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The First Automatic Wristwatch

*Le Roy 1890 Patent Wristwatch
Never Wants Winding*



Eur Ing David Boettcher CEng MIET FBHI

57, NEW BOND ST., LONDON. **LE ROY ET FILS'** 57, NEW BOND ST., LONDON.

ORIGINATORS OF THE **BRACELET WATCH.** INVENTORS, PATENTEES, SOLE MANUFACTURERS.

LE ROY'S Gold Registered Bracelet, to fit any Watch, £3 10s.

PATENT WATCH NEVER WANT WINDING. PERFECT TIMEKEEPERS.

LARGEST STOCK in the WORLD.

FROM £7 10 0 to 100 Gs.

LE ROY et FILS' New LEVER Bracelet.

Gold Registered Watch Bracelet, complete (Keyless), £7 10s.

CHAIN BRACELET WATCH, with Ruby Face and Diamonds, from 20 to 60 Gs.

The only Compensated Bracelet made. Guaranteed to 1 minute per week. £15 10s.

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Figure 1. Le Roy Originators of the Bracelet Watch.

Wristwatches have a long history. The first watch that could be described as a wristwatch was presented to Queen Elizabeth by Robert Dudley, the Earl of Leicester, as a new year gift in 1571. Small watches were favoured by the nobility as displays of wealth and power. Elizabeth also had a watch set in a ring which served as an alarm; a small prong gently scratched Her Majesty's finger at the set time. It was probably not a precision timekeeper, but it was certainly a *tour de force* of miniaturisation for the sixteenth century.

Over the succeeding centuries, smaller and smaller watches continued to be worn by wealthy people as impressive novelties; bracelets, wristwatches, finger rings and pieces that were even tinier still. In 1876 it was reported that the Duc de Penthièvre, a grandson of Louis XIV of France and his mistress Madame de Montespan who had a passion for watches, wore watches in his waistcoat buttons, and had ordered a set for shirt and wrist studs.¹

These miniature watches were expensive trinkets of little useful purpose; more exotic jewellery than practical timekeepers. Richard Edwards identified the first practical and useful application of wristwatches as being by the British military in Northern India in the mid-1880s.² Small pocket or fob watches were fitted into cups on leather wrist straps.

It is perhaps no coincidence that, after the end of the American civil war which had consumed all its production, the American Watch Company of Waltham began to export surplus watch movements that could not be sold in America. These were exported bare since mass production of watch

cases had not been achieved, and a factory was set up in Birmingham in 1875 by Aaron Dennison under the aegis of Waltham to make cases for them.³ Imported mass-produced watches such as these from America and Switzerland, together with increasing English factory production, made watches more available and more affordable, to the point that military men realised that it was viable and convenient to use watches strapped to their wrists when on manoeuvres for timing troop movements.

The wearing of watches on the wrist in leather holders, called 'wristlets' at the time, soon spread to the civilian population, or to the female portion at least — it would be many years before civilian men were persuaded to wear wristwatches, but that's another story. In 1887 *The Horological Journal* reported that horse-riding ladies had adopted the idea.⁴ The Paris correspondent of the *Daily Telegraph* reported that the fashion had spread to Paris in the summer of 1888.⁵ Jewellers and watch manufacturers soon responded to this new fashion by producing more feminine bracelet wristwatches such as those shown in **Figure 1**.

The advert describes Le Roy et Fils as the 'originators of the bracelet watch', which was not strictly true since bracelet watches had been made for centuries. But those were expensive one-off items made by jewellers for aristocratic customers. It is fair to say that Le Roy et Fils was the first to advertise bracelet watches that could be bought from a shop by ordinary, if still wealthy, members of the public; Le Roy's first adverts for bracelet watches had appeared in 1887.

