

# *“The Carriage Way”*



## International Carriage Clock Chapter #195 Founded 2013

The National Association of Watch and Clock Collectors

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One-button five-minute repeater No.324, by an unnamed maker.

## President's Report



Stan Boyatzis

Welcome to our first newsletter for 2022. I hope you all had an enjoyable and relaxing break over the Christmas period and look forward to a Covid safe 2022. Hopefully, 2022 will be a much better year than 2020 and 2021 with a return to face to face meetings for NAWCC and the various Chapters. Chapter 195 is hoping to co-chair the 2023 National in Lancaster with an exhibition at the museum in Columbia to celebrate the NAWCC 80<sup>th</sup> Anniversary.

In late October Leigh Extence from the UK presented a Zoom lecture on Henri Jacot. Leigh concentrated his research on the lives, clocks, and working practices of the great carriage clock maker Henri Jacot, his family, and associates. If any member missed the lecture and is interested in viewing the presentation, please email me and I will provide the link.

Again, if there is a particular topic on carriage clocks that have not been covered in previous newsletters and is of interest, please email Ken Hogwood, or myself and we will research the area and have a specialist on the topic write an article.

This month's feature article is by Tom Wotruba on "Carriage Clocks That Are Five-Minute Repeaters". Repeaters provided a measure of time on demand by means of a push-button on the clock case. This article examines one such type, called a five-minute repeater, which has the capability of repeating on demand the last hour of time passed and the number of five-minute intervals passed since that hour. The article was previously published in the December 2021 Antiquarian Horology and permission to reprint this article is gratefully acknowledged.

The second article is by Keith Seldon on "Re-enamelling a Carriage Clock Case". Keith is an enamel artist working in the UK. He explains how he re-enamels two damaged enamel carriage clock cases and the problems that can be encountered. Both Tom and Keith welcome any questions from the members.

The executive continues to work hard to promote the chapter and I again encourage current members to spread the word about Chapter 195 and invite friends with an interest in carriage clocks to join. Remember, this is your newsletter so if you have any helpful hints or unusual carriage clocks you own or have seen, please share these with the members. If you have any queries about a carriage clock, please do not hesitate to contact Doug or myself. Details are at the back of the newsletter.

Copies of previous newsletters, hints, and a question page are included on our website. There are also carriage clock articles from the Bulletin and carriage clock videos from the NAWCC library. You will need to be logged in as a NAWCC member to access these.

<https://new.nawcc.org/index.phpSEB195rosshogan@optusnet.com.aup/chapter-195-international-carriage-clock>

A link to the 1stdibs website is included. This is a useful website to research retail prices of carriage clocks and what is currently for sale. The website is updated weekly. We are happy to include other websites that may be of interest to the membership.

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## **Carriage Clocks That Are Five-Minute Repeaters**

**Thomas R. Wotruba (USA)**

Since its earliest days at the outset of the 19<sup>th</sup> Century, the carriage clock has provided features of distinct interest to horologists and collectors. Beyond their practical advantage of portability, many of these clocks offered attractive design and functional elements. One such functional element, originating before the widespread availability of electricity toward the latter 1800s, is the capability of indicating a measure of time in the middle of the night when the clock dial was not visible. Known as repeaters, these clocks provided such measures on demand by means of a push of a button on the clock case. This article examines one such type, called a five-minute repeater, which has the capability of repeating on demand the measure of the last hour of time passed and number of five-minute intervals passed since that hour.

An interesting feature of a number of carriage clocks is their capability to repeat the most recently past hour by striking its number on a bell or gong when a designated button on the clock case is pressed. Some have additional capability to repeat the number of quarter hours passed in addition to the most recent hour. Further sophistication is found in those clocks more sparsely available that can repeat the number of five-minute intervals since the previous hour and a very select few offer the ability to repeat the number of individual minutes occurring after the most recent hour past. These categories of repeaters are often referred to as hour-repeaters, quarter-hour-repeaters, five-minute repeaters, and minute repeaters.

Each succeeding category of repeater is increasingly rare, with the minute repeaters being extremely limited in number. Corresponding with the increase in rarity of each successive category comes an increase in desirability among many collectors. The focus of this article is on five-minute repeaters and the differences and comparisons among the various types that were made. But before we get into the details and examples of these various types, let us get some indication of how rare or uncommon is the five-minute repeater among carriage clocks overall.

