A journal of the Brighton Circle, for those modelling the “Brighton” in all scales and gauges.

# The L.B.& S.C.R. Modellers’ Digest

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# Editorial

My editorials have never previously exceeded a single page but, on this occasion, I intend to indulge myself with a slightly longer version than usual.

The Digest has now been going for 12 years and it has been a great pleasure to see and record all the highly creative work that has been done to build models of the London, Brighton and South Coast Railway; I am particularly grateful to all those who have contributed articles over the years. However, I wanted to reflect on the changes that have taken place over that time in the way in which models are being created. Coincidentally, there has been a thread on RMweb, prompted by the release of Issue 318 of Model Railway Journal, which seems to be discussing a similar topic.

When I started reading model railway magazines in the 1950s, Hornby, Trix or Tri-ang were the only (mutually incompatible) games in town. The legacy shortage of materials, left over from the war years, meant that scratch building really did mean building from scratch, kits were few and far between, electronics had not yet been invented and even information was remarkably hard to come by.

MRJ was launched in 1985 to promote finescale modelling, in a world where etched brass and whitemetal kits were increasingly common, digital technology was becoming available and the pre-grouping societies were making information on the Edwardian (and earlier) periods increasingly accessible. There was (and still is) a virtuous circle in which historical research by the societies provided information for cottage industries, which in turn facilitated the modelling of that company.

When the Digest first appeared in 2014, it was in response to the ability of the internet to share knowledge, techniques and images rapidly and freely. It also corresponded with the time when commercial manufacturers committed to a business model of pre-ordered, short batch production,

to very highly detailed standards and made in China. Since then, it has become increasingly possible to build a pretty convincing layout of the pre-grouping Brighton without singeing your fingers on a soldering iron. Over the same period, 3D printing has made it possible to offer a range of products that are only produced to individual order and to almost any scale. And virtual modelling has created a world which is no less carefully researched and detailed, but need never actually leave the computer. Anyone who doubts the potential of this genre should have a look at David Rigler's work on the early stations in Lewes, which enable visualisations of the bits of buildings that escaped the photographer, and also Harry Lewis' Stroudley carriages.

This is all a long prelude to observing that, whereas brass locomotives were once the indispensable component of a pre-grouping layout (and a staple part of all articles), this need no longer be the case. But even when using ready-to-run rolling stock, Sussex vernacular buildings and the Wealden landscape are equally indispensable elements in producing a convincing Brighton layout. Until someone finds a short cut to creating them, the historical and artistic ingredients needed in a convincing representation have not gone away; they have merely changed emphasis.

Like any editor, I always welcome articles, especially from new contributors. I hope that the ramble above should indicate that I see the recent spate of ready to run products and 3D printing and virtual modelling as opening up opportunities, rather than closing down the traditional approach. But I am still waiting to see some Brighton articles which unashamedly feature a Bachmann Atlantic at the head of a string of Evolution carriages or a Terrier rattling along with an 8 coach, close-coupled set of Genesis 4 wheelers. Please surprise me!

Eric Gates, Modelling Steward, The Brighton Circle,

Cover photo: David Rigler

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# 3D Printing 2mm Scale Buildings

David Rigler

Having bought a 3D Resin Printer just over a year ago and completed my first major project with it modelling Jenny Lind, I looked around for a new challenge.

Following a recent move of house, I did not have room to dedicate a large area for a layout. I did, however, design my study cabinets at a level at which I could use the top for some form of railway. The cabinet tops are 38cm deep and form a U shape around 3 walls. The corners of the U shape are too small to allow a 4mm scale curve, so I started looking at 2mm scale.

You may recall from previous articles that I have a strong interest in Lewes and have spent many years creating Solid CAD models of all the main building structures from the 1st and 2nd stations and physically hand modelling some in 4mm scale

My library of  3D CAD models and a 3D printer in need of a project set me down the path of seeing if these CAD models could be printed successfully (with minimal re-working) in 2mm scale.

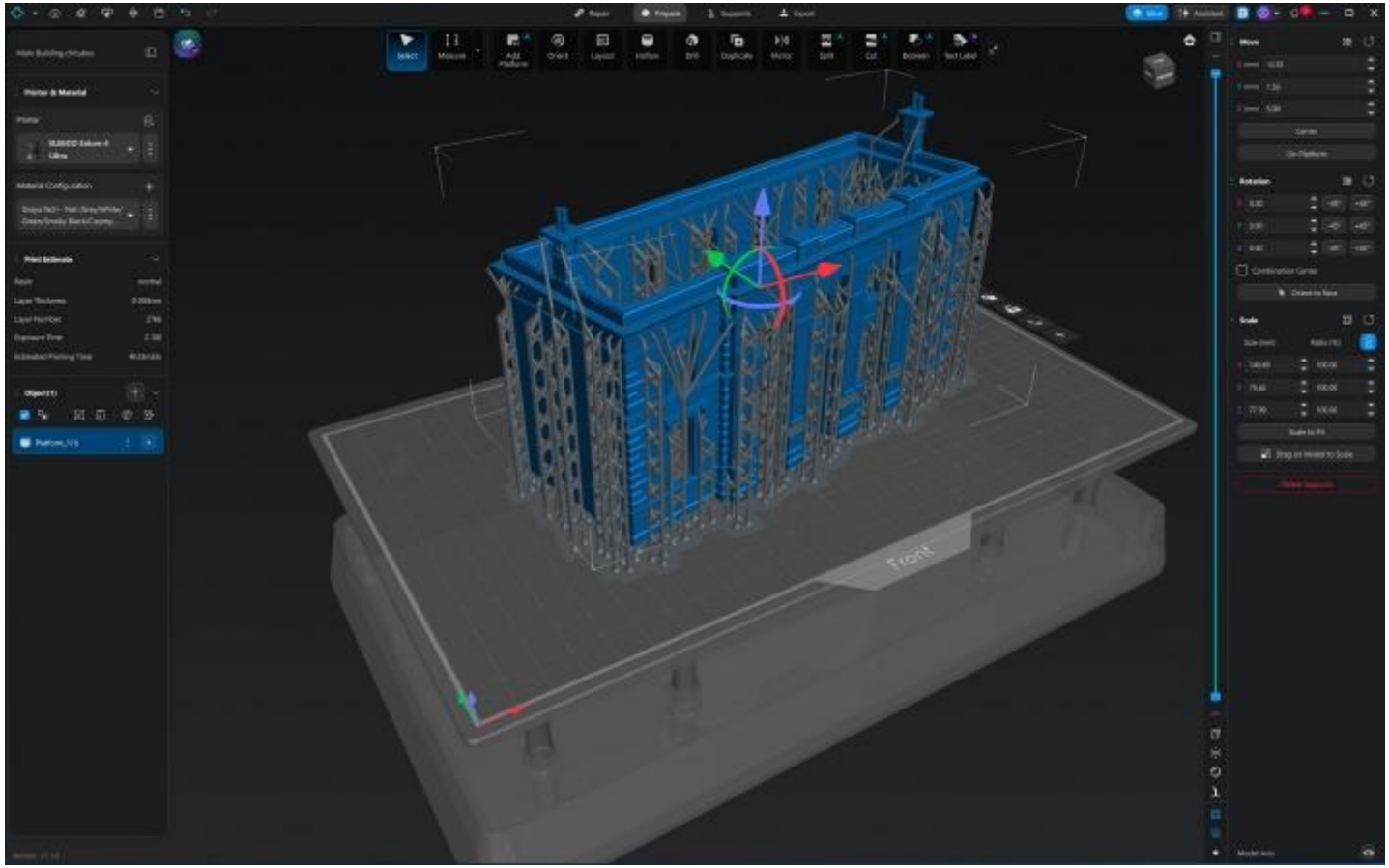
One of the big learning areas when starting out 3D printing is what settings to use and what dimensions will print successfully for different elements of the model. So this article concentrates primarily on sharing the CAD and 3D printing details, and is not a detailed step by step description of creating the complete models. I do however show the end result of what can be achieved.

The first CAD model I tried printing was the first station at Lewes. To fit on the print plate, this was printed in 3 sections - the main building and the left and right hand extensions. I also printed the roofs separately.

I anticipated that the roofs would be too thin (CAD modelled at 1inch thick, scales to 0.167mm) so these were thickened to 1mm before printing

The first prints were with the window glazing bars in place. These were too thin at 0.25mm and some did not form properly, while others broke too easily when I tried to clean up.

The structures were printed again without the windows. The picture opposite shows the main building on the build plate with supports added.




Note: Rather than revise the CAD 3D model, I exported and modified a 2D drawing to cut window profiles in plasticard using my CNC router. These were subsequently glued to the interior walls. These glazing bars are 0.45mm and as you will see in later pictures, look a little too heavy.

The building structures worked out well, the modelled wall thicknesses of 8.5 and 13 inches (~1.5 and 2.0 mm ) giving stiffness, weight and realistic depth to the window and door reveals. The detail of the delicate mouldings and cornices were excellent too.

The picture below shows the 3 separate prints, pushed loosely together in front of my hand-made 4mm model.

Overall the result was encouraging  enough that I then went on to complete the model, using paint and photorealistic papers (more on this later) and start work on creating a first station model for the top of my cabinets.

Scaling the available maps, I established that I could incorporate the station, goods shed and, importantly, the first row of terraces on Friars Walk. This terrace would have to have a little less curvature than the prototype and reductions on the depths of the back yards. To establish dimensions for the CAD model, I used the footprint of the buildings as shown on the OS 1/500 scale map of 1873 map below, captures from Google Street View and a limited number of photographs from that period. Views of the backs of the terrace were very scarce and a good amount of creativity and simplification was applied.

Note, the map to the right post-dates the first station and shows the Uckfield line from the second station, cutting through some of the original backs.


I took 18 captures from Street View and applied my own judgement in assessing what may be later additions, such as dormers, extensions, cladding and rendering.

I established the final dimensions by triangulation between the footprints and brick counting .

My existing models of the station structures were modelled in absolute units with no thought of creating 3D prints from them. For Friars Walk I modelled to the intended scale of 2mm to the foot and also used much simpler constructions for the detailed features than I would for 4mm or 7mm.

Each of the 16 houses was modelled separately, in its correct position, but with a good deal of copying and pasting. The backs are limited to the extensions - walls and other detail were added later using manual modelling methods.

For the main structure of the buildings I used the following dimensions:

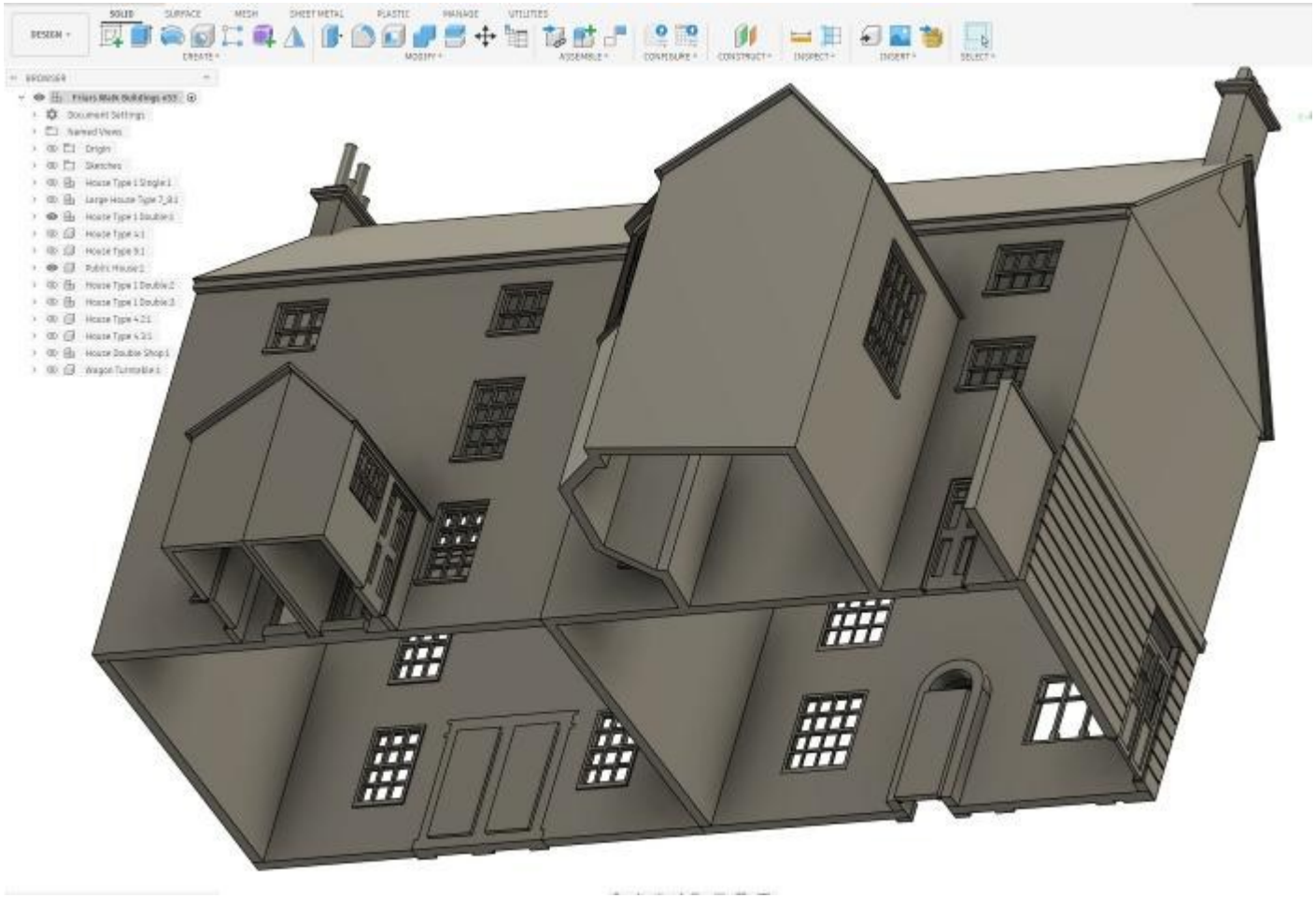
House walls - 1.5mm

Small extension walls - 1.0mm

Roofs - 0.5mm

Chimney pot wall thickness - 0.25mm

Regular partition walls were incorporated to give rigidity and stability to the print.



Dimensioning of windows and doors.

Although I had had failures with the window detail of my existing models at 0.25mm, I decide to try just a small increase, based on a couple of changes of process that I thought would help.

1. I added a heater to the printer to give more stability/consistency of printing.
2. I started applying heat to the models with a small hot air gun to make removing supports easier.

Windows:

Glazing bar width - 0.3mm

Depth (sash effect)

Upper - 0.5mm

Lower - 0.25mm

Panelled doors

Door depth - 0.5

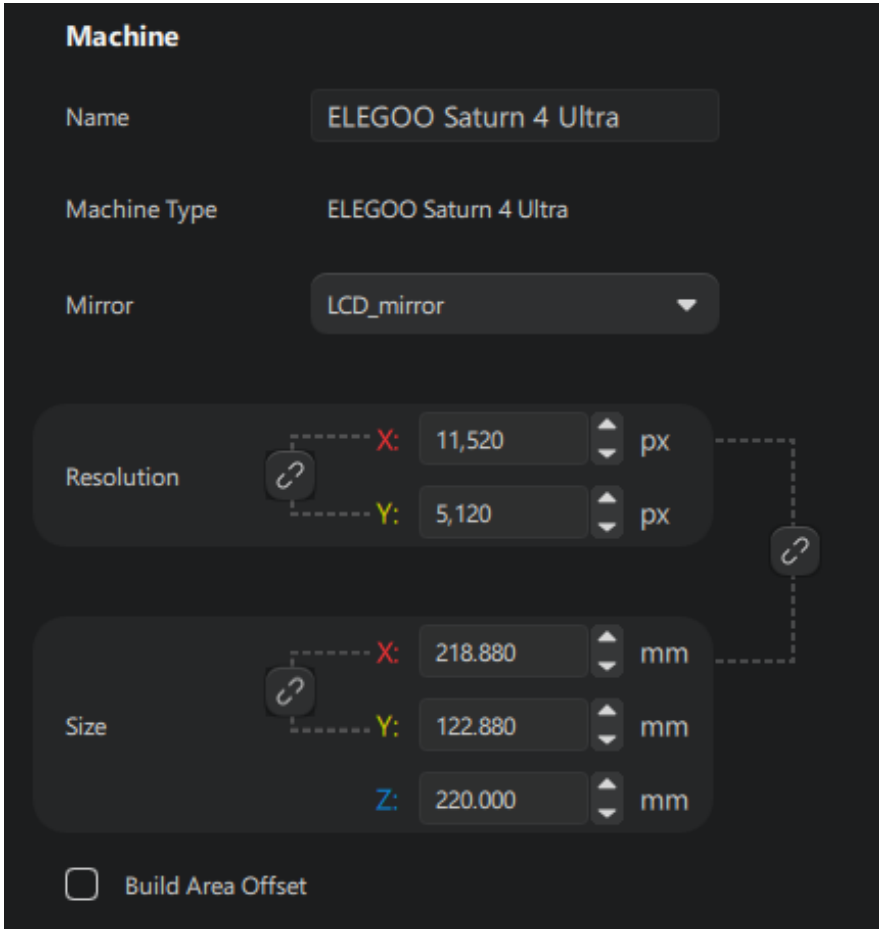
Panel depth - 0.25

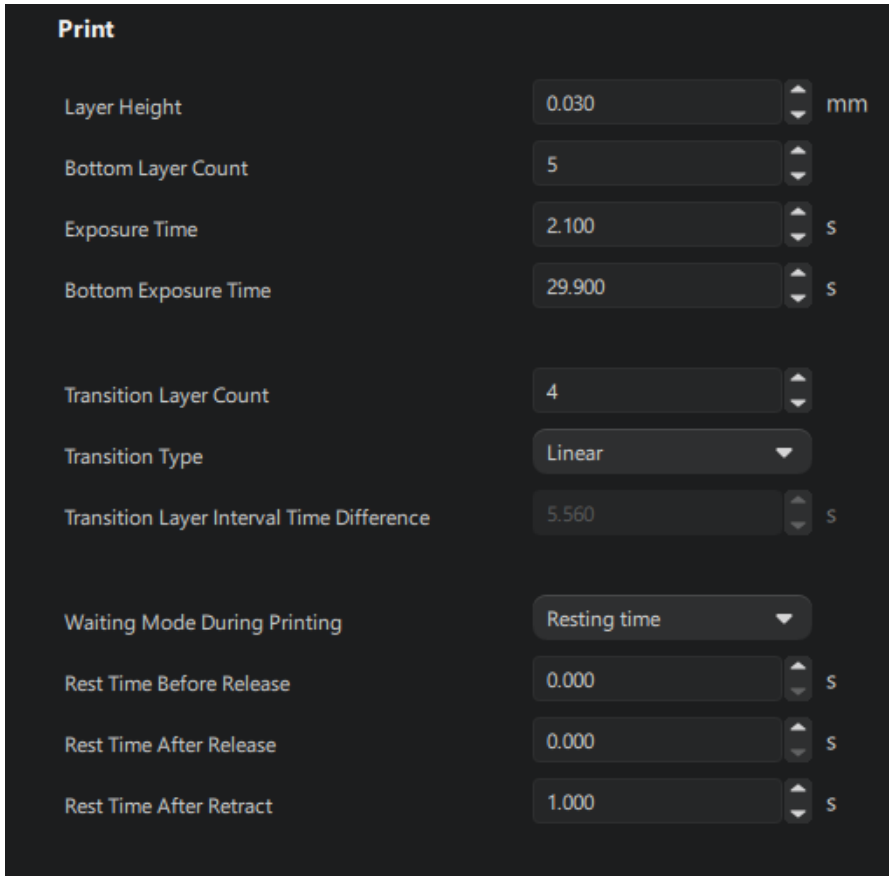
The complete CAD solid model of the Friars Walk terrace.

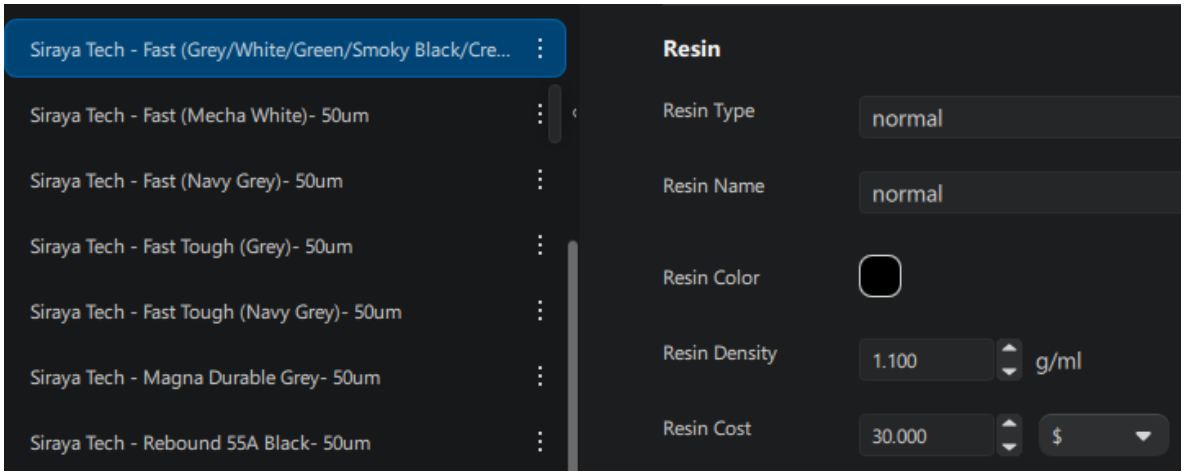
# 3D Printing

I have screen captured here the printer, settings and resin details I used on this project. I am not saying these are the best, but they reflect where my learning has got me so far!

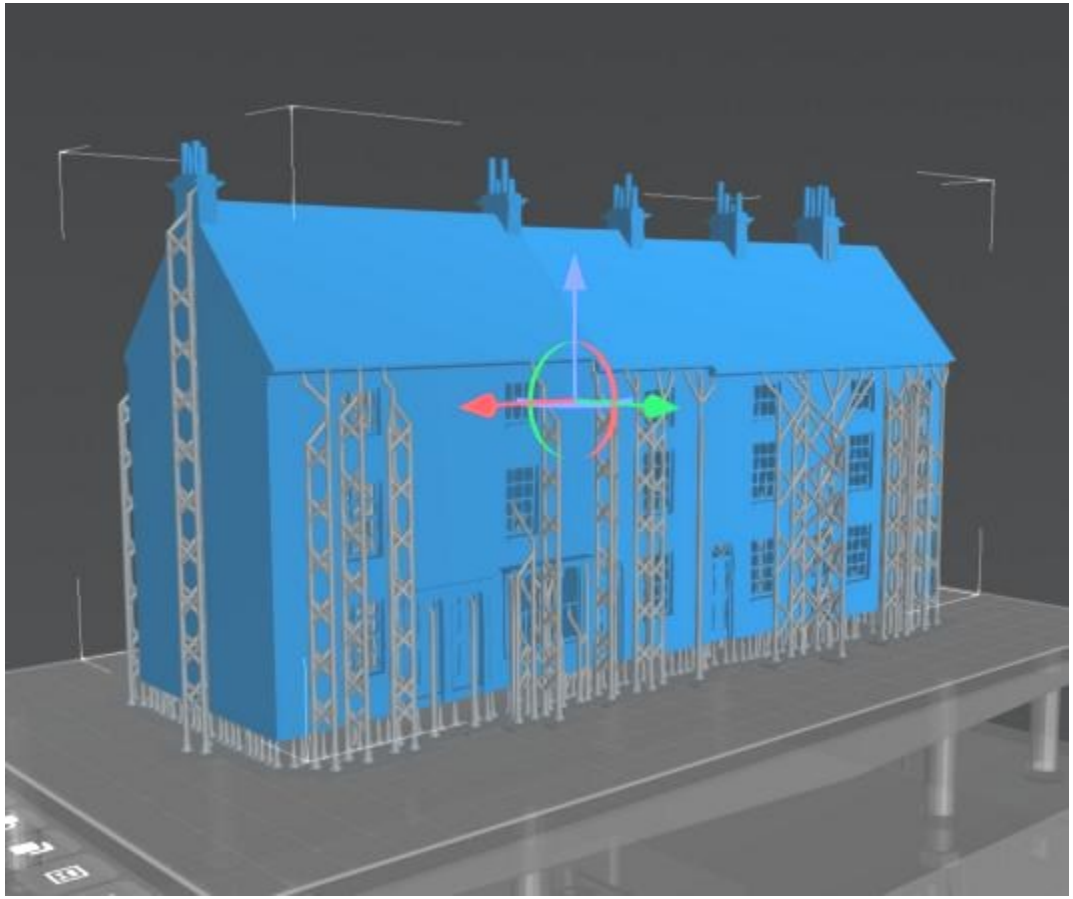
Creation of the prints has been done using the “Chitubox Basic” slicer software. This is the free version.



One area of 3D Printing I need to get into deeper is adding the supports. At the moment, I rely on “Auto Support” to generate them and, in the case of these models, I chose “Light” supports, to keep the contact areas as small as possible. There is a balance between this and not providing enough support which can lead to the model being distorted. I suspect this is what is happening at the lower corners of some prints. However, overall I was happy with these prints and particularly the window detail. Only a couple of glazing bars were broken on cleaning up, these were repaired with microstrip.



The size of the print plate again dictated that I needed to print the terrace in three parts but this also makes finishing far easier than trying to do the whole terrace as one piece. You can see I also decided to print the roofs in place on these models.

The bottom picture shows the 3 sections loosely pushed together.

Note: The models at this point have been primed with a light spray of grey paint.

Finishing of the models was completed using paints and photorealistic textures (bricks, tiles, wood planking) printed on an inkjet printer. These were mostly from the library of textures I used for the 4mm models, scaled to 2mm in Photoshop and recoloured where required.

I used the same technique for cutting out and applying them, which is to over-print the texture paper with a 2D drawing of the elevation being worked on and use this to cut precisely to shape. Gluing them on to the model is always a messy process and after trying a number of different products, I concluded, as usual, that EVOStick worked best!

The terrace back yard details were mainly constructed by hand, using Plasticard for walls, sheds, lean tos, toilets and coal bunkers. Doing this again I would create CAD models and batch 3D print them!

The following pictures show where I have got to with both the finishing of the buildings and the overall station area model.

Friars Walk from the station end, comparing the model with the Burtt photograph held at the NRM.

In these aerial views from either end of the station, you can see the unfinished goods shed. This has again been printed from my original CAD solid model.

2mm scale clearly lends itself very well to 3D printing of complete buildings. The surprise and delight for me has been the ability to print my Solid CAD models, produced decades ago, with very little modification required.

Where the printing has won over conventional modelling with plasticard, is the ability easily to produce multiple door and window apertures, and the doors and windows themselves, which is major saving in time and frustration!

