



Rebuilding a Half Deadbeat Escapement

by Mostyn Gale

As many of you know, the escapement is the heart of any clock. Correct adjustment is critical to a consistent running of the clock. Recently, I came across an E. Ingraham Co. mantle clock for restoration. After completing the usual cleaning, pivot polishing, and bushing replacements, I turned my attention to the escapement pallets. There was a small amount of wear from the escape wheel teeth which I easily filed out after tempering. I was then all set for a trial run of the time train.



Original escapement

To my disappointment, the clock did not run. I know that all the wheels in the time train were fine with correct depthing and no bent teeth, so I started looking closely at the operation of the escapement. Clearly there was something funny; both the drop and the lock on the entry pallet were too large, and on the exit pallet, the lock was too small. I decided it was time to go back to school and make sure I understood how things should be. I found Steven Conover's book, "Basic Clock Repair very helpful." The first thing I learned was the difference between a recoil and a half-deadbeat escapement. These two escapements look pretty similar because they both have strip pallets but confusion on what type you are working with will definitely cause you trouble in their adjustment. The big differences are: (1) there are four working surfaces on the pallets of the half-deadbeat – the recoil escapement only has two – and, (2) the escape wheel teeth point in the direction of wheel movement. Both of these points are critical to understanding the operation. The half-deadbeat is really just a deadbeat with a little recoil.

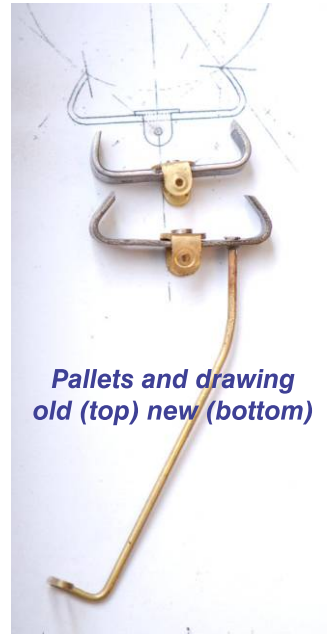
So now that I understood what I was dealing with I went back to look at the escapement. After playing with it and looking closely, I concluded that these pallets had either been made incorrectly or filed smooth so many times that the pallets were much too short to be in the correct position. Adjustment of the pallets closer to the

escape wheel was just not enough to make it operate, the angle of impulse on entry was fine but the exit side was so bad that there was almost no impulse at all – in fact, it was stopping the clock. It was time to make a new pallet strip.

I started by creating a five-times-size drawing of the way it should be with correct impulse angles and pallets that spanned the correct number of teeth. I then reduced this drawing to the correct size with Photoshop Elements and printed it out as a pattern for shaping and trimming and filing a new pallet strip.

This is not as easy as it sounds because the size is small and the adjustments for correct position of the pallets are both critical and very small. Nonetheless, I was able to get a reasonable pallet made and installed. After some small adjustments for pallet distance to the escape wheel and making sure the drop and lock were optimal, the clock took off running as it should.

The moral of this story is that knowing what you are doing really helps! Go to school! ■



Pallets and drawing old (top) new (bottom)



New escapement

Welcome New Members

Phil Caulfield
from Ventura

Stephen Marks
from Thousand Oaks



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PRESIDENTS MESSAGE

By Mike Schmidt

From myself and the Board of Directors, to all who have renewed their 2013 Chapter 190 membership, Thank You. Many of our members reside nearby and participate in monthly meetings. Some of our members live faraway and cannot attend meetings. The strong support and encouragement of the Chapters goals from all is truly appreciated.

On behalf of the Chapter 190 Board of Directors and membership I want to thank Randy and Judy Glantz of Santa Barbara for their generous donation of antique clocks. The clocks were donated in "Loving Memory" of their parents Clyde and June Glantz, who were avid collectors. The nine clocks are in the process of being evaluated and will be offered in the coming months to all the NAWCC membership. Proceeds from these sales will be added to the Chapter 190 Educational and Scholarship Fund.



Chapter 190 Educational Opportunities:

The first two- day public workshop "Introduction to Antique Clock Collecting, Repair & Maintenance" was very well received. To accommodate the continuing strong interest and demand, a second workshop is scheduled for April 13th & 14th. The introductory workshop is open to all including family, friends, and the public. The only prerequisite is an interest and curiosity in finding out how clocks actually work. All the tools and movements are supplied. Contact Mike Schmidt at 805 988 1764 or email EagleCreekClocks@msn.com.

