A Scratch-built Turntable for G3

By Dick Allan

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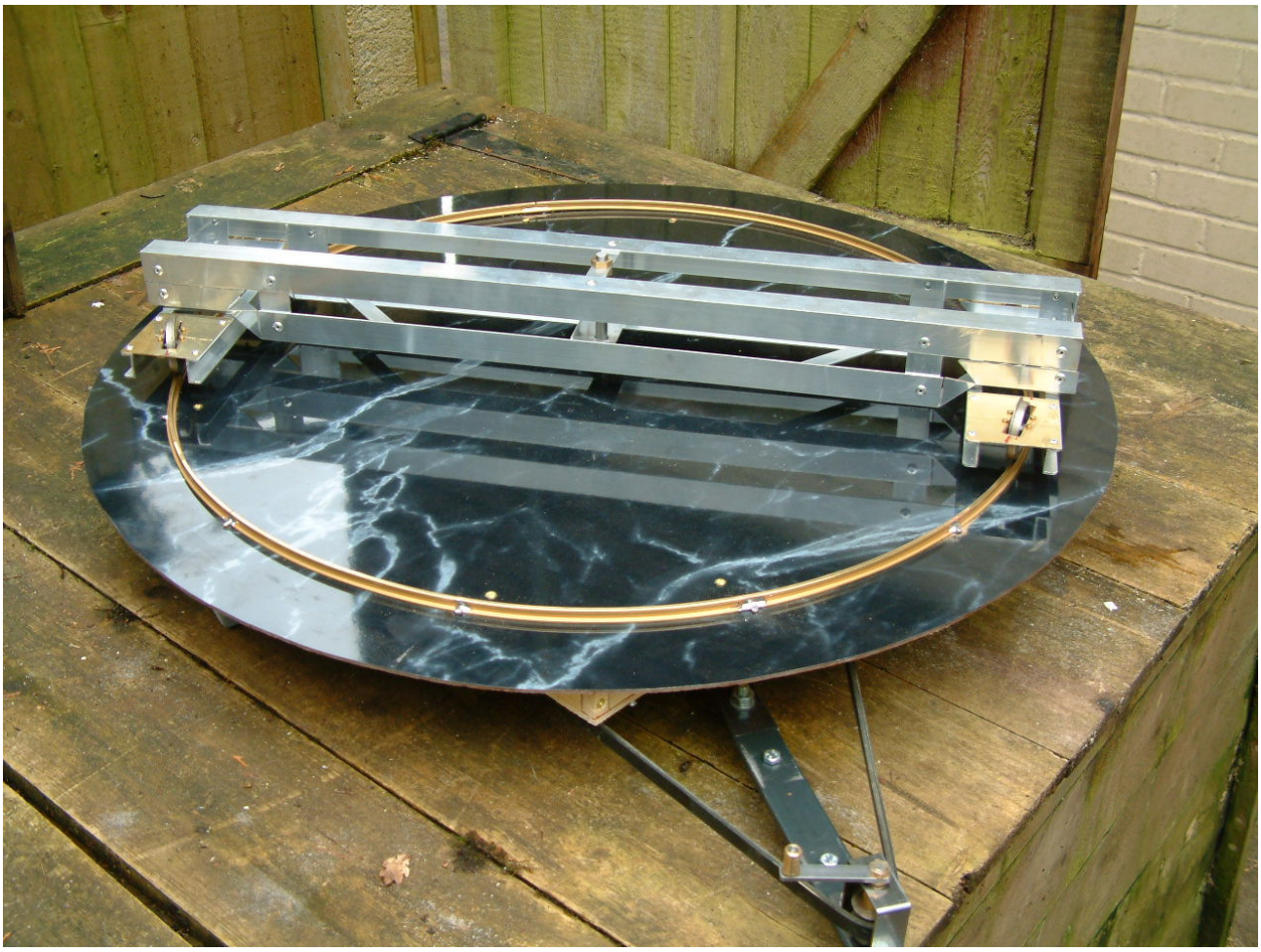
Many G3 railways would benefit from the inclusion of a turntable but, as with most things in G3, there are no kits or RTR items on the market. So it was back to B&Q for most of the materials to build the two turntables on the Parkside and Hale Railway here at Farnham. One of these is at ground level and the other bench-mounted. I will describe the construction of the latter. I have avoided giving exact measurements as these will differ slightly from one railway to another and can be settled only on site. The design is based loosely on a 00 scale table marketed by Peco Ltd.