The two historically most famous books on carriage clocks both discuss the topic of five-minute repeaters, but somewhat briefly and with few illustrations.

Allix provides some description of how they work accompanied by two example pictures.<sup>1</sup> Nowhere else in his book containing hundreds of illustrations is there an identified example of a five-minute repeater. Roberts describes five-minute repeaters concisely but offers no pictured examples identified as such in his lavishly illustrated book.<sup>2</sup> Other sources of interest include catalogs of auctions covering carriage clocks exclusively to determine what share were five-minute repeaters. One major Christie's auction of 134 French carriage clocks occurred in 1997.<sup>3</sup> Five clocks in this auction, or about 4%, were five-minute repeaters. In 1998 Christie's presented an auction of 187 French carriage clocks in which three, or less than 2%, were five-minute repeaters.<sup>4</sup> An additional source for comparison is the book of carriage clocks, noted as "particularly choice examples," chosen and described Joseph Fanelli.<sup>5</sup> Of the 100 clocks pictured and described of French, English, Swiss, and Austrian origin, only three (3%) were five-minute repeaters. Based on these findings at least, it seems reasonable to assume that five-minute repeaters are relatively rare among carriage clocks.

### **Types of Five-Minute Repeaters**

There are many ways to describe different types of five-minute repeater carriage clocks. One way could be by maker, another by size, and still another by the mechanical processes underlying their operation. A variety of makers produced such clocks and the illustrations in this article indicate some of them, though for others discovered in the research for this article the maker was unable to be identified.. But one way that seems interesting and unique to these clocks involves the procedure whereby the desired repeat action is achieved. For example, with some five-minute repeaters it is possible to repeat the number of strikes indicating the last hour only and skip the reporting of the number of five-minute segments passed since that hour. In others the hour can be skipped and the number of five-minute segments since the last hour will be sounded. Many of these same clocks will provide both the measures of the last hour as well

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<sup>1</sup> Charles Allix, *Carriage Clocks: their History and Development*, Antique Collectors' Club, Ltd. , pp. 197-198 including Plates VIII/6 and Plate VIII/7.

<sup>2</sup> Derek Roberts, *Carriage and Other Travelling Clocks*, Schiffer Publishing Co., 1993, p. 225

<sup>3</sup> "French Carriage Clocks From an Important Private Collection," Christie's South Kensington, 3 July 1997.

<sup>4</sup> "The Dr. Eugene and Rose Antelis Collection of Important French Carriage Clocks," Christie's South Kensington, 26 November 1998.

<sup>5</sup> Joseph Fanelli, *A Century of Fine Carriage Clocks*, Bronxville NY, Clock Trade Enterprises, 1987.

as the number of five minute segments that have passed since the last hour. The result obtained depends on how the repeat process is designed and what the user chooses to do to implement it.

In the following sections these repeat patterns will be described in three categories, based on the number of repeat buttons contained in the clock. Less emphasis is given to the technical intricacies of the mechanisms themselves though these will be shown in photos of examples of each type. In general, all three categories involve eight-day movements and all strike the hour and half-hour in passing when no repeat action is attempted. Most strike on gongs though some have been found to utilize bells. Platform lever escapements prevail. The three categories of clocks with five-minute repeat patterns will be defined and distinguished here as one-button, two-button, and three-button.

### **One-Button**

The one-button category involves those five-minute repeaters that contain one repeat button on the top front of the case. Examples are shown in Figures 1a and 1b. Both strike the hour in passing but the clock in Figure 1a then strikes the half-hour in passing with 6 ting-tang or double strikes using two hammers and two gongs. This can be interpreted to reflect that 6 five-minute intervals have passed since the hour. Note that this clock also contains an alarm which, when activated by being wound and set, involves a third hammer that strikes on the second gong.