For all who have attended the first introductory workshop and want to continue, a FSW 101 Introduction to Basic Time & Strike "The American Kitchen Clock" is offered for May 24th thru 27th. Information on this four- day workshop can be found on the Chapter website or contact the coordinator Rodney Baker. 805 963 2494 or email Rodney.Baker@cox.net

Congratulations to all of the students who recently completed the FSW103 "Introduction to 3 Train Chiming Clocks". Instructor Lex Rooker and assistant Ray Marsolek guided students, class coordinator Frank Huttlinger, Chris Martin, Jim Rineholt, Tom Ferkel, David Longenecker, Ron Maricich, Michael Pollard, and Robert Thomas thru the four day course.

The Sunday morning workshops have been very popular and very well attended. The workshop this coming Sunday, starting at 10:30 A.M, will be presented by Ferdinand Geitner. The workshop will begin with "How to properly open a watch case." Any subject or questions on watches and clocks are always welcomed.

See you at the meeting *Mike Schmidt*

Happy Birthday

March

**Richard Brinser, Laurie Conti, Alan Davis,
Robert Gary, Richard Glenn, Jorge Montoya,
Tom Musselman, Michael Pollard**

April

**Mark Davenport, Donna Gaglini, Tom Gaither,
Cathy Gillogly, Ron Kubitsky, Loren Miller
Jeff Slobodian, Larry Smith, Lee Wade**

Tales From the Bench

by Ferdinand Geitner

Some “Striking” Examples

I recently received a ships clock with a small problem the repair person was unable to ascertain. It stopped just before it was ready to strike the half hour. Just like most mortals my first instinct was that the mechanism which changes the strike on the half hour from double to double plus one created the problem, as it often does, but then I noticed it only happened after the eight bells, not every half hour, which of course changes the diagnosis. It could not be the mechanism which added the extra bell because then it would lock up every half hour.

That shifted my focus on the rack and snail which proved to be the cause. The rack dropped ready to strike the correct number after the warning released the warning pin, but it was positioned a little too close to the higher step on the snail, which kept moving towards the tail of the rack as it was waiting for the warning pin to be released and locked the rack tail on the snail before it was released. This would only happen after the eight bells when the higher cam of the snail came around for the next “single” strike.

Turning the hour wheel (with the snail attached) one or two teeth in relation to the minute wheel solves this problem. Moving the hour wheel in relation to the minute wheel pinion turns the snail one tooth space interval, if less movement is required move the minute wheel in relation to the canon pinion, leaving the hour wheel engaged with the minute wheel pinion, which gives smaller steps.

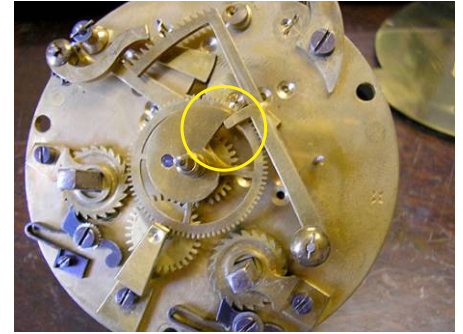
The same thing happens many times with French clock movements

when the movement stops between 12 and 12:30. The rack drops to strike the first half hour but drops before the high point (#1 step) on the snail which means it falls a little lower on the flat of the snail and as the hour wheel keeps

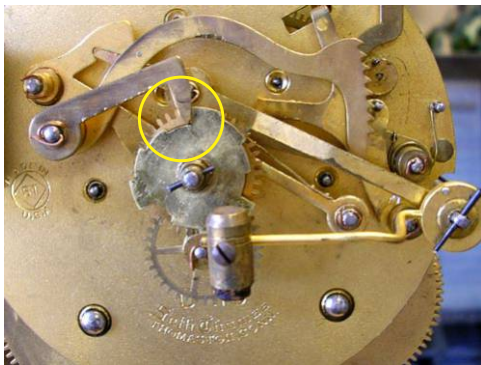
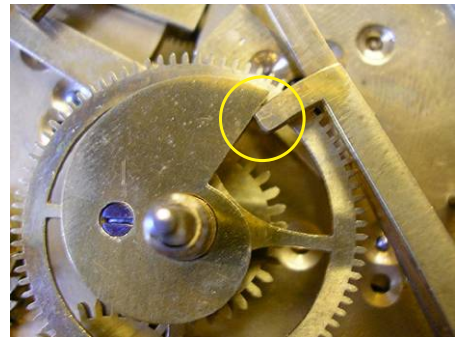
turning before the strike release it locks the snail against the rack tail and may also misalign the gathering pallet, possibly locking it on the teeth of the rack

The French accommodated us poor repair persons by marking the alignment of the motion works with little punch marks which when properly aligned works fine, but just one tooth off means a stopping clock. Sometimes the marks are difficult to see and some people don't even know about them.