For bench-mounting one needs to construct a sunken base to ensure that the rotating track ends up level with the approach tracks. There is also a requirement to provide a sufficient weatherproof space beneath the deck to accommodate any driving mechanism one might wish to incorporate. Luckily I came across just the thing in our local garden centre, a circular plastic tank, 31½ inch diameter and 12 inch deep, manufactured for the installation of pumps and filters for garden ponds/waterfalls.

The benchwork was designed to allow the tank to be supported with the rim flush with the bench top, allowing plenty of depth for the 3½ inch clearance required for the rotating bridge and for the turning mechanism beneath the deck. For the latter one needs a sheet of weatherproof and stable material which must also be strong enough to mount a bearing for the central pin and also to sup-

port the weight of the bridge and loco. For this I used a sheet of composite material sold by B&Q as a fire surround. The circular piece required was cut from this using a metal cutting blade in a jig-saw. Photo 2 shows the general arrangement top view and Photo 3 shows the underside and turning mechanism. Note the timber supporting frame which stiffens the panel and provides useful

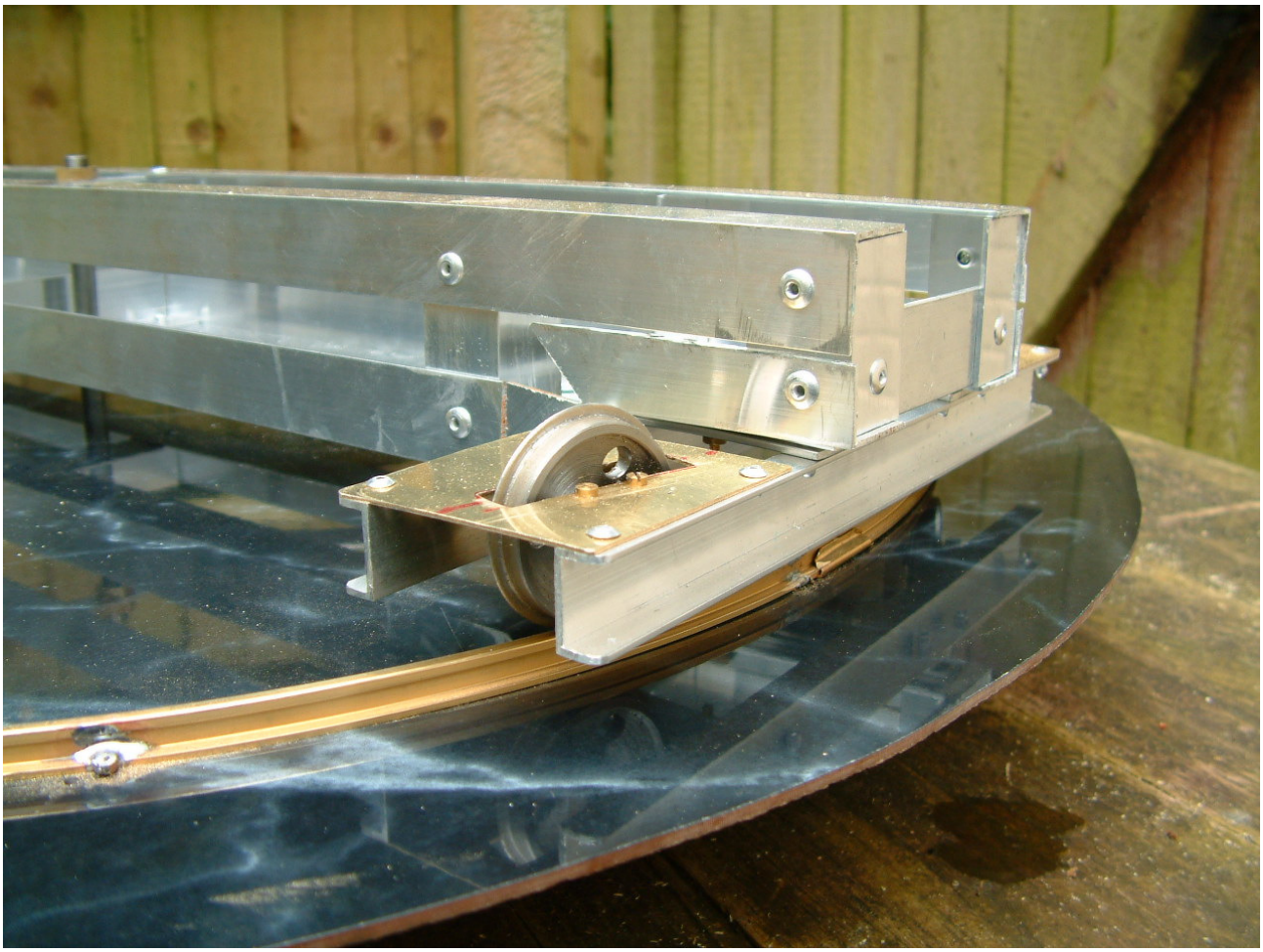


fixings for the turning mechanism and the supporting legs which hold the panel and the required level above the tank base. The latter requires a number of holes drilled around the edge to provide drainage.

The circular track is made from standard G3 brass line, carefully bent into a circle with any joints being reinforced with brass strips soldered to the outside. This job requires great care and accuracy if the wheels are to rotate freely and not derail. The track is fixed to the deck by being soldered to brass 7 BA screws, the holes being drilled so that the heads of the screws just overlap the outside rim of the rail. One way to get

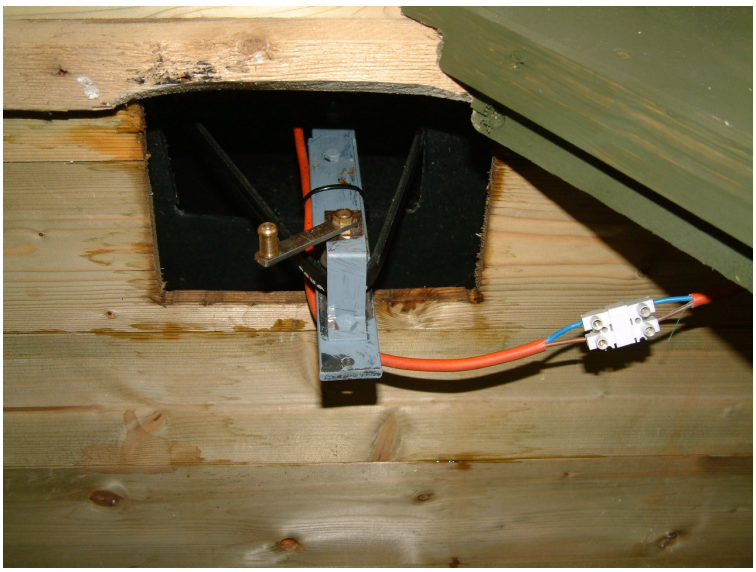
this right is to use a plastic strip with 2 holes at exactly a radius apart, fixing one end at the centre of the panel and inserting a permanent marker pen through the other. The holes for the screws are drilled along this line at about 6 inch intervals. By doing this before soldering up the final join in the track the latter can be adjusted to fit exactly within the supporting screws.

