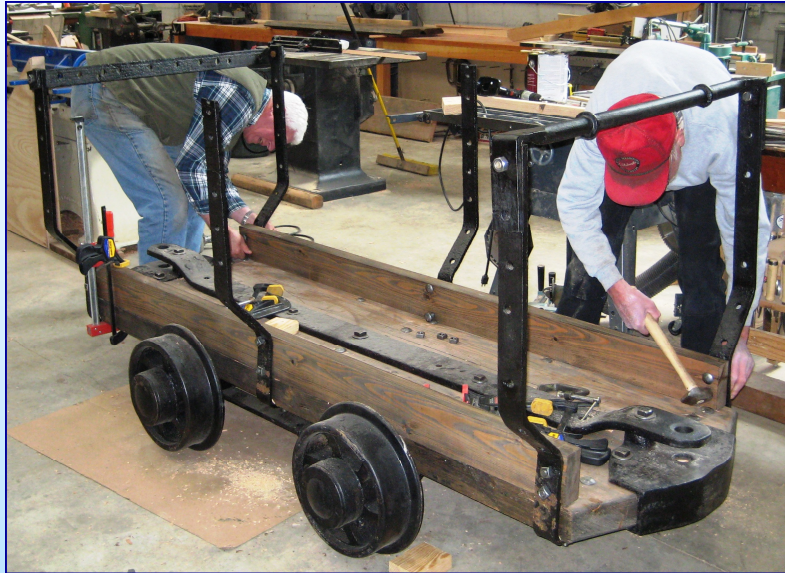


## COAL CAR HISTORIC RECONSTRUCTION

### Reconstruction From the Bottom Up

May 30, 2008

The coal car historic reconstruction project is quickly coming to an end. Months of research and careful planning have finally gotten us to the point where the actual reconstruction is well under way. The base of the coal car has been pieced together and work is proceeding upward to the sides of the car. This is all, however, easier said than done. Collection Care Manager Bill Hall and volunteer Hugh Hansen are diligently working together to put the coal car back together.



Bill Hall and Hugh Hansen reconstructing the coal car.

Each piece must be custom fitted to the steel frame of the car. The frame is really the car's skeleton; it dictates how the rest of the car is shaped. In this particular case, the skeleton is not always symmetrical. As mentioned in previous updates, the steel frame was constructed by hand by blacksmiths, so not every piece matches exactly. One steel piece, for example, is  $\frac{3}{4}$ " shorter on one side. Bill custom fits each board to the frame and then drills out holes for the bolts. Each bolt hole is also custom-drilled, based upon the holes in the frame. One bolt hole is even completely missing on the frame!

In this historic reconstruction, even something that sounds as simple as bolting on boards requires care and attention. Once the bolts are placed in their custom-drilled holes, they are pounded into the wood on the front. Next, wrenches are used to screw on the square nuts one quarter turn at a time. They are tightened as tight as they will go. Since the heads of the bolts are on the inside, this leaves a quarter inch to an inch of bolt hanging out on the outside of the car. When the car was in use, these over-hanging bolts would have been a safety hazard for the coal miners. Bill will be cutting off the excess so it is flush with the square nuts and then "peening" the ends of the bolts. Peening involves hitting the ends of the screws with a hammer so that the threads are compacted together. This makes it so that the bolts cannot unscrew, which would have been an important safety feature in the mines with the constant jostling of the cars. Bill made the decision about this extra finish work based on the likely engineering of the car, given concerns about the car's durability and the miners' safety.



Over-hanging bolt ends.