Photograph of models copyright David Rigler

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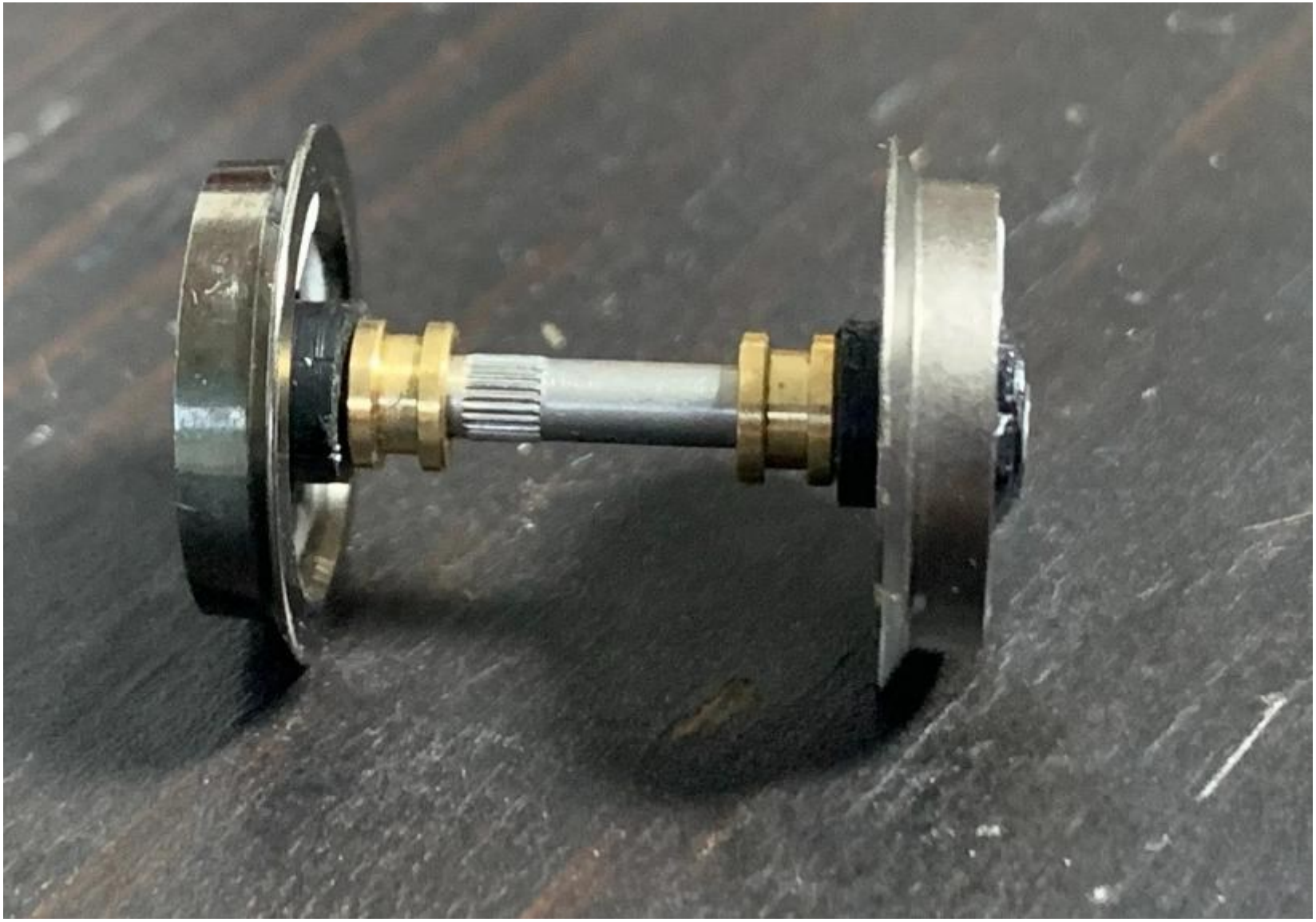
# Converting a Hornby Terrier into a 2-4-0

Lloyd Burgess

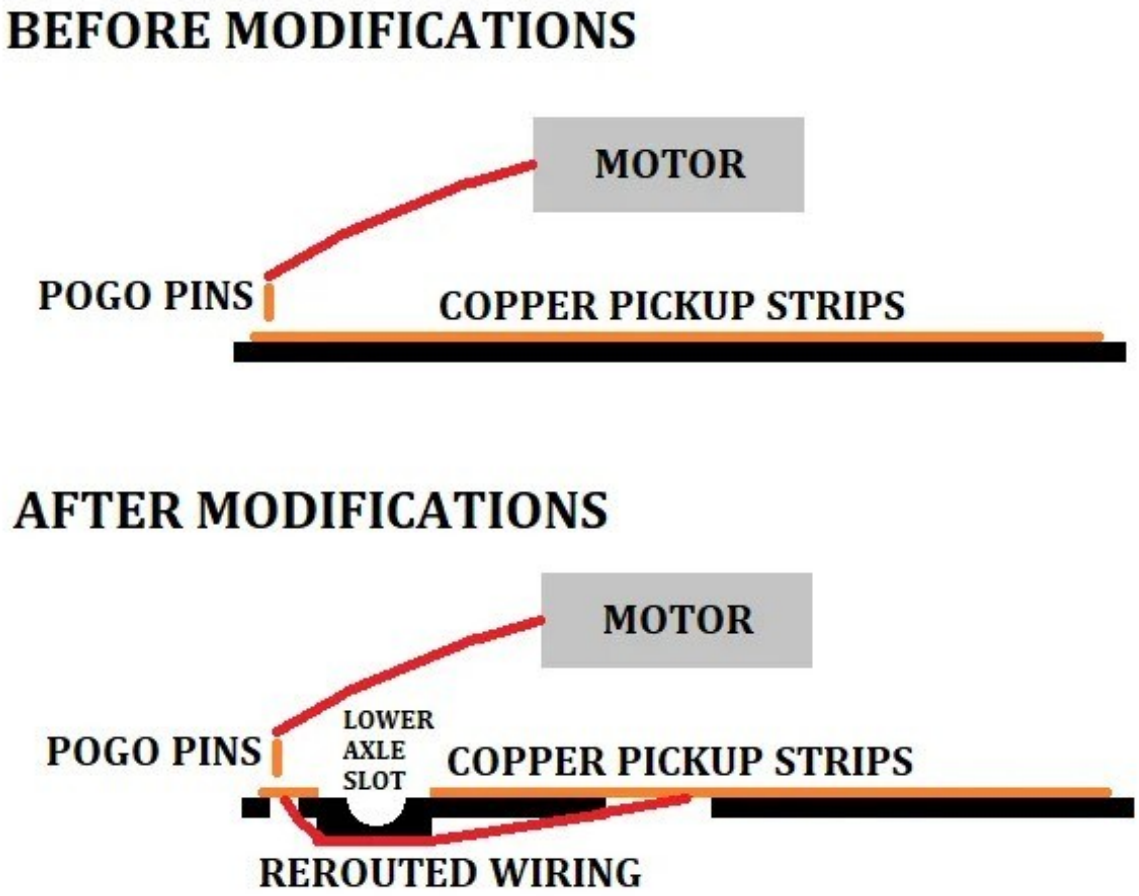
This article will detail the process I have followed to convert a Terrier into the experimental 2-4-0 motor train version.

The model I converted is Hornby's departmental black Terrier, but any A1 condition model will be suitable.

First, I had to replace the front wheels. The spokes are from an Alan Gibson wheelset, while the metal tyres are from a Hornby Pug. The axle and bearings are from the original driving wheels. The axle centres were extended with plastic tubing, and a plastic circle with a small pinprick was glued into each of the centres of the wheels to make the axle ends.



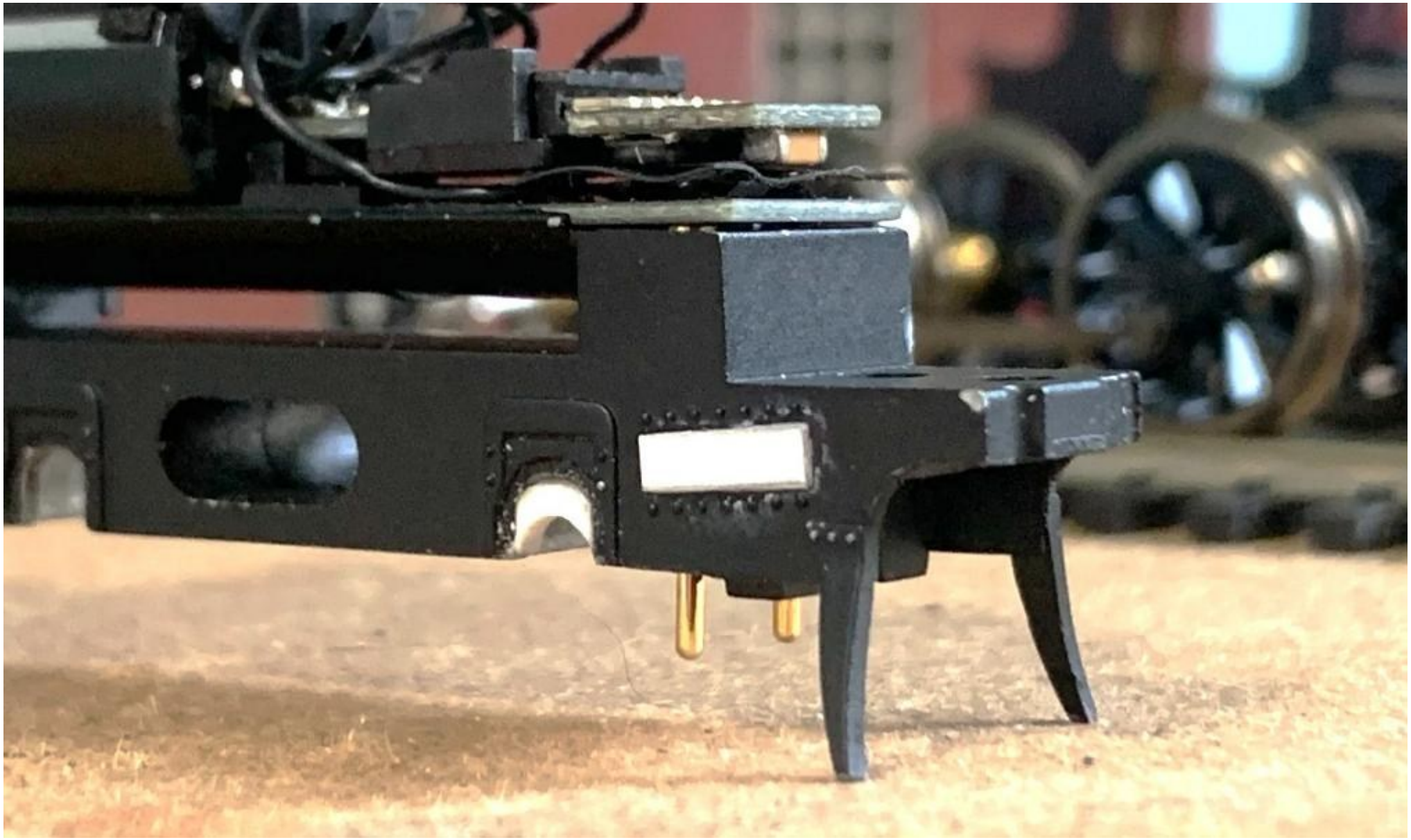
To accommodate the new, lower axle, I added a piece of thick plastic to the underside of the base keeper plate where the front axle goes, and used a rounded file to create a slot for the new wheelset to sit in. The front set of brake shoes and their rods were removed from the base keeper, and the front half of the coupling rods were removed at the same time.




This resulted in the loss of the front pickups. On the Hornby Terrier, the pickup strips run underneath the axles, making contact with pogo pins at the front that take power up to the motor.

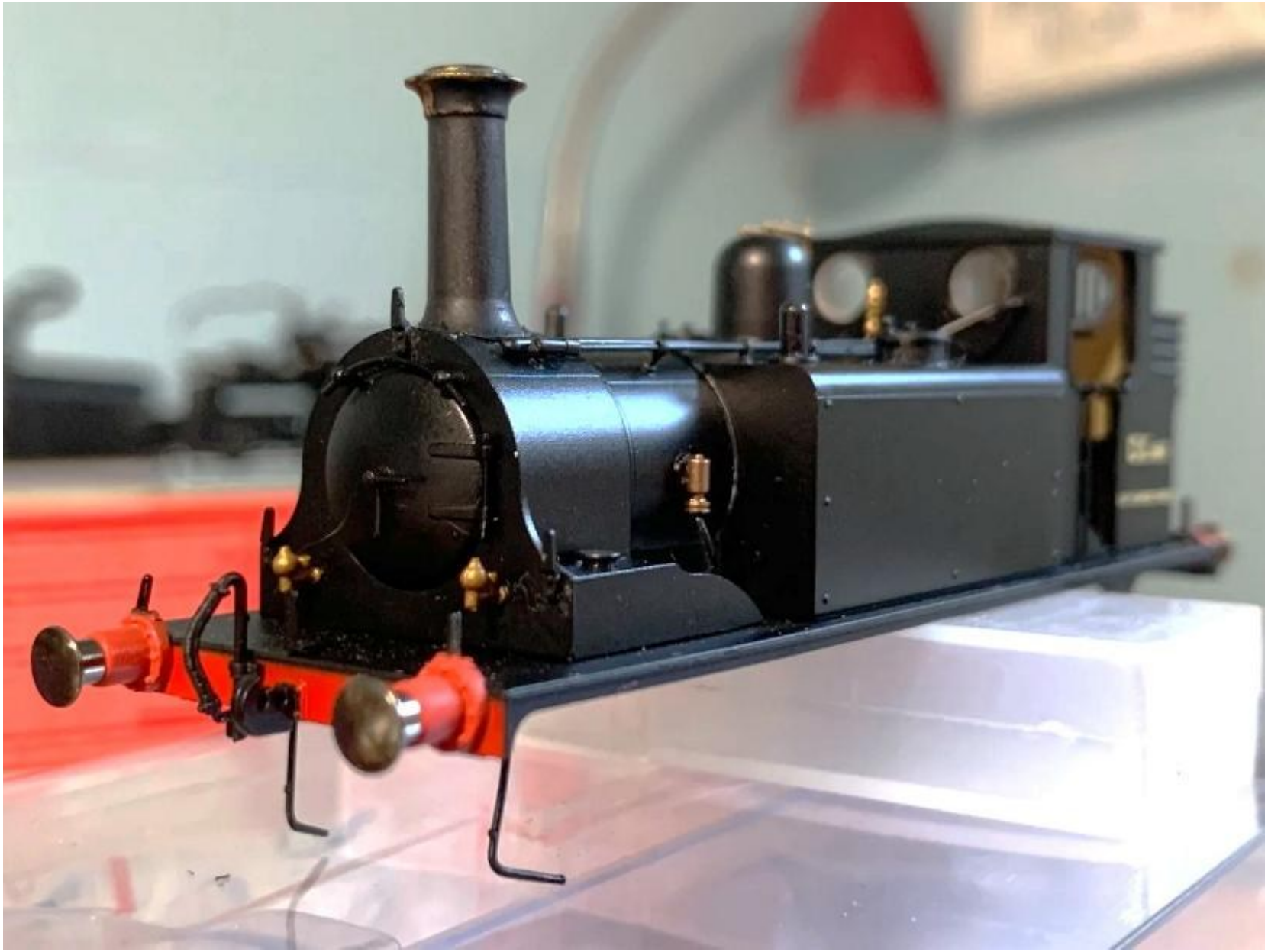
Since the axle has been lowered down into where the pickup strips are, I needed to get power from the pickups to the pogo pins. My solution was to cut copper squares from the scrapped portion of pickups, and solder wires to the underside. Two holes were drilled into the front of the base plate either side of the front screw hole, and the wires were threaded through, with the copper squares locked in place with superglue.

An additional pair of holes were drilled into the centre of the base plate under the pickup strips, to allow the wires to be soldered to them, creating a new route for electricity to pass through. Hopefully this diagram will make it clearer.

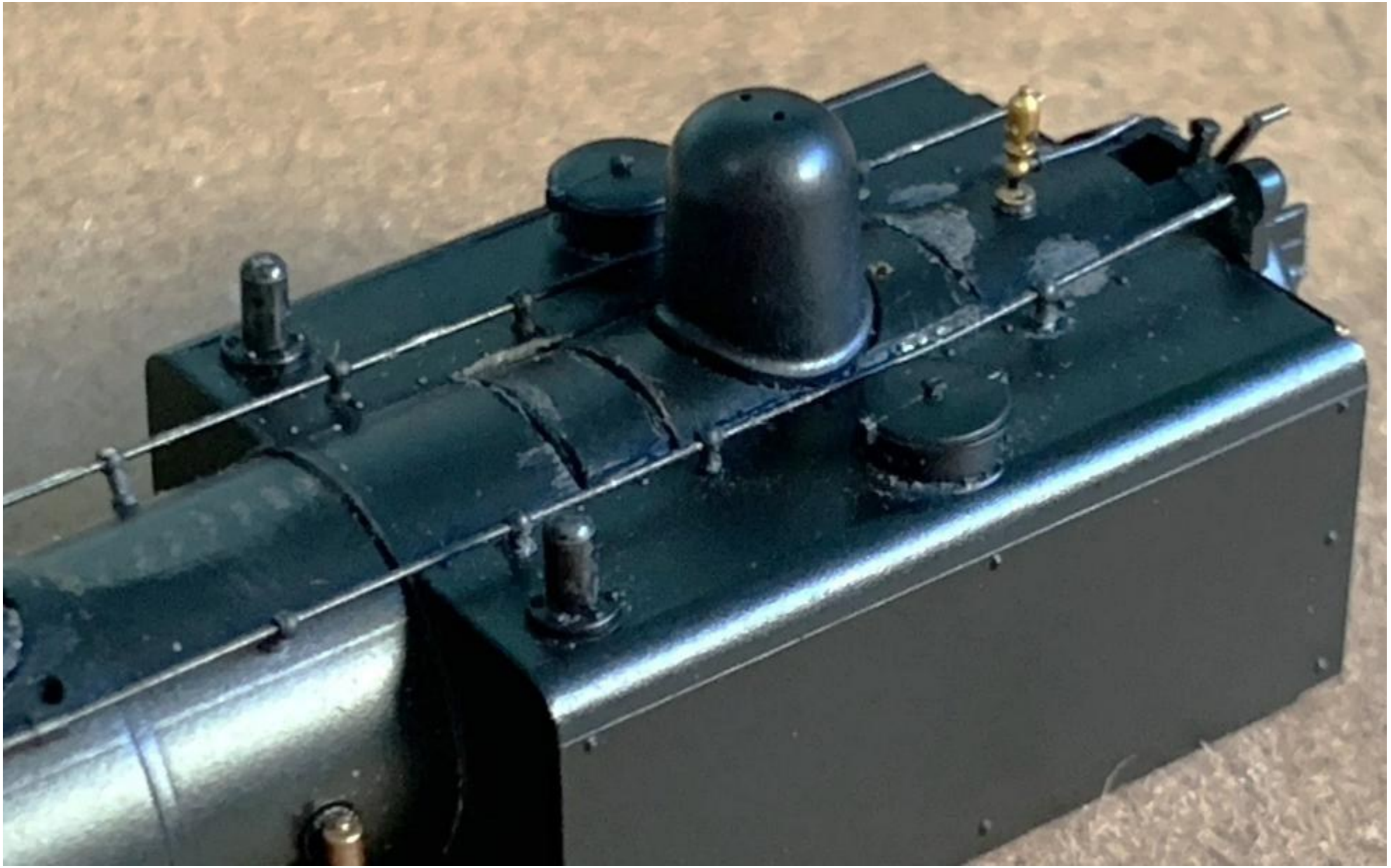


As for the chassis block itself, the same thick plastic used on the base plate was cut and glued into each side of the front axle slot, with the rounded file being used to make an opening for the bearings to sit in. Some trial and error was needed to get the ride height correct.

Moving on to the body, my base model has a later Drummond chimney, so this was removed. I replaced it with a chimney cut out of an old 1980s Dapol Terrier. I removed any detail parts that didn't match the two photos I was using as a reference.

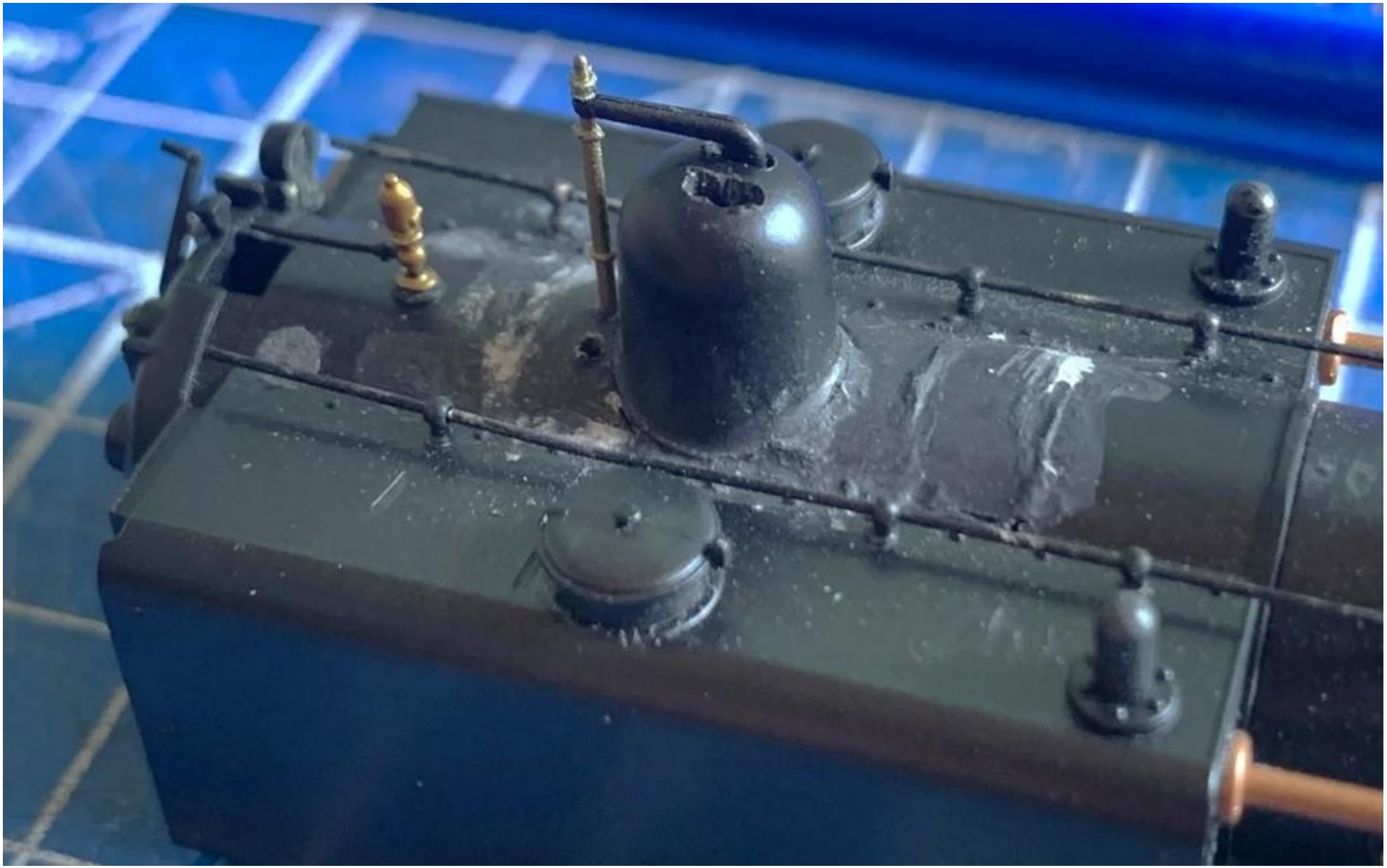


The departmental Terrier is an A1 with an A1X boiler, so I cut and shut the portion of boiler that the dome fits onto, moving the dome back into its correct A1 position. The washout plugs and rivets were filed off the boiler.



I scratchbuilt some open coal rails on the bunker from styrene strip, and cut out the coal load from the original closed coal rails.

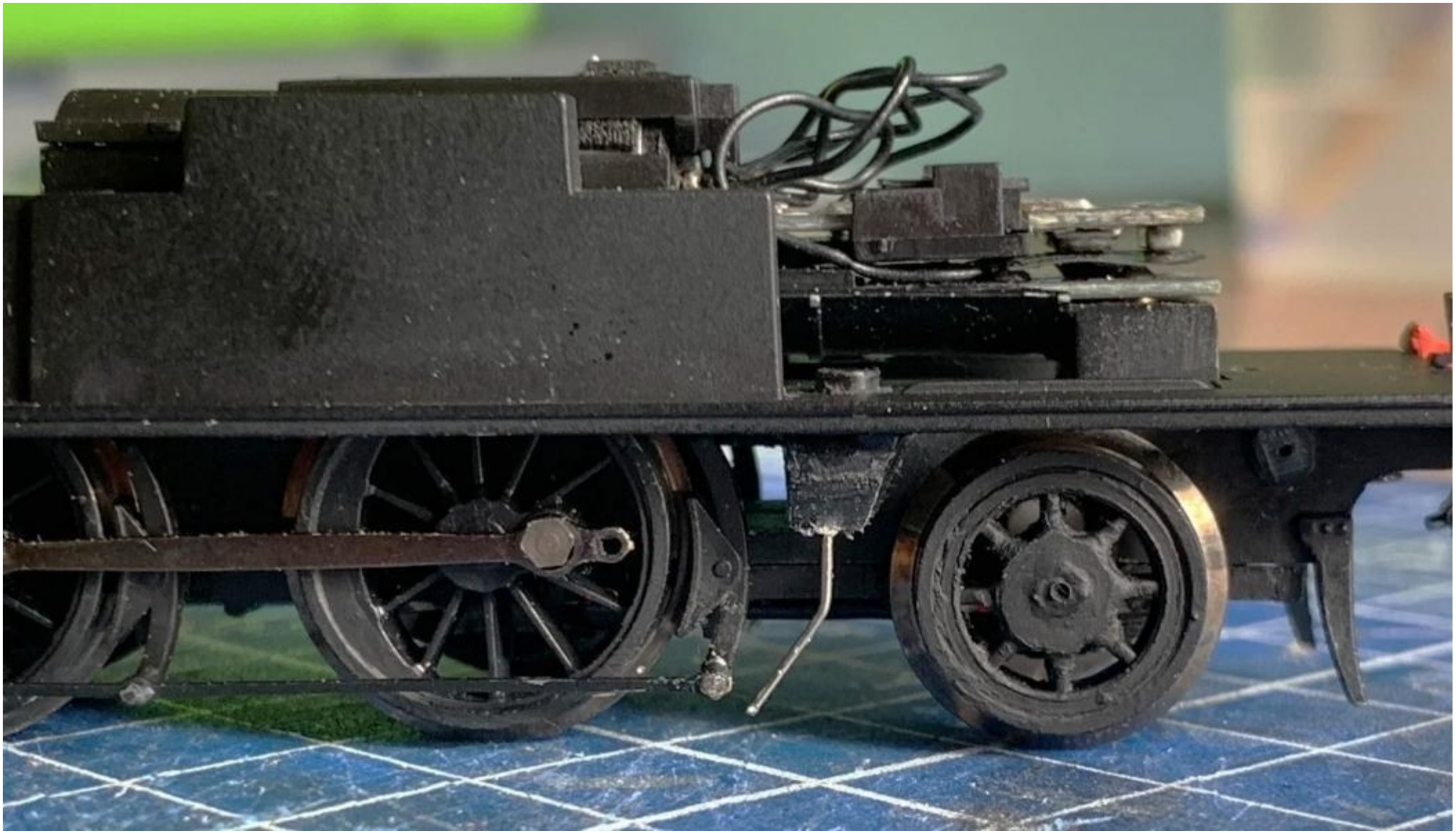
I replaced the Hornby safety valves with better looking Dapol ones, sourced from Peter's Spares. The sockets on the dome had to be lengthened slightly to fit them. I also purchased the condensing pipes at the same time.



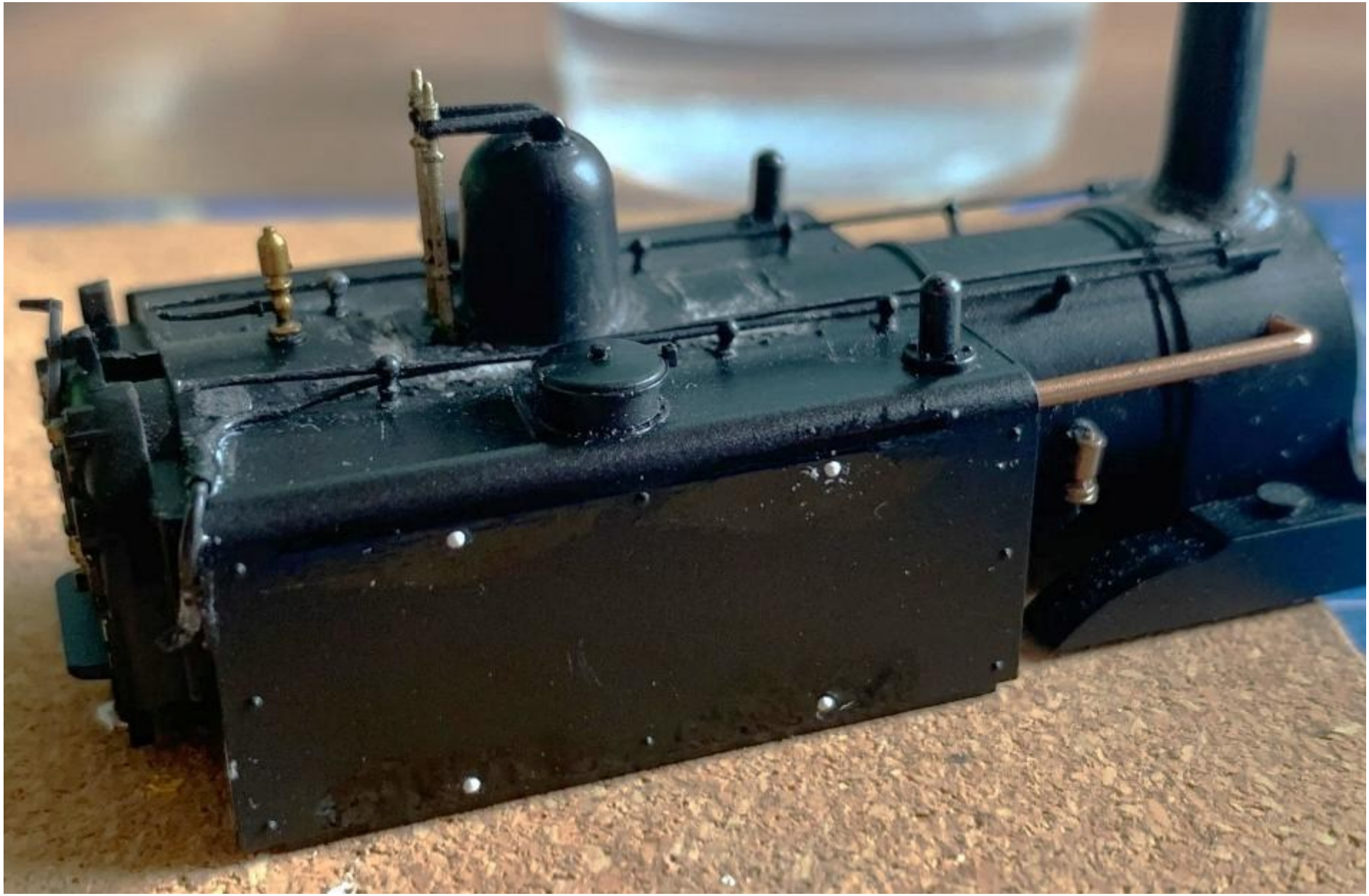
I extended the Westinghouse pipework that runs between the smokebox and cab, wrapping it around the cab front and rear of the tanks, where the end sits next to the pump, with another pipe glued to the opposite side.

