A SLIP SPRING TANDEM WIND CARRIAGE CLOCK

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With only a casual glance, one would think that the clock under consideration is an ordinary French turn of the century, time only, carriage clock, as pictured in Figure 1. It has the usual 12 hr, white enamel dial, a simple lever platform—which is probably a replacement—and a plain rectangular glass and brass case, which is 11.2 cm high with the handle down. It is 6.5 cm deep and 7.7 cm wide.

However, when one looks at the back side of the clock, one is immediately impressed with a difference as noted in Figure 2. There, in the lower center of the back plate, is a 24 hr white enamel alarm dial. It has a hand that can be set by turning the center square to any of the 12 A.M. or 12 P.M. markings. The alarm dial measures ⅔ cm in diameter, and is appropriately marked for noon, midnight, morning, and evening. To the left of this dial and coming through a cut-out on the bottom of the back plate is an alarm "shut off" lever. Above this cut-out "silent" and "alarm" are stamped on the back plate. There are also S and F initials under the platform escapement indicating slow and fast. With these two letterings, and also a stamping "Made in France" on the lower right hand of the back plate, it is apparent that this clock was made for either the English or American market.

But the most unique and peculiar finding on the back of this clock is that there is only one winding square. There is a bell on the bottom of the clock, and obviously the alarm dial and mechanism inside the clock indicates that it is both an alarm and regular time piece. The clock runs the usual eight days and when it is wound fully and the alarm set for the appropriate time, the alarm will faithfully go off each and every morning at the selected time for the eight days. The alarm rings for about 25 seconds and then gently ceases. The alarm will sound each and every day at the appropriate time without winding, or at least without anyone doing any further winding than that of the mainspring on day one.

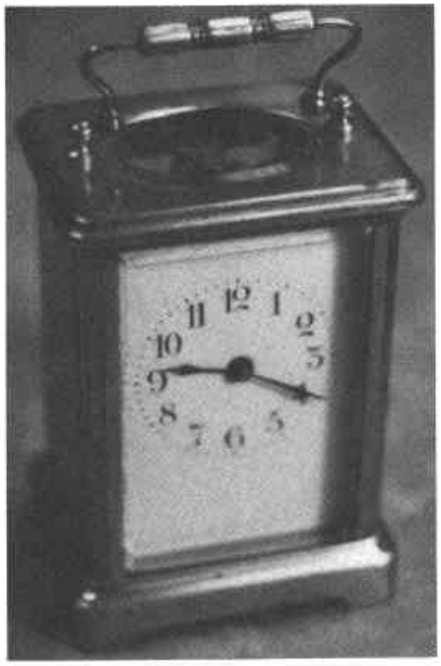

Figure 1. French Carriage clock with slip spring tandem wind alarm.

Figure 2. Back plate with 24 hour alarm dial and shut off lever.

Another peculiar feature is that once the alarm has rung, it will not ring again, even if the clock is rewound and even though the alarm is reset to a different time. It will give a few tinkles after the clock runs for two or three hours but it needs at least 12 hours to give the full 25 second ring. A longer time lapse such as 24 hours will not cause it to ring any longer.

The clock is truly a unique tandem wind. The alarm gets its power *not* by direct winding from an arbor, as in the Boston tandem wind or a similar mechanism used in the French mystery clock. This clock gets its power for the alarm through the mainspring of the clock which is connected by appropriate gearing to the alarm spring and thus is in tandem with it, as shown in Figure 3.

The alarm spring appears to be about the usual tension of an ordinary alarm spring and is connected inside the barrel to a heavier spring which I have chosen to call the *slip spring*. This is of a much heavier material and is of a firmer and stronger tension. It is depicted in Figure 4. This spring can slip around inside the barrel of the alarm once the appropriate tension has been achieved in the alarm spring. The tension of this slip spring determines when this clutch mechanism operates. It occupies just about the full circumference inside the alarm spring barrel, and in this particular clock begins to slip after about eight or ten hours running of the clock. There is no

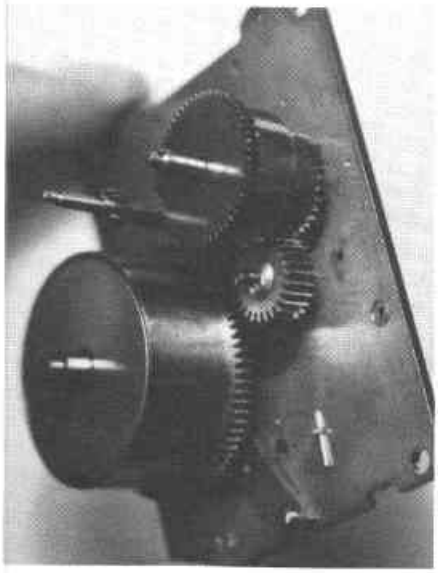

Figure 3. Alarm winding mechanism thru tandem attachment with main spring.

spring hook on the inside of the alarm barrel, but there is a spring hook on the inside of the slip spring to which the alarm spring itself attaches.