*Figure 1a. One-button five-minute repeater numbered 324, by an unnamed maker.*



*Figure 1b. One-button five-minute repeater numbered 8656, by Henri Jacot. (Photo courtesy Leigh Extence)*

The clock in Figure 1b by Henri Jacot strikes once to mark the half-hour in passing and this involves a smaller gong with a different tone than that used to strike the hour. When the repeat button is pressed, the clock in Figure 1a repeats the hour in single strikes followed by the number of five-minute intervals since the hour in ting-tang or double strikes on the two gongs by the two hammers. When the repeat button is pressed on the clock in Figure 1b the number of hours is struck on one gong followed by the number of five-minute intervals since the hour in single strikes on its smaller gong which has a different tone. It is interesting to observe that, just from their appearance, these examples look very much like most other repeaters of less complication (for example, hour repeaters) which have a single repeat button at the top front of the case,

A more detailed look at the clock in Figure 1a is seen in Figures 2a and 2b. Figure 2a shows a view of the backplate containing the gongs and hammers. None of the mechanism involved in activating the striking or repeating process is found here. Of more pertinent interest is the view in Figure 2b of the frontplate just behind the dial. This is where the mechanism exists to produce the striking and repeating work. The rack tail and its corresponding hour snail, which controls



*Figure 2a. Backplate of clock in Figure 1a.*



*Figure 2b. Frontplate of clock in Figure 1a.*

the hour strike in passing and in repeat, is seen just to the right of the center arbor while the five-minute snail is more difficult to see as it is somewhat submerged behind the hour wheel.<sup>6</sup> In both, the repeating mechanisms are located on the front plate, and are activated by the single repeat button located directly above them at the top front of the case. The results from these striking and repeating mechanisms on the frontplate are transmitted through the clock movement to the gongs and hammers residing at the backplate.

### Two-Button

The two-button category includes those that contain one repeat button at the top front of the case and a second repeat button at the top back of the case or on the back of the clock above the back door. Examples are shown in Figures 3a and 3b.



*Figure 3a. Two-button five minute repeater numbered 1210 by Parkinson & Frodsham.*



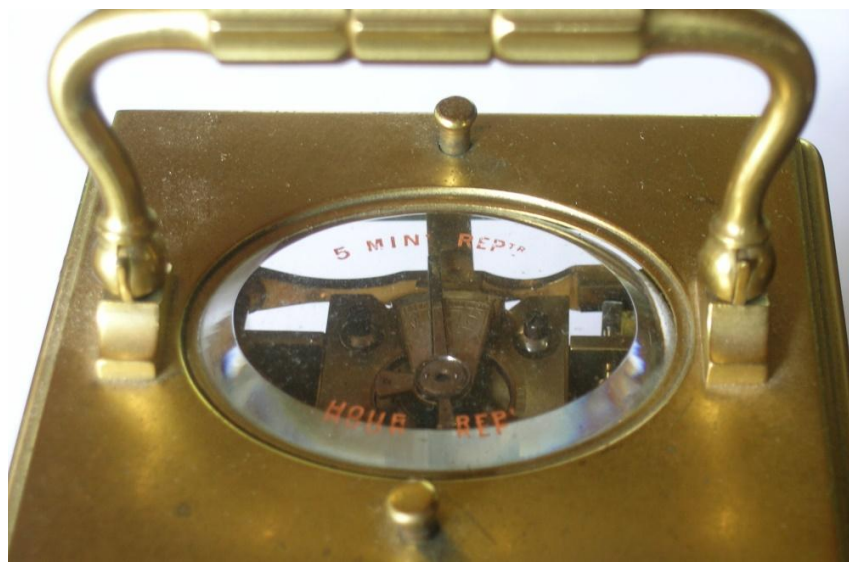
*Figure 3b. Two-button five-minute repeater by an unidentified maker. (Photo courtesy Carlton Clocks)*

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<sup>6</sup> More detail on technical aspects and components of movement mechanisms related to repeating clocks can be found in Donald de Carle, *Practical Clock Repairing*, London, N.A.G Press, 1969, and Eric Smith, *Striking and Chiming Clocks*, Great Britain, David & Charles, 1995.



The front button activates the hour repeat and the rear button enables the five-minute repeat. Figure 3a presents a two-button version for which both repeat buttons are on the top of the case. Figure 3b shows an example in which the back button is not on the top of the case but rather on the back just above the back door. On some clocks with both buttons on top of the case as in Figure 3a the buttons are labeled or described as shown in Figure 4, to indicate which button produces which type of repeat. Figure 5 presents another view of the clock in Figure 3b to show more directly where the back button is located in this clock in relation to the back door.



