Notes

COUNTWHEELS WITH PROJECTIONS AND PINS

by John Robey

THE RECENT note[1] by David Harris on a thirty-hour longcase clock by Thomas Kefford of Royston, Hertfordshire, emphasizes that there is still much to learn on the development of striking systems. The use of a countwheel with raised projections, rather than the usual slots that have been employed since medieval times, appears occasionally in the South of England, while its development with the projections replaced by pins, was used extensively in the Midlands and to some extent in the North. As was stated, its advantage is that, instead of two arbors for the striking work, all four levers (i.e. lifting piece, warning detent, locking piece and countwheel detent) are on a single arbor, and locking is when the countwheel detent is lifted, rather than when it falls. While there is less latitude for adjustment, the system is as reliable as the conventional method. The sequence of events has been described and illustrated in a recent article,[2] where it was suggested that the earliest known use of the system was by the Derby clockmaker and scientist John Whitehurst FRS in 1738. It now appears that its origin can be pushed back a little further.

Clive Ponsford[3] records that Jacob Lovelace of Exeter (1690-1755) used countwheels with raised projections, though no dates are suggested, as did William Stumbels. Stumbels, who has been described as the probably the most brilliant maker of his time outside London, used a countwheel with projections on a turret clock made in 1723 for a country house in Devon.[4] A turret clock with this type of countwheel, made by Stumbels for Dartington Hall in 1741, may be seen in Totnes Museum (Fig. 1). He made at least one eight-day longcase clock signed at Aveton Gifford, near Kingsbridge, with countwheel pins on the great wheel and on a turret clock at Forde House, near Newton

Fig. 1. Turret clock made by William Stumbels of Totnes for Dartington Hall in 1741, with the striking controlled by raised projections on the countwheel.

Fig. 2. Internal pin countwheel on an 8-day longcase clock by John Haywood of Northwich, about 1790-1800.

1. *Antiquarian Horology*, 24/2, (Summer 1998), 149-151.
2. J. A. Robey, 'Pin Countwheels', *Antiquarian Horology*, 23/1, (Autumn 1996), 71-73.
3. C. Ponsford, *Devon Clocks & Clockmakers* (Newton Abbot: David & Charles, 1985).
4. C. Ponsford, personal communication.

Fig. 3. Single striking arbor of the Haywood clock, with just two levers. The front one has a brass lifting piece and the warning detent; the rear lever has the locking detent and countwheel detent.

Abbot, the bell being dated 1751. He moved from Aveton Gifford to Totnes sometime in 1729. Hence he was using a countwheel with raised projections (on a turret clock) by 1723 and the pin countwheel (on a longcase clock) before 1730.

John Whitehurst's earliest known use of the pin countwheel is the Tissington Hall turret clock dated 1738, so though he was not the earliest user of the system, he appears to have had the foresight to realise its potential and to popularize its use. Making a countwheel with pins would be far easier than one with projections, particularly as a very simple drilling jig could be used. This ensured that the pin countwheel became popular, while the type with projections was not employed by more than a handful of clockmakers, and its use does not appear to have moved out of the South and South-West of England.

Internal pin countwheels (i.e. with pins on the great wheel) were still sometimes used on eight-day longcase clocks until the end of the eighteenth century, by which time one would have expected rack striking to have become standardized. Figs 2 and 3 show the striking great wheel and levers of a longcase clock by John Haywood of Northwich, Cheshire. The painted dial is by W. H. Price of Birmingham, whose dials are very rarely recorded, but is known to have worked about 1790-1800, while the bell and movement plates bear the casting mark of George Ainsworth of Warrington, who worked from about 1790 to 1815. Note the very simple nature of the single arbor bearing the two levers that control the striking, but there is little latitude for adjustment and they would have probably have been made using jigs.

John Whitehurst's successors, his nephew John II and great-nephew John III, used pin countwheels extensively until the firm closed in the 1850s.[5, 6] Throughout the first half of the nineteenth century they made a range of striking and ting-tang chiming clocks that were supplied as hook-and-spike wall clocks or in tall painted pine cases (looking like longcase clocks until it is seen that the pendulums are only about 16 ins long and even though of eight-day duration they are chain driven, but not with Huygens's loops). Both striking and chiming trains have pin countwheels (Figs 4 and 5), and the only exceptions appear to be the relatively small number of traditional rack-striking longcase clocks that bear the firm's name during this period.

5. M. Craven, *John Whitehurst of Derby, Clockmaker & Scientist 1713-88* (Ashbourne: Mayfield books, 1996).
6. R. Hughes & M. Craven, *Clockmakers & Watchmakers of Derbyshire* (Ashbourne: Mayfield Books, 1998).

