

# Peter Litherland's patent watches and their successors. A fine-grained history of rack lever watch production

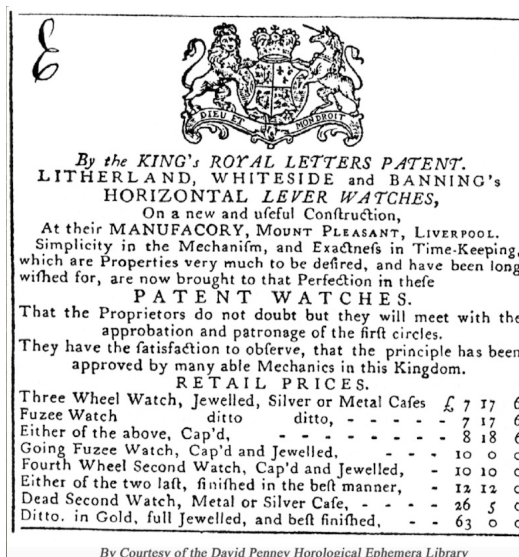
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*Taking a close look at the production and distribution of watches with Litherland's patent escapement, I argue from the evidence of existing watches that Litherland did not license his patents, as is often stated. Rather, in the 13-year lifetime of the patents, the Litherland shop produced and fitted rack lever escapements for watches signed by others, including Robert Roskell. Using counts of existing rack levers, I also show that Liverpool (and London) production of rack lever watches did not expand until after the Litherland patents had expired. Rack lever production declined after other new escapements, notably Massey's, were developed, though it persisted well into the era of detached lever escapements.*

A ferment of innovation in Liverpool watchmaking began in the late 1700s when Peter Litherland invented and patented the rack lever escapement in 1791. In his patent, Litherland stated that:

...after much study labour and great expence he hath invented an entire new escapement to be applied to watches or clocks or dials called watches or clocks for the use both on sea and land which acts upon an entire new principle producing greater certainty of time than any hitherto invented being more simple and less liable to be out of repair and when repaired effected with less damage to the mechanical principles on which it is constructed than former watches and which he considers will be of very great public utility especially for ascertaining the Longitude at sea...<sup>1</sup>

Though not accurate enough for navigation, rack lever watches did come into favour,



*By the KING's ROYAL LETTERS PATENT.*  
LITHERLAND, WHITESIDE and BANNING'S  
HORIZONTAL LEVER WATCHES,  
On a new and useful Construction,  
At their MANUFACTORY, MOUNT PLEASANT, LIVERPOOL.  
Simplicity in the Mechanism, and Exactness in Time-Keeping,  
which are Properties very much to be desired, and have been long  
wished for, are now brought to that Perfection in these  
PATENT WATCHES.  
That the Proprietors do not doubt but they will meet with the  
approbation and patronage of the first circles.  
They have the satisfaction to observe, that the principle has been  
approved by many able Mechanics in this Kingdom.

RETAIL PRICES.

Three Wheel Watch, Jewelled, Silver or Metal Cases	£ 7 17 6
Fuzee Watch ditto ditto	- 7 17 6
Either of the above, Cap'd.	- 8 18 6
Going Fuzee Watch, Cap'd and Jewelled.	- 10 0 0
Fourth Wheel Second Watch, Cap'd and Jewelled.	- 10 10 0
Either of the two last, finished in the best manner.	- 12 12 0
Dead Second Watch, Metal or Silver Case.	- 26 5 0
Ditto. in Gold, full Jewelled, and best finished.	- 63 0 0

*By Courtesy of the David Penney Horological Ephemeris Library*

Fig. 1. Litherland advertisement of 1793. Courtesy of © David Penney.

perhaps because of their fashionable 'Patent' qualities<sup>2</sup> as well as their sturdiness. This

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1. R. Vaudrey Mercer, 'Peter Litherland & Co.', *Antiquarian Horology*, 3 (June 1962), 316–23.

