Things Around the Museum: Wig-Wag

- Paul Finnegan

When visitors enter the museum, they pass by our operational wig-wag crossing signal. The "MAGNETIC FLAGMAN", and other similar warning signals, were used extensively at grade crossing throughout the United States during the early-to-mid 20th Century. Our Wig-Wag was donated to the Feather River Rail Society by Dr. Cheryl Meeker in memory of Ken Meeker.

Our wig-wag was made by Magnetic Signal Company of Los Angles and the base was made by Union Switch & Signal, Swissvale PA.

Restoring WPRM's Wig-Wag

- Sam Herschbein

WPRM's wig-wag has represented the museum at Dunsmuir's and Portola's Railroad Days events. At Portola the wig-wag was placed at the pedestrian walkway leading from the parking lot into the shop. Whenever the caboose trains would come by, the wig-wag would run. Young kids love noise, they delighted in turning it on and off. I think it rang more while kids were playing with it than when trains crossed!

First, a little bit of signal history. Old railroad signals were designed for 10 volts, which came from a series of Edison batteries. Edison batteries were large glass or ceramic jars with a ceramic top that submerged two sets of plates in the special "Edison Caustic Soda." Both the solution and the plates wore out, a jar made it easy to dump the contents and replace the plates.

I've restored many signals for display. The old 10 volt motors and electromagnets have no problem running on a car battery which provides 13.2 volts at peak charge. But, 10V bulbs will burn out quickly on 13.2 volts. The easiest solution is to substitute a car light bulb.

I found some solid 4x4 wood beams straight enough to hold the signal. We used a forklift and bolted the signal to the beams. This gave it a sturdy base that wouldn't tip over if someone decided to climb on it. Steve Habeck put a truck battery in the wig-wag's bottom case. I went to work on the motor unit which sits on top of a short standard signal mast attached to the bottom case. I found that the bearings needed greasing and the contacts needed cleaning and re-timing. Timing a wig-wag? Some explanation about how a wig-wag works makes this easy to understand.

The wig-wag has a horizontal axle. The target is the large sheet metal circle with the red light in the center. It attaches to and sits above the axle. Below the target is a heavier weight to provide counterbalance. Together the two act like a pendulum in a clock. If you push the weight when there's no power, the assembly should go back and forth smoothly.

But how does it move? The wig-wag is powered by electromagnets, wired to first pull one way and then the other, hence the name wig-wag. OK, how does it start moving? When it's at dead-center bottom, one set of timing contacts must already be closed to get it moving in one direction. As it nears the end of one direction these contacts open. As it swings back, but just before it hits dead-center bottom, the other set of contacts closes. This guarantees that one set of contacts will always be closed when the pendulum has completely stopped moving. Within 3 or 4 cycles, it is up to full speed.

The timing was so far off that one set of contacts was not closed when it was at dead-center bottom. Therefore, it couldn't start if it stopped when those contacts should have been closed. With the timing off, the electromagnets were not pulling long enough in one direction to give it the oomph it needed to keep running. The added friction from years spent outside in all

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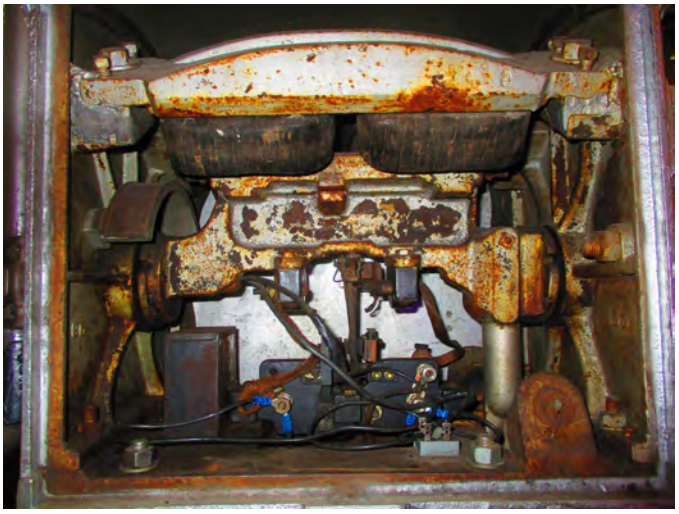

Views inside Wig-Wag head and base.
- photos by Paul Finnegan

types of weather made things worse.

The first step to restore our wig-wag was taking it apart enough to lubricate the bearings so it moved easily. The next step was cleaning the contacts and making sure all the connections were solid. The red light had to be re-wired.

The tricky part was timing it. After some trial and error, I discovered it was hitting the rubber stops that prevent over-swing. The 13.2 volts gave it more oomph than it originally had. The bell on the wig-wag is mechanical, its clapper is activated by the motion of the pendulum. Of course, I adjusted the clapper so the bell made as much noise as possible.

The control part of the circuit was easy. An 89-cent light switch from the hardware store with a chain and string was ideal. That way someone could sit 10 feet or more away and turn it on and off. Using a cheap switch meant anyone at the museum could replace it when it broke (which it has, at least twice).

Charlie Spikes, Loren Ross, Greg Elems, Bil Jackson and Ethan Doty pose with new panel track at William House Museum 11/14/18.

Williams House Display

- Paul Finnegan

Last fall, the society approved the sale of the FR&W Plymouth for operational restoration. As part of this agreement, a small engine was to be provided and set up on the east entrance to the city. A small panel track was created and the locomotive placed there. After the recent collapse of the agreement with the City regarding placement of the small engine at the Williams House, it was moved to the museum parking lot on 5/31/19.