With the front brake shoes gone, I made fillers for the sockets that they would have fitted into and glued them in place. These were made by cutting slices off a plastic axle that I had spare.

The 2-4-0 Terriers had new sandboxes fitted in front of the new front drivers. I cut these out of a scrap Hornby 0-4-0 'Pocket Rocket' chassis, and glued them to the underside of the running plate. Handrail wire was bent to shape for the sandpipes and the filler caps were pieces of round flashing off the sprue from a kit.



Railtec rivet transfers were applied to the tank sides to give it the extra rivets that the Hornby model doesn't have. A gloss varnish was applied to the tanks so that the rivet transfers would adhere.



When filling was complete, I painted all the additions I'd made in black, giving a uniform base colour ready for painting.

The model was fully painted, and lined with Fox Transfers, with lettering from Endon Valley Custom Decals. Number plates were designed and printed by me, glued onto plasticard and cut out. My chosen example is no. 681, formerly *Beulah.* A combination of matt and satin varnishes were applied to give the impression of a locomotive that is polished, but also worked hard.


Photographs copyright Lloyd Burgess

To learn more about this project, visit RMweb, 'Building Beulah'.

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# Craven Carriages in 7mm Scale

## Andrew Mortlock

Returning to active modelling after a number of years, I was delighted to find kits available for Craven carriages (from EB Models). A number of these Craven vehicles lasted into the 1890s and, with their lantern lookouts, they make very attractive prototypes, either as a stand-alone rake or in a mixed train with Stroudley stock.

I built the Type 20D full brake first, as it did not need an interior. The underframe was readily assembled, with the piano wire springing of the axle boxes being extremely effective. The basic body required the careful soldering of three overlays to make up the thickness of the framing, this was done using a resistance soldering iron (a tool that rapidly became indispensable). The roof was formed using rolling bars and was strengthened by soldering 3mm brass strip around the edges. The lookout was made using the method in the instructions, building it as a sub-assembly and only connecting to the roof as a final step. At this stage I decided to solder the roof to the body, which added considerable strength to the overall vehicle and also ensured the roof fitted perfectly to the sides and ends.

Painting would have been easier had I been able to buy 'Precision Paints' mahogany but, in the end, I came up with what I now think is a better option. After a certain amount of trial and error I chose a 50:50 mixture of Humbrol wine red (73) and Railmatch Pullman umber (324). This had a slightly warmer tone than the mahogany and, being mixed each time, gives a slight variation between carriages. I decided I could justify not applying lining and so finished the vehicle as No 42, built in 1866, with some (very old) Woodham Wagon Works waterslide transfers.

The six passenger carriages were completed over a period of about six months without any major issues. The four Type 15 vehicles required tumblehomes to be formed which the bending bars made easy work. The underframes were simple to make and have the advantage of being separate from the bodies and attached using 8BA screws. The major challenge was the need to provide interiors, and I made this harder for myself by, once again, opting to solder the roof (suitably strengthened) to the body before painting. This left the interiors to be inserted from underneath, after the body had been painted, varnished and glazed. As the partitions had been soldered in ahead of time, the seats could be made from card and attached with white PVA. I managed to find on-line some images of railway seat upholstery and these were printed off and used to complete the interiors. Again, I reasoned that these vehicles would have been painted in their final years and I decided not to try to line them. They became Third No 497 (15F, built in 1863), Second No 38 (15B, built in 1866), Brake Third No 412 (15J, built in 1867) and Brake Third No 429 (15H, built in 1865).


Type 15 Brake/3rd, 3rd and 2nd standing in Hayling station


Type 15 B Second number 38


Type 15 F Third number 497

Type 15 J Brake/Third number 412


Type 15 H Brake/Third with luggage compartment, number 429

The two Type 8 coaches were more straightforward, with their straight sides, and the only modification I chose to make was to shorten the buffer housings, so as to make a fully detachable underframe. These became Third No 56 (8B, built in 1855) and Second No 35 (Type 8D). With all carriages complete, I applied some light weathering; brown rust on the underframe and grey/black on the roof. I applied the weathering powder liberally and then removed the great majority of it with a damp tissue, trying to give each carriage a slightly different appearance.


Type 8 B Second number 56


Type 8 D Second number 35

The photograph below shows the Type 8 vehicles, together with Richard Barton's Type 9C second brake to complement them (Modellers' Digest 5). Richard's superb model of Hayling Island provided a suitable backdrop for photography. I am grateful to Ian MacCormac for supplying the kits and providing advice. The pictures of the 4mm versions, which Nicholas Pryor shared in  Modellers' Digest 8, were incredibly helpful but also leave me wondering whether I need another set in original Craven livery…

Photographs copyright Andrew Mortlock

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# “Mike’s Might Have Been”

# The Stroudley 2-4-2 Tank Engine

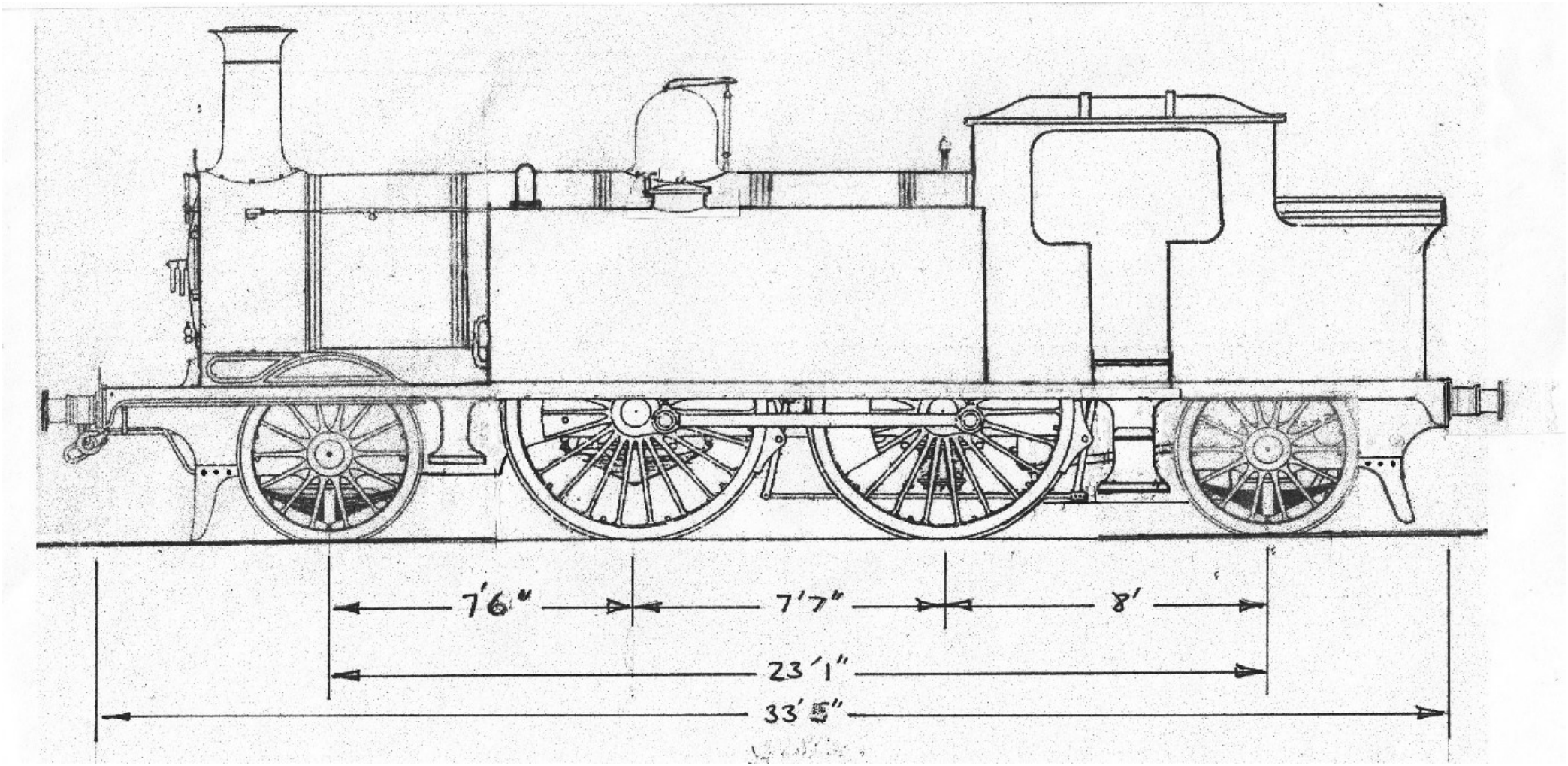
Colin Paul

Half way through the construction of the proposed Billinton Super Gladstone 2-4-2, Mike Cruttenden mentioned that he was working on a drawing of a “might have been” Stroudley 2-4-2T tank design. Over the following months, he showed me a rough drawing of what he thought it might have looked like and, seeing later drawings, I was very impressed with it. It oozed Stroudley (see Fig.1 on the following page).

He wanted to keep the same 2-4-2 wheel arrangement, again using 6' 7½" driving wheels, 4’ 6" front and rear wheels and keeping the wheelbase the same at 7' 6" + 7' 7" + 8' 0". I did suggest to him it would have looked better with smaller D Class 5' 6" drivers but he stuck to the larger ones for greater speed.

The smokebox, boiler, chimney and dome are again from a LB&SCR G Class 2-2-2 single. The tank side, enclosed cab, Stroudley style roof and a slightly enlarged coal bunker looks very similar to his F Class 'West Brighton', which R.J.Billinton re-designed and built as class E3 after Stroudley's death.

Fig 1




The Stroudley 2-4-2 tank engine

## The Chassis

As with the Super Gladstone 2-4-2, Mike gave me another Albion Models B1 Gladstone kit, containing most of the bits and pieces required. Not a lot would be used from it though - only the chassis sideframes, chimney, dome and buffers! The rest would be scratch built. Fortunately, I had an extra pair of 7' 7" milled coupling rods so that only the motor, gearbox, wheels and a few odds and ends would have to be ordered.

The existing chassis sideframes were from the kit having a 7' 7" w/b. The first items to make were the frame extension pieces. Two pieces of n/s (chassis thickness) were soldered together, a print applied, then cut out as one, with hornslots ready to accept the Slaters hornblocks.

Left and right handed frames have the extension pieces soldered in place and smoothed off inside and out. For strength, I soldered on small rectangles of scrap n/s on the inside as shown in the bottom frame.

I also copied my doublebeam compensation unit which rests on top of the front axle and front driver hornblocks. The rear driver is 'fixed', with a 'sprung' rear axle.

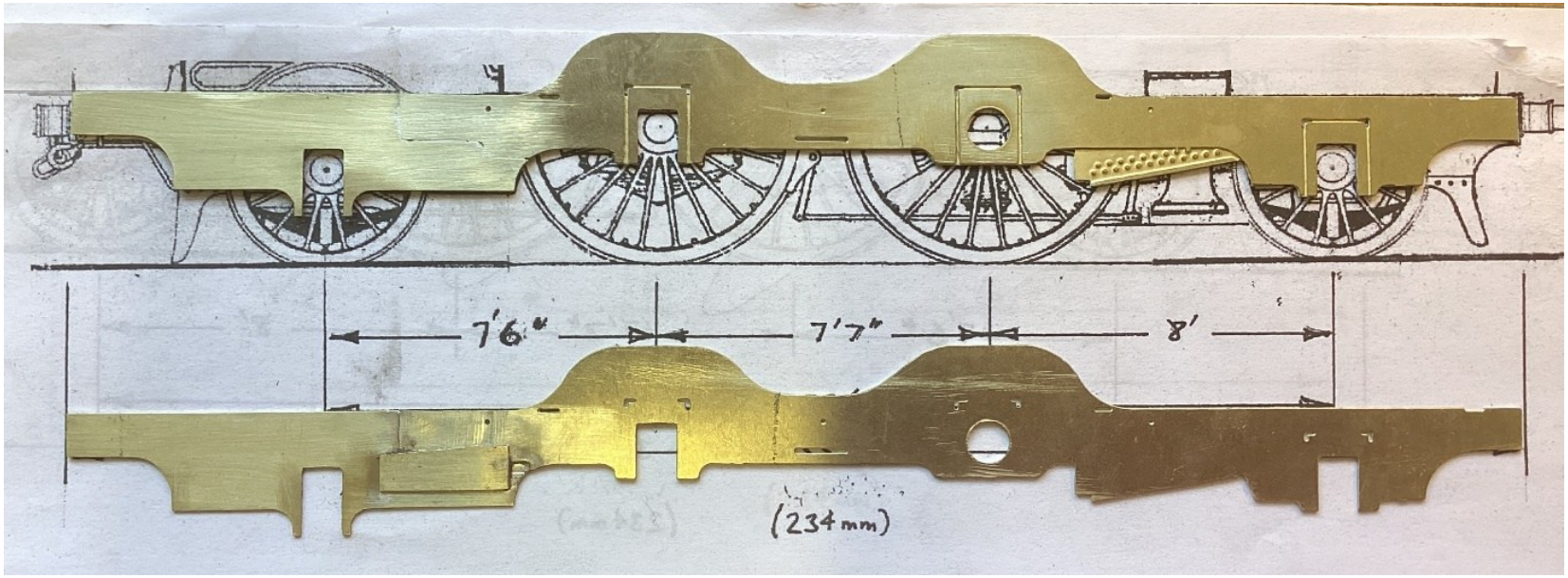
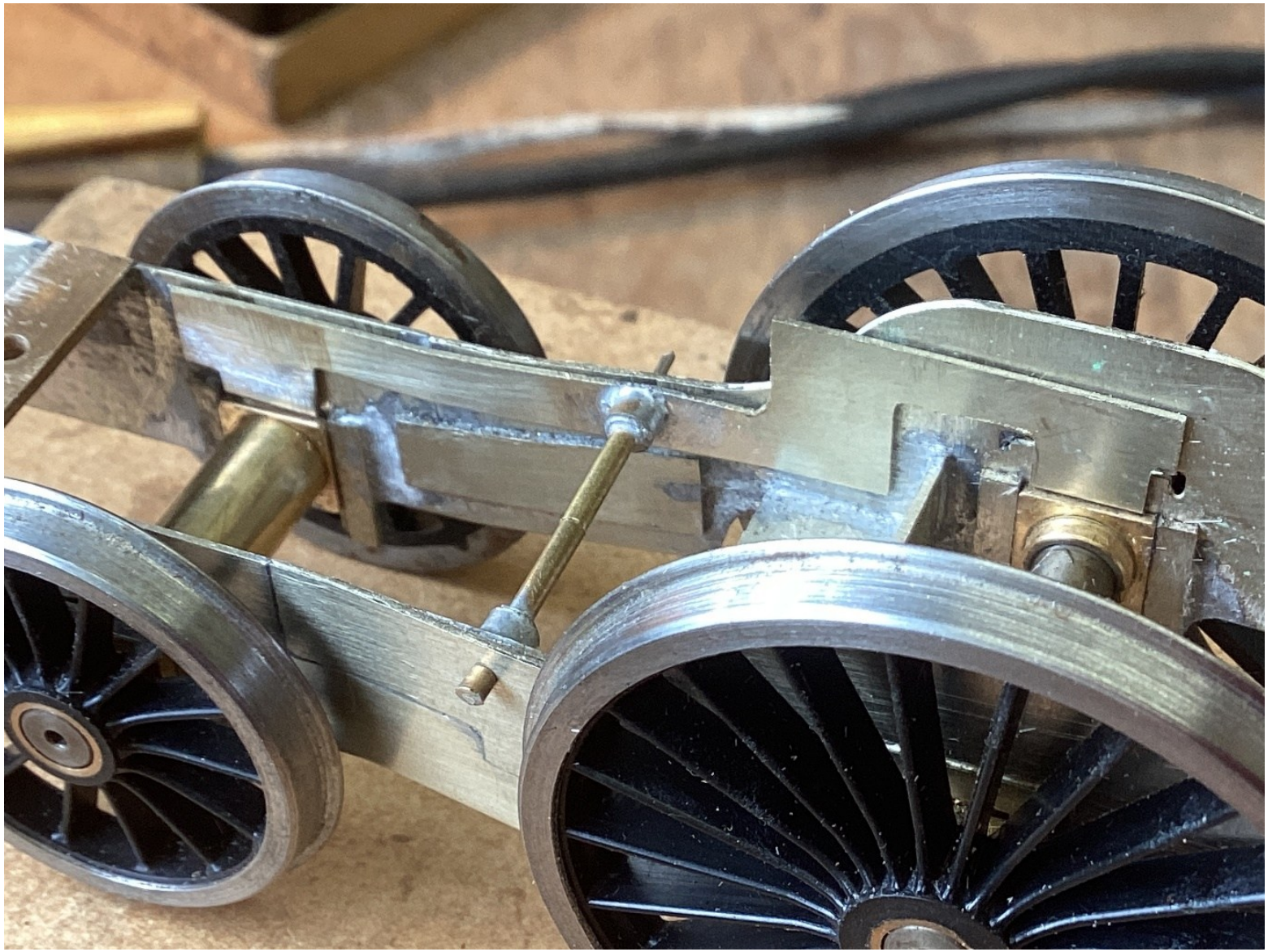


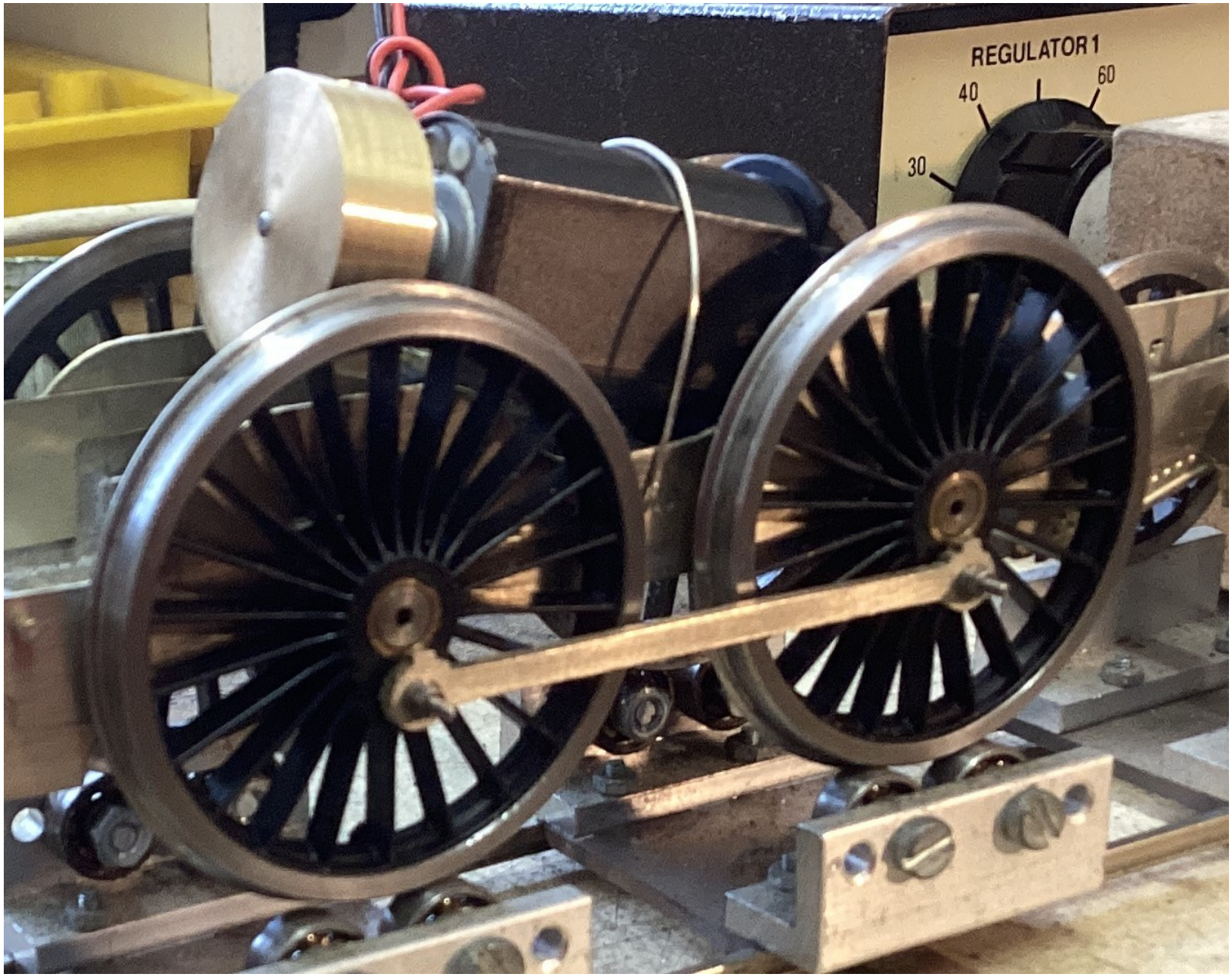

Photo 1

Photo 2



In the same way as the Super Gladstone 2-4-2 chassis, the central portion of the frame uses the 25mm wide frame spacers from the kit. The ends have similarly been tapered inwards down to 21mm wide on the front and rear axles using my own frame spacers. This gives enough sideways movement of the axles on Mike's garden railway. The curved narrow frames can just be seen as can the compensation beams. Note the beam resting on top of the hornblocks, and the rectangular strengthening plate (as shown in Photo 1). The rear axle is sprung with 'springy wire' which works fine.

Photo 3

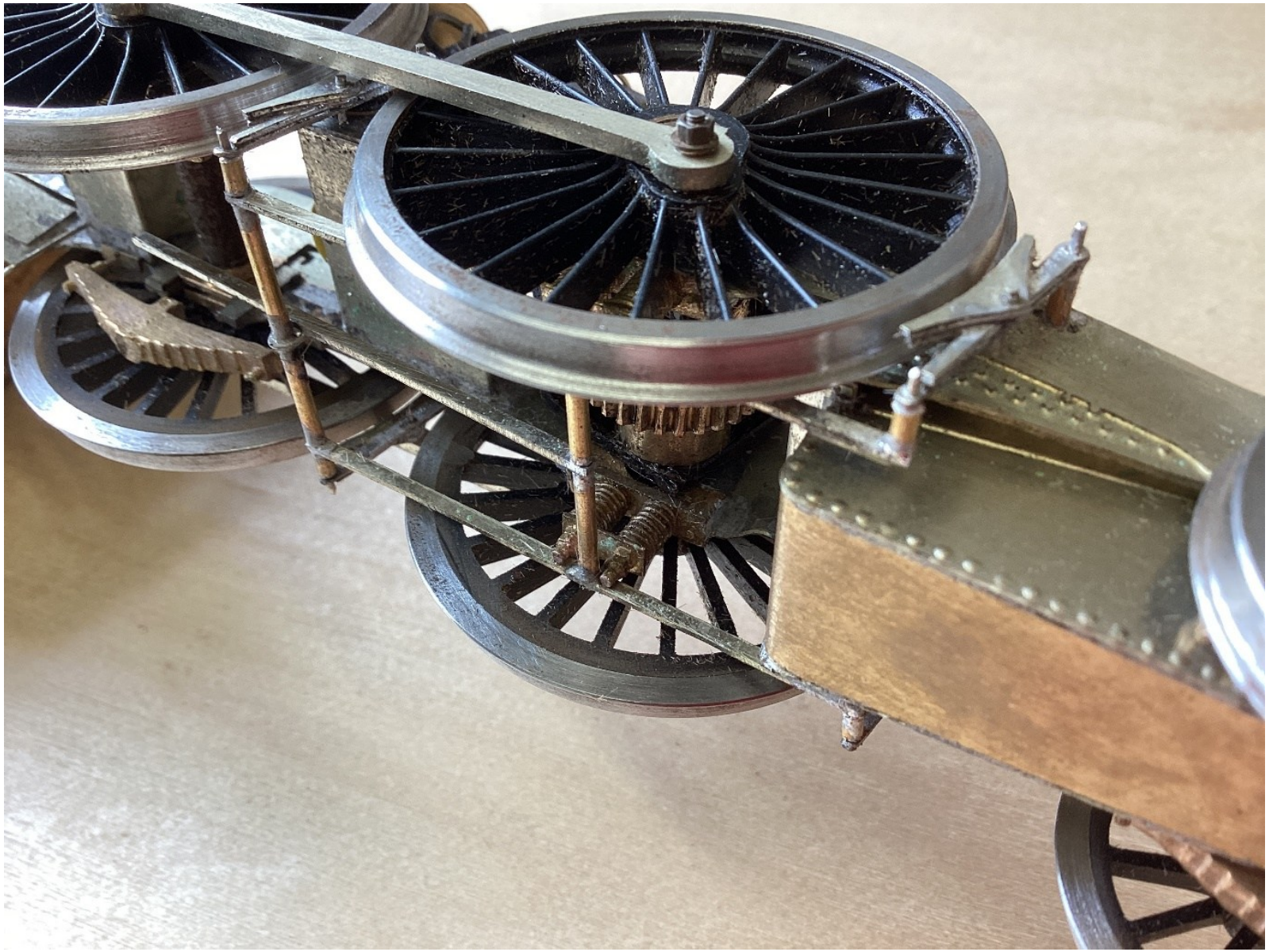



The excellent MSC Models (www.mscmodels.co.uk) SM motor with a 30:1 gearbox and a 28mm diameter flywheel was used again, shown on my rolling road for testing.

Before the ashpan was designed, assembled and fitted, two Laurie Griffin (www.lgminiatures.co.uk) 3' 6" lost wax leafspring 'keeper plate' castings (Ref: 27-042) were soldered onto the sideframe capturing the axle hornblocks. I then made the two new ashpan side pieces (riveted as shown) and soldered them in place, making sure there was enough clearance behind the leafsprings. A floor was then made (tapering towards the rear axle) and soldered on. A coil spring (Ref: 27-043) can just be seen underneath the rear driver. Also visible is a homemade guard iron.

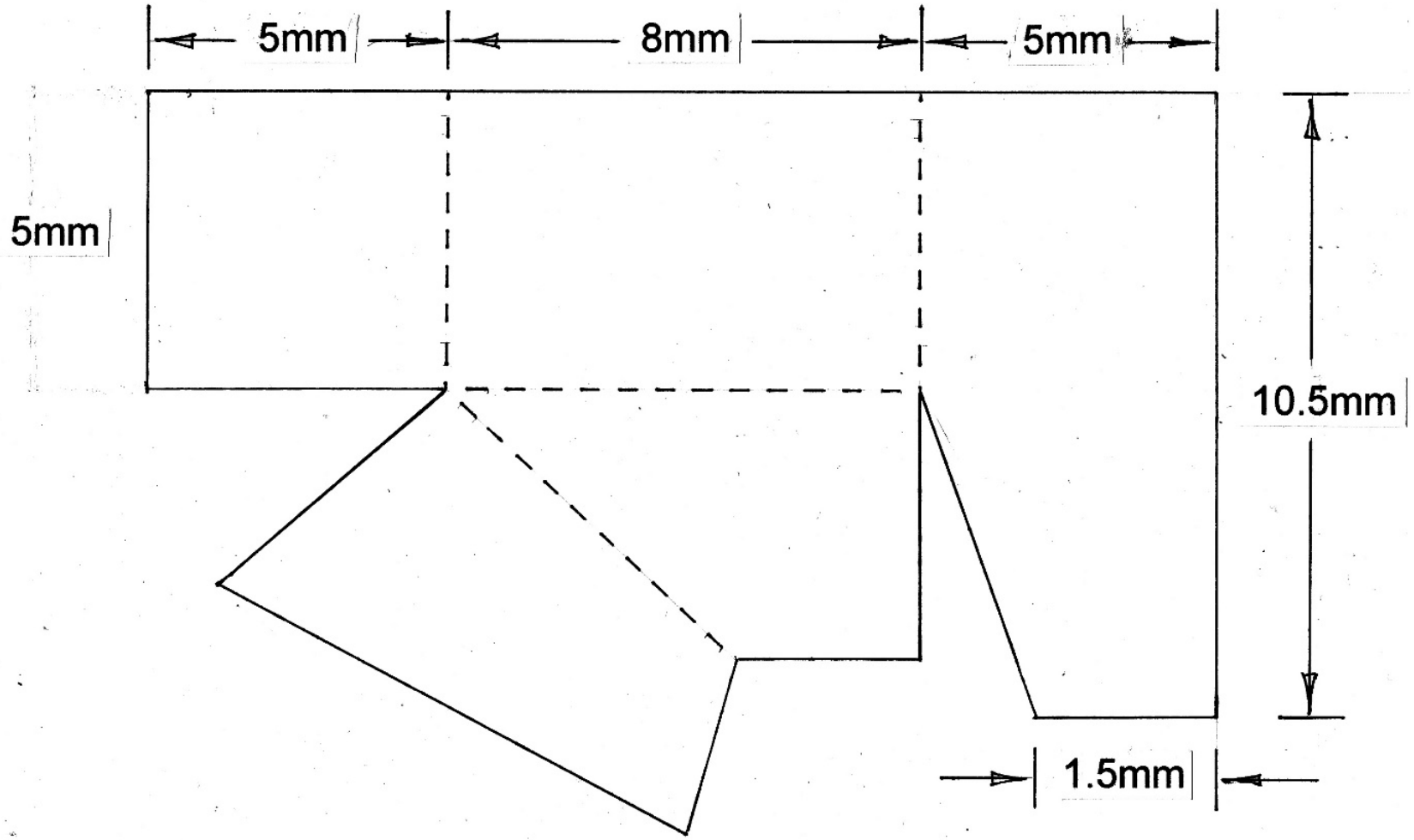
Photo 4

Photo 5



The brake hangers and brake shoes were used from the kit. All four had to be modified slightly for the pull rod pivot holes. The pull rods (1.5mm x 0.5mm) are my own using scrap n/s offcuts. The whole assembly was soldered up using 0.8mm n/s rod and 1/16″ brass tubing in one unit which can easily be removed if required.