The best way to study the mechanism of this clock and check the alarm winding mechanism, its duration and its performance, is to do so with the platform removed. Variations in the length of time for the alarm to run and for its winding can be made through adjustments or modifications in the slip spring and the alarm spring.

The monogram as noted in Figure 5 on the back side of the clock indicates that this clock was made by Delepine-Barrois of Saint Nicloas-d'Aliamont. A similar clock is pictured in the carriage clock book of Charles Allix on page 193 in the chapter on rare carriage clocks.

The main spring barrel has 90 teeth and articulates with a pinion of 12 leaves attached to a gear with 56 teeth as the second wheel. This in turn articulates with a 12 leaf pinion on the third or center wheel which naturally travels one full turn in one hour. Also joined to the teeth of the mainspring barrel is a secondary gear of 26 teeth which in turn is meshed with a full gear of 32 teeth. This is firmly fixed to the alarm spring arbor. It is pictured in Figures 4 and 6. Thus, as the clock runs, and as the main spring powers the time train, it also shares this power through this secondary gearing to wind up the alarm spring. Once this alarm spring is wound to a point of tension that is predetermined by the slip spring, no further winding is achieved and the alarm is ready to sound at the set time.

It is also apparent that until the clock runs for an additional several hours, the alarm spring will not be rewound sufficiently to alarm again. One full rotation of the main spring barrel causes the clock to run for 33 hours. This will also make about 2.8 full turns in the alarm spring, which roughly would be one full turn of the alarm spring in 12 hours.

These clocks were initially overpowered to some degree for this arrangement and could get along with a spring of lesser tension if the alarm were not powered in this manner. There is some power taken from the time train, or at least shared with its weaker neighbor, the alarm. There is expenditure of power even if the alarm does not ring, since effort is used to overcome the friction to slip the slip spring in the alarm barrel. This clock is truly a unique, cleverly designed, slip spring tandem wind. No information has thus far come to light as to the origin or as to the inventor or this type of tandem alarm. Such information would be appreciated.

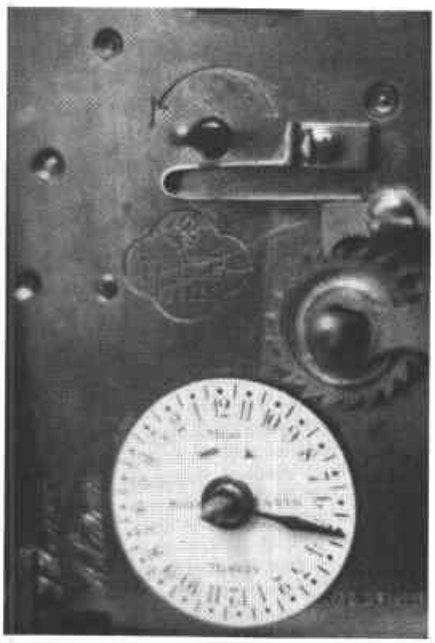

Figure 5. Left, Back plate showing alarm dial and company—monogram of DeLepine—Barrois

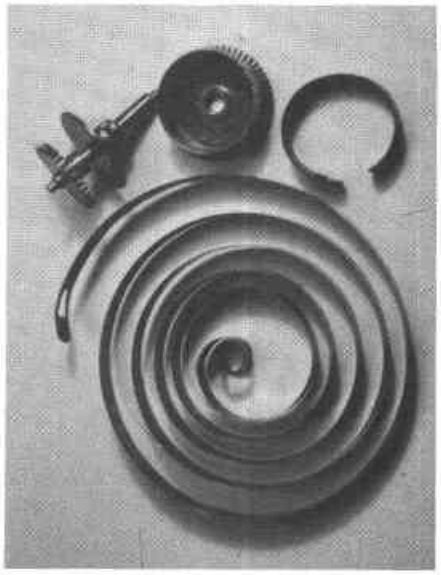

Figure 4. Alarm spring with alarm spring barrel—arbor and slip spring.

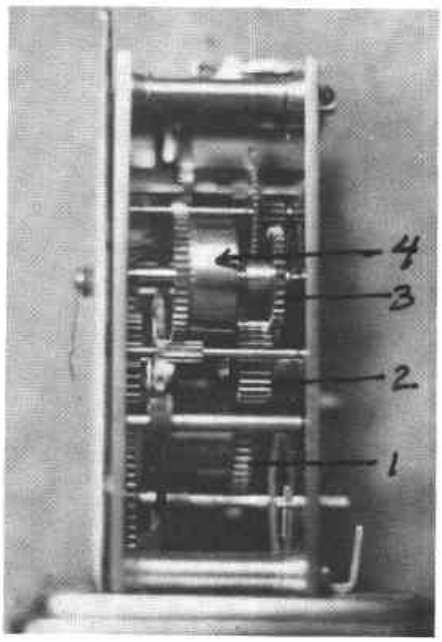

Figure 6. Right, Side view of movement showing

1. *Mainspring barrel*
2. *Intermediate gear*
3. *Alarm spring gear*
4. *Alarm spring barrel*