2. S.B. de Save, 'Conference report part 2', *Antiquarian Horology*, 39 (December 2018), 565–567.

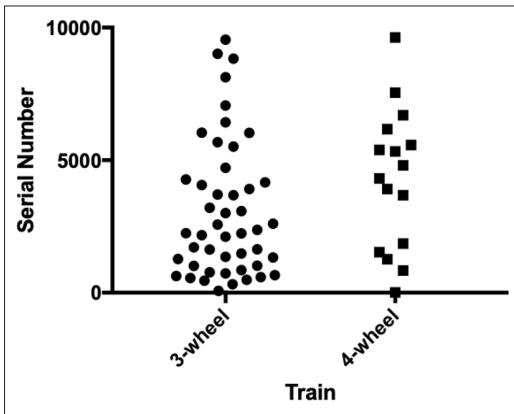


Fig. 2. Train wheels of 63 existing Peter Litherland rack levers. The serial number axis is effectively a date range, with 0 at 1791 and 10,000 at about 1820.

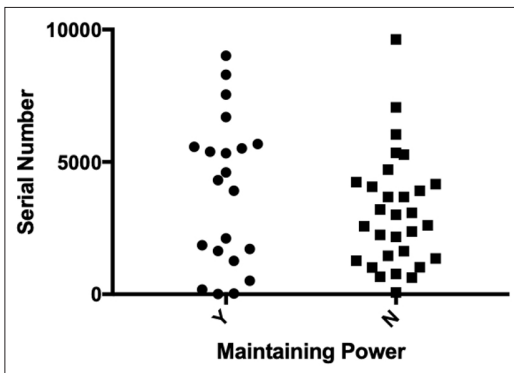


Fig. 3. Presence (Y) or absence (N) of fusee maintaining power in Litherland rack levers with 3-wheel trains.

sturdiness and the relative simplicity of the watches also meant that they were readily manufactured to fill demand and became one of the staples of the Liverpool export trade in the first quarter of the nineteenth century.

The range of Litherland rack levers is set out in an early, often-cited, advertisement in *Gore's Liverpool Advertiser and Shipping News*<sup>3</sup> (Fig. 1). Though all grades are praised for 'Exactness in Time-Keeping', the range of standard watches goes from low-end going barrel or fusee watches, without maintaining power and with 3-wheel trains, at £7 17s. 6d. through fusee watches with 4-wheel trains and maintaining power 'finished in the best manner' at £12 12s., all in silver or gilt metal

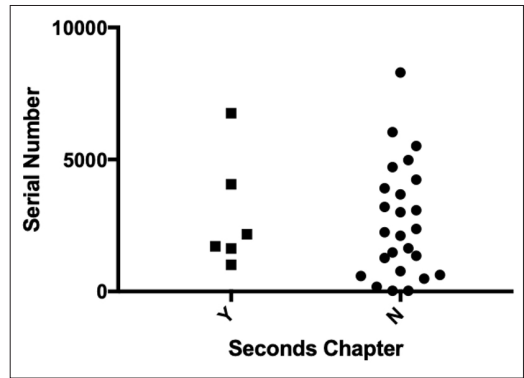


Fig. 4. Seconds chapters on dials of Litherland Rack levers with 3-wheel trains.

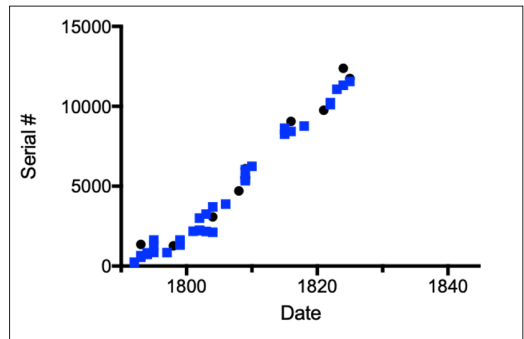


Fig. 5. Serial number vs. case date letter for Peter Litherland rack levers to about 1824. Black circles are data from my collection. Squares are published data.

cases. Given the state of mainspring making of the time, the going barrel watches would also have suffered compared with watches with fusee and maintaining power.

The 1793 advertisement also offers some expensively finished rack levers, a centre seconds watch in silver at £26 5s. and the same in gold at £63! These are beyond the scope of my paper.

