GWR Macaw B Bogie Bolster.
Building a Diagram J4 with moveable bolster pins, complete with all chains from a Conniosseur kit.

Jim M'Geown’s kit for the Macaw, designed to build a vehicle that covers both GWR and BR, is for a Diagram J28, much too late for my period of circa 1900-10. I wanted a much earlier type and so delved into Atkins, Beard & Tourett and Russell’s books to see what might be possible.

The length of the kit and spacing for the stanchion pockets appear to fit well with a Diagram J4. Changing the bogie centres would be a simple matter of change the spacing for the bogie fittings. However, it appears from pictures in Russell and Atkins, Beard & Tourret that the J4 had coach type queen posts mounted on an I beam with flat trussing. The buffers also are different to the heavy type used on later versions being carriage type oval head with square shanks.

The Russell pictures also shew clearly how extensive and varied were the chains and shackles fitted to these vehicles. It also seems that there were six bolster pins to each wagon, chained to the side, rather than the four in the drawing. Many pictures shew only four but closer inspection usually reveals a chain that leads to a pin on the bed of the wagon. I like my wagons to look as prototypical
as possible and so decided that there would be six pins, all removable and chained to the sides.

Among my stock items was a set of lost wax coach queen posts from Sanspariel, appropriate CPL buffers, shackles, spoked wheels and various eyebolts and chain. So a J4 it would be.

Atkins, Beard and Tourett’s book has a good 4mm scale drawing of a J4. However, the picture with the drawing is poor so it is difficult to glean much about the details that are not in the drawing. Fortunately, the same picture appears, large and clear, in Russell’s book on wagon loads (though not labelled J4) plus a side on view. Working out the positioning of the eyebolts that held the various chains in place and assorted hooks should therefore not prove too onerous.

Though designed by Jim, the kit was for a long time under the label of The Carriage and Wagon Co., and my first attempt at this was on a kit from them. Now it is back under Jim’s banner there have been some changes.

The kit arrives as a flat pack containing the new style instructions that Jim produces these days with exploded diagrams and photographs of the vehicle under construction. There is also a set of etched shackles and some heavy chain included. The white metal castings (not my favourite material) are of high quality, crisp and with little flash. There are extra parts on the etches provided specifically for “kit bashers” who want to make different versions of these long lived wagons. The buffers and all the underframe trussing is destined for the spares box.

Some of the extra parts needed along with a copy of the drawing. Wheels, queen posts, buffers, brass strip and lost wax shackles.
I started by marking out all the extra holes required for eyebolts, both on the body side and the sole bar overlay. These were then drilled out with a 0.5mm drill. Once complete the body was carefully bent to shape and copper eyebolts from Squires (usual disclaimer) with their shanks cut down to about 1.5mm were fitted in the holes, lined up and soldered from the back.

In addition, three eyebolts were soldered into holes at each end and then further cut down to represent the roping hooks that were fitted there. I later used an abrasive disk in the mandrill to flatten the ends of the eyebolts inside the body. In the picture above I have still to fit eyebolts to the far side. I stopped here to mark up the centres lines on the base for the bogies, queen posts and V hangers while I still had an uncluttered, straight, side to put the set square against.

Work next started on the solebars and buffer beams. These are standard fold-ups but, since the metal is half a millimetre thick and quite hard, it is important to score the bend lines to get a good witness mark on the back. The solebar overlay can then be soldered in place. Once that was completed, the 0.5mm holes drilled in the overlays earlier were used as markers to drill right through the solebar. I used the split pins provided to fit the lashing rings since they have to fit into a quite large hole and ready made eyebolt shanks were too thin for it but used Amati 4mm brass rings instead of making them. Eyebolts were used for the remaining lugs and roping hooks. The numberplate etched into the solebar overlay needs to be filed off and a new one soldered on. There are several possible plates on the etch but only one is suitable for a J4, 84105 from Lot 684 so that decided the number.
The correct shape hook plates for this vehicle were from spare parts in a set of Carl Legg screw couplings. The bogie bolsters are a simple fold-up with a 6BA nut soldered inside. This needs to be securely fitted because, once the bolster is on the wagon, one cannot get at it. Here is a close up of the lashing rings, lugs and rope hooks. The rope hooks are simply eyebolts soldered in place and then cut back to hooks.

I find it easier to try fit as many small parts like hooks before fitting the component to the body.

The queen posts are designed for coaching stock so need to be shortened and the ends squared off. Here are the pair, one ready for fitting having been shortened, cleaned up and the thread re-cut with a 12BA die, a steel nut would do if one had no die. A 12BA brass nut has also been fitted, which will eventually bolt the truss in place.