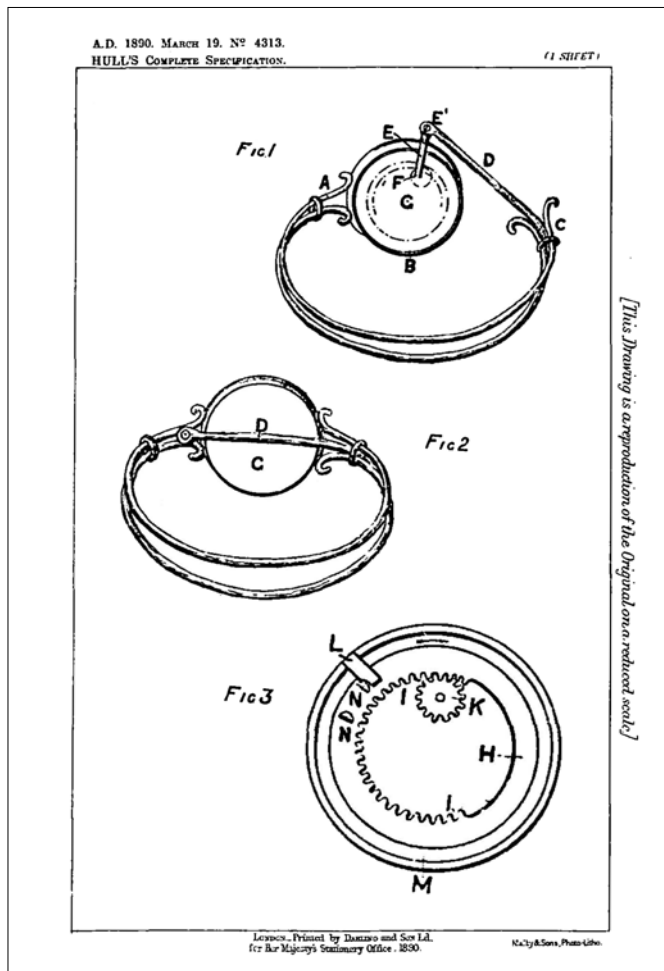


Figure 2. Drawings from British Patent 1890/4313.

The advertisement reproduced in **Figure 1** is from 1890 and is particularly interesting because it mentions patent watch bracelets that ‘never want winding’. The tedium of winding a watch every day had long been recognised, and watches that wound themselves had been created as early as the eighteenth century.⁶ This appears, however, to be the first application of automatic winding to a wristwatch — and not in a large pocket watch worn on the wrist, but in a small ladies’ wristwatch.

Previous designs of self-winding watches employed weights or masses that wound the mainspring as the watch was moved about by the actions of its wearer, but there was no room in such a small wristwatch for a mass of adequate size. The fertile mind of an inventor realised that automatic winding could be achieved in wristwatches with a bracelet or bangle by making the action of opening and closing the bracelet, as the watch was put on and taken off, wind the mainspring. On 19 March 1890 Tom Grove Hull, the British manager of the retail outlet of the Parisian watchmakers Le Roy et Fils, deposited an application for a patent for such an invention, *Improvements in Watch Bracelets*, which was granted British patent No. GB 1890/4313 on 31 May 1890.

The invention was patented in Switzerland, *Système perfectionné de bracelets porte-montre*, Swiss patent CH 2520, published 15 December 1890 with priority date 2 August 1890, and in America, *Watch-Bracelet*, US patent application filed 15 September 1890, granted Patent No. 442,377 on 9 December 1890. I assume that the invention was patented in France by Le Roy but I have not so far located this.

‘From its installation, the wristlet watch has been delightful; but it has remained for Messrs Le Roy and Fils, of New Bond Street, to bring it to perfection. They have discovered a mechanism which, applied to the watch, causes it to go ceaselessly, and that without winding; in consequence of which, no trouble need be taken by the owner in this direction. The bracelet in which the watch is fixed is a lovely double band of gold ornamented with arabesques of the same set with diamonds or other stones. The wristlet owns the added charm of being as safe and secure as a manacle; it is shaped to suit the arm of the purchaser, and as it has neither joint nor strap, it is positively impossible to loose it. What more charming gift could be given to a woman than this?’

Figure 3. A review in *Vanity Fair* as reproduced in *The Queen* newspaper, 1891.

The drawings from the patent, **Figure 2**, show how a lever arm ‘E’ was made to turn a back plate of the watch as the bracelet was opened and closed, rather like in the manner that a steam locomotive wheel is turned by a rod connected to the piston. An internally toothed wheel ‘H’ attached to the inside of the plate turned the pinion labelled ‘K’, which was mounted on the mainspring barrel arbor. The plate turned half a revolution on opening the bracelet and completed the full revolution as the bracelet was closed. The wheel ‘H’ was internally toothed over only part of its inner circumference, as shown in the figure from the patent. The number of teeth was such that they would turn the barrel arbor the number of times required to wind the watch for half its full period. When the end of the toothed section was reached as the back plate revolved, the plate could then continue to revolve freely without further winding the mainspring. Each time the watch was put on or taken off it was half wound which, if each action was performed once per day, was sufficient to keep it running.

Although it would appear that the bracelet or bangle must be rigid in order to turn the lever, in later adverts, ‘patent chain watch bracelets’ that never want winding were advertised. The wearer of such a watch must have turned the lever directly.

The use of the winding lever as the means of expanding and contracting the bracelet as it was put on and taken off meant that there was no clasp in the bracelet, which was an interesting feature because the means of fastening was invisible to anyone who didn’t know the operation of the watch, and was also said to make it more secure since there was nothing that could unexpectedly unfasten.

