

President's Message

In case you haven't had an opportunity to visit the [NAWCC website](#) recently, you may not know that NAWCC has made dramatic improvements to their website over the past couple of years, including the placing of many great resources online (including all past Bulletins and many supplements). Longtime NAWCC members may be aware of the [NAWCC Lending Library](#), which allows members to check out horological books for several weeks, paying only postage for the books. More than 30,000 books, catalogs, and periodicals, 21,000 patents and various other horological items are available, though some of them, as with any library, are for on-site reference only.

Some members are aware that VHS and DVD videos are also available. But I doubt that many have any idea of how much is there. More than 400 videos are available, and 110 of them are now available online—to NAWCC members only. Topics range from buying and maintaining a watchmakers lathe to Atkins clocks, Willard Tall Case clocks, and the manufacture and repair of wooden works. Several dozen more slide presentations are also available.

In the website's [Member Central](#) area, NAWCC members can search various online libraries (other than the main NAWCC library). One library currently consists of detailed horological book reviews. The American Pocket Watch library has a link to databases for seven different watch manufacturers, including a large number of private label watches. In the glossary tab, members can look up almost any item, process, or person—ever wonder who Anaximander was?

There are many more resources available on the NAWCC website, including 6,246 listings in [Horology—The Index](#). Members who have been around a few years may remember former Chapter 15 Vice President Ted Orban, who created the Chapter 15 website. The Index, at least in its current form, is another of his contributions.

As a final note, the upcoming [Lone Star Regional registration form](#) is available on the NAWCC

website. Chapter 15 co-sponsors this event, and volunteers are still needed. If anybody would like to help, contact Mark Vozar at mvoze@sbcglobal.net or (817)399-9894.

Hope to see many of you there!
Mike Williams, President

January program

If you weren't able to attend the January program, on Saturday the 22nd, you missed an opportunity to learn more about the history of fusee movements as well as the theory behind the fusee. Interest in this topic ran high, with about 20 members attending – including two for whom this was their first meeting!

Bob Rasmussen presented a very interesting program that ranged from the basics of how a fusee movement works, including a demonstration with simple everyday items, to a history of the use of the fusee in clocks and watches. The demonstrations and Bob's explanation of the technical aspects allowed those of us who aren't familiar with engineering or physics terminology to understand how and why fusees work. Additionally, he discussed two types of fusee movements: the regular, or direct, fusee is used in watches and English clocks, and the more recent reverse fusee was used in American clocks.

Bob has kindly provided some of the references he used, so if you would like to learn more about fusees, see page 3.



Treasurer's Report	
Chapter Account	\$7,763.69
Membership renewal (net of PayPal fees)	<u>28.44</u>
	\$7,792.13
Regional Account	\$4,363.60

Chapter membership

It's that time again – time to renew your Chapter 15 membership for 2011. Please take a few minutes to complete and return the form below, or take advantage of the PayPal option found on the [Chapter 15 website](#).

Chapter 15 Membership Application
New Application / Renewal (circle one)
Membership Dues are \$10

You must be a current and paid NAWCC member to join a Chapter.

You may be a member of more than one Chapter.

Please Print or Type

NAME: _____

SPOUSE'S NAME: _____

STREET: _____

CITY: _____

STATE/COUNTRY: _____ ZIP: _____

EMAIL: _____

PHONE: _____

NAWCC Member # _____

HOROLOGICAL INTERESTS: _____

_____ Please send my Chapter 15 newsletter by email.

Make Check Payable To: Chapter 15, NAWCC
Enclose this application and check and send to:
Pat Holloway
1105 Lafayette Lane
Pflugerville, TX 78660

Restoration of a 1927 Style 1 Baby Ben Alarm Clock

Part 2

By Ken Reindel

Last month's newsletter took us through removing the movement, hands and dial of the Baby Ben alarm clock. This month we turn to restoring the case.

Let's start with the rear bell cover. Upon examination (left), we see a badly tarnished surface and substantial rust pitting. But before going any further, let's take the rear bell out on the buffing machine and see if we can salvage the piece. The result is shown on the right, and, things aren't improving much. Now that the heavy tarnish is removed, it is still clear that we're not going to be able to polish out the rust. This is usually the downfall of these pieces. While the nickel sometimes polishes up (sometimes not, and the nickel simply fades away), there isn't much we can do to improve on things once nickel has popped off because of the rust underneath it.



There have been some situations where we've been able to spot-remove the rust with fresh Naval Jelly. Sometimes the long soaks required also weaken the copper plate however, a disaster. The rust pits left behind can't be spot filled, either. We haven't found a universally effective way to spot-repair these pieces. As we go through the rest of this article you'll gain an appreciation for why. Sometimes it's possible to improve on things if the rust isn't too extensive. In this particular situation, however, it's time to start over.