*Figure 4. Top of the case of the clock in Figure 3a showing the button labels.*



*Figure 5. Another view of the clock in Figure 3b showing the second repeat button location. (Photo courtesy Carlton Clocks)*

The two-button version incorporates their repeat mechanisms in correspondingly two different locations. The hour repeat mechanism activated by the hour repeat button is located on the outside frontplate behind the dial. This is also where the strikework in passing is regulated. Figure 6 is a view of the outside frontplate of the clock in Figure 3a. The hour snail along with its corresponding rack tail is seen to the right of the center arbor and slightly overlapping the hour wheel. Unlike the mechanism shown in Figure 2b, this view has no other rack tail and snail in relation to the five-minute repeat procedure because that is located on the backplate under the second or back repeat button at the back of the clock top or above the back door. Thus, to get a more complete picture of the repeat procedure in this typical two-button clock, a look at the backplate is needed. This is provided in Figure 7.



*Figure 6. Frontplate of the two-button 5-minute repeater shown in Figure 3a.*



*Figure 7. Backplate of the two-button five-minute repeater shown in Figure 3a.*

Between the gong and its corresponding hammer shown in Figure 7 is the five-minute snail that regulates the five-minute repeat sounded by a single strike by that hammer and gong for each five-minute segment passed since the previous hour. The hour repeat as activated by the button at the top front of the case strikes the number of hours passed also with single strikes using this same hammer and gong. A similar pattern of single strikes for both hours and five-minute periods passed since the hour occurs in the clock shown in Figures 3b and 5. In fact, this pattern is typical for all two-button five-minute repeaters uncovered in the research for this article, regardless of whether their back button is on the case top and just above the back door.

### **Three-Button**

The three-button category clocks are quite rare, based on the research done for this article. They are distinguished by having three buttons on the clock case top. Two of those are in the front with one on the right-hand side and one on the left-hand side while the third is at the back of the top. An example is seen in Figure 8. Close-ups of areas in the case top in Figures 9a, 9b, and 9c show how these buttons are typically labeled.



*Figure 8. French engraved gilt-brass three-button five-minute repeating carriage clock with an indistinct trademark and serial number 20721. (Photo courtesy Dreweatts)*



*Figure 9a. Front left repeat button with the engraved label "Minutes" (Photo courtesy Dreweatts)*



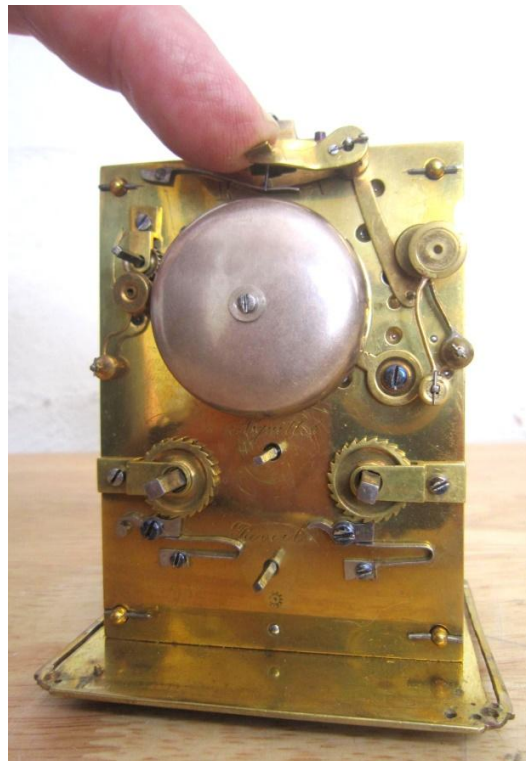
*Figure 9b. Front right repeat button with the engraved label "Hours" (Photo courtesy Dreweatts)*



*Figure 9c. Back of the top repeat button with the engraved label in two words "Dumb" and "Striking" (Photo courtesy Dreweatts)*