The forms of rack lever described in the advertisement were constantly changing as Litherland continued production. Existing rack lever watches by Litherland and his successors, with serial numbers ranging from 12 to 9627 (1791 to c. 1815), evolve mechanically and aesthetically. Going barrel watches disappear by 1800. The straight-line escapement is not seen in watches after about 1793. With the change from straight-line to right-angle lever, slides appear. These were

3. David Penney, 'Litherland & Co.', *Horological Journal*, 136 (September 1993), 78.

to adjust the engagement of the geared rack of the lever with the balance pinion and later also the depth of the pallets and the 'scape wheel. Wheel trains evolve too. The earliest watches that I have examined, Litherland Nos 29 and 31, beat at about 15,000 bph. Four watches in the serial number range 200–1000 beat 11,500 to 12,600. Eleven watches numbered between 1,000 and 6,000 all beat 14,400, the standard for English watches in the early nineteenth century.

Most of the surviving watches and movements are concentrated in two groups, those with 3-wheel trains, with and without maintaining power to the fusee, and those with 4-wheel trains, the middling quality watches of the pricelist. Indeed, of this middling quality there are far more with a 3-wheel rather than 4-wheel train (Fig. 2). Three-wheel train watches usually lack maintaining power (30/51 examples) (Fig. 3) and have further economies made in their dials – lacking seconds chapters (Fig. 4), and sometimes (4/22) pinned directly to the pillar-plate instead of being mounted on a brass edge. Thus most of Litherland's existing output is congruent with his patent's claim of sturdy, relatively simple watches, readily produced and straightforward to repair.

Production of these watches was slow but steady. Litherland No 12 is in cases dated for London, 1791.<sup>4</sup> Litherland Davies & Co. No 12380 is case dated to 1824 and the progression from one to the other is linear (Fig. 5) giving us an output of about 400 watches a year. We can use this linear progression together with characteristic design features of Litherland rack levers to suggest that watches signed by other 'makers' were in fact supplied by Peter Litherland and his successors.

The aesthetics of Litherland rack levers changed, especially the form of the balance cock, as first noted by Vaudrey Mercer.<sup>5</sup> The earliest balance cocks have considerable open area on the bell-shaped table. This evolves to a pierced and fretted area with floral decoration, and the table grows small horns. A third, still later, form has a solid cock table and a scalloped foot. Examples are shown



Figs 6a and b.

in Figs 6a–e. The shape of the balance cock evolves further in watches signed Litherland Whitesides or Litherland Davies, the fourth form losing the horns on the cock table (Fig. 7). Balance cocks of different forms are not simply the result of different piercing techniques, but probably represent different suppliers of rough movements. The balance cocks shown in Figs 6 and 7, all from movements of the same (within a millimeter) diameter, were not superimposable on one another; they would

4. F.H. McMillan, 'Peter Litherland & Co. - Number 12. An early straight line rack lever watch', *Bulletin of the National Association of Watch and Clock Collectors*, 13 (December 1968), 654–57.

5. Mercer, 'Peter Litherland & Co.'.





Fig. 6e.



Figs 6c and d.



Fig. 7. Type 4.

have been had their variations in design been only owing to differences in piercing.

A careful study of the style and numbering of existing watches suggests that Litherland held his patents closely and did not license them, as is sometimes asserted.<sup>6</sup> The characteristic forms of balance cock, and the fact the watch serial number is scratched on the reverse of the cock, can be used to identify watches made by Litherland but signed for others. Examples of watches signed for other Liverpool and provincial makers, but with Litherland serial numbers (either P.L. & Co.

or L.D. & Co.), are shown in Fig. 8. Some are explicitly marked either 'PL Patent' or 'LD & Co. for ...'. All have the characteristic shape of balance cock and all have numbers scratched under the cock foot which, when datable from case date letters, are consistent with Litherland's numbers. Seven of the thirteen examples that I have collected are signed for Dublin retailers. The single example I know of a London-finished rack lever before 1810 is also shown (Fig. 9). This watch, signed by George Jamison, is marked 'P.L. Patent'; however, no serial number can be made out

6. Alun C. Davies, *The Rise and Decline of England's Watchmaking Industry, 1550–1930* (New York & London: Routledge, 2022), p. 47.



