

A QUARTET OF ALARMS

A 30-hour alarm by Whitehurst of Derby

part 4 of 4

Having discussed three Continental timepieces, each with different methods of

setting the alarm, we now move closer to home with a small wall clock by the Whitehurst firm in Derby, with an ingenious method of setting and letting off the alarm. While the previous clocks were all country-made with iron posted frames and two of them had iron wheels, the Whitehurst one has a brass plated-frame movement and brass wheels.

The firm was started in the eighteenth century by John Whitehurst FRS, clockmaker and scientist, and by the nineteenth century it was being run by his nephew, then by the nephew's son, all called John. By this time the works must have operated like a factory, producing a wide range of products from turret clocks and bracket clocks to simple wall timepieces, the latter often with alarms and all of very high quality. Up to the early nineteenth century alarms were made with the traditional setting disc, usually in conjunction with a single hour hand. Later the type of alarm shown here was developed, with either a single hand or two hands and an additional one for alarm setting.

The Whitehurst firm gradually abandoned traditional longcase clocks in favour of weight-driven movements with one, two or

three-trains, all having short pendulums of about 15in (38cm) long. These movements were often fitted into their own style of tall case without a removable hood or they were simple hook-and-spike wall clocks enclosed in a tinplate iron box of the sort shown

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popular throughout the East Midlands and are often found with local families who

have owned them for several generations. Needless to say they are also keenly collected. Several of these alarms have passed through my workshop for servicing. The one shown here arrived for attention (it just needed cleaning and lubricating — definitely no fitting of unnecessary bushes) as the third part of this short series was being written. Previously the Whitehurst alarm mechanism had been taken for granted and its significance had not been appreciated (nor has it been mentioned in print before), but its special features soon became clear. It became an ideal candidate for the final part of this alarm quartet.

Figure 29 shows the 6in (15cm) diameter silvered brass



Figure 29. Round-dial wall alarm signed 'Whitehurst Derby'.

here. Even the eight-day three-train clocks, usually striking ting-tang quarters on two bells, had pull-wind chains with weights and counterweights, not Huygens' loop. They even put these movements into traditional longcases.

Whitehurst clocks of all types were

dial with iron minute and hour hands plus a brass one for setting the alarm. There are minute markers but no numbers, these having fallen out of fashion by the second quarter of the nineteenth century, though a series of quarter-hour dots round the outside also assists in setting the alarm. The rear view, **figure 30**, shows how the hanging hoop is fixed on to the rear plate of the movement with screws, while