Fig. 2
Sandboxes




Sandboxes are one of my pet hates as they are a pig to form from brass. Getting the angles correct is a nightmare. To my knowledge, there are no commercial white metal castings available that match the ones used on the LB&SCR. Yes, I could possibly get them 3D printed, but I wanted them in brass so I could solder them on to the sides of the chassis. I also wanted to solder (not glue) the main sandpipe inside it. Measuring the ones used on the Terriers, this is the basic drawing I came up with. With a bit of modification on a thin piece of cardboard, they folded up pretty well.

Several pairs were very carefully cut out of thin brass sheet and formed. The best ones were chosen and, when soldered in position, I drilled out the holes for the compensation beam pivot rod (as noted by the round end sticking out). Sandpipes are 0.7mm diameter n/s rod with 0.5mm blower pipes.

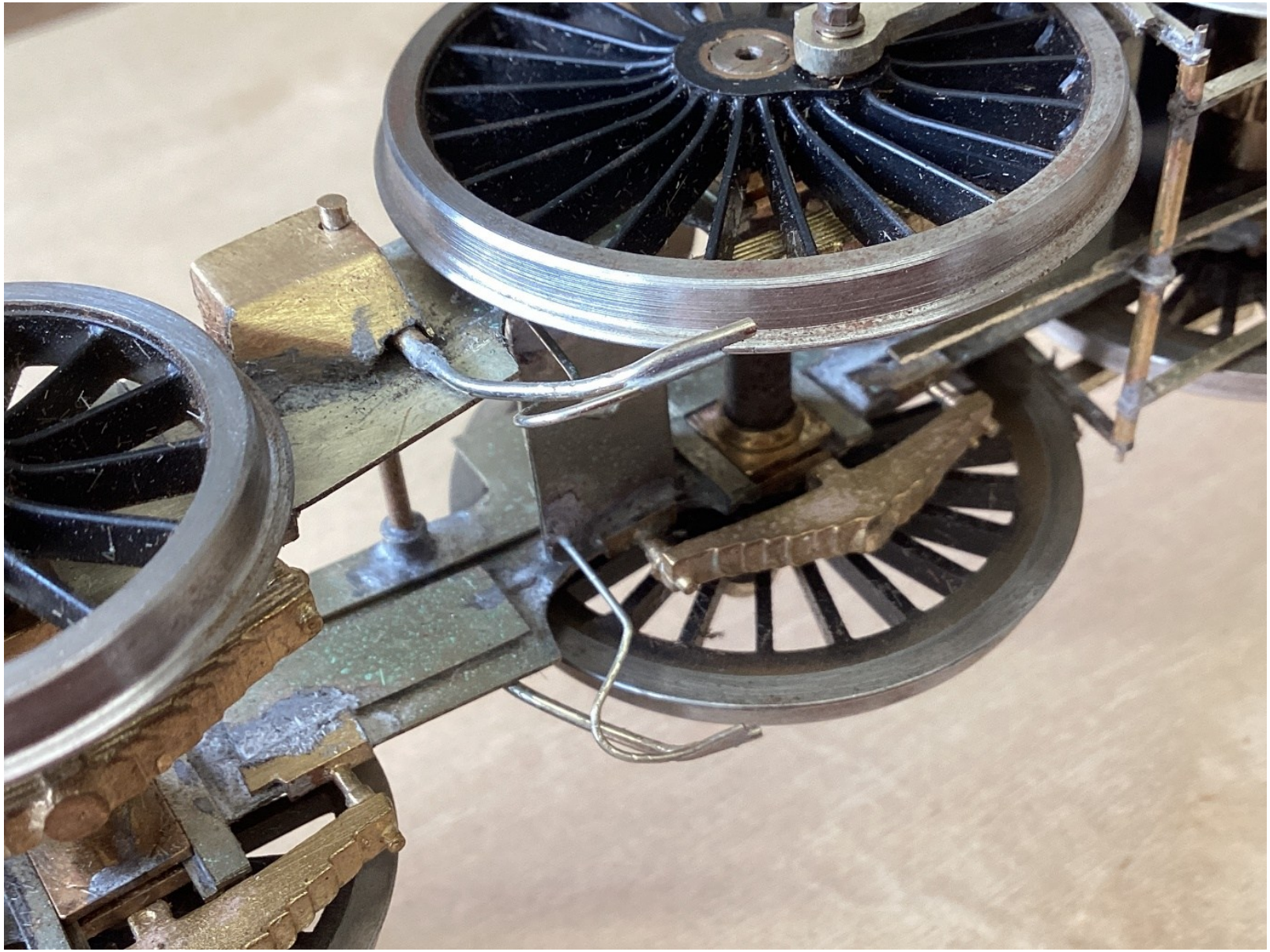


Photo 6

## THE BODY

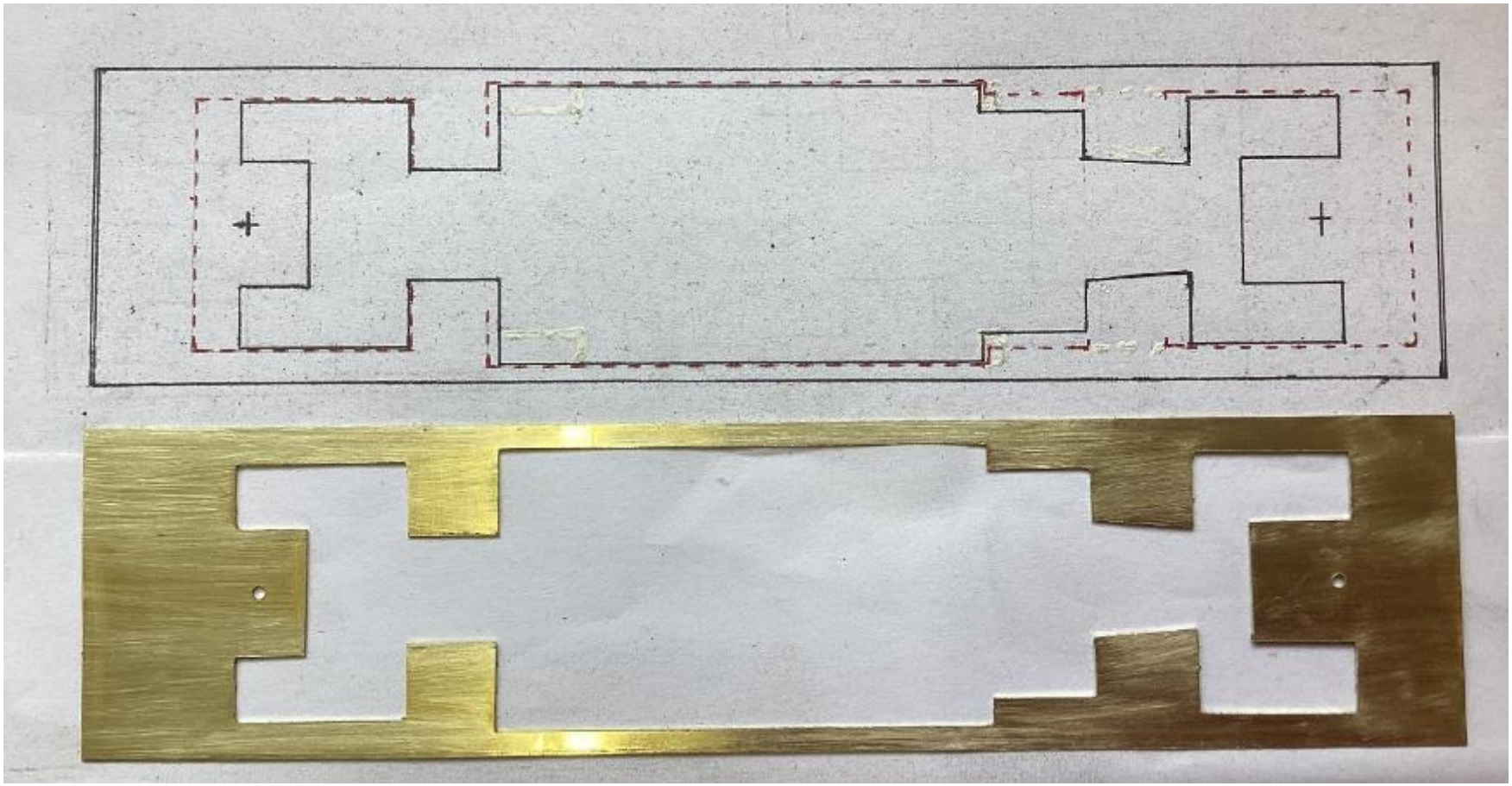


Photo 7

The footplate template more or less matches one as used for the Super Gladstone except for one or two very minor adjustments. The red dotted outline indicates where the main body parts are. From left to right the smokebox front and front axle splashers, tank sides, cabsides (with cab opening), and rear coal bunker. A cardboard template was cut out just to double check before the footplate proper was cut out.

Two buffer beams were soldered on. The depth of the valence on the drawing is 3mm so 3mm x 3mm 'L' angle strips were used and added (1mm in from the sides).

To ensure alignment when fitting the chassis, two 'L' brackets were soldered on behind the headstocks.

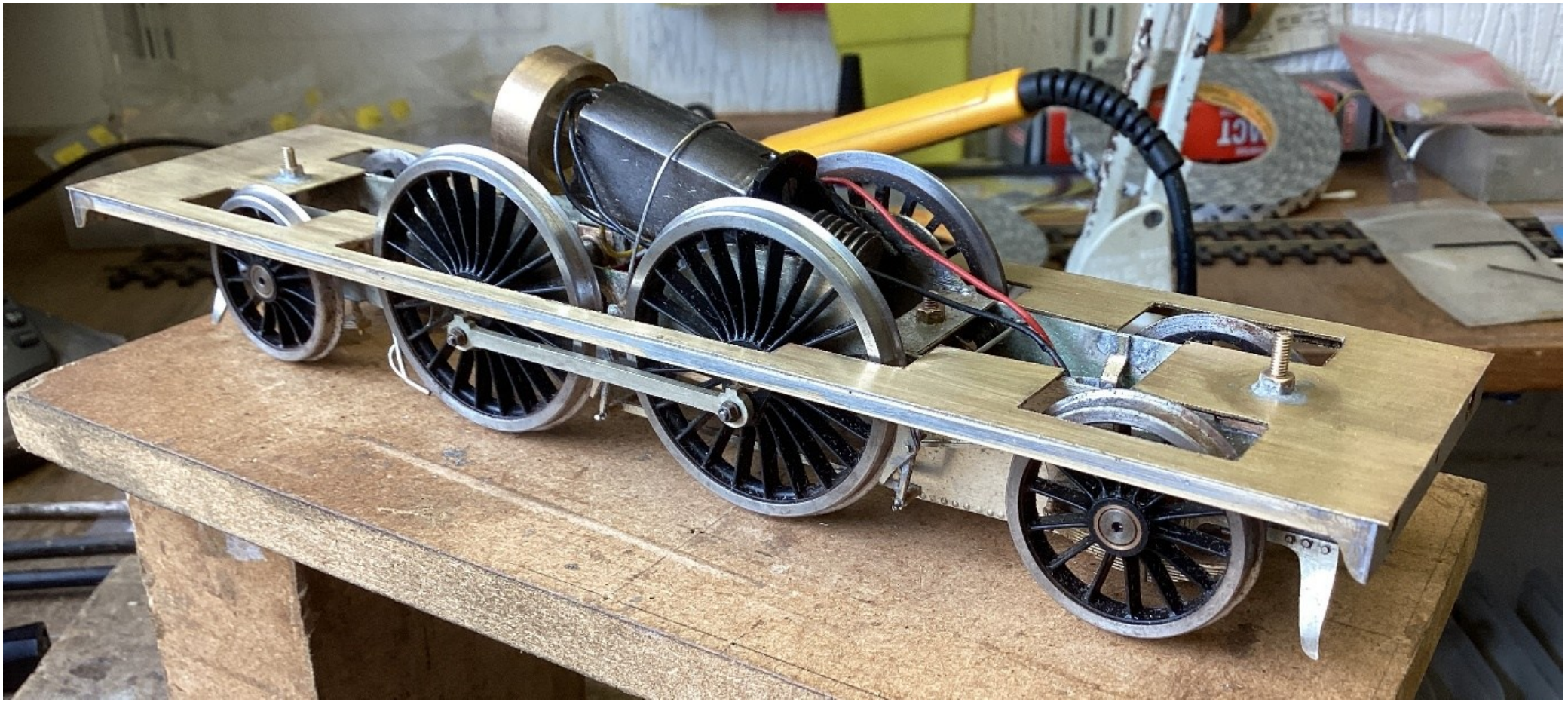
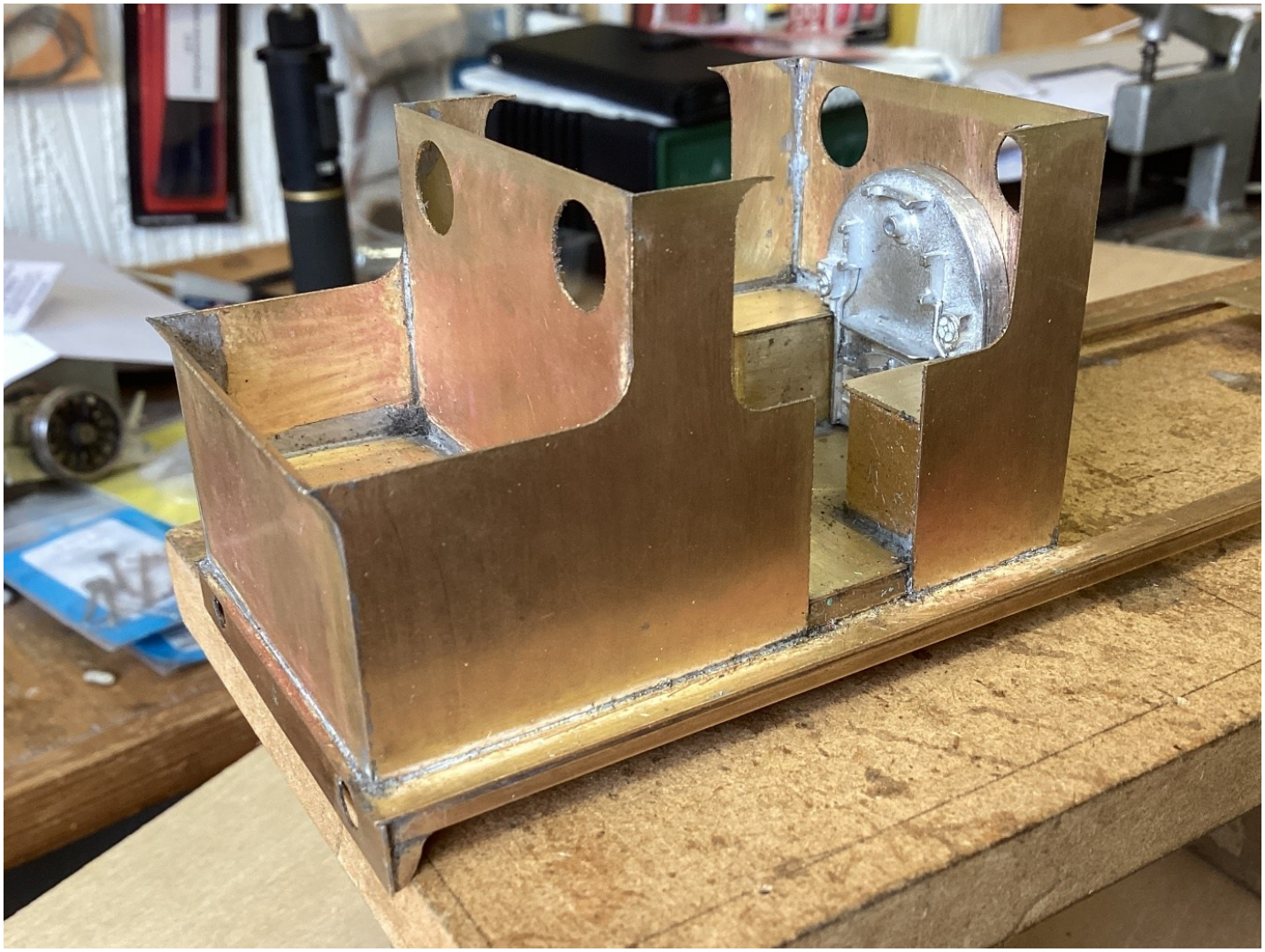


Photo 8

The footplate bolted onto the chassis. The vulnerable footsteps will be fitted later in the build. Note the 'captive nuts' soldered on top.

Photo 9



As always, I start with the cab.

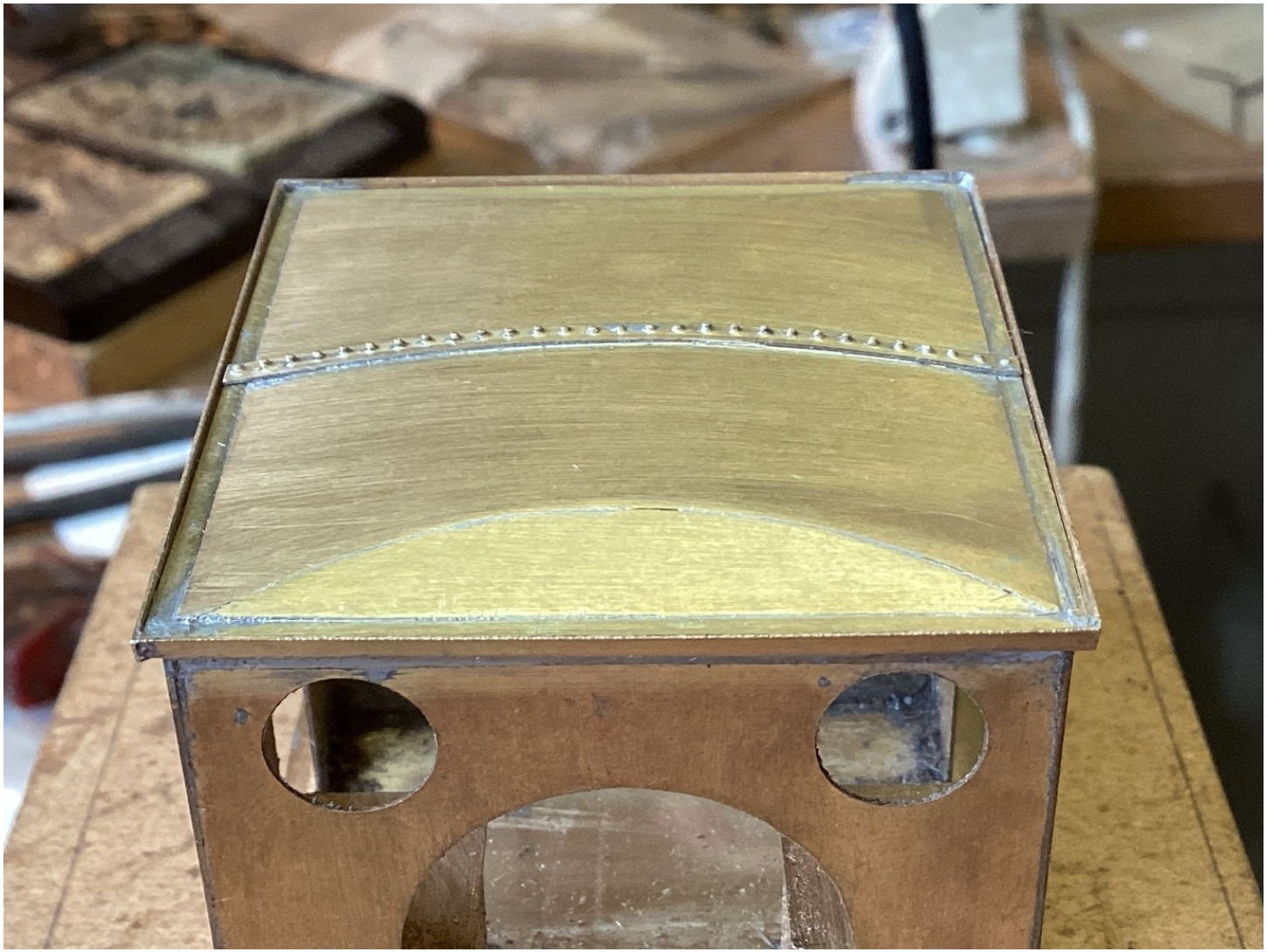
Pairs of sides were cut out making sure they matched the drawing. Two spectacle plates were cut out after making yet more cardboard templates for wheel clearances etc. Then the bits were slowly assembled making sure it was all square. The raised floor was fitted next. The two large splasher boxes (that hide the rear drivers) can clearly be seen. The left hand one will have a reverser mounted on top.

Having a selection of w/m backhead castings in stock, an ACE Products LB&SCR B4 one fitted best after being filed down slightly so the top was in-line with the boiler. It also had to be filed narrower so it could slot-in in between the two splasher boxes. It was made removable for ease of painting later. Lastly, a false floor has been soldered in the coal bunker, hiding the securing bolt.

Photo 10

After studying numerous LB&SCR drawings, I decided to fit a shelf on the rear spectacle plate and a coal door. With the upper-most travel of the rear wheels, I had to cut away part of the floor for clearance, for which I had to fit two small rectangular curved splashers.

Photo 11



The characteristic Stroudley shaped roof is always a challenge. It had to be removable to enable painting within the cab and fitting a crew. In the end I made the gutter surround permanently fitted to the cab, using 1.5mm (h) x 2mm (w) 'L' angle, soldered up in a purpose made square jig.

The roof was made as a separate slot-in item, built up from a 10 thou base of brass that fitted snugly within the recess of the gutter. Next, the domed section was cut out, then rolled to the correct shallow curved profile. I left a good 1.5mm in from the edges all around. The curved ends were cut away and segments soldered in. The seams were filed as smooth as possible and the edges on the underside were filed to a knife edge finish. The completed roof was then soldered to the base. A riveted strip was soldered on and four 'L' brackets soldered on in each corner for a very tight fit.

Photo 12

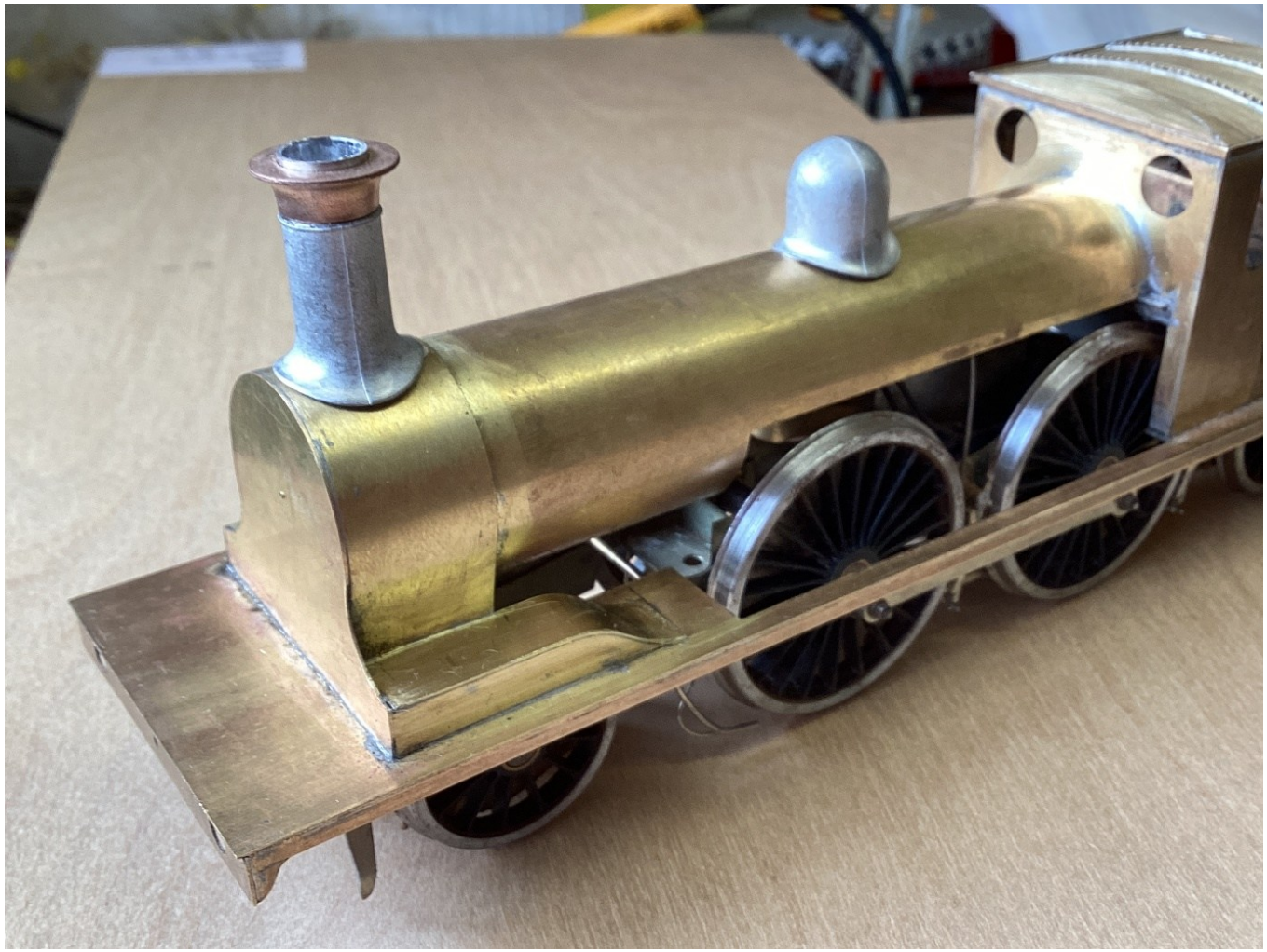
The over-scale bits on the front of the backhead casting were filed away to accept the Albion Models B1 lost wax backhead detailing items which included the sight glasses, regulator, and fire door lever. Two Martin Finney (Code:M2) etched hand wheels were also fitted. The pipework is 0.6mm – 0.7mm n/s rod.

Mounted on top of the left hand splasher box is the reverser, reversing wheel, and forward sanding lever (below the wheel). On the inside face, the grate lever was on the etch.

On the right hand splasher is the driver’s air brake valve (it should be on the inside face of the left splasher box but there wasn't room for it), plus an oil box.

A speed indicator gauge and brake pressure gauges were made from ¼" diameter brass tubing with 0.6mm n/s pipes. The handbrake on the shelf was made from 1/16" brass tubing with a 0.7mm n/s rod which can rotate.