Good luck with your alignments! ■



French Clock Movement



Seth Thomas Ships Clock



Seth Thomas Ships Clock, Close-up

April Auction

“Glantz Collection” a very tall case French Morbier circa 1850. The movement is in good condition, complete with calendar. (The movement does need a good cleaning.)

The dial and surround are in excellent condition. The case is over 7 ft tall, has a very nice original grained finish with decoration of hand painted flowers and wheat grains. The lyre pendulum is original. It goes very nice with the case. If you have ever desired a tall case Morbier “Country French” This is about as nice as they get.

ALL PROCEEDS GO TO CHAPTER 190



Virginia (Ginger) Norwood



The photo of Virginia shows her holding the pendulum that has a temp compensating method invented by John Ellicott in 1752.

It's exciting to hear the stories of our Chapter 190 members because they have done some very interesting things during their lives. Virginia (Ginger) is really a super scientist. It is some coincidence how our careers have crossed. Virginia initiated the specifications for the Landsat program for Hughes. When bids went out for ground system my team won the contract for the recordings system, for the Canadian government. Virginia was in charge of the transmitter for the Surveyor, first soft landing on the moon. I worked on the transmitter program for the Apollo Lander on the second moon landing. I'm going to have Virginia tell her story.

As the daughter of an army officer, my childhood was spent traipsing around army posts in the US, Panama, and Bermuda. Every place was exciting and I loved it all.

My education was in math and physics but, when I was graduated from the Massachusetts Institute of Technology (MIT) in 1947, the university salaries were at the starvation level so, tiring of living in a New Haven garret, my husband and I accepted unsolicited offers to work at the Signal Corps Engineering Labs in New Jersey. There, I found, to my surprise, that engineering offered fascinating problems. I learned a trade, which was the design of antennas for radar. With this background, it was easy to get jobs at Sylvania in Sunnyvale, and later at Hughes in Culver City. And yes, I did see Howard Hughes, twice, at a distance.

Hughes was a great place to be at the beginning of the space age, where I was in charge of the transmitter for Surveyor, which made the first soft landing on the moon. At Hughes we had many "firsts". My group developed the first solid state oscillator at S-band. We were able to demonstrate it on the day our proposal for the Surveyor contract was due. Later, the company made the first geostationary satellite, Syncom, with my microwave equipment aboard. I also designed a 50 foot antenna that flew in a Rotodome mounted above a Super Constellation. Only one was ever built because the monster was so awkward; but, I have a patent for the radiating element, which demonstrates how meaningless patents are. These were heady times and, for years, I had a proprietary feeling about the moon.

The most exciting program of my career was Landsat. I was given company money to come up with a system that would image the entire earth in several spectral bands, or "colors," so that a variety of agencies could inventory earth resources. This involved interviewing experts in agronomy, forestry, water quality, and city planning to find out what kind of data they needed. The challenge was to design a camera and data system that would accomplish as much of this as possible within constraints of a spacecraft. NASA was interested enough to give me the money to build a prototype, which was launched in 1972. Our Santa Barbara facility then built several more models, at least one of which is still functioning. Since I retired, NASA has built the next generation of Landsat. They invited me to the launch, in February of this year, which I happily attended. During the pre-launch ceremonies, they acknowledged me as the designer of the first Landsat. That was nice of them.

After Ted Maiman invented the first laser at Hughes Research Labs, we sat around trying to think of ways that lasers might be used, and I was asked to extend microwave techniques into the optics frequencies where lasers operate. New designs came along at a dizzying pace and to be in the midst of it was exhilarating.

Clocks had always appealed to me and in the 1980s I acquired a couple of beaten up examples: a Terry kitchen clock dated 1885 and an Ingraham shelf clock made in 1880. Although I had repaired household appliances for years, I decided to read some books. Goodrich and Whiten probably saved some fingers since my first purchase of clock tools included a set of let-down wrenches.

After puttering on my own, I became a member of the NAWCC, sponsored by the owner of a clock shop on Third Ave. in Los Angeles. I only met him twice but I am grateful, since it led to Chapter 75 and from there to Chapter 190. The four basic suitcase courses were invaluable and I have found "clock people" to be the smartest and most generous of any special interest group. Because of the different aspects – mechanisms, art and history – clocks attract a wide variety of people, so there are always new aspects to learn about. ■

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The **MARCH** Chapter 190 Meeting
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Sellers may start setting up at 11:30
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The Meeting starts at 1:15

PROGRAM

**"The Hershede Electro
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Presented by Bill Robinson

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The **APRIL** Chapter 190 Meeting
is April 21, 2013

Sellers may start setting up at 11:30
The Mart is open from 12:00 til 1:15
The Meeting starts at 1:15

PROGRAM

**"The history and identification
of French Morbier clocks"**

*A clock that was produced for
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SHOW & TELL

Your Choice

MARCH AUCTION

Four clocks from the "Glantz Collection"
will be auctioned at the March meeting. These
will consist of:

An American Steeple Clock, 2 RA spring wound
Vienna Regulators and a Junghans German Box
Clock.