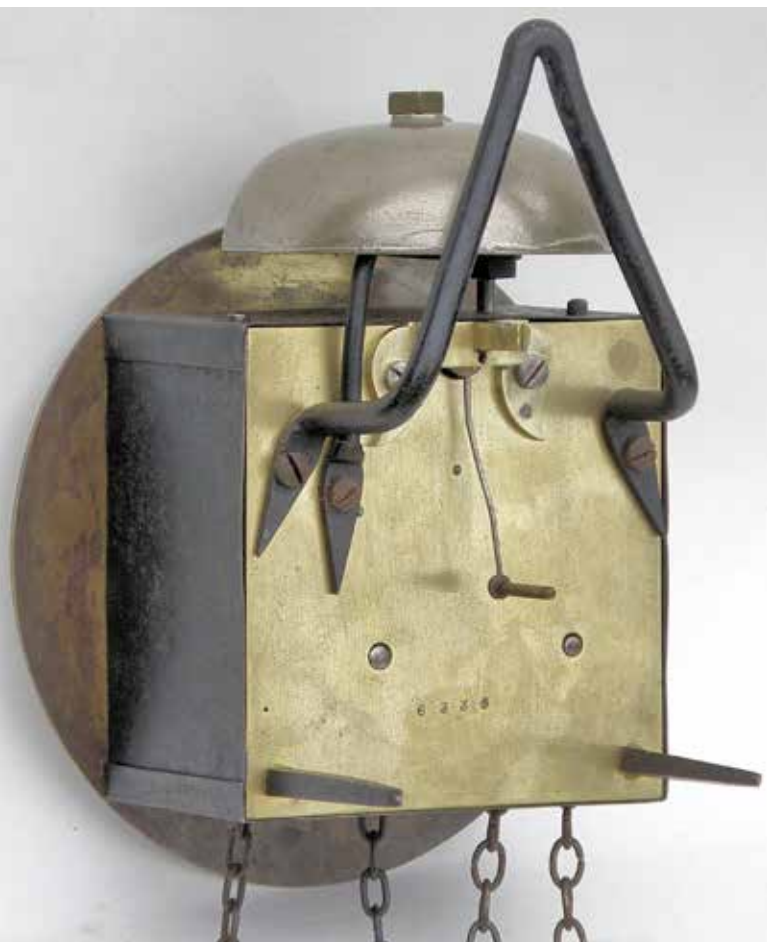


Figure 30. The rear showing the hoop and spikes and the original dust cover.



Figure 31 (above right). The sides of the cover slide into place.

the spikes screw into the riveted ends of the bottom two pillars. The rear plate is numbered '6334', as is the front plate and the rear of the dial, the last digit being stamped over either a '9' or '0'—no doubt someone had been given a number that had already been allocated to another clock. Based on the relatively few clocks that were both numbered and dated, this one was made about 1846-7.

The exposed sides of the movement are enclosed by a close-fitting box of thin tinplate painted black on the outside. Its construction is quite different to those found on some posted-frame movements: which are either an iron case with opening side doors, often with a separate top and bottom, as found on Continental clocks, or the simpler opening side doors as were used on English lantern clocks and some hoop-and spike clocks, such as those made by the Gilkes family in North Oxfordshire. The Whitehurst arrangement has top and bottom covers with turned-over ends which are held with screws into the top and bottom pillars. The 'flaps' hold sides, which in theory can be simply slid open, **figure 31**, but in practice once the screws are tightened access is not easy. With the only places for the ingress of dust being via the hole in the top plate for the alarm hammer and for the chains in the bottom plate, the movement is

kept free from contamination.

All the wheels of the clock are shown in **figure 32**, the going train being the standard one used by the Whitehurst firm for their 30-hour clocks. The counts are:

Escape wheel	30 — 6
Second wheel	78 — 6
Greatwheel	90 — 8
Hour wheel	48

This gives a theoretical pendulum length of about 15in (38cm).

We now come to the alarm, which is the main feature of interest for this series. The alarm itself is the usual crownwheel and a vertical verge with the hammer at the top. The winding click of the weight pulley, like that on the going greatwheel, is of the pivoted type which is kinder to the crossings than the strong circular combined spring and click used on eighteenth-century English pull-wind clocks. This type of click is shown in Samuel Harlow's booklet *THE CLOCK-MAKER'S GUIDE*, published in 1814 and it is likely that it was introduced by either Harlow or Whitehurst. The alarm sits behind the left-hand side of the front plate, with the verge supported on brass cocks, **figure 33** (in this view the lower pallet, just above the bottom cock, is pointing away from the reader and hence not visible). The alarm



Figure 32. The going train (left), alarm crownwheel (right) and motionwork (bottom).

crownwheel is pivoted between a cock screwed to the front plate and the rear plate, **figure 34**.

The under surface of the brass cock supporting the verge has a 'W' casting mark, **figure 39**. It is not unusual to find this type of casting mark on Whitehurst clocks and on the alarms it is often on all three cocks. On this example the mark appears to have been filed away on the other components.

So far everything has been quite standard, but now we come to the clever bit.



Figure 33 (above left). Rear of the front plate with the alarm verge.

Figure 34. The alarm crownwheel in position.



With the normal type of alarm the pin or slot that sets off the alarm moves with the hour hand, held in place with a friction spring for adjustment. If the alarm is set with a hand, as here, then the time the alarm goes off is indicated by 1-12 hours reading anti-clockwise, usually just inside the chapter ring, as on the clock discussed in Part 2.

However, this would have run counter to the Whitehurst tradition of keeping everything as uncluttered as possible. In 1760 John Whitehurst, the founder

of the firm, introduced the single-sheet brass round dial to replace the traditional composite one. Out went the corner spandrels and separate chapter and second rings, moon phase and all the other 'old-fashioned' features. He abandoned the seconds hand and a calendar, apart from some customers who, presumably, insisted on them. With virtually no decoration, other than a few engraved flourishes around his name and sometimes a star pattern round the winding holes, the message was 'keep it simple'. For some collectors Whitehurst dials are rather stark and plain; for others they are the epitome of uncluttered design. This philosophy continued with his successors and having to add an extra circle of numbers on an alarm was to be avoided at all costs, so a mechanism was devised that allowed an alarm hand to be set against the normal hour and quarter-hour divisions and could be read in the usual clockwise direction.

