

“Production Line” methods for 1½" scale

ARCH-BAR AND UTILITY TRUCKS

by Robert W. Maynard

Most Live Steamers are just that! It seems that trucks and cars are constructed only when it is impossible to borrow them. These completely different types of trucks are fairly easy to construct and both ride well. The Arch-Bar looks, perhaps, a bit more realistic but under a car who can see them? My personal preference is for the utility truck as it requires the least amount of construction time and functionally there isn't any difference.

The axle and wheel assemblies are identical for both types, so I will deal with only the actual frame construction. I was fortunate in obtaining wheel castings through my employer - the castings being a standard production part that could be altered to a 33" diameter car wheel. Wheels can be made from steel bar stock, purchased through-- a good supplier or cast your own.

The most time-consuming job on the utility truck is wheel-turning, and since this is equal for both trucks, we'll not delve into the details. Journals are a simple cut-off operation with any type of saw and squarins up can be done with a shaper, mill or lathe. The bearing hole is best done in a lathe.

Side frames are 1/4 x 3/4 H.R. Steel as are the vertical supports. A saw cut-off for these is usually sufficient - squareness and accuracy the only requisition. I arc welded my truck frames together. They may be brazed or bolted with ¼-20, ½" long screws using four to each journal. For the vertical sections, use two 10-32's to each end of the vertical. This rather

defeats the time-saving advantage of this truck but the bolted assembly will suffice if one doesn't have welding equipment.

The Arch-Bar truck has the slight advantage of being more to scale and to some this is important. The most difficult part of this operation is the time-consuming journal manufacture - approximately twelve hours for eight journals. The forming dies are a big help in reproducing identical parts and if you plan on more than one set, I would make the die.

My workshop is lucky enough to be equipped with a hydraulic press made from an old auto jack; however, a vise can be used because hot rolled steel in such a thin piece as 1/8 x 3/4 will form quite easily.

Basically, the dies (and there are two) are really quite simple. Two pieces of steel, slide on two pins with some removable blocks to make different offsets. As my press has a large opening, the punch and die were made from angle iron welded to form a box. If you use a vise, I would advise the use of thinner solid stock so as to allow an opening wide enough to accommodate the die.

Two pieces of 1 x 2 x 13 HR or CR Steel are required for the main parts of the forming die. To form the ½" offset, two pieces of ½" x 2 x 3 and ½ x 1½" x 2 are required. These pieces should have radii as per the drawing. Attach them per dimension. Drill the single piece for a 3/16 pin.

To form the 1½" offset, two pieces 1½ x 2 x 3 and one piece 1½ x 1½ x 2 are required. Again drill the center diameter

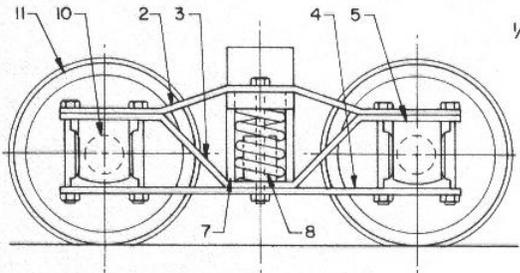
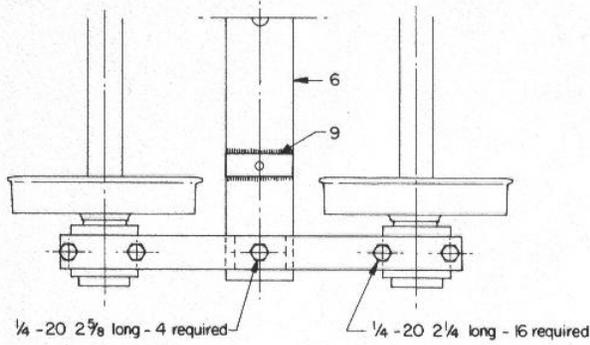
part for the 3/16" diameter pin. This pin does not have to fit tight - just snug so it will not fall out. This pin is necessary for even forming of the frames. It is opened up to 17/64 after the truck is brazed together to allow the spring retainer screw to pass through.