Photo 13



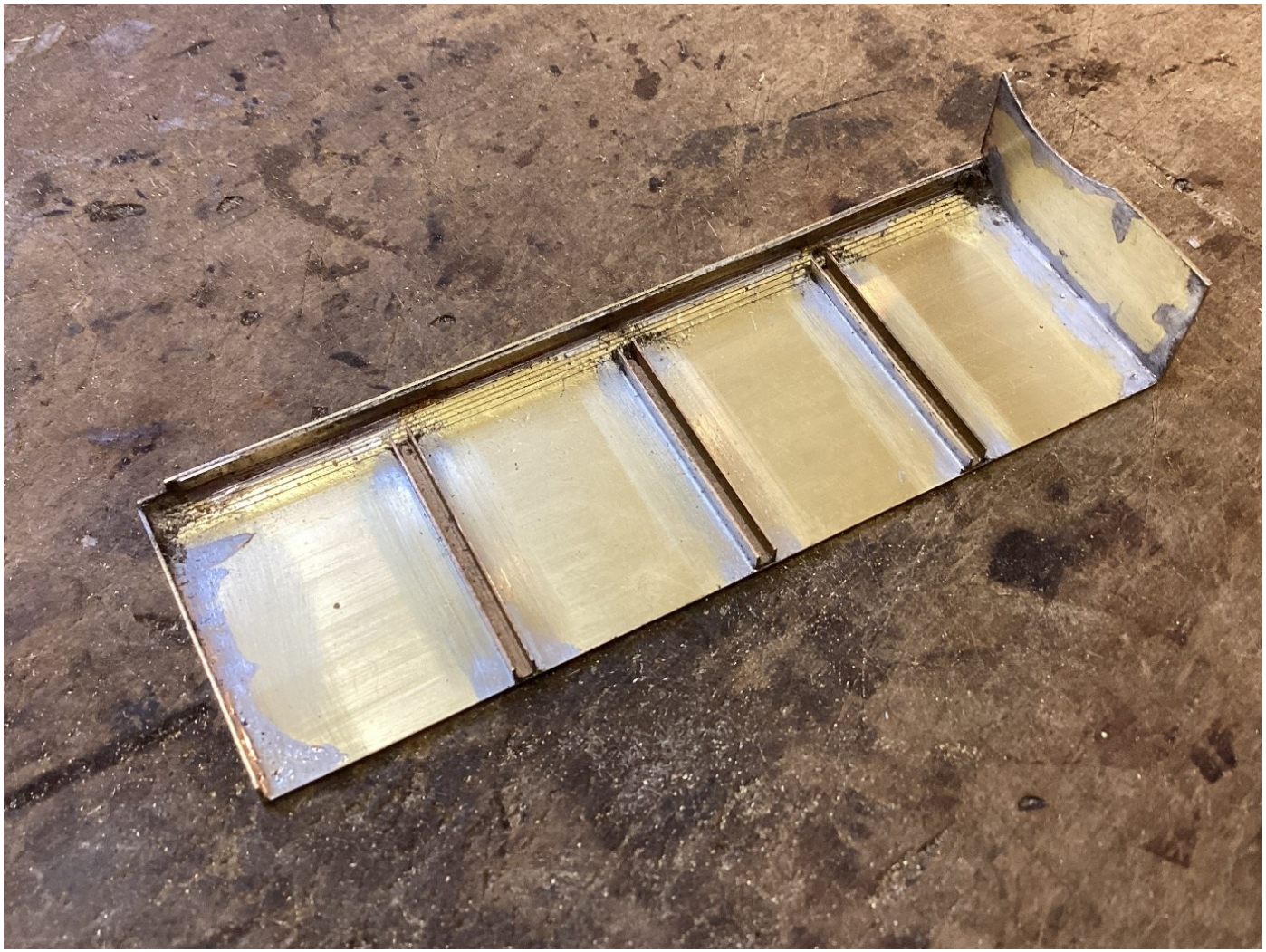
For the boiler assembly, I left the smokebox wrapper 1mm larger in diameter for filing back later when marrying up the boiler to it. The splasher sides were also increased in height by 1mm which gives enough maximum upward movement of the front axle. A cardboard boiler template was then made and fitted in place to check clearances.

The template was then used for the boiler itself. This time around I decided to use 10thou (0.25mm) brass, which would be easier to roll. With a bit of filing along the bottom seam, it was soldered using scrap brass inside.

The boiler was very easy to fit, making sure it was parallel to the frame and perfectly level. The 18mm wide smokebox wrapper (thicker 20thou brass) was then rolled. Small rectangular areas (hidden) had to be filed out for the front wheels to slide past. The oversized smokebox front was filed smooth to create a seamless joint. The splasher tops were then pre curved to shape and soldered in place.

The chimney and dome have been placed in position just for the photo.

Photo 14



Another of my pet hates is making the side tanks. Getting the curvature correct with no kinks throughout their length is a major problem. If they were from a kit, there would be half etched grooves inside for ease of bending, but not when you are building from scratch!

I first prepared a cardboard template front piece matching the curvature of the boiler. When cut out from scrap brass, these were used for a master.

Forming the top curve from 10thou brass was a nightmare, even after scribing lines on the inside. Note that the flat top is set down slightly in a recess and will be fitted once the tank is in place. Lastly, I punched in the cladding nuts, copying a D1 Class 0-4-2 side tank drawing and photos.

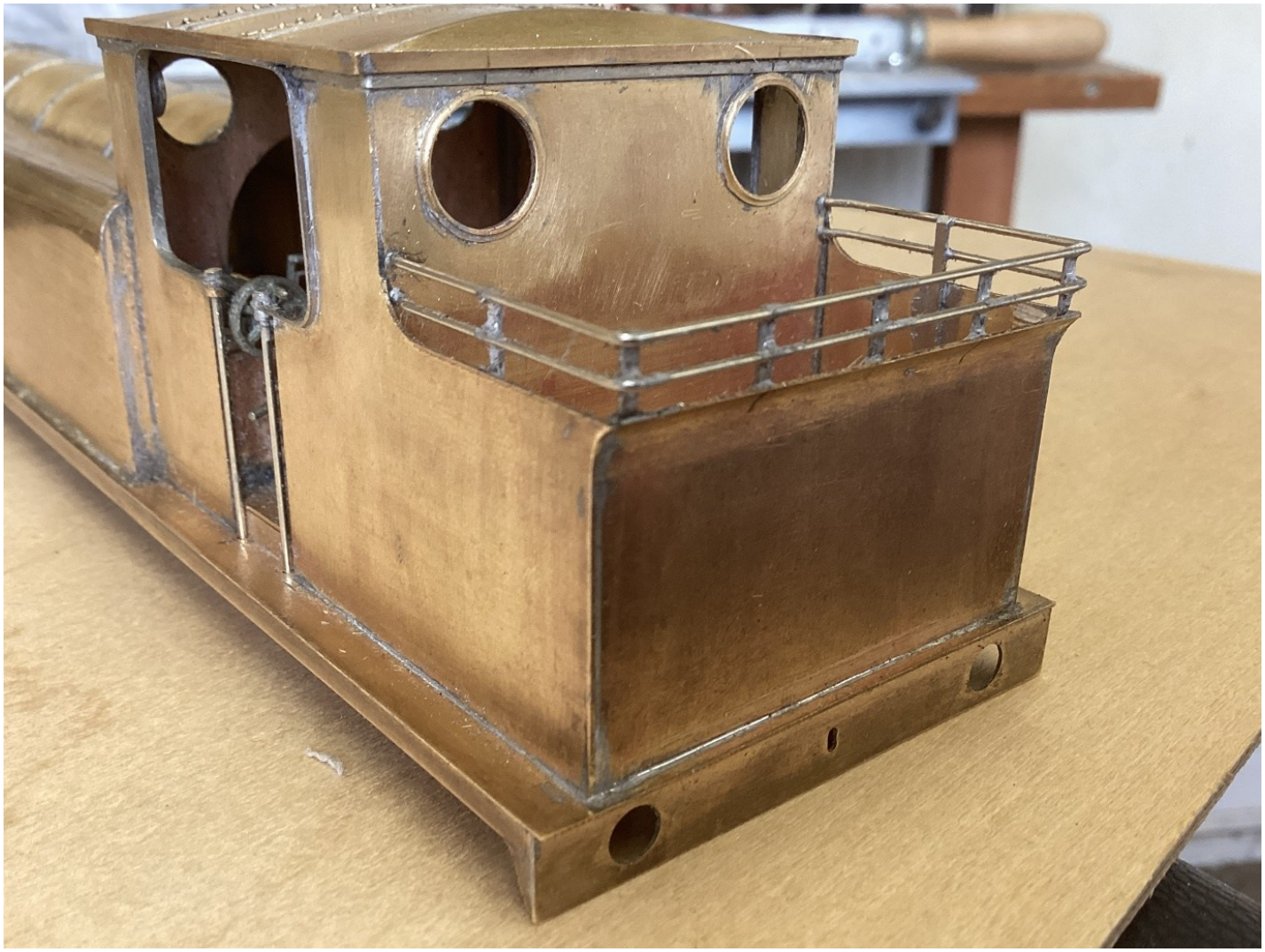
Although the curve strengthened the sides nicely, I added three internal 'U' shaped reinforcements to prevent bowing. The scored lines to aid bending can be seen.

Photo 15

On the prototype locomotives, the self-contained tanks should leave a slight gap between the recessed top and the boiler itself. I have left a 1mm gap for the boiler bands to slide through.

I have juggled the boiler bands to give a more symmetrical look between the dome and spectacle plate. Again, the chimney and dome are placed just for the photo.

Photo 16



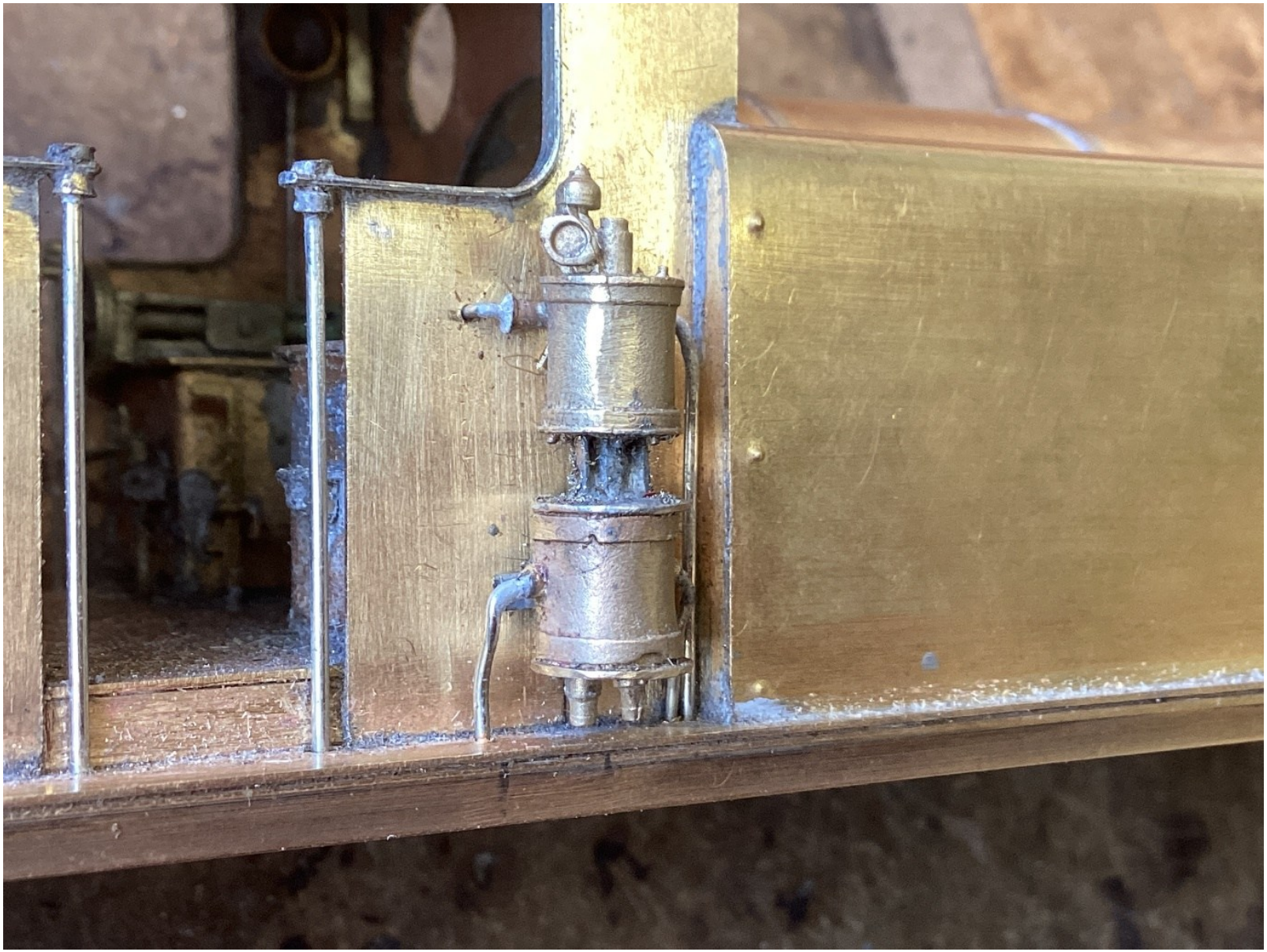
A 1.5mm x 0.4mm wide beading strip was painstakingly bent around the cab entrance which took ages to achieve. Before soldering in place, I drilled out the holes ready for the vertical grab rails (0.7mm n/s rod). When fitted, I then drilled out holes in the footplate for the rails to pass through.

There is a narrow strip all around underneath the roof which is not very clear to see on photos. This was formed from 1mm x 0.3mm n/s strip.

Spectacles (from my bits and pieces box) were also soldered into place.

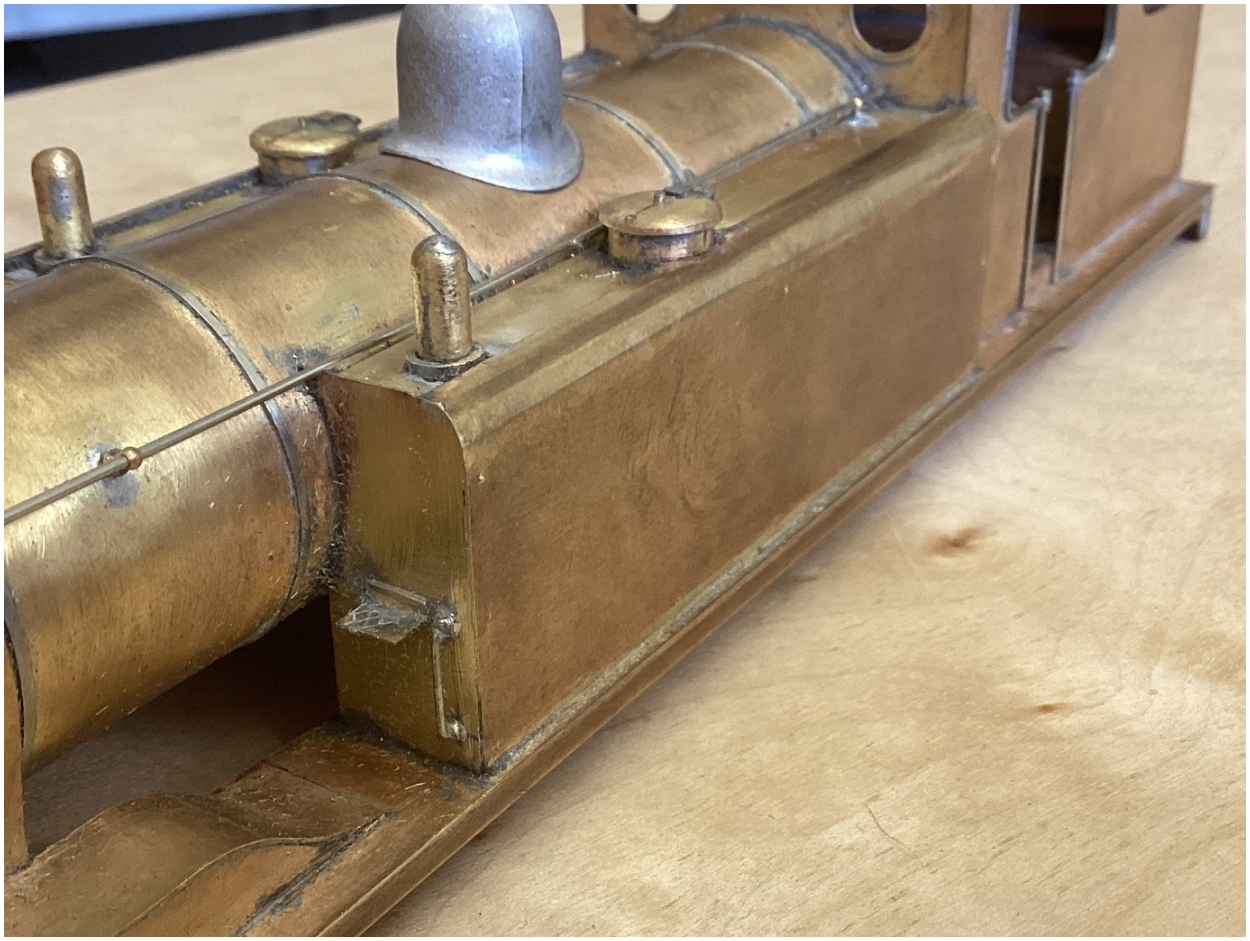
The two coal rails were formed from 0.8mm n/s rod. Their positions above the bunker were taken from several GA drawings. Using a jig, holes were drilled out on the rear facing spectacle plate. Seven, 1mm wide, vertical strips were added. The central one on the back is temporary at this stage and will be replaced with one that incorporates a lamp iron.

Photo 17



The Westinghouse pump is a Laurie Griffin lost wax casting (Ref:32-002) and closely resembles the ones used on the Brighton. It comes in two separate halves. The lower cylinder has a flat back in the shape of a 'D' which I have rounded off as much as possible. Soldering the two together was no issue. I then drilled out two holes on the back for spigots that locate in holes drilled in the cabside. The pump has been temporarily soldered in place from behind which can be removed for painting etc. I have also added the pipework which represents that shown in photos.

Photo 18



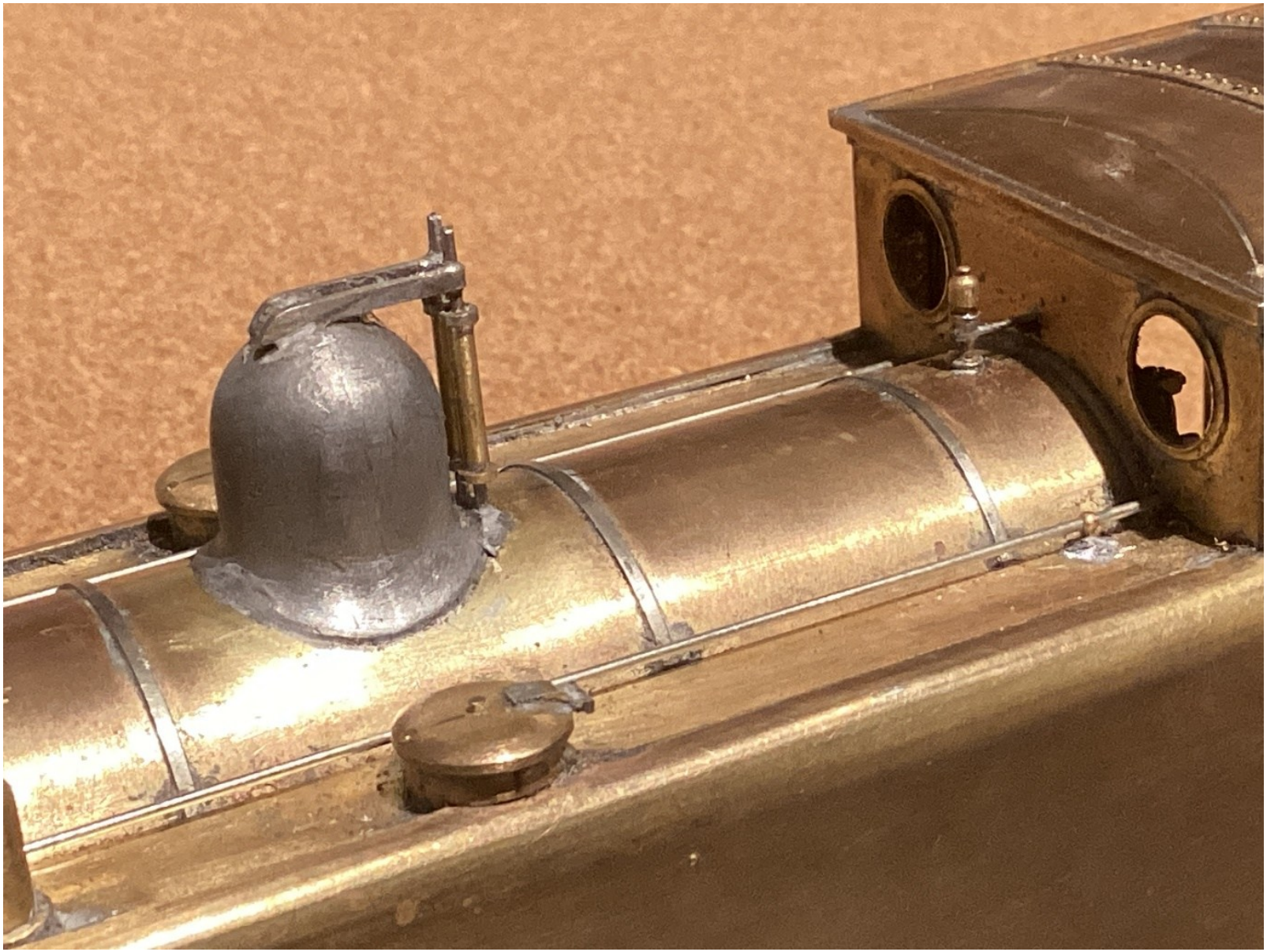
Getting the long boiler grab rails perfectly straight and horizontal is yet another pet hate. Any kinks or bowing of the rods stick out like a sore thumb.

Four identical sized footsteps were made from scrap brass using the LB&SCR E6 0-8-0T GA drawing as a guide for their size (5mm wide with 3.5mm treads) and positioning. Two (one as shown) were fitted on the tank fronts, and two on the rear coal bunker. 0.8mm n/s rod was used for the vertical grab rails alongside the steps.

The two vertical exhaust steam domes (with rounded off tops) were made from telescopic brass tubing ranging from 1/16$^{th}$ to 5/32$^{nd}$ with a 0.8mm n/s rod in the centre. Their base was made from rings off 3/16$^{th}$ and 1/4$^{th}$ tubing. Fearing a flood of solder around the base, they were secured from underneath.

The two tank water fillers were made from 11/32$^{nd}$ diameter brass tubing which match the diameter from several 7mm scale drawings. Each one then had a 10mm diameter x 1.5mm thick brass lid disc fitted then rounded off. The hinges were made from scraps with 0.7mm pins. The 'T' shaped knobs (not shown) were made from hard lost-wax filed to shape.

Photo 19



A pair of Salter safety valves were made from scratch. Two 10.5mm lengths of 1/16″ tubing were cut to length then tiny 0.5mm high 1/8″ rings were soldered onto the ends. 0.8mm n/s over length rods were then soldered through the tube. The levers were made from 0.75mm thick scrap n/s painstakingly cut and filled to shape. After drilling out two holes on top of the boiler behind the dome, they were soldered in place. Just visible is a lovely turned whistle which came from the Albion Models LB&SCR Gladstone 0-4-2 kit.

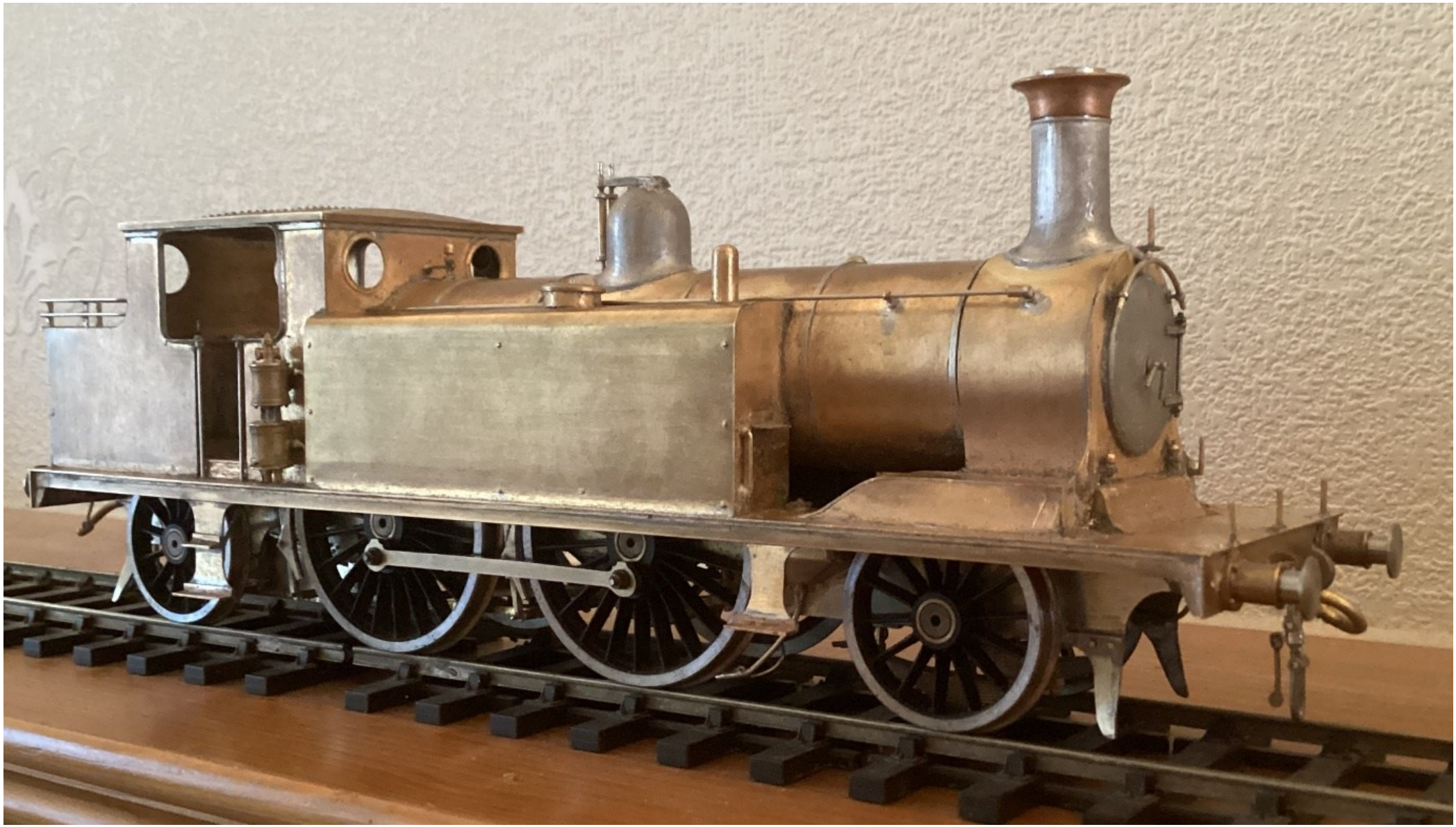


Photo 20

Four footsteps were made from scrap 0.5mm brass with 1.5mm x 3mm 'L' angle steps. I worried that the longer cab steps would get bent inwards with handling, so I fitted 0.6mm n/s angled rods on the back for extra rigidity.

A smokebox door to the correct (25mm) diameter was turned down from a larger w/m casting and re-profiled. I then had to re-make the lost straps from scrap n/s strip and 0.7mm diameter hinge. The smokebox dart is from the kit of bits.

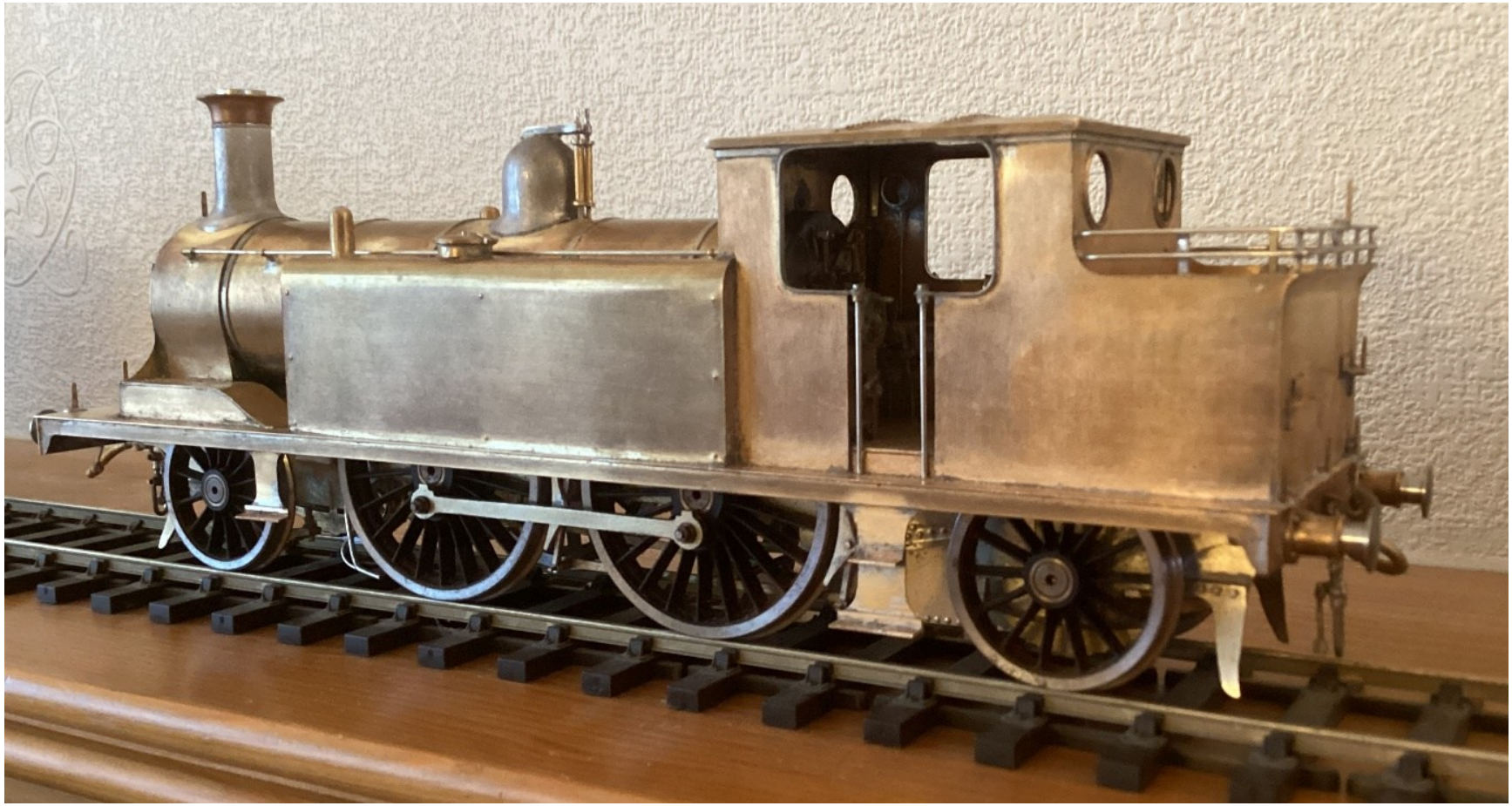
Two tiny lubricators were scratch made which are located just above the piston cover.