As already mentioned the traditional alarm disc or hand rotates with the hour hand and trips a detent that is fixed (apart from, of course, the ability to lift and fall). Whitehurst—or one of the firm's employees, which one we do not know—interchanged functions of the moving and fixed parts. Now the alarm hand was fixed to the dial (with a friction washer to allow for setting),

while the detent became a stout pin on the rotating hour wheel. The boss of the hour hand has a notch into which the let-off pin falls at the waking time, **figure 40**, while **figure 37** shows it fitted to the dial with the friction slip-washer.

The locking method is unconventional and while the operation of the mechanism is quite easy to understand with the movement in front of you, all the parts cannot be seen in one photograph and a series of pictures is needed. Like many other mechanisms it is much more difficult to describe clearly than to observe it in action. The horizontal L-shaped lever that locks and unlocks the alarm is pivoted in a cock screwed to the right-hand side of the front plate, **figure 35**. The left-hand end passes through a large rectangular aperture and when pushed back holds the lower alarm pallet against the crownwheel so it is locked. **Figure 33** shows this from the opposite side.

This is quite different to the traditional method which uses a stout pin on the rim of the crownwheel itself. A light brass spring biases the lever in the unlocked position. The minute-wheel arbor passes through a hole in the lever with plenty of clearance and its extended rear pivot, **figure 32**, allows a small amount of front-to-back movement. The pinion-of-report and intermediate wheel to drive the hour wheel and minute