Thus, the front right button is pressed to repeat the last hour in single blows, producing a result similar to that from pressing the front button in a two-button version. The front left button is pressed to repeat the last hour in single blows plus the number of five-minute intervals passed since the last hour in double or ting-tang blows. These are similar results to those from the single button on the one-button five-minute repeater. A unique feature of the three-button five-minute repeater is indicated by the label of the back of the top repeat button. In fact it is not a repeat button at all. It is pressed when the user wants to silence the striking of either front button. Thus the words "dumb striking" indicates that the sounds typically occurring when either of the front buttons is pressed are in fact not heard. This is accomplished because the back button activates a lever that impedes the motion of the hammers so that they do not reach the bells or gongs and

thus no striking sounds occur. The person applying the “dumb” button is likely to feel some vibration from the movement of the hammers, thus indicating the time measurements to the user without disturbing others nearby. Figure 10 is another example of a three-button five-minute repeater which shows how the pressing of the dumb button holds back the striking.



*Figure 10. How the activated dumb button in a three-button five-minute repeater prevents the hammers from striking the bells.  
(Photo courtesy Stan Boyatzis)*

Figure 10 also shows that there is no mechanism on the backplate for controlling any repeat action. This is similar to the design of one-button five-minute repeaters (see Figure 2a). In the three-button category the snails for the hour repeat and the five-minute repeat are both located on the outside frontplate. Figure 11 shows the outside frontplate in the three-button five-minute repeater in Figure 10. Note its similarity to the same view of the one-button five-minute repeater seen in Figure 2b. In both the hour snail and the five-minute snail each resides on the frontplate.



*Figure 11. Frontplate of the three-button five-minute repeater shown in Figure 10. (Photo courtesy Stan Boyatzis)*

## **Conclusion**

Five-minute repeating carriage clocks are rare and vary in their complicated designs. This article has identified three categories of such designs based on the number of repeat buttons contained on the clock and their corresponding actions produced to elicit their repeat process. A summary of the actions of the buttons in each category is provided at the end of this article in Table 1.

Five-minute repeating carriage clocks are undoubtedly intriguing to collectors and likely as well to those interested in making or servicing mechanical clocks. Their scarcity makes them interesting, especially since their operations are quite different from other repeaters such as hour

repeaters and quarter hour repeaters. This writer has learned much from investigating these clocks and would be interested in hearing from others with comments, insights, or questions regarding this topic. Please contact me at [twotruba@sdsu.edu](mailto:twotruba@sdsu.edu).

### **Acknowledgements**

In addition to the few but helpful sources available via an internet search, I received much useful information from a number of persons interested in this topic. Thanks to Boris Lerner and Ken Hogwood for their interest and encouragement. Thanks also to Leigh Extence for his ideas and support including the photo for Figure 1b. Thanks as well to James Simpson for his aid in making possible the photo for Figure 2b. Figures 3b and 5 contain images obtained from Carlton Clocks and included with their permission. Figures 8, 9a, 9b, and 9c present images obtained with permission from Dreweatts. Special thanks to Stan Boyatzis for many exchanges of information and numerous photos of an example of a three-button repeater, including those of the clock in Figures 10 and 11.



**Table 1**

**Results Produced by the Buttons in Each Five-Minute Repeater Category**

<b>Category</b>	<b>Button and Location</b>	<b>Results</b>
One button	Top Front	Repeats hour in single strikes, and double strikes number of five-minute intervals past the hour.
Two button	Top Front	Repeats hour in single strikes.
	Top Back or Above Back Door	Single strikes number of five-minute intervals past the hour.
Three button	Top Front Right	Repeats hour in single strikes.
	Top Front Left	Repeats hour in single strikes and double strikes number of five-minute intervals past the hour.
	Center Back	Silences any striking from either top front button when held down.

## Re-enamelling a Carriage Clock Case

Keith Seldon (UK)

About a year ago I was asked to repair the enamelling on two miniature carriage clocks by a client in Australia. The enamelling was severely damaged on both clocks. The damage on the sky blue enamel clock was mainly on the front panel while the purple enamel cased clock had extensive damage on all panels.