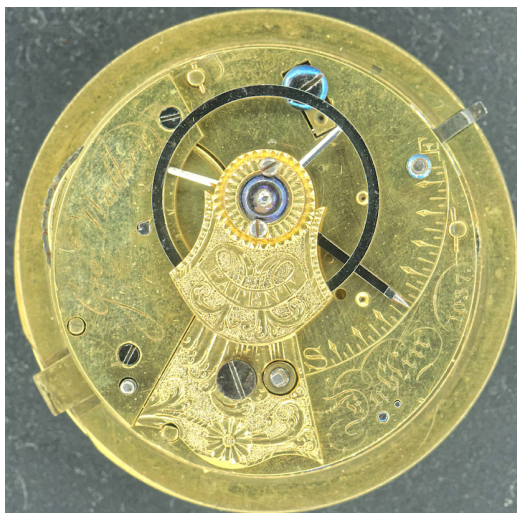


Fig. 8a. Rack lever signed George Walker (barrel bar) Dublin 1037, with balance cock typical of Litherland's 3rd style and marked 'Patent'. Litherland's serial number, 2110, is scratched under the cockfoot.



Fig. 8b. Anthony L'Estrange, Dublin 1088 in a gold case marked for Chester 1804. On the cockfoot is written 'Patent P.L.' and Litherland's serial number, 3075, is scratched on the reverse.

on the heavily scratched underside of the cock foot.

The argument that 'if a watch looks like Peter Litherland's work and is numbered in his series, it is by Litherland' extends to early watches by Robert Roskell, up to around 1810. Roskell is probably the most successful and entrepreneurial of the Liverpool watch



Fig. 8c. Peter McMaster Dublin 147 in a gold demi-hunter dated 1805. Litherland's serial number is 3200.



Fig. 9. A London rack lever signed for George Jamison and marked P.L. Patent on the top plate. In silver hunting case marked for London, 1801.

manufacturers in the nineteenth century and is known for his rack lever production and his extensive export business. He was described thus in 1885:

Robert Roskell, a Liverpool manufacturer, purchased some of these patents (by Litherland and Massey, M.E.), and commenced making watches on a large scale, and, being a man of energy and enterprise, established agencies for their sale all over America. Mr. Roskell told me his father had sent 30,000 watches to South or Spanish America alone.<sup>7</sup>

7. David Glasgow, *Watch and Clock Making* (London: Cassell & Company, 1885), p. 38.

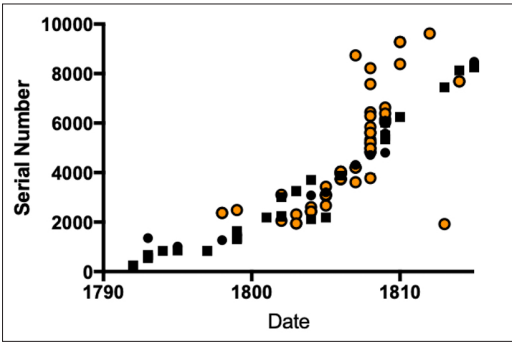


Fig. 10a. Serial numbers of datable Robert Roskell rack levers (orange circles) with the serial numbers of Peter Litherland rack levers (black squares) to 1815. The two are congruent until 1808/1810 when Roskell production diverges.

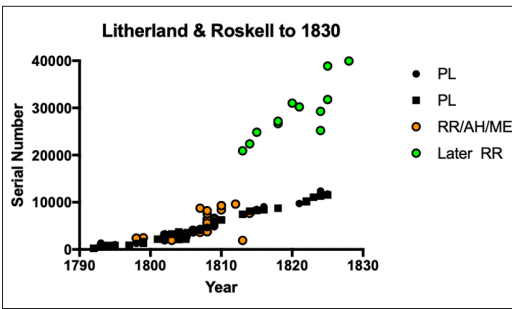


Fig. 10b. Serial number vs date of Litherland and Roskell production (of all types of watches) to 1830.

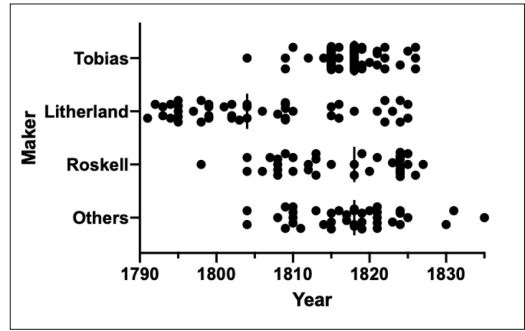


Fig. 11a. Production of rack lever watches by Liverpool manufacturers as represented by existing watches datable from case date marks. Vertical bars mark median values.