ALL PROCEEDS GO TO CHAPTER 190

Mart Note:

Ernie Jenson and George Antinarelli will
bring a new batch of items from Jim Ingersoll's
workshop, and Dave Coatsworth will be adding
additional watch and clock material from two
recently acquired estate lots to his mart tables.

EDUCATIONAL OPPORTUNITIES

**The following workshops are scheduled
for 2013:**

Introduction to Antique Clock Collecting,
Repair & Maintenance. A 2 day, open to the Public,
Workshop Prerequisite: Interest & Curiosity in
mechanical clocks. All tools & movements supplied,

April 13 & 14 at the Historic Dudley House
Museum 2 days of Instruction \$100

Contact Mike Schmidt phone; 805 988-1764
e-mail; eaglecreekclocks@msn.com

FSW 302 *Beginning Wrist Watch Repair Workshop*
-April 19-22, 2013, instructor Ferdinand Geitner,
contact coordinator Zaki Salahuddin 805 654-8552
email phoenix@cimm.net

*Suggestions for chapter 190 workshops,
demonstrations, or programs are always welcome.
Contact any board member with your ideas.*

This Month's Mini-Workshop

At 10:30AM

A demonstration on "*How to properly open
a watch case*" The workshop will be led by
Ferdinand Geitner This is a round table discussion
where everyone gets to join in and learn.

THE WORKSHOPS ARE ALWAYS FREE!

*If there is a topic that you would like to learn about,
just mention it at the workshop. We are always
looking for good topics for the workshops.*

CLASSIFIED PAGE

This page is dedicated to advertising for Chapter 190 members. It is, of course, free to members.

SERVICES OFFERED

The Montecito Clock Gallery

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2 Vienna R/A's: 16" • 1-wt Vienna Regulator: 17"

I fully realize that crowns do not attach uniformly
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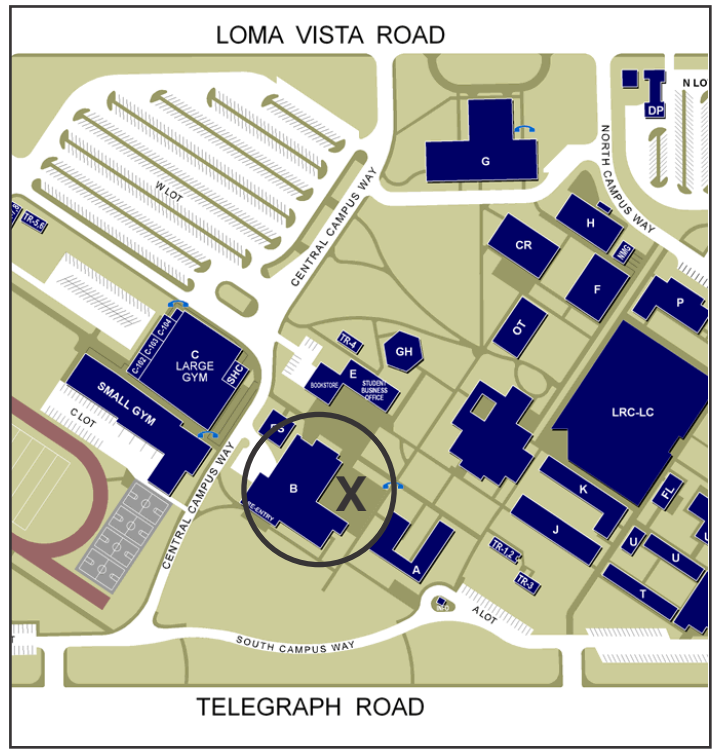
- Chronometer -

Hamilton 21 Marine Chronometer in running condition, with
inner box and gimbals; outer box not essential.

Please contact: Giorgio Perissinotto

E-mail: giorgio@spanport.ucsb.edu

The Chapter 190 meetings are held the third Sunday of each month. (No meeting in December)
 We will meet in the cafeteria on the Ventura College campus. The cafeteria is located in building "B", east of the gym and athletic field.



Mar - Apr, 2013 Issue

NEXT MEETING
MAR 17

APRIL MEETING, 21st



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Chrono Times

