Revised Shelf Adjustment Devices for the A&LE Train Elevator

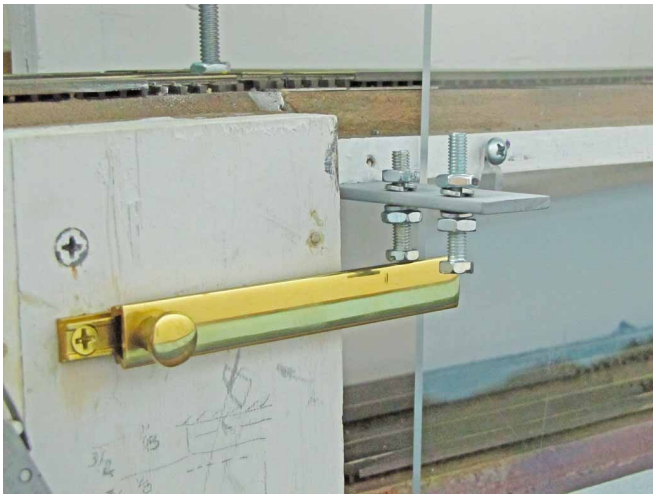
After our train elevator was in use for about a year, we realized that the techniques we incorporated to adjust individual shelf height and provide stopping points at each elevator position were not flexible enough to accommodate occasional adjustments required as the wood in the elevator shelves and structure changed with seasonal variations in temperature and humidity. Therefore, we have redesigned and rebuilt the shelf adjustment devices.

The original devices are shown in the photo at left. The metal clips under each shelf had elongated slots for the screws that mount the clips to the backboard. By loosening these screws, the end of the shelf could be adjusted up or down a small amount to position the shelf for alignment with the elevator approaches. Although this worked reasonably well at first, fine adjustments were difficult to make and we were concerned that frequent removal and reinserting of those screws would eventually wear the holes to the point they could no longer be tightened securely. Furthermore, adjusting the shelf up or down with a metal clip at the rear of the shelf tended to tip the shelf, making it impossible to align both front and rear tracks at the same time.

Even worse, after we initially adjusted all the shelves, we installed the vertical board shown in the center of the photo to hold metal angles that engage a slide bolt and stop the elevator at the proper location for alignment of each shelf. With this board screwed to each shelf, no further shelf adjustments were possible. Also, the same metal angle was used to position a shelf at both the upper and lower layout levels (on a slide bolt at each level). Therefore, independent adjustments for the two layout levels were not possible.

The new shelf adjustment device (photo at right) is a threaded 1/4" diameter rod installed between the tracks through all six shelves at each end, and anchored at top and bottom to the elevator backboard. Nuts on both sides of each shelf can easily be adjusted with an open end wrench to achieve very fine adjustments in shelf position, and the range of adjustment is much larger than possible with the slotted metal clips. Furthermore, the shelves remain level as the adjustments are made. This arrangement has often been used to support and adjust the roadbed on a helix, and we found that this device solved all of our shelf adjustment concerns.

The other change we made (photo below) was to replace the metal angles that served as stops for each shelf with a flat metal plate under each shelf end, with the plate extending out the front of the shelf several inches to engage slide bolts on the top and bottom layout levels. This time we mounted the slide bolt for the bottom level about 3/4" further out from the elevator than the top slide bolt. Then we installed two adjustment bolts on each metal plate, with nuts and lock washers above and below the plate. By adjusting those bolts up or down via the nuts, very fine adjustments in the stopping locations of the elevator are possible. The inside adjustment bolt engages only the top slide bolt, and the outside adjustment bolt engages only the bottom slide bolt, so we can now adjust the stopping point of each shelf at each layout level entirely independently of all other shelves.



With these new devices, any adjustments required can be made in a matter of a few minutes, and difficulties with poor elevator alignment have disappeared.