After the frame blanks have been cut to size, align them in the die - fitting the center hole over the center pin, even the sides up either with a scale or eye (eye is easier) and squeeze the vise closed. The advantage of using a die is the easier repetition of identical parts but even with dies bending might be necessary.

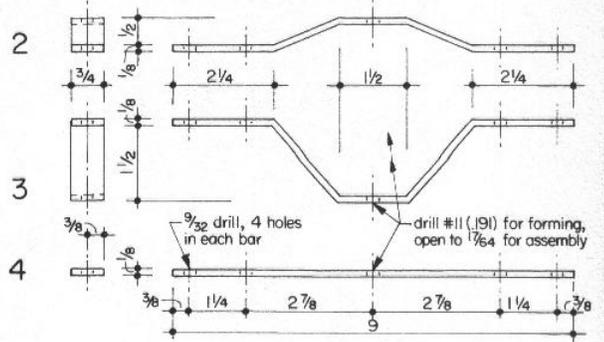
I would suggest drilling the journal mounting holes after the forming. This will insure a more accurate location. The journals should be placed as close in line as possible - although the oversize bearing hole will help considerably in case of error.

In the manufacture of the Arch.Bar trucks, the journals are the most time-consuming operation. The round grooves shown on the drawing are easily made by clamping the journals side-by-side and drilling. When the parts are separated, each one will have one-half hole. The metal between may be removed by saw, file, mill or shaper. It's much easier to assemble these parts if they are numbered to match the holes in the Arch-Bar frames.

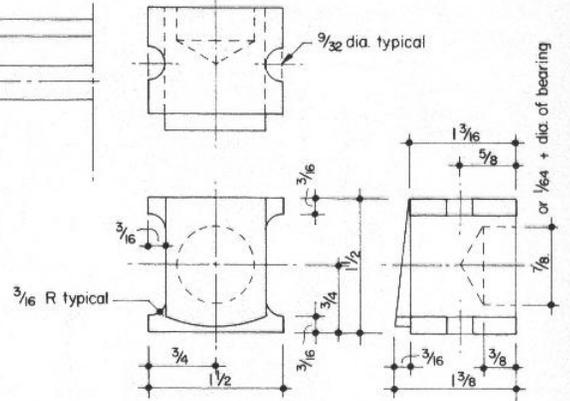
Look over the drawings on the following pages and then head for your shop. The long winter nights ahead will provide ample time to work up a few more riding cars before spring!



$\frac{1}{16}$ washer

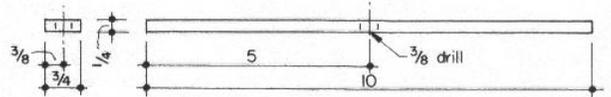


SIDE FRAMES
H.R.S. - 4 each required

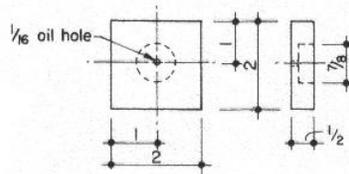
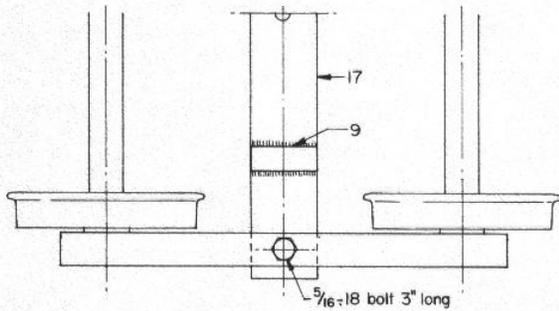


5 JOURNAL
Steel - 8 required

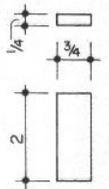
Arch-Bar and Utility Trucks



13 TOP AND BOTTOM SUPPORT BARS
C.R.S. or H.R.S. - 8 required



12 JOURNAL
Steel - 8 reqd.



14 VERTICAL SUPPORT
Steel - 8 reqd.