We've done a fair amount of study into the way these case parts were originally finished. The surface treatment of the base metal (steel) is actually fairly important. It appears these rear bells were finished with radial pattern, with machine and sanding marks emanating from the center of the piece outwards in circular fashion. The side edges are

grained with the long direction. So that's what we'll do as we finish them as well.

The original makers used a lye-based cleaning agent to prepare the metal for plating. Then, a fairly heavy coat of cyanide-based copper was applied (copper is easier to polish than steel). This material was then polished on a buffing machine, cleaned again, followed by nickel plating. It's not clear if any polishing occurred after nickel plating, but it's unlikely. So, that's the process we will use as well—except we're not going to use a cyanide-based plating solution, but that won't matter in terms of the finished product. Avoiding cyanide will be our contribution to keeping our environment safe and clean.

To remove all of the rust, the best approach is pressure blasting with ultrafine aluminum oxide dust. Our choice of grit leaves fine detail completely untouched and makes building the finish plating much easier. Shown below is our little Baby Ben rear bell getting ready for the big blast! Shown on the right are the results.



Our experience with this approach has been optimal. Unlike chemical stripping, the surface of the part is left clinically clean with no residue. No acids are trapped in deep pits so no surprises later. It is CRITICALLY important that every trace of rust be removed as well, and this has worked better for rust removal than anything else we've tried. Note the pits on the bottom right of the part that remain, but the rust which "ate" the metal is all gone. Part of our challenge will be to eliminate these pits. Not pictured is the underside of the part which is stripped clean just as the top is. This is also important; you can ruin a good job by leaving the old plating and a rusty surface on the inside, since the new plating cannot adhere to a poor surface and will flake off eventually.

The next step is to get some copper on this bare steel back as quickly as possible. Allowing this clean steel surface to lie around the shop for a few days is bad practice. It will rust. So, into the plating

shop we go. On the left is a picture of our miniature horological plating workstation and on the right is the cleaning tank where the rear bell cover is now soaking.

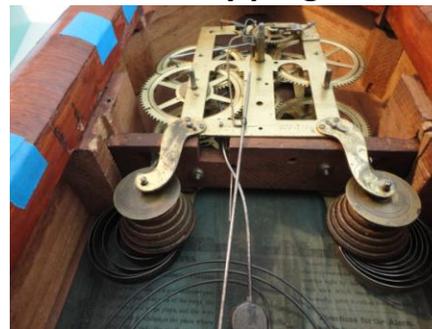


After cleaning and rinsing, into the copper tank it goes. The copper is a special EPI product that allows us to plate directly to steel without cyanide. Acid copper would corrode steel and could never plate it. The EPI product also has outstanding resistance to heat, which will serve well as we move forward in the restoration. On the right is the result.



(Check back next month to learn the next steps in returning the case of this little clock to its former glory.)

January program continued



American
fusee
movement

For additional reading:

- Fusees in Clocks—Part I—Function, History, Design by D. H. Shaffer, PhD, NAWCC Bulletin 137 December 1968 (available by logging in to the [NAWCC website](#))
- Thomas Minchin Goodeve, *Principles of Mechanics*, London: Longmans, Green, and Co. (1874).
- Henry Moseley, *A Treatise on Mechanics, Applied to the arts including Statics and Hydrostatics*, London: John W. Parker, West Strand (1839).
- A.L. Rawlings, *The Science of Clocks and Watches*, Caldwell Industries (1974)

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Did you notice? Several articles in this month's issue include underlined words in blue font. If you are reading the electronic version of the newsletter, all of the blue words are hyperlinks, and clicking on them will take you directly to the internet site being referenced.

Save the Date

- February 26, 10:00 a.m.
1105 Lafayette, Pflugerville
Feichtinger Calendar Clocks
Mary Ellen Bell
- March 26, 10:00 a.m.
Westclox – their history and clocks
Ken Reindel
- March 4 & 5
Lone Star Regional
Mesquite
- April 30
Annual meeting
One-day, workshop and program
- April – Make plans now to attend our annual meeting in April. (Tentatively planned for Saturday, April 30.) This year's event is shaping up to be even bigger than last year's with a mart, program and workshop you won't want to miss! All this on top of fantastic friends, fellowship and food!
- June – Don't miss this year's National Convention June 8-12. Take advantage of the proximity and the opportunity to drive to beautiful Overland Park Kansas. What better chance to attend the National Convention and to meet up with your friends from across the nation?