Picture Gallery

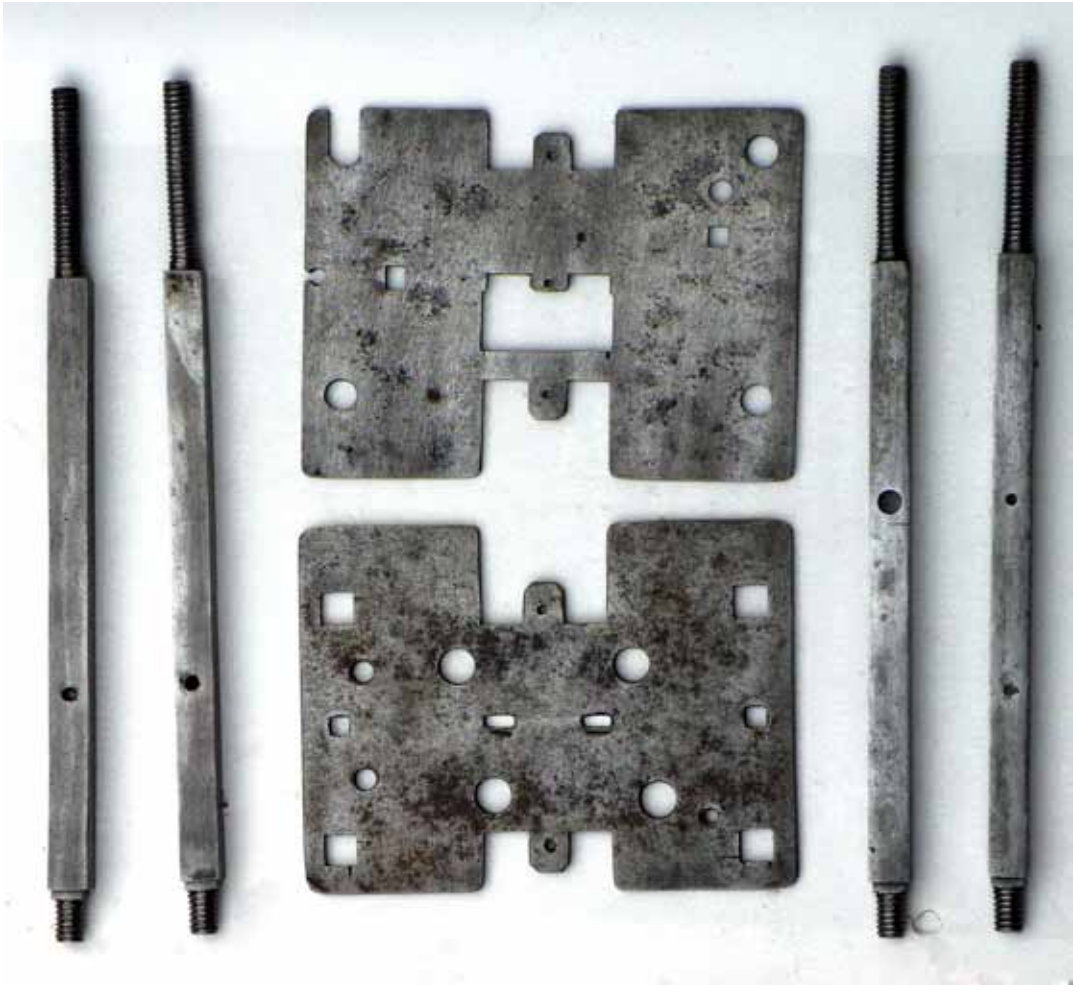
30-hour iron wall clock dated 1748

The painted dial with the minute hand shorter than the hour hand and the pendulum bob in the form of a Herald Angel.

Rear of dial and case showing the hanging hoop, and spikes, with the bell fitted to the top of the case.
Below: Front view with the dial removed.

Many, if not most, Continental country-made clocks are rarely signed so their origins are difficult to ascertain. This iron clock is typical of those made in southern Germany, the Austrian Tirol and the German-speaking region of Switzerland. It differs markedly from an English posted-frame 30-hour clock, with over fifteen significant differences being noted. While clocks of this type from these regions are commonly found they have been virtually ignored in the English-language horological literature.