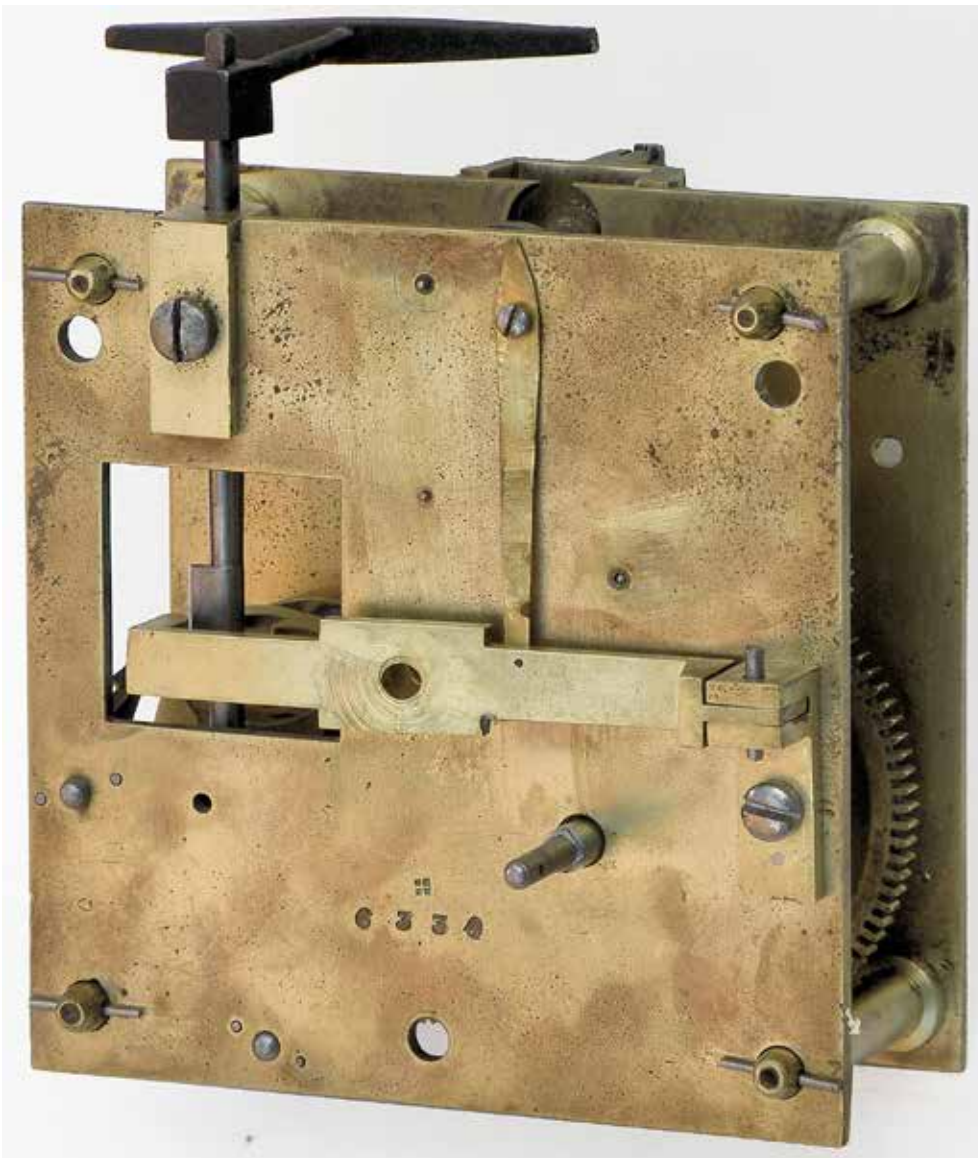


Figure 35. Front of the movement showing the alarm-locking lever.



Figure 36. The pinion-of-report, the intermediate wheel and minute wheel in place.



Figure 39. The casting mark on the lower verge support.

wheel respectively, with a friction spring at the rear for hand setting, are the same as any other two-handed 30-hour clock, **figure 36**. The hour-wheel pipe sits over the minute-wheel arbor and is supported at the front by the dial, again typical of brass-dial 30-hour clocks. This pipe carries a stout pin, **figure 38**.

Having a clear picture of the components its operation becomes readily understandable. With the dial firmly in place the boss on the alarm hand presses against the pin so that the hour wheel pushes, via the minute wheel (hence its extended rear pivot), the alarm lever towards the rear to lock the alarm crownwheel. As the hour



Figure 40. The notch in the alarm hand boss and the slip washer.

wheel rotates the pin eventually drops into the slot in the boss, allowing the light spring to push the lever forward, releasing the pallet and sounding the alarm. By rotating

the pin rather than the slot the alarm rings at the time indicated by the hand against the hour markings.

The observant reader may have spotted a



Figure 37 (below). Dial rear with the boss of the alarm hand held by the slip washer.



detail that at first looks wrong, but in fact has a very practical purpose. **Figures 29 and 37** show that the alarm hand appears to be too long and protrudes over the edge of the dial.



Figure 38. The hour wheel in position showing the let-off pin for the alarm.

This is quite deliberate and means that the hand can be moved easily without marking or scratching the dial—this would not be possible with the alternative method using a shorter hand indicating against an inner anti-clockwise ring of hours.

Like most Whitehurst clocks this small alarm is very well made with sturdy yet well-proportioned components. Wherever appropriate there are neatly and accurately filed edges, almost engineered, though it is unlikely that—apart from lathes—any machine tools as we would know them were used.

When this alarm mechanism was first introduced is not known, but the earliest known numbered Whitehurst clock—number 294 of about 1809-10—is an alarm like this one. A Whitehurst & Son hooded wall alarm with no number and very unusual round movement plates is probably earlier. It has a very similar mechanism, although the alarm is on the opposite side of the movement. Eight-day versions were also made and if the dial is larger than the

one shown here—9in (23cm) diameter is known—then there is a ring of quarter-hour dots inside the chapter ring for use with a shorter alarm hand.

Despite being an innovative design no patent was taken out for it. In fact there were no patents for anything taken out under the Whitehurst name. No doubt the firm relied on making them as well as, or even better than, anyone else. Even their well-known 'noctuary' or night-watchman's clock was not patented and though most of them were made by Whitehurst, sometimes bearing the name of other 'makers', some were made by well-known London clockmakers such as Dent.

This is a fitting conclusion to our little tour round Europe to look at some of the different kinds of timepieces designed to wake you in the morning. Even the soundest sleeper would be roused by the din created by the clanging bell of any one of these alarms. No wonder that the German word for alarm is *Wecker*, literally a 'waker'. By comparison the modern digital alarm is quite melodious and gives a much gentler wake-up call. ☺