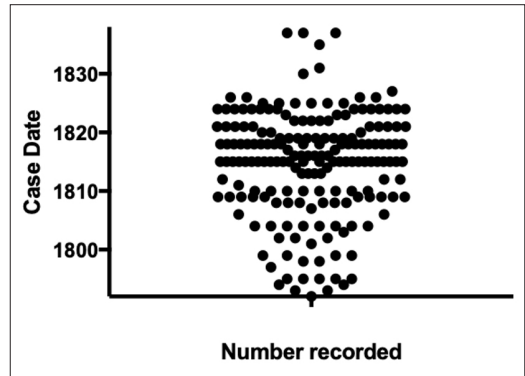


Fig. 11b. Data of Figure 10a pooled to form a tree whose width represents the number of known watches for a given date. Liverpool production of rack lever watches was greatest from about 1810 to about 1825.

Amplifying this characterization:

It was well known that the Roskells were the first watchmakers in the world, and had shops not only in Europe, but in Australia and all over the globe.<sup>8</sup>

Roskell began watch manufacture about 1798,<sup>9</sup> first with a brother-in-law O'Neal, and then taking over his father-in-law William Tarlton's business.<sup>10</sup> His early rack levers all have a characteristic Litherland-style balance cock. Some are marked 'P.L. Patent' and others simply 'Patent'. The serial numbers of cased

watches dating between 1798 and about 1808 all fall into the Litherland numbering series (Fig. 10). It appears that while Litherland's patents were in force, he supplied even the most prolific and active watch manufacturer in Liverpool with rack lever watches, rather than licensing their production.

Litherland's patents of 1791 and 1792 expired in 1804 and 1805 respectively. Once the rack lever escapement was out of patent protection, after a lag that probably reflects the time to build the tools and fixtures needed for making the escapement,<sup>11</sup> other Liverpool manufacturers began producing watches with

8. *Liverpool Daily Post*, August 4, 1869, in the report of a law suit over the sale of a fake Roskell watch.