These Le Roy automatic bracelet watches soon reached America. On 1 October 1890 *The Globe-Republican* newspaper of Dodge City, Kansas, reported: ‘A peculiar piece of mechanism, now in the possession of a Pittsburgh gentleman, is a bracelet in which is set a watch requiring no winding which would be recognized [sic] as such. The watch is wound by the simple clasping of the bracelet and is a great convenience to the lady enjoying its possession. In securing the piece of jewellery on the wrist the watch is wound for thirty hours and is not affected by the jars or by the removal of the bracelet. The clasp is invisible and can only be detected by an expert or the owner.’⁷

In the spring and summer of 1891, Le Roy adverts in *The Queen* newspaper reproduced favourable reviews from *Vanity Fair*, **Figure 3**, (the British 1868–1914 magazine, not the American one of the same name that is better known today but which started publication in 1913), and from *Lady’s Pictorial*, **Figure 4**.

'The introduction of a watch of this description, which positively requires no winding, is a piece of marvellous ingenuity, which amounts almost to the mystery of magic. The mechanism is of the simplest description, the opening and shutting of the bracelet is as easy a matter as the turning of a key in any lock. Another great advantage, which must by no means be forgotten, arises from the fact that no kind of clasp or fastening is visible in the wristlet itself, so that no sudden jar will cause it to unfasten, and once it has been clasped round the wrist it is perfectly and absolutely safe, no one being able to open it who is not already initiated into the mystery of its invisible fastening. This security is very important. Wisely recognising the vast importance of their invention, Messrs Le Roy et Fils have patented this watch-bracelet, not only throughout England, but also on the European continent and in America.'

Figure 4. A review in Lady's Pictorial as reproduced in The Queen newspaper, 1891.

The winding mechanism, especially in a small watch such as found in a ladies' bracelet watch, must have been rather delicate and would have required careful handling when putting on and taking off the watch to make sure that the revolving action completed satisfactorily. The patent does not discuss the possibility of the wearer changing their mind, putting the watch on and taking it off several times, resulting in multiple winding actions which could ultimately have broken the mechanism or mainspring. Either purchasers must have been warned about this, although people do not always follow manufacturers guidelines precisely, or some slipping action might have been incorporated into the manufactured watches.

In discussing setting the time, the patent says 'The usual set hands push piece may be provided for regulating the hands and by pressing this the winding action is connected with the hands of the watch in any well known manner.' This would be awkward to do while putting the watch on, so it must be assumed that it would be done with the watch off, using both hands, which again would have to be done carefully to avoid also inadvertently winding the watch.

No specimens of the watch are known to exist today, so it might have been a commercial failure. However, the earliest advert found so far was in *The Queen* of 17 May 1890, and the latest in the same magazine on 5 November 1892, so the watch was advertised monthly for at least two and a half years. Given the delicacy of the winding mechanism, it is possible that the dearth of specimens today is due to some problems with wear in the automatic mechanism that limited the lifetime of the watches. But this would probably be no worse than problems with the mechanism of the Hardwood Autorist, which was

supposedly wound by movement of wrist moving very short levers that formed the wrist strap attachments.

The Harwood Autorist was not a success. A search of newspaper and magazine archives shows that the Autorist began to be rumoured to the watch trade in June 1931, with the first technical description appearing in August.⁸ Advertisements to the public appeared in October 1931. The last public advertisements I found were in October 1932, a period of just over one year, which is short compared to the two and a half years over which the Le Roy automatic bracelet watch was advertised. However, today the Autorist is something of a holy grail for collectors, whereas this article seems to be the first time the Le Roy automatic bracelet watch has been described in over 120 years.

Conclusions

The Le Roy automatic bracelet watch may have not been a great commercial success, but as the first automatic wristwatch it should be better known than it is. It may be that it was just too early to have attracted the attention of wristwatch collectors, although museums should be interested, but it probably suffers from being a ladies' wristwatch, and these do not get much interest from collectors.

Acknowledgements

Thanks to Robert Butler for drawing to my notice the American patent and the *Globe-Republican* newspaper article.

ENDNOTES

1. Editorial, *Silversmith's Trade Journal* (London, 5 Oct 1876) p107.
2. Minutes of the Sixty-second Annual General Meeting, Third Lecture, *Antiquarian Horology*, vol. 37 (Sep 2016) p398, and personal communication with the author.
3. Report from the Select Committee on Merchandise Marks Act (1862) Amendment Bill (London, Hansard and Son, 1887) pp81, 83.
4. 'Jottings', *Horological Journal* (Dec 1887), p50.
5. Editorial, *The Watchmaker, Jeweller and Silversmith* (London, 1 August 1888), p26.
6. Richard Watkins, *The Origins of the Self Winding Watch 1773–1779*, 2nd edn. (Tasmania, NewPrint: 2016), p1.
7. Editorial, *The Globe-Republican* newspaper (Dodge City, Globe-Republican Publishing Co., 1 October 1890), p1.
8. WCM Technical Expert tells about a New Self Winder: the Autorist', *Watch and Clock Maker*, vol. 4 no. 42, (London 15 August 1931), pp186–187.