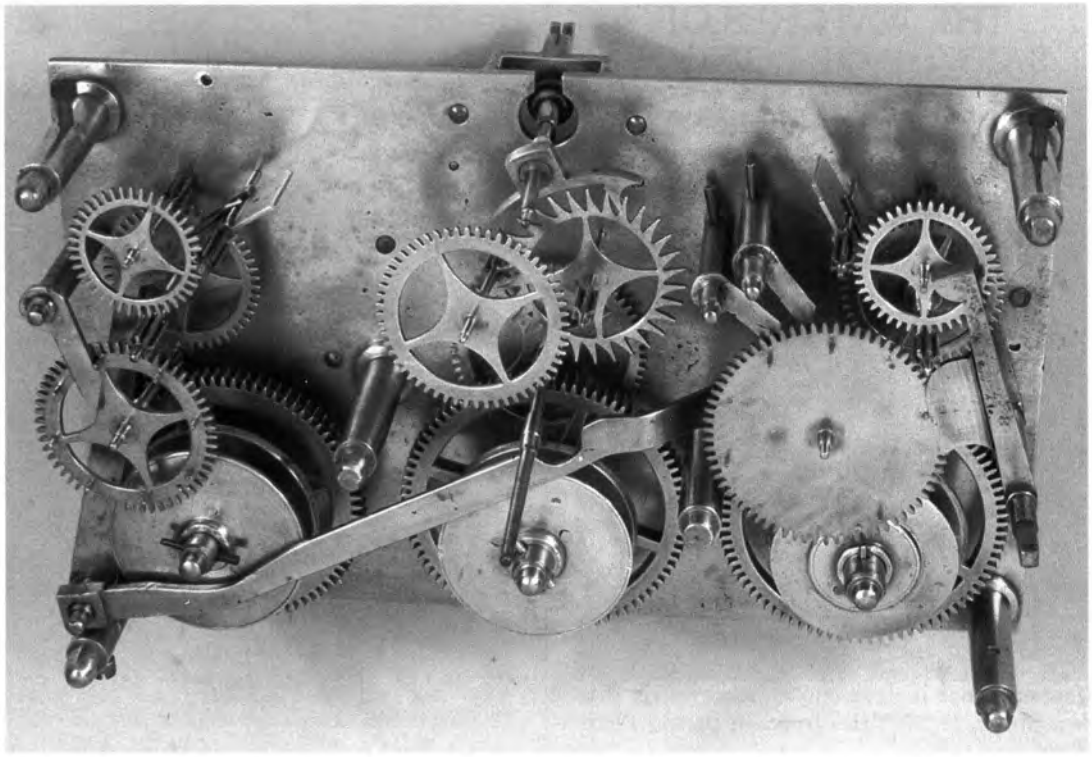

Fig. 4. Movement of a hook-and-spike three-train ting-tang wall clock by Whitehurst, Derby, typical of those made from about 1830, though not numbered. The pin countwheel for the ting-tang quarters can be seen on the right, with the pins on the front side of the pinwheel. The pins project both sides so they both trip the hammer tails and lift the countwheel detent; to give the correct number of blows some of the pins are cut off on the countwheel side. The hour countwheel pins are out of sight behind the great wheel, left.

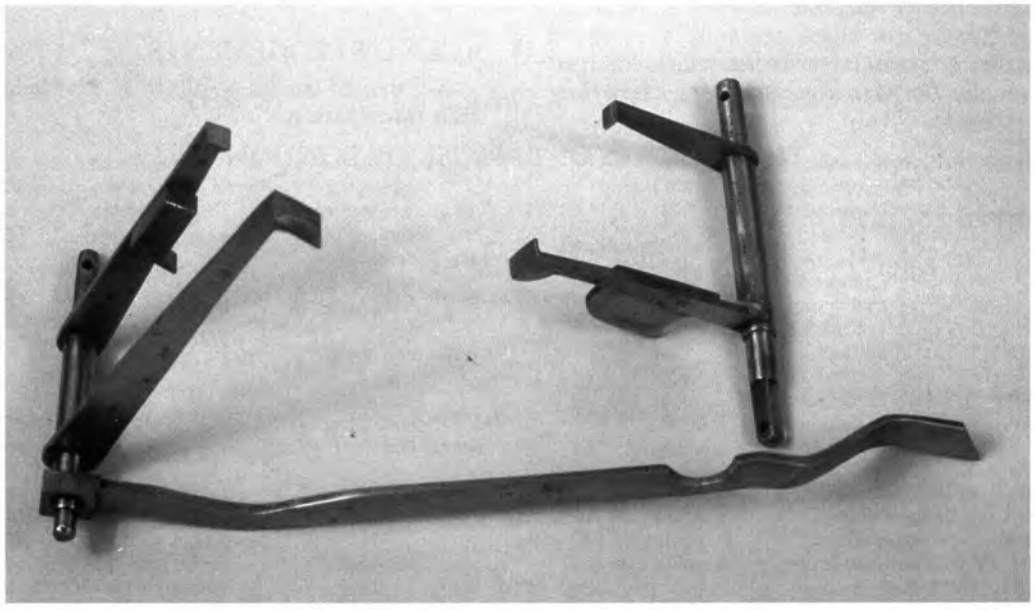

Fig. 5. Quarter striking arbor (right) of Whitehurst ting-tang wall clock, with locking detent at rear, countwheel and warning detents at front (lifting piece not shown). Hour striking arbor (left) with countwheel and locking detents at the rear, warning detent at the front. The hour is let off by the long lifting piece running along the inside of the movement which is tripped by a long pin on the quarter countwheel.