Here the posts are in place along with the first set of Vee hangers. The second set of Vee hangers will have to be made from scratch because of their unusual shape. See the drawing left.
The trussing is simply 2mm x 0.5mm brass strip suitably drilled 1.3mm to fit over the queen posts and cut to length. Points to bear in mind are that the bends are clear of the posts themselves and it is important that the trusses all follow the correct slant, otherwise not a difficult job.

The bogie bolster and buffers fitted. The buffers have an angle plate with a hole in it for the shank to pass through and is soldered to the floor. A spring is trapped between the shank and the plate, fixed with a 12BA nut. Just like the fittings on the Dreadnought coach underframes.

There are enough stanchion pockets to avoid having to use those with a cast stanchion. They all need drilling out with a 1.6mm drill. I used a hand brace for greater control and water as the lubricant, stopping frequently to remove the swarf, while the pocket was held in a small vice. The holes in the body side will need opening out to take the spigot.
Once drilled though they were slid onto a length of 1.6mm rod and the backs cleaned up with a fibre brush and IPS solvent. The locating holes were opened out and the areas around each cleaned also with the fibre brush and IPA. It is a simple matter to glue the pockets place with Loctite 480.

The pockets at each corner extended round the end of the body. The pockets supplied are not designed for that so I made angle plates by using some 0.8mm thick brass 6mm wide. Each plate was scored on centre and a triangular file used to make a deep Vee cut to aid bending. The bolt heads were impressed using my trusty Leaky rivet press.

By cutting off the bolt detail on one side of the pocket, a good joint was made. Here you can see a cut-down pocket and corner plate ready for fixing to the body. The parts are shewn fixed in place in the next picture.

The buffer beam of Diagram J4 vehicles had prominent plates bolted on where the ends of the underframe longitudinal members joined. These were made up from what I think may be thin zinc sheet, that came from tomato paste tubes, with the bolt heads pressed in with a scriber and fixed using Loctite 480.

The bogies are each made up from three, white metal, castings. They are well cast with sharp relief and little flash. It was necessary to drill out the holes for the bearings very deeply to allow a little end float in the axles. I used low melt solder, which has the advantage that if one does not get it quite square (and I didn't the first time); a quick dip in boiling water will separate the parts easily.
The stanchions on the real thing have a ring welded on to act as a stop when they are dropped into the pockets. A jig was needed to ensure conformity of length so, a piece of wood was prepared 6mm thick and four 1.6mm holes drilled such that a 1.6mm rod would pass through easily. Next a set of rings was made by wrapping wire round some 1.6mm rod and cutting them across with a fine piercing saw. Each stanchion then had a ring threaded on and four were mounted in the jig. Here is the jig on the RSU plate held in place with rare earth magnets.

They were then soldered in place, taking care to ensure they were at right angles to the brass rod, which touches the plate to make electrical contact.

Finally, all twelve were cleaned up ready for the next operation.

And now for something slightly bonkers! The stanchions on the real thing have a chain fixed to them in what looks like a cast bracket just above the rings. I
decided to try and emulate it and so began by filling a small flat on the side of each stanchion and then drilling it 0.5mm as here. All twelve were similarly treated and not a drill bit broken!

Next some 0.4mm wire was bent to shape and hooked onto the end of 0.3mm brass chain. The free end of the wire was then inserted in the hole in the stanchion, soldered from the back and the excess filed down to give a fitted chain thus:

The other end of the chain will have a small ring, about 2mm, that will fix it to the relevant eyebolt on the body side.

From studying Macaws in Russell's book on wagon loads it seems clear that the chains fitted to either side differed. One side had the shackle and was relatively short compared with that on the other side that simply had hooks at each end.

Long and short chains were alternated, four each side. They were all chained to the outside of the bed of the wagon with lighter chains, like the stanchions.

The chains and shackles were made up from two sizes of chain, two sizes of brass ring with hooks and shackles like this:

The underframe completed at last with brake rigging. The odd shaped Vee hanger for the brake lever was made by sweating two pieces brass together and sticking on a photocopy of the part with artist's mounting spray and then fretting
and filing them to shape. The spring is a piece of wire wound guitar string with most of the wound wire stripped off. The brake gear is not up the standard of Bill Parker's (WEP) but at a couple of feet it is not possible to see that.

Finally the bogies were modified by filing off the cast boss on the stretcher and gluing (Loctite 480) a rectangular brass plate, 2.5mm thick, drilled for the 6BA bolt bogie pin. This will stop any excessive side-to-side rocking and sets the wagon at the right height above rail level.

The 6BA bolts were cut down to 13mm plus the head and the springs cut to a little less than half their length.

Now the body, bogies and bolsters are off the Ian's paint shop. The stanchions, chains and shackles have been chemically blackened ready to fit when the painting is completed. An interesting conversion.

Here is another shot of the completed and painted wagon.