The lamp irons are Laurie Griffin LB&SCR lost wax castings (Ref:17-016), as are the screw couplings (Ref:9-011).

The drop-down Westinghouse pipe and buffers are from the Albion Models kit.

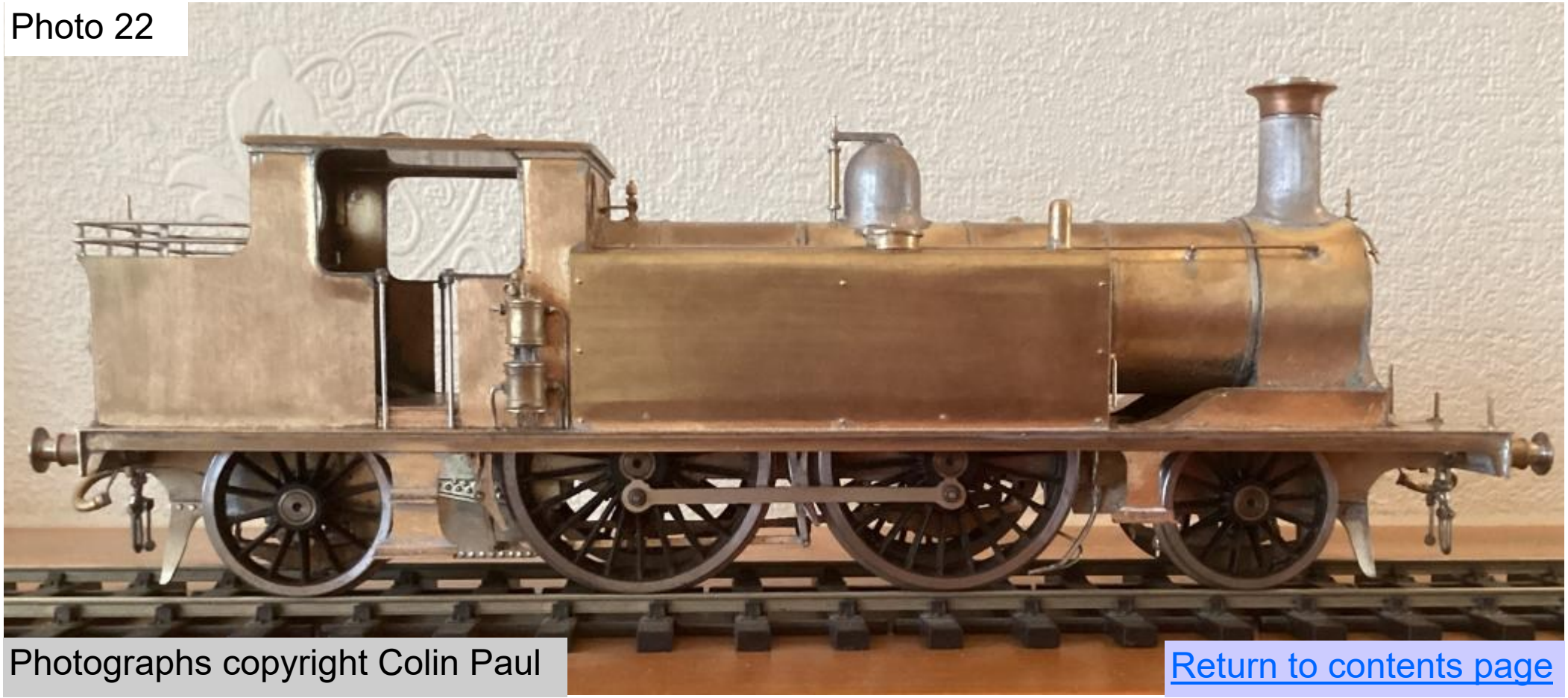
The design of balance weights is yet to be decided.

Photo 21



So finally, after some five years of work commencing during the Covid pandemic lock down in 2020, this completes the 8th and final 'might have been' locomotive for Mike. To me, I think the 'ProtoTerrier' is the by far the prettiest and attractive locomotive of the group. They've have been an enjoyable and sometimes challenging project to tackle, having only Mike's interpretations of what he wanted me to build. Compromises had to be factored in here and there, but we worked through them together. There were times when I just wanted to put my piercing saw down and hang-up my soldering iron, but I persevered to the end. It’s now down to Mike in finding a painter who is prepared to finish them. Good luck with that Mike!

Photo 22



Photographs copyright Colin Paul

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# Stroudley coaches for Train Simulator

## Harry Lewis

**Context**

Over the last couple of years I have been working on a set of highly-detailed Stroudley 4 and 6 wheeled coaches to replace the rather dated generic ones we have had in Train Simulator for the last decade or so. Progress was very slow due to a variety of factors, but I'm very proud of the end product and they have been well received by the simulator community. I'd like to thank all the Circle members for their help, especially Ian MacCormac for advice and artwork, and Ian White et al. for the superb LBSCR Carriages book series.

My group, Golden Age Developments, produces *routes* (the lines you drive on), *scenarios* (specific drives with instructions and narratives), *reskins and patches* (repaints and tweaks of other people's content), and occasionally *stock* (paid wagon and carriage add-ons). We have had our freeware work downloaded over 280,000 times by 44,000 unique IP addresses. Our first LBSCR product, a short fictitious route *The Portshaven Branch 1880* has been downloaded over 1000 times. This, and the sales figures of my latest coaches and LBSCR locomotives available from Caledonia Works, shows that there is a healthy interest in the company amongst Train Simulator Classic users.

It is my intention to produce a prototypical (not fictitious) LBSCR route set in the 1910s, but this could take many years at my current pace! If anyone is interested in helping with that, I'll need lots of photographs of stations and notable locations, drawings of buildings, information on trackside infrastructure, and more. I want to make Sutton to Horsham, as it's my local line.

## The Coaches

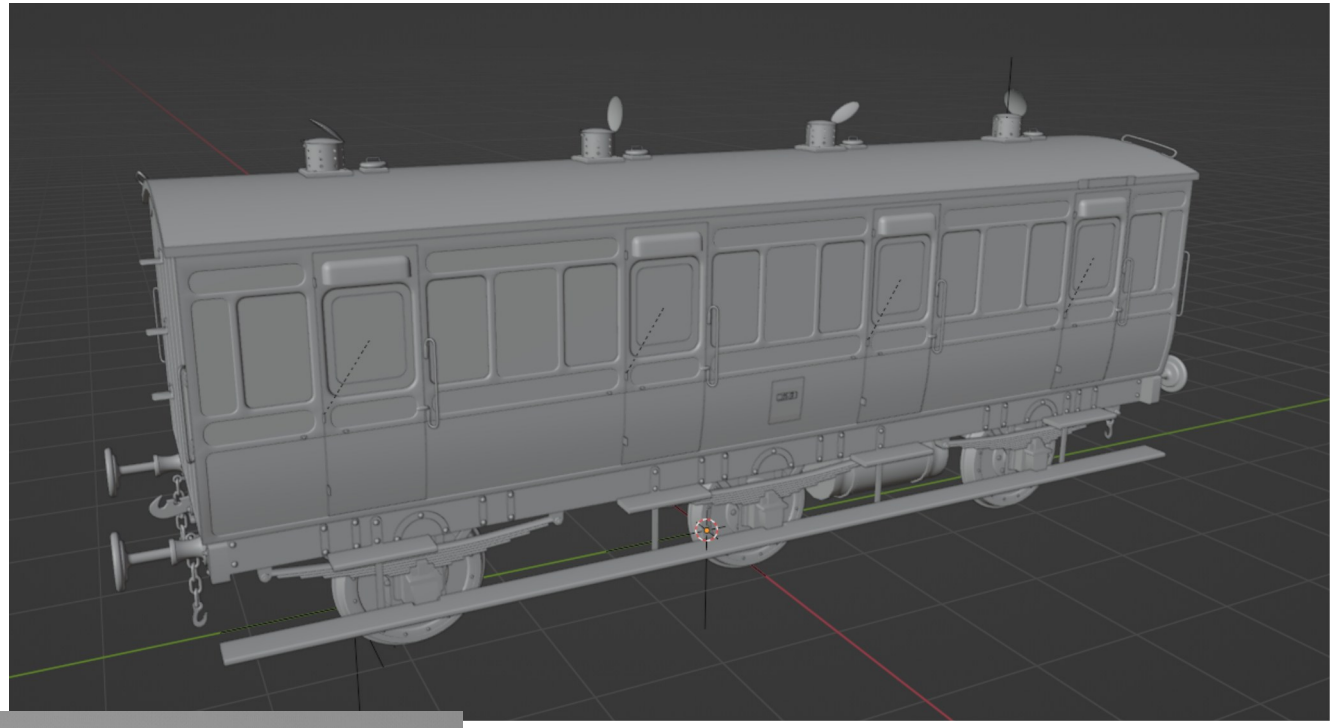

Poplar hauling a short train of Stroudley 4-wheel coaches past Selsdon Road North Signal Box. Photograph from the Dave Searle collection.

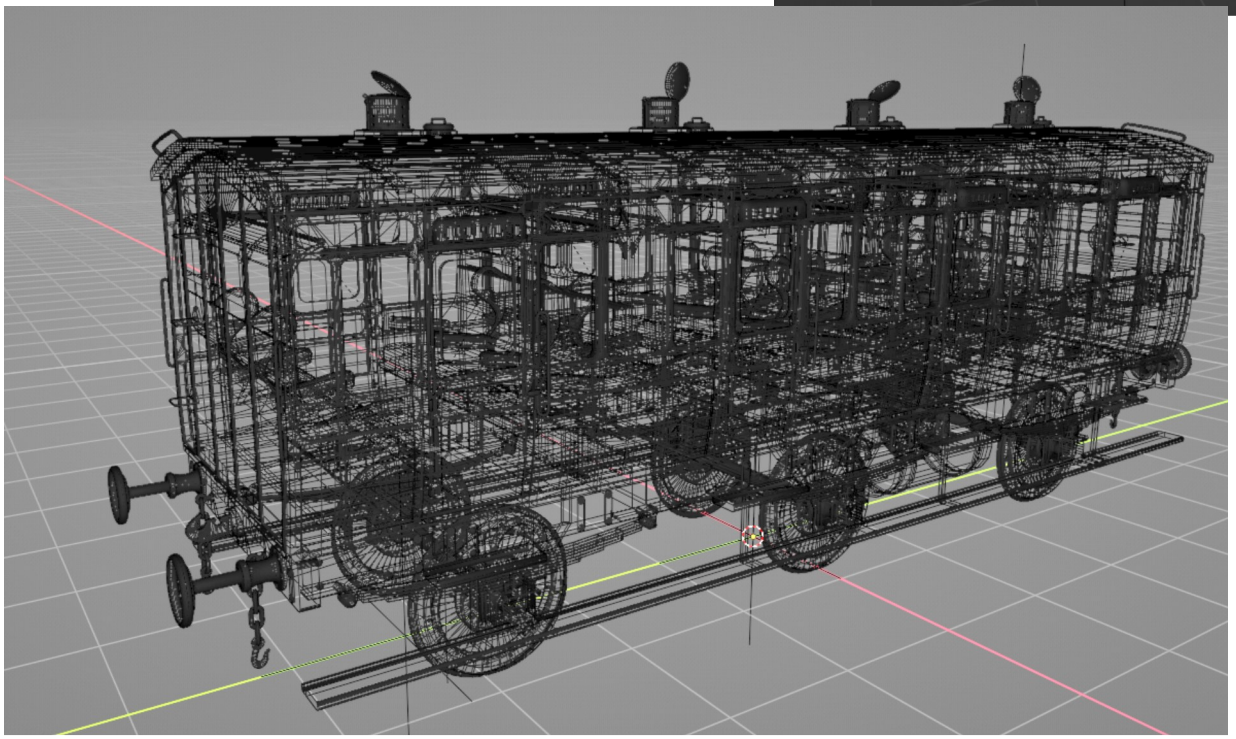
William Stroudley took office on 1st February 1870, shortly after the LB&SCR company had barely recovered from the 1886-7 financial crash. Stroudley was first tasked with improving the existing rolling stock, wherein over half was more than 10 years old and needed to be brought up to date. The first carriages produced to Stroudley's own design were built in 1871. Throughout the following decade, many diagrams of 4 and 6 wheeled carriages were produced, the most common main line examples of which are represented in this pack. After Stroudley's untimely death, his coaches continued to be built by his successor Robert Billinton into the early 1890s. The first redundancies came in 1895, but many coaches lasted until after WWI. Few were passed into the hands of the Southern Railway, and the last remaining examples eked out their life performing minor duties in the mid-to-late 1920s. *Credit: Ian White et al, LBSCR Carriages Volume 1.*

I have chosen to represent a selection of the mainline Stroudley 4 and 6 wheelers, namely the D37 First, D41 Composite, D43 Second, D44 Third, D45 Brake Third, and D47/222 Luggage Brake Van. In the future I hope to cover more diagrams, including the suburban carriages and more non-passenger carriages and vans. These are represented in 6 conditions, starting with the early 1870s unbraked versions, through one representation per decade until the 1920s. In the interest of finishing the pack, I chose not to cover the electrically-lit versions, and there are some minor anachronisms/simplifications.

## Creating the Carriages

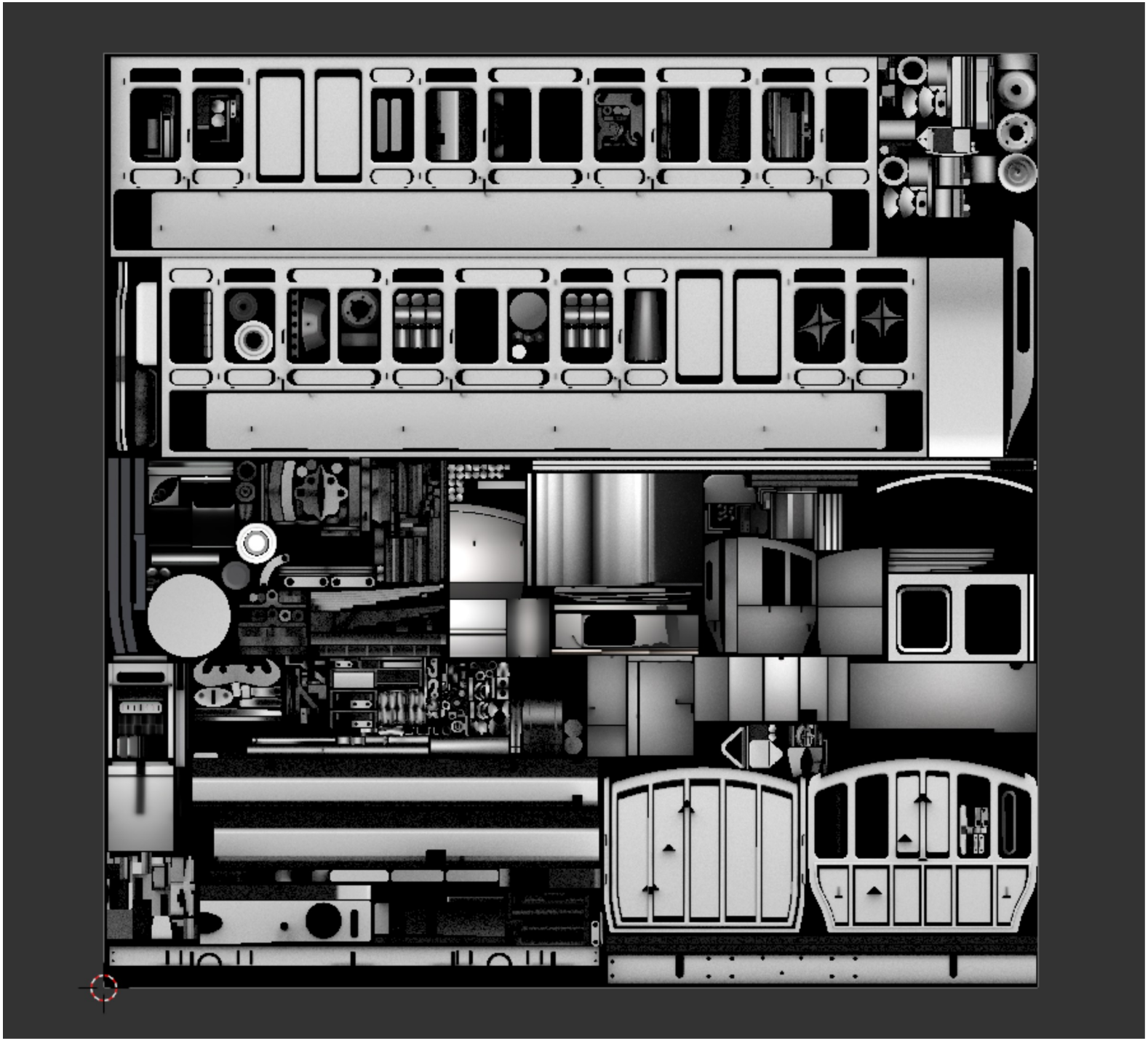
Firstly, I model the carriages in 3D software called Blender. This is different from modelling for 3D printing in that it need not be manifold. Non-manifold meshes can have intersecting faces, for example.





In the wireframe view, it is possible to see the mesh geometry, which consists of thousands of individual vertices connected by edges to form faces. Shortcuts used include mirroring, arraying, etc.

Next, I animate the mesh (for opening doors and windows), then ‘unwrap’ it onto a flat 2D sheet for texturing. To reduce resources used, common parts can be placed on a texture shared by multiple coaches. To improve how the carriage looks in-game, I ‘bake’ ambient occlusion lighting onto it, which adds shadows to the texture, instead of relying on the game to compute them realtime.



Then, using Photoshop, I texture over the bake.

Finally, I perform the variety of extra tasks needed to turn the textured model into a working carriage in Train Simulator. Steps include scripting (coding) it to respond correctly to events, rigging up all the doors and special features, and defining its physical properties that the physics engine will take into account.

Modelling, unwrapping, baking, texturing, and setting-up all of the carriages in all of their liveries takes hundreds of hours. A lot of the tasks are quite repetitive and it is hard to stay motivated, but once the carriages are in a drivable state a lot of enjoyment can be gained from using them during development.

## Carriage Diagrams

To show off the four different carriage diagrams I have covered in this pack, I'll show posed pictures of them I took on the West of England mainline route that I made a few years ago.


D37 Main line first class 6-wheeled coach no. 610 pictured in varnished mahogany livery in 1880s oil lit condition.


D41 Main line 4-wheeled composite no. 108 pictured in umber and off-white livery of the 1910s, featuring gas lighting. From the 1910s approximately, when second class was abolished, second class becomes third.


D43 Main line 4-wheeled second class coach no. 457, pictured in 1890s oil-lit painted mahogany livery. From the 1910s approximately, when second class was abolished, second class becomes third.


D44 Main line 4-wheeled third class coach no. 324 in the Southern Railway's 1920s Maunsell green livery.


D45 Brake Third 4-wheeled brake third no. 104 in later 1870s condition, still with wooden brake blocks and oil lamps.


D47/222 4-wheeled luggage brake van no. 2 in umber livery of the early 1910s.

## Liveries

Carriage variations are linked to the livery. This pack is organised by different decades to approximate the livery variations which would have been typical.

### 1870s Varnished Mahogany (early)

These coaches are in early 1870s condition, which differs from most of the other diagrams, with individual solebar-level stepboards for doors, continuous lower footboard, non-flitched solebar, crown plates on w-irons, and no brakes/wooden handbrake.


LBSCR D1 Class having arrived at Portshaven station with a train of Stroudleys in the early 1870s.

## 1870s Varnished Mahogany (late)

These coaches are in later 1870s condition, with standard underframe but no brakes. Still oil lit.


LBSCR G Class cutting through the countryside with a train of Stroudley coaches in the 1870s.

## 1880s Varnished Mahogany

Same as previous but with brakes fitted.


LBSCR E1 Class in goods green livery picks up passengers at Quontock Sands with a D47/222 luggage brake van at the head of its train in the 1880s.

## 1890s Painted Mahogany

The mahogany colour is now painted on, and gas lighting replaces oil lighting.


LBSCR G Class in improved engine green livery approaching Chailey Gate station with a short rake of painted mahogany coaches bound for Arunfield Junction.

## 1900s Umber and White

The two-tone livery with gas lighting.


LBSCR E1 Class in Marsh umber livery hauls a train of two tone liveried carriages just south of Combwich Junction, heading towards its final stop at Bridgwater.

## 1910s Umber

The monotone livery with gas lighting. Second class is abolished.


LBSCR H2 Class in Marsh umber livery is pictured hauling set train no. 13 up the Ax estuary having recently departed Seaton with a special train for Exeter Queen Street.

## 1920s Maunsell Green

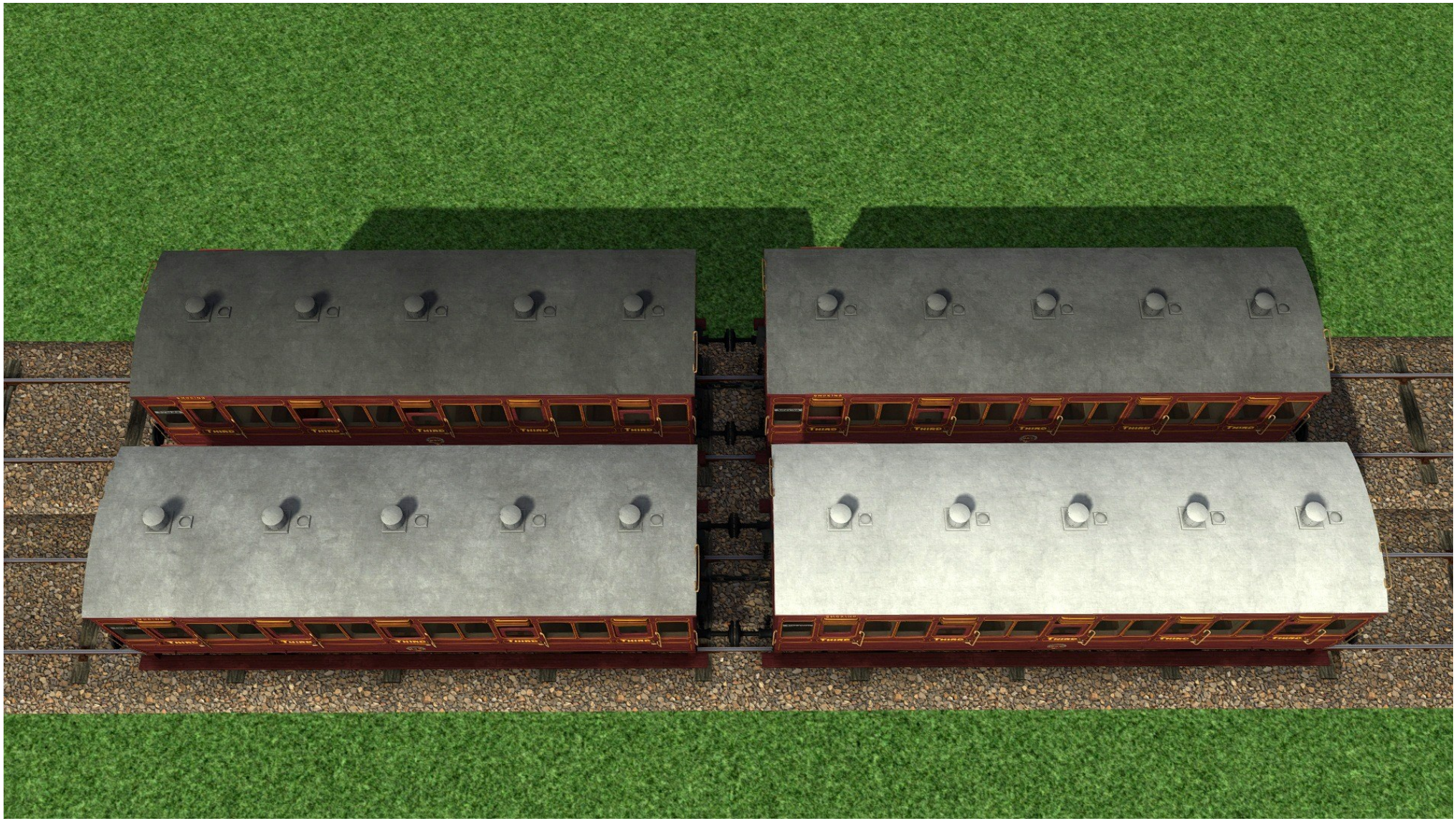
Representing Southern Railway livery, even though many coaches didn't last long enough to wear it. This livery features SR-style smoking compartment designators, black ends, and blackened wheels.


Ex-LSWR L11 Class in Maunsell green livery hauls some surviving Stroudley 4 wheelers in the snow.

## Features

Weathered Roofs

Carriage roofs are scripted to randomly select from four levels of weathered canvas, depending on the carriage livery. This can be overridden to manually specify roof colours.



## Doors and Windows

The carriages have working doors and windows which respond to station stops and environmental conditions. Different numbers of doors will open and close at stations depending on the importance of the train you're driving. Droplights open before doors open on carriages without internal door handles. The number of droplights open, and the extent to which they are open, depends on the weather, temperature, and time of day.

## Destination Boards and Set Numbers

Destination boards can be enabled on the D45 Brake Third and the D47/222 Luggage Brake Van. The 1870s-1890s liveries have a larger-style wooden board above the guard's doors.

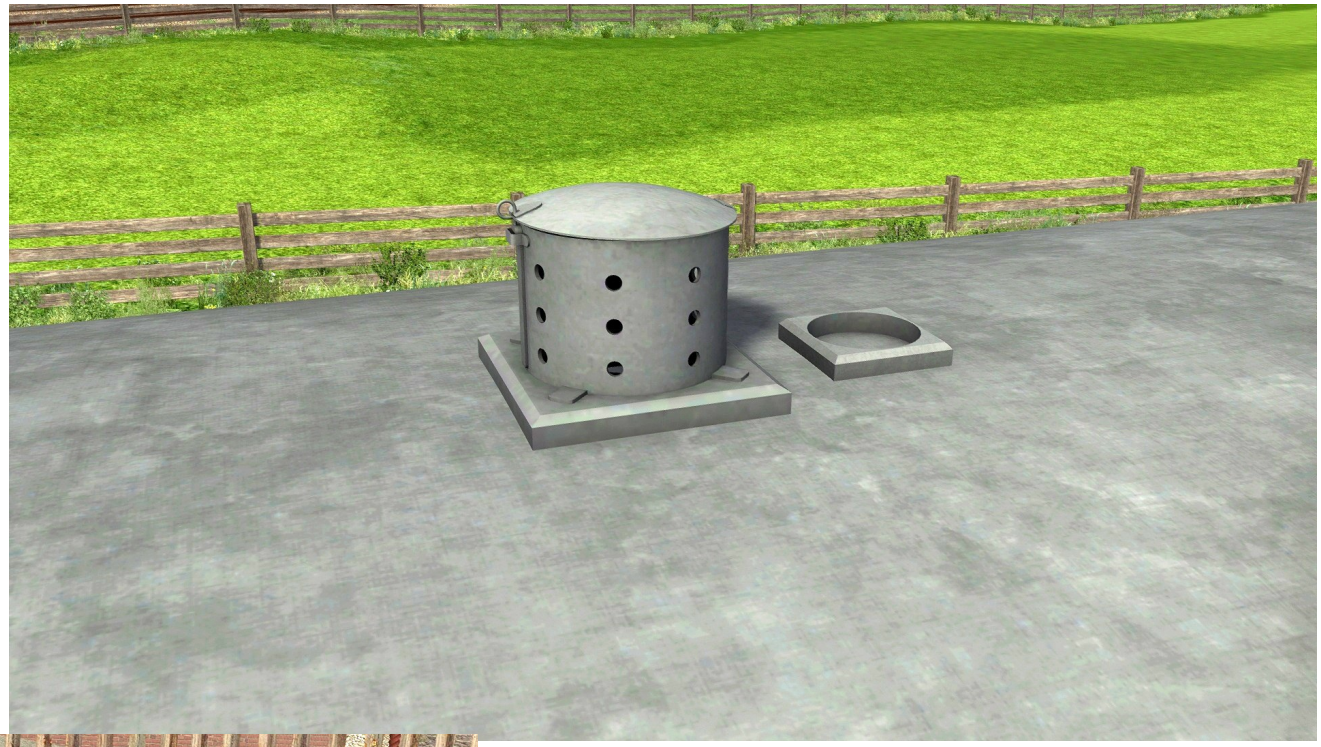
The 1900s-1920s liveries use a later-style wooden plank.