The 11½in wide iron dial is naïvely painted in yellow and black on a deep-blue ground, with scrolls in the corners and the date 1748 prominently displayed in the arch. The very sturdy iron minute hand is shorter than the hour hand and indicates against an inner circle marked only with quarter hours. This is often seen on clocks from the Alpine regions, while a common alternative arrangement is a separate small minute ring below the hour ring, again marked only in quarters, and with a small



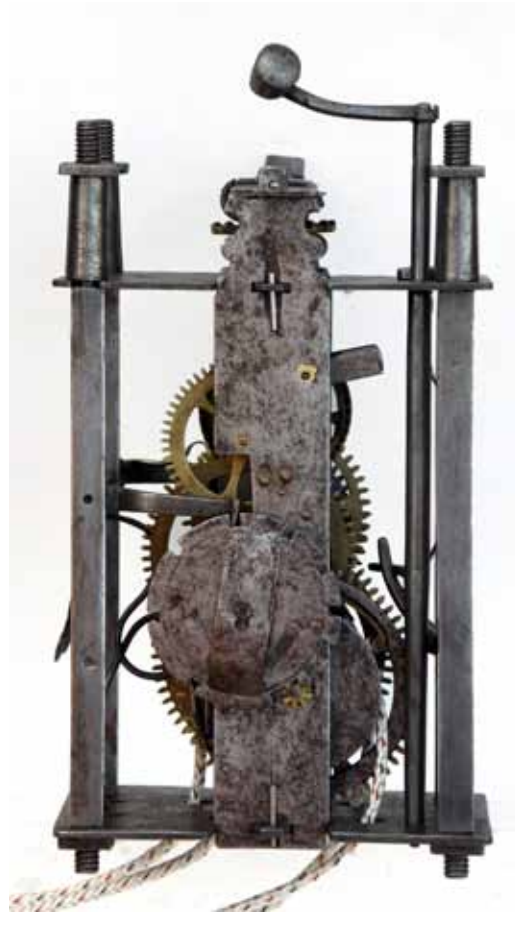
Top and bottom plates and corner pillars. Note the lugs that fit into slots in the movement bars.

minute hand. The alarm disc is a restoration, although the missing alarm mechanism has not been replaced. The bob of the front-swinging ('cow tail') pendulum is in the form of an angel blowing a trumpet and slides on its rod for rating, with no adjusting screw. The movement is enclosed by sheet-iron doors and top and bottom plates to provide a box-like case, all painted with red iron oxide primer. A hanging hook and spikes are fixed to the back of the case.

The straight pillars are of square section, with the plates, 5½ in wide by 4 in deep, held by nuts at the bottom, and similarly at the top with the addition of tubular spacers. This allows the case top, to which the bell stand is fixed, to sit above the verge escapement. Recesses are cut in the plates to leave lugs or tenons which fit into slots near the ends of the front and rear movement bars, and are held firmly by taper pins. This is significantly different to English, French or Dutch practice, where two round lugs filed into the ends of the bars fit into small holes, while wedges secure the bars at the top. The lower end of the centre bar is held in the 'English' manner, but the top is secured by the 'German' method.

The bars do not have the English style of horizontal arms for the hammer and strike-work arbors, instead they pivot in the pillars. French lantern clocks use screw-in pivots at one end of the arbors, but the Germanic practice is to fit the pivots at both ends directly into the pillars. Hence

Movement from the front showing the vertical hammer shaft.



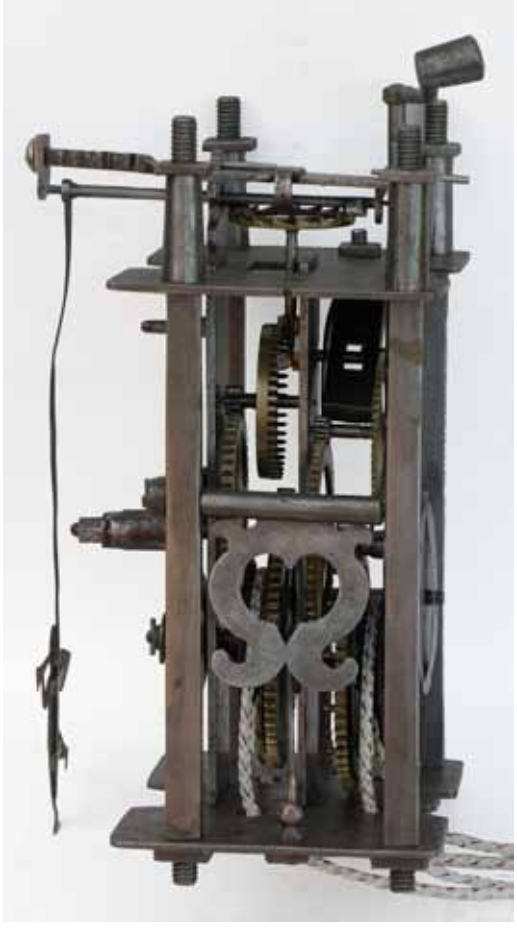
Rear of the movement showing the method of securing the movement bars.

the frame has to be dismantled for removal and assembly, although a slot in the top movement plate often allows the arbor of the strike-work to be assembled more easily.

