets of double pins on the going greatwheel to provide *ribotta*.

but this results in a fairly long delay before the repeat.[1] However, with a twelve-hour dial it is not feasible to provide another point to each arm of the star — there is simply not enough room for the tip of the lifting piece (in this case a nag's head) to fall to lock the train after the first sequence of strikes. An alternative solution is to trip the strike with a pair of pins on the going greatwheel, which is geared to rotate once per hour, this being the usual method of letting off the strike on iron Gothic clocks. But an hourly rotation of the greatwheel only gives a duration of about twelve hours between winding, so on this clock the greatwheel turns once in two hours (giving a one-day duration) with two sets of double pins to provide the hourly *ribotta* (Fig. 9).

One of the consequences of letting off the strike in this manner is that, to maintain the synchronisation of the strike with the time indicated, the hand has to be fixed,

Fig. 10. The strikework arbor.

with inconveniences when resetting the clock to time. On balance clocks the pallets can be lifted out of engagement with the crownwheel to allow the train to run freely, keeping a firm grip on the weight to prevent damage to the escapement. On some Gothic clocks there is a lever for this purpose, though there is often enough room for the balance to be lifted by hand. With enclosed iron clocks there is often not enough room for access or even a lifting lever and the only solution is to stop the clock and restart it when the correct time is shown.[2] It is often assumed that as verge pallets cannot be slid out of engagement, stopping the clock is the only way of resetting to time. However if the pendulum is swung up past the horizontal — holding the weight of course — the pallets disengage from the crownwheel and the train can be allowed to run freely in a controlled manner.[3]

The strikework is arranged in a different manner to that on Germanic clocks, where the single arbor normally pivots on the right-hand side of the movement. Locking, countwheel control and overlift (using either a single or a double 'heart' cam) all take place on a multi-function detent, with the arm carrying the nag's head squared onto the front end.[4] While this arrangement is known on some similar Italian lantern clocks, this one uses four separate arms for the same functions (Fig. 10). The count-wheel detent is squared onto the rear end of

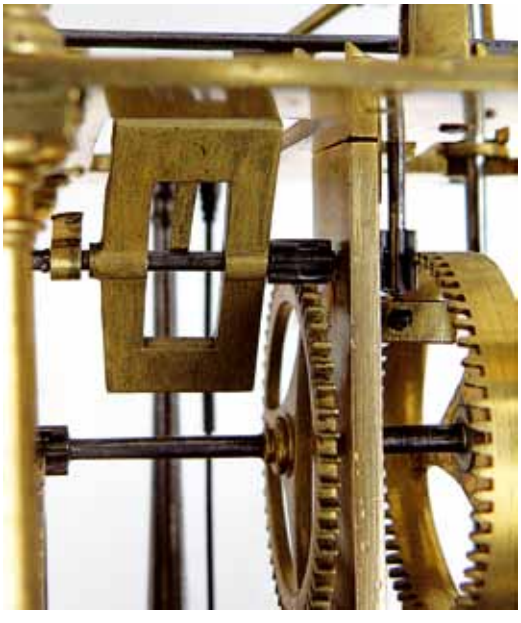

Fig. 11. The locking tab on the fly arbor (locking detent removed).

Fig. 12. The locking detent engaging with the tab on the fly arbor.

the arbor, with the arm carrying the nag's head fixed in the centre, the spring-loaded tip being narrow to allow it to drop between the two lifting pins. Overlift is provided by the hammer pins, rather than a cam, while a long detent extends to the top of the train to lock on a brass comma-shaped tab fixed to the fly arbor. This arrangement is not uncommon on Italian clocks — sometimes the detent either engages the fly or 'spikes' its pinion[5] — but it proved difficult to photograph in situ (Figs 11 & 12).

Grateful thanks are due to the owner for the opportunity to study, photograph and write about this delightful little Italian clock. Not only are there few similarities to its English counterpart, it also exhibits many differences to a German wall clock of the period.

Pictures and text by John A. Robey

1. C.D. Cherbel, 'Some features of 16th, 17th and 18th Century Italian Clocks', *Antiquarian Horology* 7/3 (June 1971), 202, Fig. 8, shows a clock said to have been altered from single to double strike and the double points on the starwheel appear to give an approximately 10-minute interval.

2. This inconvenience does not arise with balance-wheel lantern clocks as the strike is let off by a starwheel and the hour wheel has a friction spring for hand setting.

3. Similar clocks have the let-off pins on a disc fixed to the greatwheel arbor. This presses against the greatwheel, which can turn on the arbor, and acts as a setting clutch. Since there is a 6:1 step-up ratio from the hour wheel to the pinion-of-report a good deal of force would be needed to turn the hand, so setting to time is by a key on the squared end of the arbor through a hole in the dial.

4. *Antiquarian Horology*, 34/2 (June 2013), 245 shows a typical example.

5. Cherbel, 'Italian Clocks', 203.