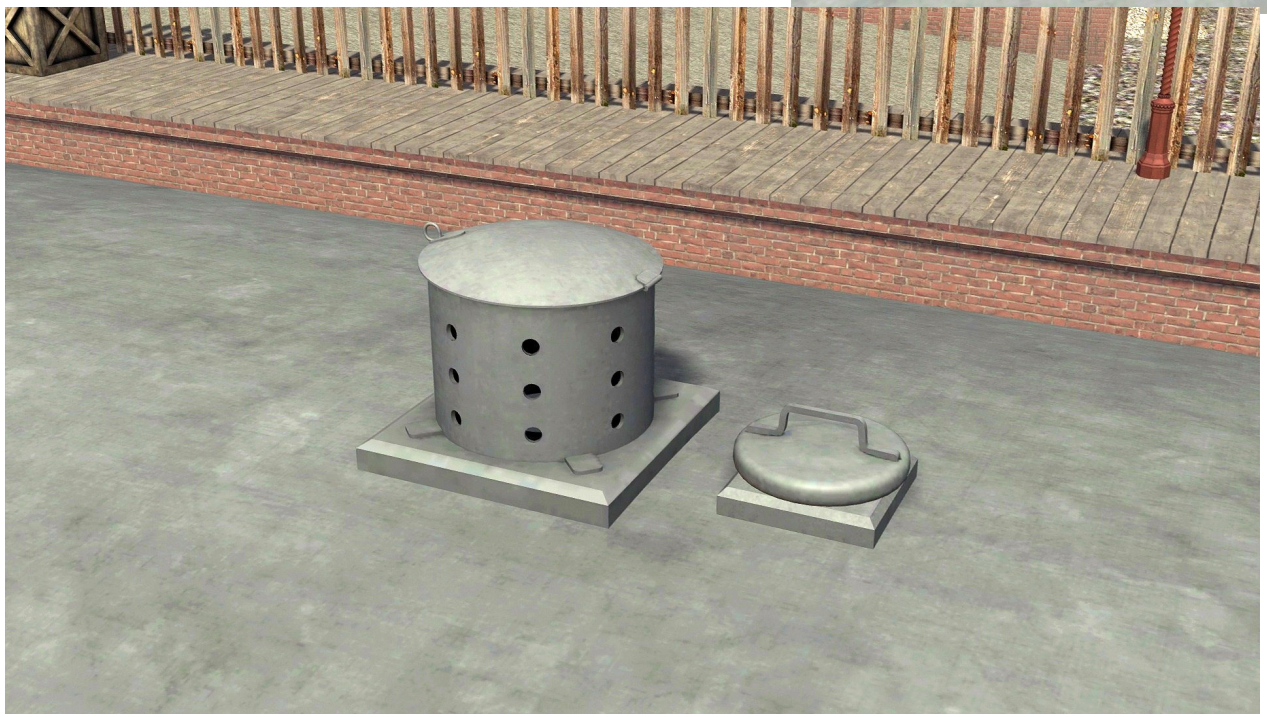
The 1900s and onwards liveries on the D45 Brake Third and D47/222 Luggage Brake Van have customisable 1 or 2-digit set numbers.

## Oil/Gas Lighting

Oil lighting is fitted to the 1870s-1880s liveries, after which gas lighting is installed. Lights automatically turn on if the scenario is started at night time, to simulate the lamps having been lit by station attendants at a prior station call.

In daytime, the oil lamp is not present and the bung fills the chimney aperture.





When the lamp is in use, the bung is put in its holder.

There is a very small, but non-zero, chance that the lamp boy will leave the oil lamp chimney lid open!

By contrast, gas lamps are always fitted.

## Interior Views

Each carriage has several passenger view cameras, internal and external, so you can ride as a passenger or admire the carriages while driving.

First Class Interior

## Second Class Interior

The D41 Composite and D43 Second have Second Class compartments.

## Third Class Interior

The D44 Third and D45 Brake Third have Third Class compartments, fitted simply with brown fabric.

## Guard’s Compartment Interior

The D45 Brake Third and D47/222 Luggage Van have guard compartments with end windows and ducket. Note the handbrake wheel.

## Tail Lamps and Last Vehicle Boards

Tail lamps are automatically applied to uncoupled carriage ends. Alternatively, you can use the LBSCR's last vehicle (LV) boards.

## Getting Started in Train Simulator

I appreciate many of you won't be familiar with how train simulation works, so here's a quick guide on how to get started on my simulator of choice: Train Simulator Classic by Dovetail Games. This is not intended to be a sales pitch, rather a checklist for anyone who wishes to dip their toes in.

To use my coaches you will need:

1. A Windows computer – the better the computer the nicer your game will look, and the more smoothly it will run especially in complex scenes
2. Train Simulator Classic – purchased on Steam for £24.99, but heavily discounted several times a year in Steam sales, as low as £4.99 and sometimes £0.00!
3. A route to drive on – there are some official steam era routes available as paid downloadable content (DLC) on Steam. In particular I recommend Exeter to Kingswear (EK) and Weardale & Teesdale Network (WVR). I've used LBSCR content on my fictitious Great Western Levels (1902) route, which only requires EK, WVR, and other freeware dependencies. Portshaven Branch (1880s) is the only available LBSCR route, but it has a lengthy list of pre-requisites
4. A locomotive to drive – your best bet is Caledonia Works, who have produced several LBSCR locomotives. A particular recent favourite of mine is the E2 Class, which is £19.99.
5. Carriages or wagons – Either my Stroudleys (I'm biased), Matrix Trains' Billinton stock (see prior Digest article), or Caledonia Works' LBSCR wagon pack

Most routes have ‘quick drives’, which are simple A-to-B drives with preset formations. The first place to start would be with one of these, selecting your route, locomotive, and carriages/wagons of choice. Once you get the hang of it, you can do much more with ‘free roams’ and ‘standard scenarios’. There are plenty of guides online.

There are thousands of downloadable content (DLC) available for this particular simulator, much of it free but most locomotives and stock are paid. Just like models, you build up a collection over a lifetime.

I am happy to provide advice by email if any Circle members are interested in getting involved with Train Simulator Classic. Get in touch with my train simulator email: goldenagedevs@gmail.com

Finally, I produced a short video trailer for the carriages, which you can watch on YouTube. Thanks for reading!

Images copyright Harry Lewis

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# You can take it with you

John Whelan

**Overview**

This note was inspired by the news that one member of our local club is moving to a care home.

These days a train simulator can run on a laptop - not perhaps as pretty as a full sized model railway, but care homes don't usually have room for a layout or a workshop.

Roughly fifty percent of care home residents will die within six months of admittance. The number varies from country to country but keeping someone mentally stimulated and alert can help their quality of life and their life expectancy.

There are a number of computer sims out there, for example Microsoft Train Simulator, although it is no longer available commercially. openrails.org is based on it and I understand there maybe some LBSC assets available for MSTS/Openrails although personal websites come and go, which can be a problem. Dovetail have Train Simulator Classic but I understand most content is payware and compared to Trainz there are fewer assets available.

My expertise is in a simulator called Trainz. "Middleton for Laptops" isn't the prettiest layout in the world but it does run on virtually any Windows laptop.

My conclusion was that there ought to be a way to enable a resident of a care home to carry on playing trains, even without a traditional layout.

For an overview, take a look at https://www.youtube.com/watch?v=KfeV1zm-VZ8, which shows a session on the layout or search for “trainz middleton for laptops” on youtube.

Some people like to build models or weather them and you can do this in the Trainz world. The models are a mesh or framework, which you can paint with a texture file. To build models, you use Blender, a free software package that can run on a laptop. For textures a number of graphic editors are used. Because the textures are in a separate file you can reskin them to change the appearance. I prefer PaintShop Pro but GIMP is more than capable and free. Other software is also available free, such as paint.net which is simpler to use.

Now we come to the messy technical detail which physical modellers may prefer to skip. By the way, if you don't have a computer literate ten year old available, https://forums.auran.com/ is available to answer questions. It may also keep a computer literate ten year old quiet for days.

The story is that I picked up a Dell refurbished office laptop with integrated graphics, that had come off-lease, for a reasonable price and I wondered if I could get Trainz to run on it. Normally the train simulators demand high end computers with lots of cooling, so a tower computer is often considered mainstream. Each wagon or asset is made up of polygons with a texture applied and each different computer is capable of displaying a certain number of polygons in a scene or screen. The G3D score is useful it determining this. See PassMark Software - Video Card (GPU) Benchmark Charts - Video Card Model List.

In my youth I'd programmed in assembler language for ten years and from my professional work I knew a fair bit about hardware. A laptop would technically run all the computer instructions required, it was just a matter of creating the right layout and rolling stock with a low enough polygon count and that's how Middleton for Laptops came to be built.

It works by using just about every technique for minimising the load on the computer. For example, it uses the same running gear for everything except the locos. Only the tops vary and they are roughly 84 polygons each. A conventional wagon uses roughly 1,500 polygons. The highly detailed steam locos can be 100,000 polygons, but the steam tram used weighs in at 2,000 polygons.

The limitations on Trainz are the Central Processing Unit (CPU) and Graphics Processing Unit (GPU). In the beginning there were only CPUs but video only really needs a simpler instruction set, so a co-processor or GPU was added. CPUs often have a sixty four bit instruction set, whilst GPUs can get by with an eight bit instruction set so it is cheaper to process video on a GPU. These days the GPUs have become more powerful and expensive but still outperform a CPU in cost per instruction.

Typically an I5 (a type of intel CPU) has more CPU than required, but the limiting factor will be the GPU. Therefore Middleton for laptops skimps on things like trees and foliage, which are rendered on the GPU, but has a visible guard in the guard's van, who moves around, sheep and cattle, that load and unload into cattle wagons, and station layouts that come from RMWeb, that are designed for shunting. The passenger coaches are very simple but are based on one from the 1850s: they also load and unload passengers at the stations. If you watch the video, you can see an example of fly shunting and wagon loads of sand, crushed stone and coal being emptied. Most laptops these days have more powerful GPUs than the one used on the original design and, for example, will run Middleton for laptops with a canal, which has operating lock gates and narrow boats, and the loads can be transfered from the wagons to the canal barges. This will run on an Intel CPU with an iris XE GPU which has a G3D score of 2,614.

## How it works

You will need an internet connection. Trainz needs this to call home before it loads up.

What's available in LBSCR? https://jatws.org/gallery/lbscr/ is a small selection of locomotives and rolling stock but you will need more than a very basic laptop to run these.

Costs - at the low end, there is a copy of Trainz (TANE version Trainz A New Era | Trainz Store) to purchase for $10 US, and you will need a laptop with Windows 10 or later. Most assets are free including all of Middleton for Laptops but there is payware available. TS22 is nicer in that it extracts more performance out of the same hardware and has a wider range of free assets available - some 750,000 at the last count.

You need to install a copy of Trainz on the machine. Then you need to install the layout. Most assets needed are here: https://www.jatws.org/johnw/middleton.7z. Note - this is a compressed file similar to a .zip, but more efficient, that Windows 11 understands and knows how to extract, or you can use 7zip. This gives you a number of .cdp files, which can be imported, Trainz content manager file, and import content files. You'll need a couple of extra files, which can be obtained by right clicking the route and clicking download. Once in Trainz, go back to the opening screen and start Trainz. Select driver surveyor, installed, search for Middleton for laptops. Run the session. Trainz has lots of detail, for example, the steam tram I chose uses a GWR 0-6-0 pannier tank engine specification: the proper engine spec. is much less capable but is available for those who are interested in accuracy.

**Hardware**

I have a corporate background and, over the years, I've come to appreciate the reliability of Dell computers, especially the Latitude range.

Shop Dell Refurbished | Affordable Refurbished Laptops, PCs, More have 16 gig laptops from around £300 today and mobile workstations from £1,100. These costs vary according to what is available and if it's on sale. You really need a minimum of 16 gigabytes of memory. Middleton will run on an i5 with a series 4000 integrated GPU which has a G3D score of 343, but, realistically, a score of 10,000 will give you a much wider range of assets. One of the mobile workstations with an RTX 4000 GPU for example has a G3D score of 11,674, while an RTX A2000 has a score of 10,492.

For comparison a top end tower system running an RTX 5090 has a G3D score of 38,000 and costs around £6,000. The laptop version has a G3D score of 28,500, however, on a laptop this will probably be limited by heat build up so you'd only normally see around 23,000.

Caveats, more than a thousand different content creators have created freeware content for Trainz so the content quality itself is very variable and it has been created over time. I have content I created in 2004 that still runs on the latest version of Trainz. Some content creators take the view if it runs on my liquid cooled super charged machine that's good enough so you have to be careful what you select to run. There are payware creators again the quality can be variable. Some are excellent but do demand higher end hardware.

A screenshot of Middleton, with both train and canal boat.


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# An LB&SCR Water Column
# - from the Model Railway News

Gerry Nichols

The following is reproduced from an article by Maurice Joly in the Model Railway News for April 1940.

The accompanying sketch represents a type of water-column which was designed, as far as I can ascertain, during Mr. Wm. Stroudley's term of office, probably about 1875. If any "M.R.N." readers can supply further information on this point, it would be greatly appreciated.

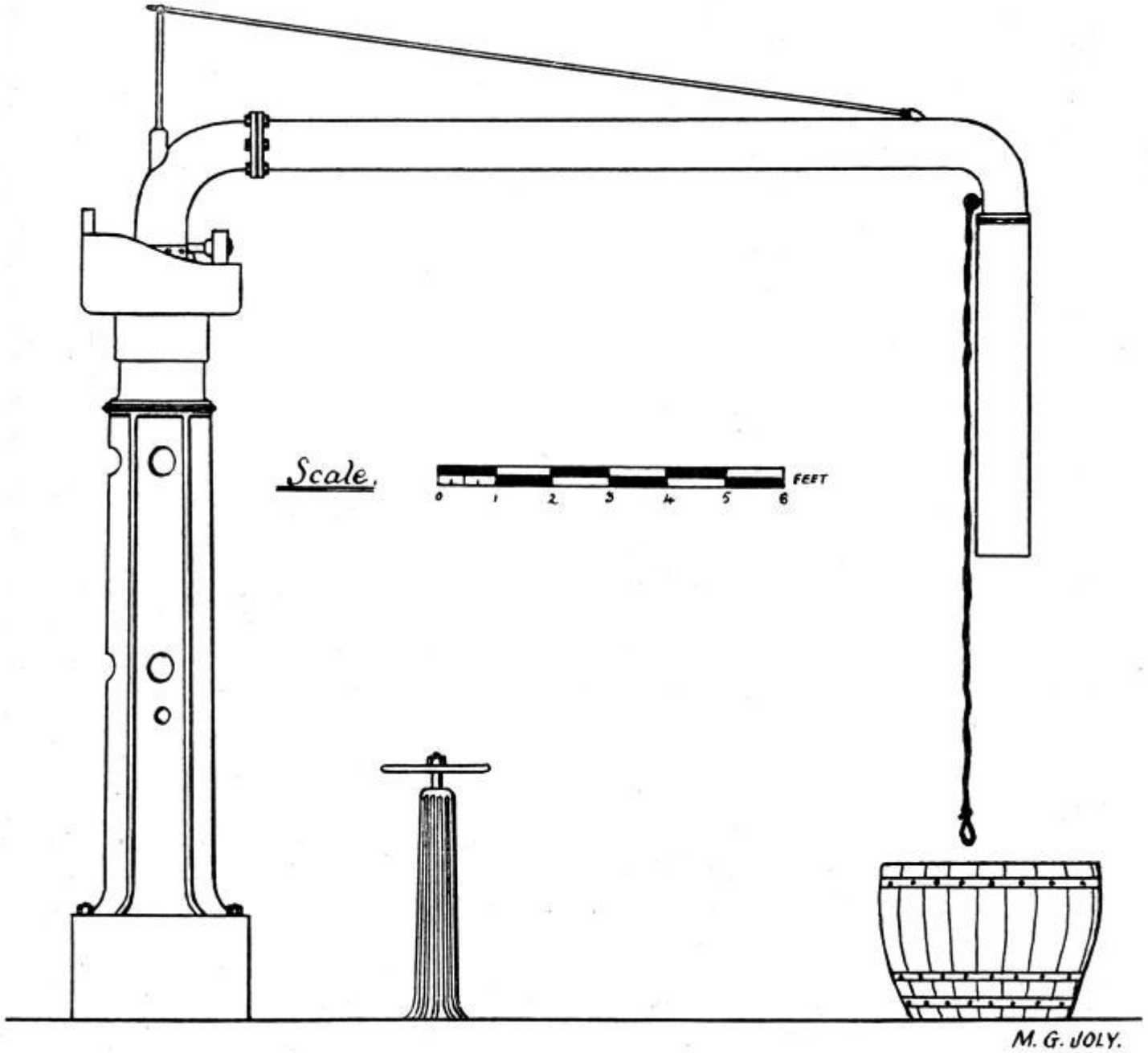
This column is perhaps one of the most distinctive of any of the pre-group companies, but is not very easily modelled. Unless one is in possession of a lathe, it would be very difficult to make it in metal, and perhaps cardboard would be the best medium to represent the hollow cast-iron upright, fitted with stiffening ribs.

The base consisted of a cast-iron block, 3 ft. square and 2 ft. high. To this was bolted the hollow cast-iron upright, which was 9 ft. high. On the top of this casting was placed a very neat feature which was retained on the 1900 water-columns, namely the inclined runway and small wheel, which insured the spout always turning away from the locomotive to its normal position parallel to the track, as soon as the engine-man released the cord attached to the end of the spout casting. The spout casting was stayed, and the spout itself was made in either leather or canvas, usually

the former, the seams being joined by copper rivets.

The valve-control handle was mounted on an elaborate fluted cast-iron column, the wheel having six spokes. The waste bucket was in teak and calls for no comment, except the remark that they were made for the purpose and were not old barrels sawn in half.

M.G.Joly




*Side elevation of a L.B. & S.C.R. water-crane.*

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# An E6x in 7mm scale

## Rob Watkins

An E6x radial tank completed from a 3D printed shell.

The project is described on RMWeb.

The prototype was built in 1905 and originally carried the name Blackheath. It was one of two E6s to be rebuilt in 1911 with a C3 class boiler.


L B S C
411

And in operation on the East Surrey MRC‘s layout of Smithfield.

Photographs copyright Rob Watkins

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# 2-4-0T No 270 Bishopstone
# - a case for some TLC

John Shaw

Introduction:

I did not receive this engine until Patcham 26, even though its arrival had been greatly anticipated, as purchase arrangements with Richard Barton had been arranged several weeks beforehand. I am, indeed, very grateful to those Circle members who were involved in its very careful transportation from the Welsh Marchlands to London and its careful storage there and its onward journey to Patcham.

Please note, this report is a report of work in progress, with not all the paint work finished, nor any of the associated snagging work sorted out.

"Open the box or take the money", was once chirruped on some famous TV programme or another of yesteryear. Even I, as a Yorkshireman, very rightly, forgot the money and opened the box, literally.


The prototype, from John Minnis' collection. Taken between November 1875, when the loco came out of Brighton Works in IEG livery and May 1878, when she was renamed Fratton and went to Portsmouth. The photograph, judging by the crew wearing winter greatcoats, may well have been taken in late 1875, not long after she arrived at Newhaven. In the background, across the other side of the dock, are cranes, quite possibly associated with dock extension work.

What a meticulous delight appeared; small, yes, but exquisitely formed and painted/lined out and named. Models do not come much better than this one. However, scoping was undertaken to see what was needed and what could be left alone. Not surprisingly, there were large amounts of the latter, yet there was little prototype documentary evidence to rely upon for remediation. As John Minnis has informed me, only one photograph, a posed broad side, is known to exist - a Locomotive Publishing Co. Product, of only reasonable clarity, and not of stunning quality of the engine and the crew. The image has the driver at "action stations", whilst his fireman, surely having combed his hair, certainly wanted a good portrait of himself, but not at work!

This photograph was taken post November 1875, as it was after she had been into Brighton Works for attention and came out in IEG livery. The loco looked very attractive and lasted another eighteen years in this form, although subsequently renamed Fratton in May 1878.

Cleaning and early testing

The first major action was gently to clean the whole ensemble using a fine, new, very soft paint brush and some virgin white spirit. This took nearly a whole evening's work, but the results were most encouraging. Time, then, to try some running; initial results were very mixed.

Duly placed upon my test track, I carefully applied some directional power, which resulted in some motion, also accompanied by awful graunching. Power off very quickly, an inspection was followed by a thorough, copious oiling, "et voilà", almost silent, smooth running in both directions, but only at very modest, sedate, scale speeds.

On Saturday 9th May, she was taken for her first visit to the North East Essex Gauge O Guild's large test track, where the model performed impeccably with a five coach train at scale speeds of 20-25 m.p.h. for some 20 minutes. Both the prototype and the model were not built for any 'Mallard' type speed racing adventures. I doubt if she ever reached 35 m.p.h. in service because, as the photographic evidence confirms, no Westinghouse brake stanchions were available on either of the substantial wooden buffer beams i. e. no Westinghouse brake gear had to be made

nor fitted. Engine braking was either by hand brake and/or motion reversal or steam brake, if fitted. The Board of Trade/Railway Inspectorate was slow to upgrade its requirements for brake capacity despite the evidence of the Newark brake trials of 1875.

Around the engine

No photographs seem to exist of the front, nor the rear, nor the fireman's side of the engine. Some conclusions can be made for the first two. The last one is perhaps the easiest to solve in that has to be the mirror image of the driver's side, with two exceptions:

i) there has to be provision on the tank top for the fire irons, although, perhaps more inconveniently, they could have been slung across the rear lamp brackets, but that would risk damaging the livery with red hot irons or even catching passengers on the platforms. The photograph does not indicate any athwartship's stowage of these irons. I made up a suite of fire irons and fitted them to the fireman's side tank top, with a restraining pin at the rear - see photographs below.

ii) on the driver's side, just abaft the leading wheel, there was a rectangular plate, painted IEG and lined out yellow/black/red, which, as far as I can see from the photograph, using a very bright torch, covered the junction between the reversing rod and the lifting link. Such provision would not have been needed on the fireman's side, I think. I constructed such a plate in brass, backed by some moderately thick cardboard to give it some depth, then painted it IEG and lined it out yellow/black/red, before attaching it to the driver's side main frames, next to the rear of the 2'9" leading carrying wheel, with its top edge hard up against the underside of the footplate; it makes a deal of difference to the authenticity of the driver's side. You can just see the base of this plate on the photograph below.

For the front and rear zones, we are in a very different territory, especially for the buffer beams and buffers. Therefore, with really good reasons, I consulted John Minnis, the Circle's guardian of the precious, historic photograph collection. We concluded, following his thorough research efforts on my behalf, by using evidence from other comparable, contemporary photographs of similar engines that:

i) the buffer beams were decorated with the standard panels and by, using some subtle 'kidology' tricks of transfer laying, I have coaxed the panels onto both beams, including separating them into two halves to get around the already installed drawgear, whilst at the same time keeping them horizontal = success x 2!

ii) the buffer beams will have had the usual lining out patterns as for beams fitted with standard sprung buffers, but this now introduces the problem of lining out the beams. I have not long finished doing this task on the front buffer beam of 'Sussex', taking in all, about two weeks' work and that was on a beam with standard buffers. No 270 has larger, wooden, dumb buffers, hence the question of whether the horizontal yellow/black/red lining continues around the wooden buffers' top and bottom or does it stop before, and continue after the buffer wood, with the normal pattern of vertical lining on the outer edges? Does any member have answers here? Suggestions would be really welcome. The LPG photograph is just not helpful at all as it is far too dark to see any fine detail on the upper extremities. If a 'push comes to shove' situation arises, I shall have to leave these zones unlined. However, there were other railway companies that did line out wooden buffers of one form or another e.g. the Blyth & Tyne Railway had 2-4-0 tender engines with these extra fitments for chaldron wagon work (Ref 3), but it might be that the 'Brighton' eschewed these adornments. The upper parts of the wooden buffer fronts have some roughly circular patterns in black painted on them to represent the stains acquired from grease/oil from buffering up to carriages and wagons – see front and rear view photographs.

iii) There was a raised firebox section, with brass beading, produced very neatly, which also occurred on a very large number of contemporary 'Brighton' and other contemporary engines too.

More use of a very bright torch on the photograph would seem to indicate ‘Bishopstone’ had one of these too; a not unreasonable conclusion, perhaps. Solution: fit one, just like that! No, this needed a far more considered approach, as you are trying to persuade your building material to go into two contradictory curved directions at once, plus, I do not possess a very small English wheel with which to do this work. Solution: several decades ago, whilst lining out my large-scale Northern Pacific Railroad ‘American’ 4-4-0 tender engine (3), I purchased reels of various colours/ widths of Letraset (remember them?) self-adhesive lining tapes; thankfully, they have never been discarded. A suitable width of the ’gold’, indistinguishable from brass, was available. Great care was needed, as you only get one try at laying this strip square across the roll of the boiler, whilst at the same time also leaving enough free at the front to go over the front edge roll of the firebox, which had to terminate level on the lower boiler cladding sheet to the front; a matter of some fine judgement. After several dry runs, the first, slightly easier task was completed, with a lovely, smooth shiny surface resulting. It was then left for a couple of days to let the glue fully grip and settle. Now to gently persuade the leading edge down towards the forward cladding, with only one chance to get this correct. Very fortunately, I have recently acquired a reasonably narrow, but not sharp-pointed punch, with a very smooth, coned, shafted body. Starting at top dead centre, I worked the cone shape of the punch in the outward direction toward the tank sides. To ensure there was a tight fit at the junction base, I used the similar shaped, but much narrower zone from the end of a wooden cocktail stick. Once I felt sufficient pressure had produced a permanent fold, I raised the tape to carefully apply some PVA glue to its underside, then it was replaced to the folded position ready for some more pressure work. Once stuck, the inevitable blemishes were filled in with gloopy brass paint, with a good colour match, and the cladding up to the next boiler band was given a thin coat of IEG to give a smooth junction finish.

The Stroudley-Rusbridge alarm system had been beautifully reproduced, but was only required on one side. The initial cleaning, plus a varnishing of the bell produces wonders for the eye to enjoy. Just how easy was it for the driver to hear this bell working?

Often overlooked, yet essential to completing the ensemble, was the task of painting the wheel rims dark olive green and outlining the outer edges in a distinctive red, so this has been done for the driver's side, with the fireman's side is to follow. It does make a distinctive difference. (Ref 4)

IEG livery also appeared to require the lamp irons to be of polished steel; so these have been transformed, along with a group of route discs which are being made and fitted. The smokebox front did appear to have silvered, intermediate height lamp irons, therefore these are to be made and fitted shortly.

No white roof - why not? Therefore black it shall remain but the black inside to the main frames could not remain. If it were to be in true IEG style, a red inside frame surface had to be added. A stunning red I use is Humbrol gloss acrylic, which I really suspect is for spraying, but also works exceptionally well with a small paint brush, occasionally dipped in clean water; both sets of inner frame zones are now red, plus both sides of the guard irons too.

Doubtless many of you have enjoyed studying Stroudley era photographs of the Brighton's engines from the humblest to the exalted and have marvelled at their superlative cleanliness. How can this be achieved on models? I have no idea how many young lads were in a cleaning gang, or how many engines they had to clean in a working day, or what methods and preparations were used (have any details survived?), but the results speak for themselves. As the photographs show 'Bishopstone' has received a couple of coats of gloss varnish. To get the finish, lay the engine so the surface is horizontal. Then clean with virgin white spirit and leave to dry. Apply gloss varnish on as large a brush as practicable, so the fewest brush strokes are required. Work quickly once you have dipped the tip of the loaded bush into white spirit, then work on the horizontal surface, covering it all with an even layer and check, by squinting along the surface, that all has been covered evenly. Then leave to dry overnight and do not touch for about a week.