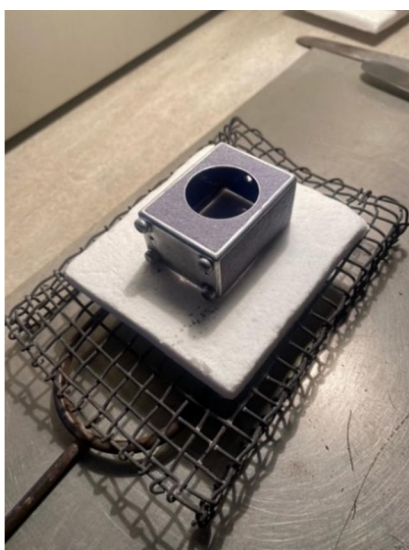


*Miniature Carriage Clock with damaged blue enamelled front panel.*

The movements had been previously removed by the client before shipping to me. The old enamel was removed by soaking the panels in Hydrofluoric acid for a few days. As it is impossible to remove the old enamel on one panel only without the vapour affecting the other panels, it was decided to remove the enamel from all panels and re-enamel each panel. The first step was to take the case apart. If you leave the hinge pins in place, they may weld up with the many firings the case will have. Also, leaving the door and handle on the case will take longer to fire during the enamelling.

Once the case is removed from the hydrofluoric acid the case is thoroughly rinsed and checked to see that all the enamel has been removed. The silver case is then cleaned in nitric acid to get rid of any stains on the silver where the enamel was previously lost and had oxidised over the years. A brass brush is then used to go over the silver ready for enamelling.

The enamel powder is ground with a mortar and pestle to give a fine texture to the enamel powder and then washed to get a clean bright colour.



The enamel is put on a pallet and laid on the clock with a quill, drying it off before firing in the kiln. As the enamel melts onto the silver it is taken out of the kiln and checked. This is done by eye as each piece differs in size and thickness. When it has cooled the process is repeated three more times, so a total of four coats of enamel are placed. After this, the excess enamel is removed to make the enamel smooth and flat.

A carborundum stone is used to carry this out and then brushed under running water to ensure the surface is clean. The enamel is then dried with a clean cotton cloth and re-fired to reglaze the enamel.



The next stage is to polish the enamel with pumice powder mixed with water on a hard-felt mop. The motor is run at a slow speed, so it doesn't drag and leave marks on the enamel. The case is then returned to the silversmith to reassemble and to repolish the case.



The kiln is set at 1000 C, the enamel fires about 850 C but you need to get up to that temperature quickly. The enamel is applied wet, so you can control the thickness. If it is placed on too thick it will go cloudy, one of the many problems you may have. If the metal base is too thin you may get cracking, that's why on one of the clocks enamel was placed on the inside, as counter enamel to stop the silver from pulling up and cracking the enamel. As enamel is glass each time you fire the enamel it glazes.



*Completed cases.*

Keith Seldon  
Enamel Artist  
[www.keithseldon.co.uk](http://www.keithseldon.co.uk)

## Do you own a carriage clock?

If so, you may have questions about your clock. Such as,

1. When was it made and by whom if it is not signed by a maker?

Many carriage clocks are marked by retailers, such as “Tiffany”. Many times, the maker is not identified. However, the maker can often be identified by the construction style and other tell-tell signs found on the movement.

2. Should I clean the case, or not?
3. And the greatest question of all, what is its value.

This is the hardest question to answer because of the many variables, such as the condition of movement and case, the name and standing of the clockmaker, & the quality and rarity of the clock. We are not licensed, appraisers. We can only advise you where to look for comparable clocks so you can make your own "best guess" as to the actual value, always remembering the oldest approach to a value is "Willing Buyer, Willing Seller".

Members of our chapter have many years of experience collecting, researching and restoring carriage clocks. Many are willing to help you answer some of these questions.

This free service is for NAWCC members only.

Email questions and pictures of your carriage clock (one clock at a time, please) to:

**Tom Wotruba:** (USA) [twotruba@sdsu.edu](mailto:twotruba@sdsu.edu)

**Doug Minty:** (Australia) [dminty@optusnet.com.au](mailto:dminty@optusnet.com.au)

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**Link to the 1stdibs website:**

<https://www.1stdibs.com/search/?q=carriage%20clocks>