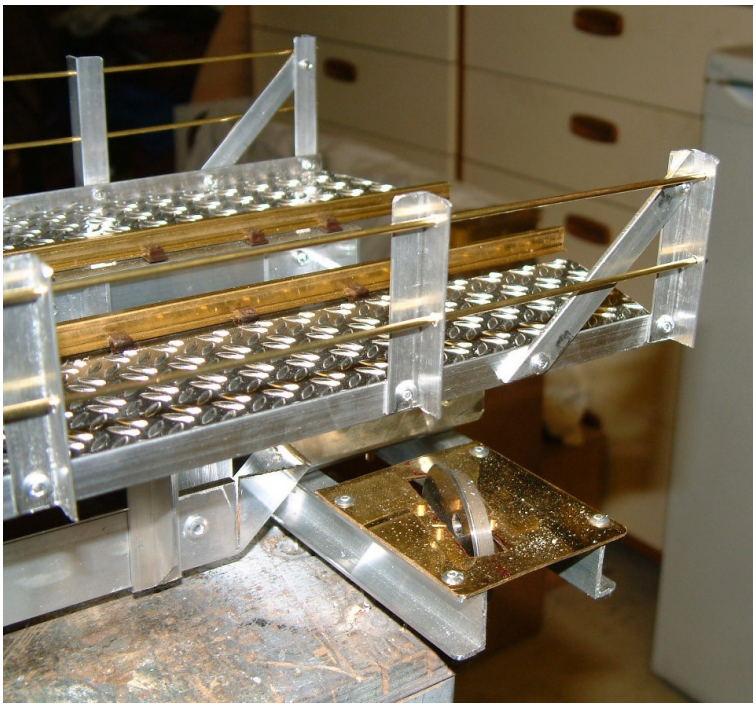
The rotating bridge is made up from various aluminium strips. Make the sides first and join with cross pieces later. 1”x1” angle is used for the top and bottom girders. First cut the top to length (approximately ½ inch shorter than the diameter of the top of the tank). The bottom girder is formed from a single length by cutting through one limb of the angle strip at four places and bending to form the clearances for the wheel carriages at each end. The vertical pieces of straight strip are then fixed with pop rivets and then the two sides joined with cross strips to give an overall width of 4 inches, including two at the bottom angled so as to brace the bridge against becoming a parallelogram! The cross joiners at the centre are made from angle strip and are drilled to provide bearings for the central spindle.



The wheel carriages are constructed using u-section aluminium and brass plates to form the 10 x 2½ inch carriages. The wheels are ordinary 3-hole wagon wheels turning free on short axles running between brass axle boxes screwed to the underside of the brass plates which are fitted onto the top of the u-section carriage sides. The slots for the wheels and the axle boxes are set at an angle forming a tangent with the track and marked out by laying the bridge plus carriages in place and sighting through. Finally the carriages are fixed to the bridge with nuts screws and nuts through slots to allow final adjustment onto the track (see photo 3).

The turning mechanism consists of a 12 inch diameter pulley (obtained from an old washing ma-





chine) mounted on a central spindle, threaded to allow fixing to the bridge with lock nuts. A substantial 1x ¼ inch steel bar is mounted on the wooden deck frame and carries a bearing for the central spindle and another at the outer end for the small pulley and operating handle. The two are joined with a longish fan belt which requires a sprung tensioning wheel to ensure adequate tensioning (photo 4). The steel bar is essential to support adequate tensioning of the belt. The length of this arm is determined by site arrangements. The handle could sit in a small lineside hut alongside or as in my case, extending into my engine shed from where I can operate the table remotely.

The finishing touches consist of riveting on the side walks (patterned aluminium sheet) and the predrilled stanchions through which are threaded the brass rails. Short lengths of T-section aluminium are fitted at intervals on each side of the bridge and are purely cosmetic. The lines are fixed in plastic chairs into holes in the top girder of the bridge. And planked wood strips are made up in two halves to lie neatly between the rails either side of the central spindle.

For those with a two rail electrical system, like me, there is an added complication because turning the table round will reverse the polarity and cause short circuits. This is dealt with by attaching sprung carbon brushes (same as used on e.g. LBG locos) each side of the central spindle. These are joined by soldered wires to the rails each side and bear onto a sectored plate mounted on the deck and through which the central spindle passes. The sectors are semicircular brass strips arranged in a circle with gaps between. The gaps must be slightly wider than the brushes to avoid shorts and the position of the gaps are so arranged that the dead areas that occur when the brushes are over the gaps are well clear of any of the approach tracks. The brass strips are wired through to an appropriate approach track. Thus as the table is rotated each rail is automatically disconnected from its supply and then reconnected to the opposite polarity.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