9. G.H. Baillie, *Watchmakers and Clockmakers of the World* (London, N.A.G. Press Ltd., 1947), p. 275.

10. John Matthews, 'Roskells of London and Liverpool' unpublished family history. Cited with permission.

11. Davies, *The Rise and Decline*, p. 47, citing an earlier statement by George Daniels.



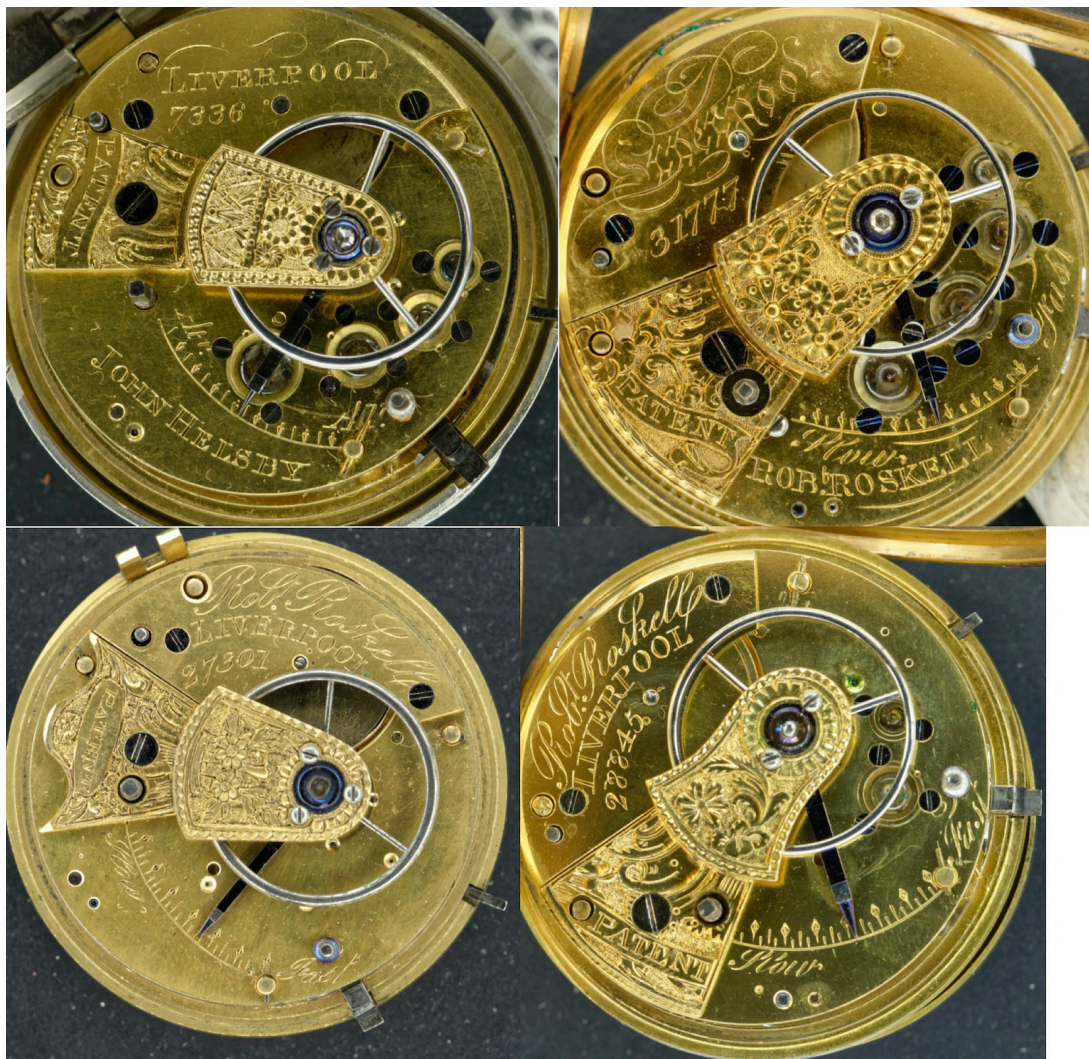


Fig. 12. Varieties of later Liverpool-finished rack lever watches. **Top left**, John Helsby 7336, in a silver case marked for 1824. No slides, jeweled to the third. **Top right**, Robert Roskell 31777, in a gold case marked for 1825. No slides, compensation curb, jeweled to the third. **Bottom left**, Robert Roskell 27301, no slides. **Bottom right**, Robert Roskell 28445 in a gold case dated 1824, 'scape and fourth jewelled. The watch has been converted to table roller escapement.

the escapement and production boomed for twenty years. Production by Liverpool makers, including Litherland, is shown in Fig. 11. The width of the 'tree' in Fig. 11b gives the number of rack levers signed for Liverpool and datable to a given year from case date marks.

After 1810, Liverpool-signed rack levers vary in appearance and finish. They are consistently marked 'Patent', to advertise their origins, but vary in style of balance cock and details of train layout and jeweling (Fig. 12). There is similar variation in rack

levers signed for London makers, though most London makers seem to have finished only a few watches with rack lever escapements. Some of these could be mistaken for watches with other escapements; there are no slides and a number (seven out of eleven in my collection) are oversprung, with the regulator on the balance cock instead of on the top plate (Fig. 13). I know of only one London maker who produced a run of rack levers, Morris Tobias, but even his watches vary in style, finish and wheel train.





Fig. 13, London-finished rack levers. **Top left**, John Cross, London, written 'Patent' on the top plate. No slides. Oversprung; lever 'scape and 4<sup>th</sup> jeweled. **Top right** Phillip Phillips, in a gold pair case dated 1817. Slides to the lever. Oversprung. **Lower left** Jonathan Grey in a gold consular case marked for 1825. Not marked 'Patent', no slides. Steel pallets and a gold escape wheel. **Lower right**, Cheetham, Leeds, in silver pair cases marked for 1809. Not marked 'Patent'. Oversprung.

To summarize: Peter Litherland dominated the production of rack lever watches, developing and refining watches using his escapement, but never licensed its manufacture by others. Instead, he supplied complete movements to retailers in several cities. Once Litherland's patents expired, the escapement was taken up by a number of Liverpool and London manufacturers and this wider use resulted in a greater variety of frames and finishes, though there was no further evolution of the escapement itself.

Perhaps this might have occurred had not the detached lever escapements of both Massey and the table roller appeared about ten years after the rack lever patent expired. These new escapements were widely disseminated and by the 1830s only the word 'Patent' on a Lancashire movement remained to echo Litherland's success in making sturdy, affordable watches that were the prelude to the dominance of Liverpool watches in the mass export trade; watches that were the making of prosperity for many Liverpool manufacturers.