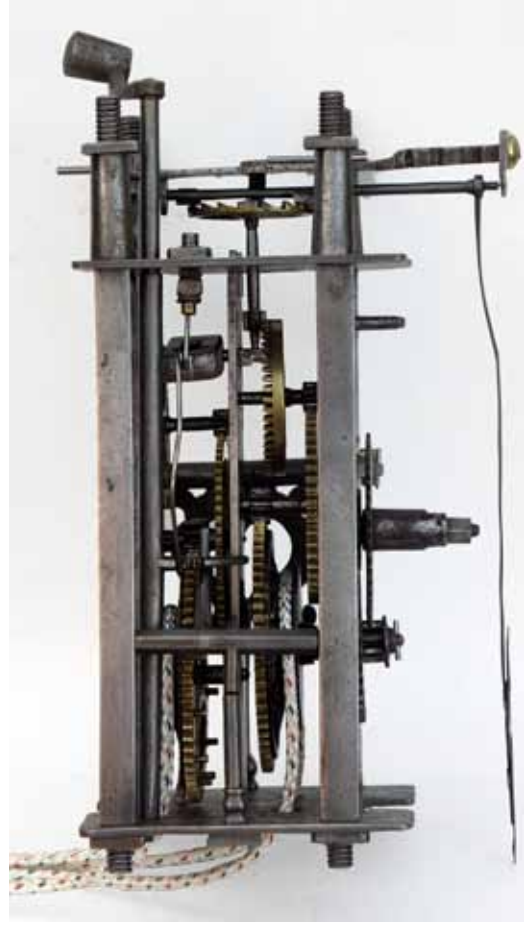
The train wheels are of brass, which run in brass bushes in the iron plates, while the countwheel, fly and motionwork are of iron. The pinions of report are separate, not four-prongs filed into the greatwheel arbors as was the earlier practice. The sloping inner sides of the pulleys are serrated so that a hard braided rope jams in the tapered gap and there are no spikes. The inner side of each pulley has ratchet teeth round its edge engaging with a click on each greatwheel. There are separate weights and counter-weights for each train.

Striking is let-off by a nag's head, as usually found on Germanic clocks. A single arbor carries the lifting piece with its spring-loaded tip, while different steps on the locking detent act as the countwheel detent and overlift detent. Overlift is provided by a 'double heart' cam on the second wheel, there being no warning. Locking is on the third wheel. The fly is very thick and heavy. A decoratively shaped spring-loaded trip lever allows manual let-off to synchronise the strike with the indicated hour. The hammer tail, on a horizontal arbor, is tripped by the usual pins on the greatwheel, but rotates a vertical hammer shaft, via a curved link, to strike the inside of the bell.

The top pivot of the crownwheel is fixed to a cross bar that is held on vertical extensions to the front and rear movement bars by lugs fitting into slots. This horizontal bar is extended at the front to pass through



Right-hand side showing the single arbor for the strike-work and the large decorative trip lever.



Movement from the left showing the verge escapement.

Top view with the hammer and the top bar that supports the verge and the upper end of the crownwheel.

The brass wheels of the going train, the iron motion-work and verge pallets.

The brass wheels of the striking train, the iron countwheel and its gear wheel, and the very thick iron fly. The 'double heart' on the arbor of the second wheel provides overlift for the nag's head strike.

the dial, which it helps to support, with a separate front pivot for the arbor of the verge escapement.

This same basic construction and layout was used from the early seventeenth century on balance-wheel clocks from this area of Europe, the wheels of which are made of forged iron rather than cast brass. Many Renaissance clocks in fine gilt and engraved brass cases have iron movements of a similar construction.

The components of the strike-work, all of iron apart from the brass return spring of the nag's head. The seemingly simple locking detent also acts as an overlift lever and countwheel detent.

Going Train

Crownwheel	17 — 6
Contrate wheel	48 — 6
2nd wheel	48 — 8
Greatwheel	64 — 8
Hour wheel	48
Minute pinion	18
Wheel driving minute pinion	36

The calculated beat is 0.436 seconds with a theoretical pendulum length of 6.7 inches.

Striking Train

Fly	6
Locking wheel	54 — 6
2nd wheel	60 — 10
Greatwheel	60 — 8
(12 hammer pins)	
Countwheel	52

Pictures and text by John A. Robey