Acknowledgements:

a) Mrs. C.M. Shaw & Mrs. K. Zahran for dealing with the photography;

b) John Minnis for researching the Circle's photographic resources to cope with the lack of contemporary photographic resources and reporting the results so quickly;

References:

1) Locomotives of the L. B. & S. C. R. Part 1 D. L. Bradley RCTS June 1969 Figs 102 & 104;

2) Ibid pp123-4 text on No 270 originally No 53;

3) An Homage to North Eastern Railway Engines John Shaw HMRS

HMRS 24/07/2025 ISBN 978-00-902835-43-6 pages 76 & 78;

4) P J Wisdom Southern Style Vol 2 HMRS 2016, ISBN 978-0-902835-32-0, page 12, first paragraph.

# Why Computer Aided Design (CAD)

David Rigler

**Why Computer Aided Design “CAD”**

This article is not an attempt to persuade all modellers to switch to CAD but aimed at presenting the benefits it can offer.

As modellers, we all have our own preferences as to where we want to focus our creative manual skills and where we want to use technology. If drafting on paper is an important and enjoyable part of your creative process, please continue doing so.

When people mention CAD the first response is to think of 3D models, but there are significant benefits to be had in the 2D format - some not immediately obvious.

**2D Drawing**

**Space and Portability**

30 years ago, I was looking into getting a larger more professional drawing board, but was restricted at that time by the lack of space I had available, when a friend hooked me up with a trial copy of IMSI TurboCad. I already had a computer, so starting to use CAD required no additional space and, in fact, released some. I never looked back.

The emergence of laptops meant I could work on my drawings easily and anywhere.

## Technical Benefits

### Units / Scaling

The freedom to choose the scale to produce the drawing in is very powerful. In the case of my Stroudley carriage drawings, I worked in full size units (feet and inches), which made the creation of the model far easier without having to do any conversion before entering dimensions. If I then needed paper prints or exporting for other applications, I could do the scaling at that point.

### Precision and Efficiency

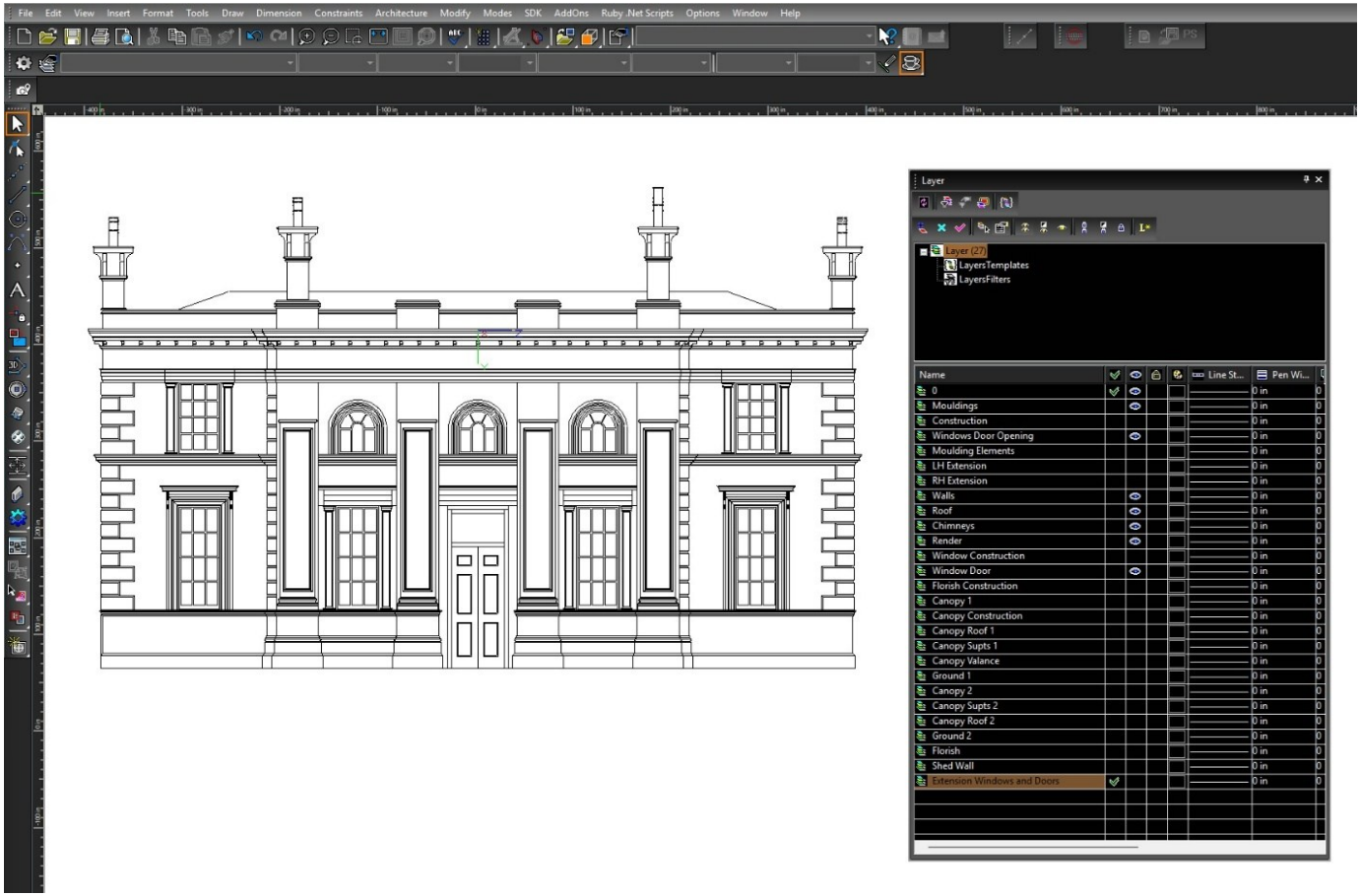
A skilled draughtsperson can produce very accurate drawings but, with CAD, precision comes out of the box from the word go. If you define a line to be 30.125 mm long, that is what it will be. Precision is particularly important when defining the relationship of one entity to another, and CAD excels at this.

There is feature, generally called “Snaps”, which, when turned on, if you hover the curser near a feature you have defined, will indicate what the feature is and snap to that precise location. There are many Snap features you can select: common ones are End Point of a Line, Mid-Point of a Line, Intersection of two Lines, Centre. These four are highlighted in Orange along with the other modes in the screenshot below.

Using a line as an example, where you want it to start from the end of an existing line, hover the curser near the end point of the line. When it detects the snap, the point will be highlighted and a symbol identifying which type of snap will appear close to the cursor. Click the mouse, then define the end of the line by entering coordinates or angle and length and mouse click to finish. Both lines are precisely defined including relationship to each other, no whiskers!!

**Managing complex drawings**

Imagine a base drawing and then transparent drawing sheets layered one above the other on top. Each sheet can be drawn on and can hold an individual component, subcomponent, construction geometry etc. Each one can be made visible or invisible, enabling discrete elements to be worked without unnecessary distractions, but also knowing interfacing parts will be dimensionally correct.

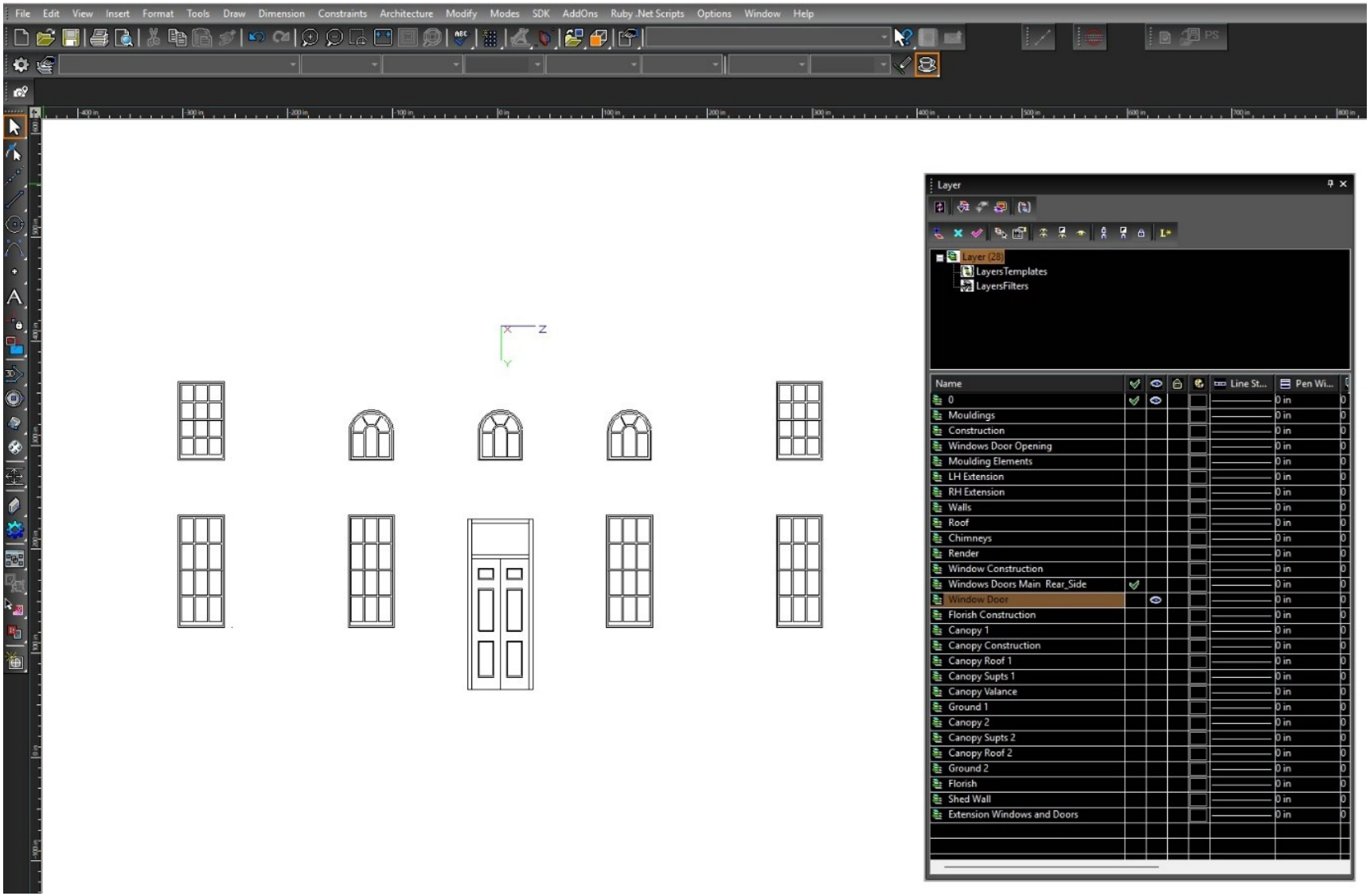



In TurboCad I use “Layers” in this way. Fusion uses a Browser, as you would use for storing documents, where each Folder is like a layer and can be turned on and off. Additionally, the folders can be nested. This is my preferred set-up and I will say more about this later.

This front elevation of the main building of Lewes First Station is a good example. The panel to the right lists all the Layers created, and the blue Eyeballs (third column from the left) indicate which layers are visible. The view on the previous page shows all the main building features turned on (visible), which is excellent for a view of the complete model, but a nightmare if wanting to work on an individual detail.

Right

The same view, but with only the front windows and doors visible, makes working on those elements much easier.



## Carry out repetitive tasks efficiently

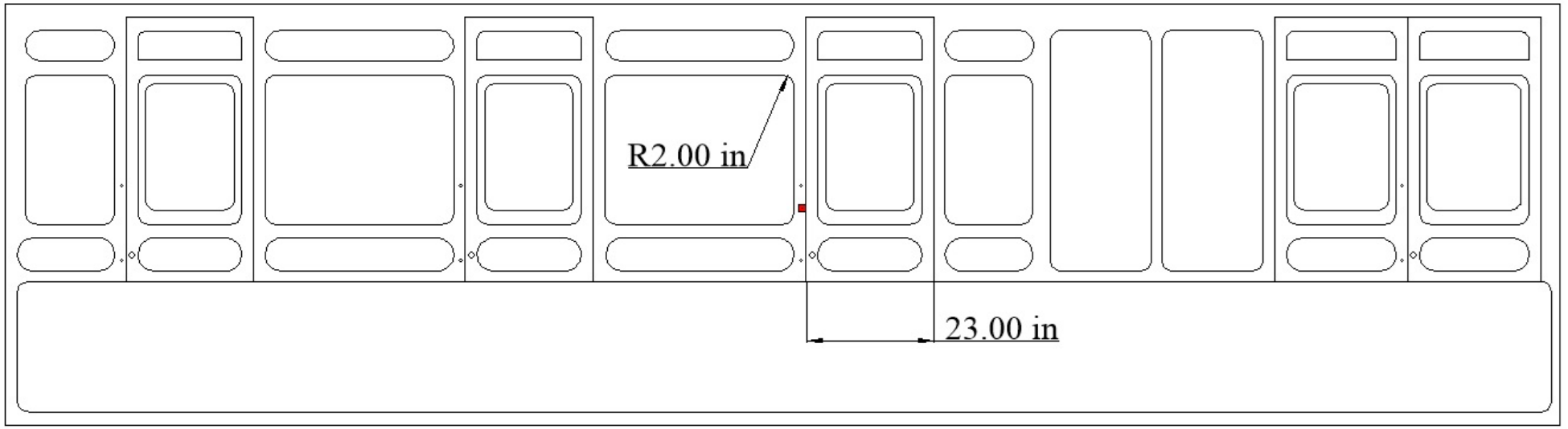
There is a mantra in CAD that says, “Only draw it once”. Taking the above elevation of the windows. There are 9 windows shown but only 3 unique designs. Rather than draw each one of the 9, copy and paste each unique design to its required positions. The paste position can be precisely defined by entering x and y values, dragging or snapping if appropriate.
There are other powerful copy type commands which I will cover in the 3D section.

Make corrections easily and quickly, delete/remove the features you are not happy with and re-draw. If you have drawn something in the wrong place, select it and use the “Move” tool to reposition it.
Draw different versions of elements of a design in the same drawing on different layers without having to start afresh each time.

## Drawing Tools

There are far too many tools to describe here, but generally, if you think of something you want to do, there will be a tool for it. Some common ones I use are Lines, Rectangles, Circles, Arcs, Fillets and Chamfers. There are also tools like “Offset”, which will create a new profile, at a distance that you specify, inside or outside an existing profile.

Using my 2D drawing of the side elevation of a Stroudley Brake 3rd (see following page), most of the shapes were created using the “Rectangle” tool and then the corners rounded using the “Fillet” tool. This is as simple as opening the tool, selecting two adjacent sides of the rectangle, specifying the radius and clicking Finish.



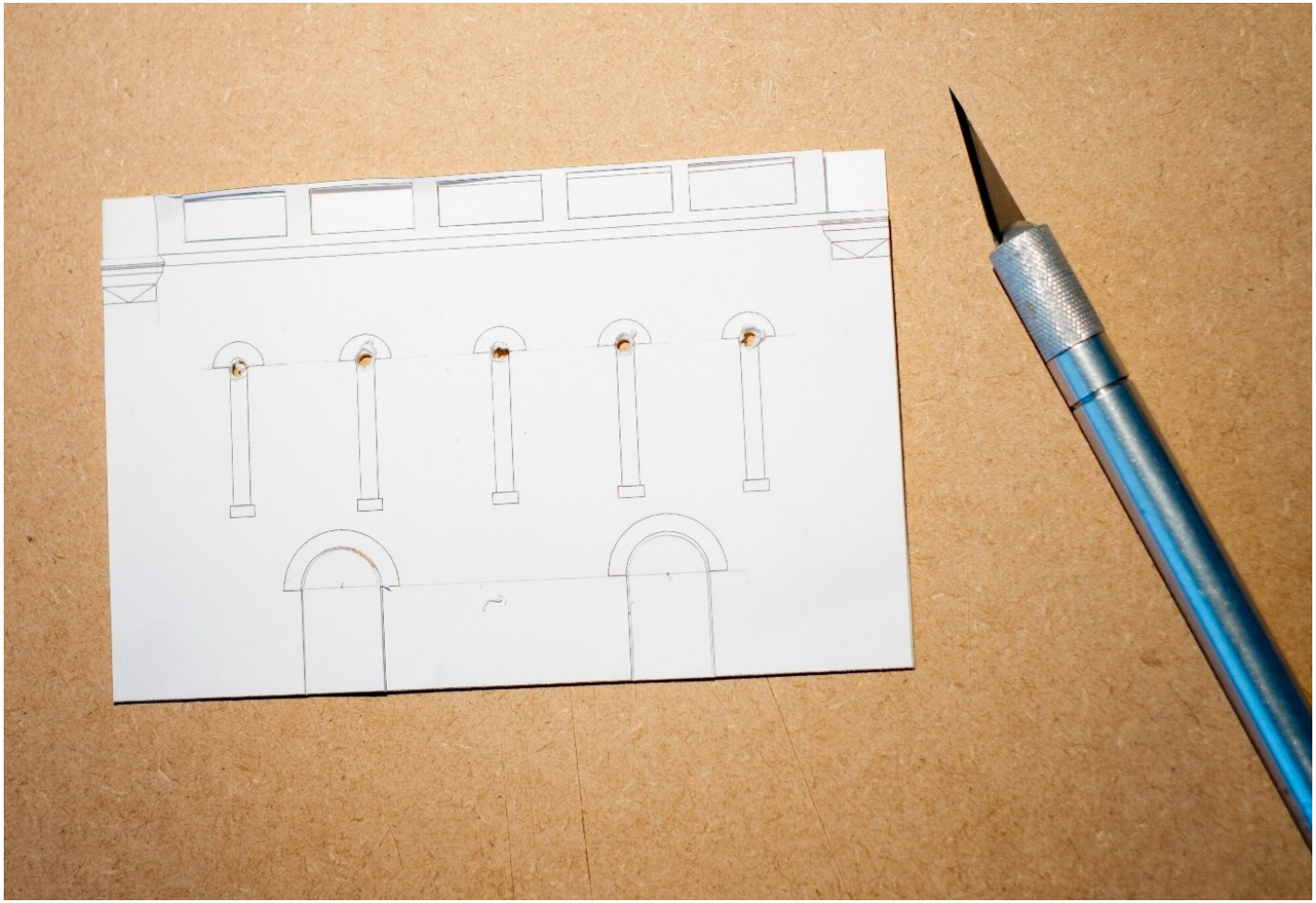

Dimensioning – Having created your design adding dimensions is as easy as selecting the type required, clicking two points (one for a radius!) and dragging the dimension to where you want it. Some programs can dimension a drawing for you.

## Enabler for hand modelling

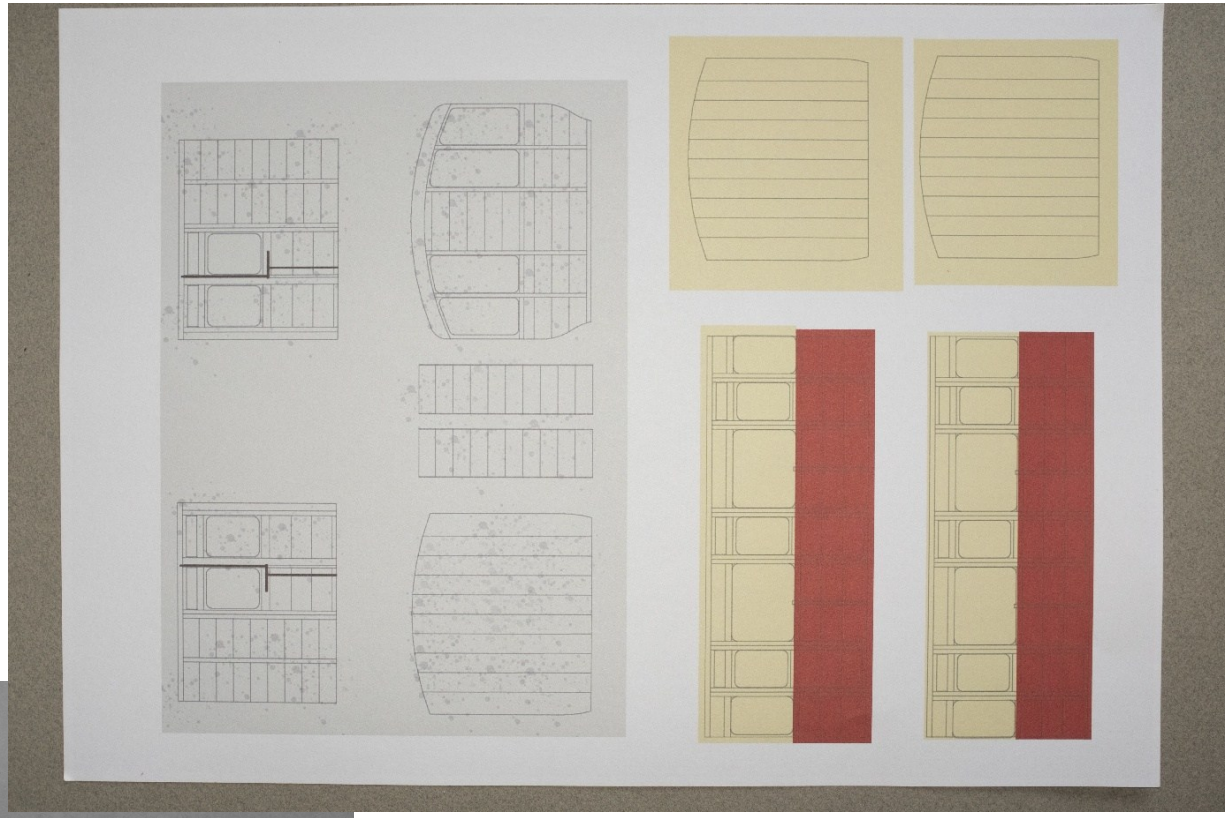
Before looking at how 2D drawing enables the use of machines, we can look at how it also enables accurate modelling by hand. Here are some examples:

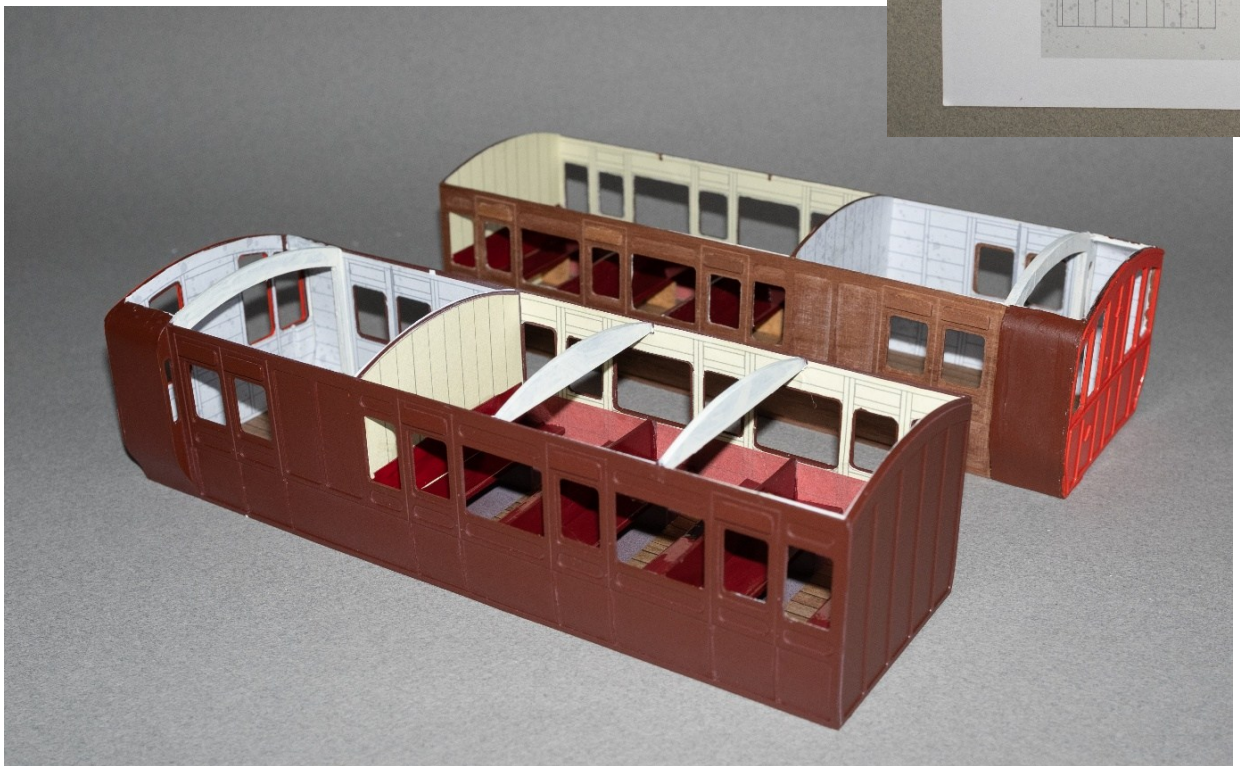
Sacrificial template

Scale and print on a normal printer the element of the drawing you want to model. Using a temporary adhesive, glue it to the material you want to cut the shape from, cut through the paper drawing and the material to produce the part, accurately.



For a coach interior I created a “wallpaper” of the coach interior finishes in Photoshop, to the scale that I was working in. I imported the drawing of the Stroudley carriage elevations, scaled them and overlayed them on the wallpaper. I printed the interior design in colour and cut round the profiles.

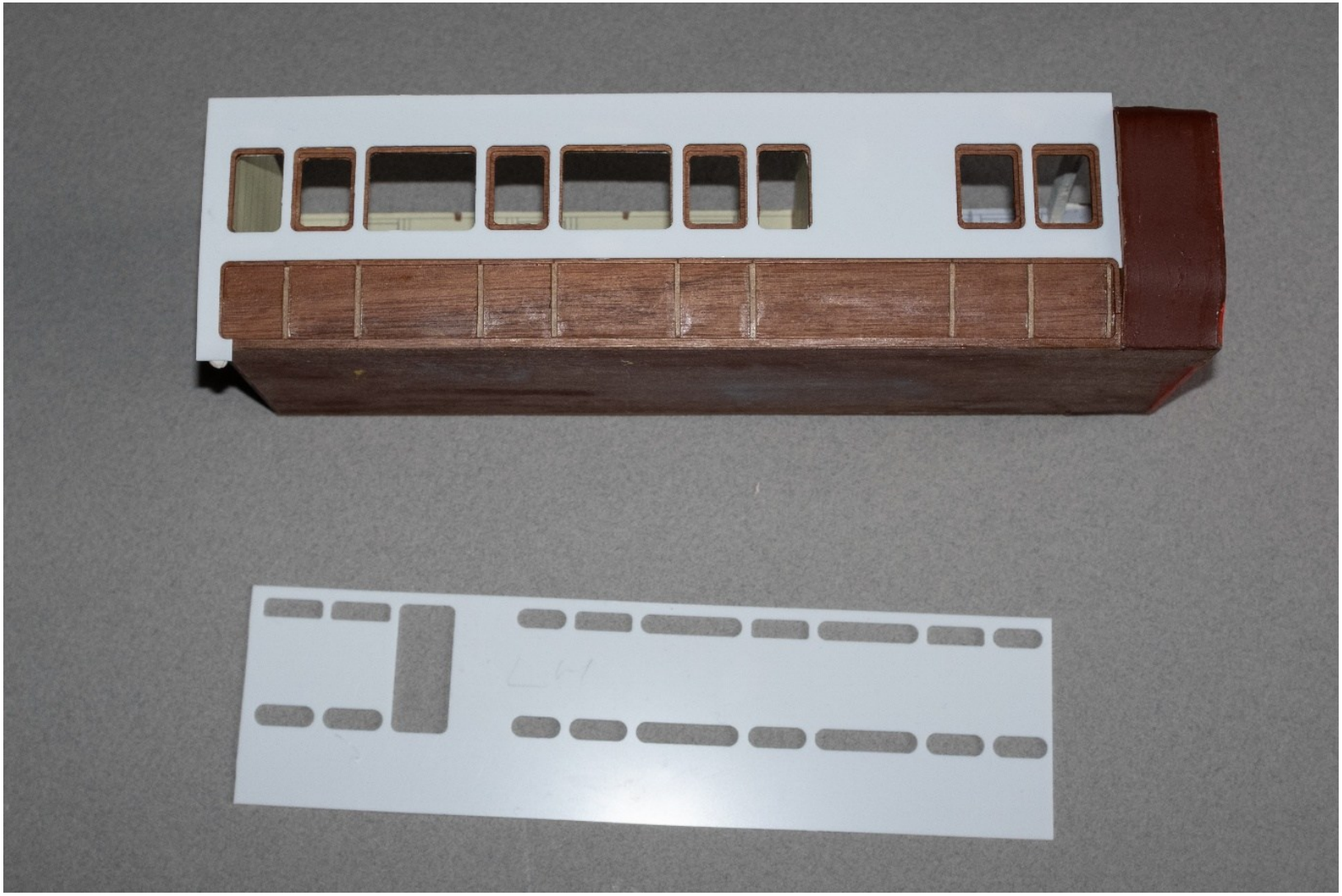




These pieces were then glued to the interior of the carriage. I knew they would fit because they were derived from the same accurate drawing that produced the carriage structure.

Lining aid

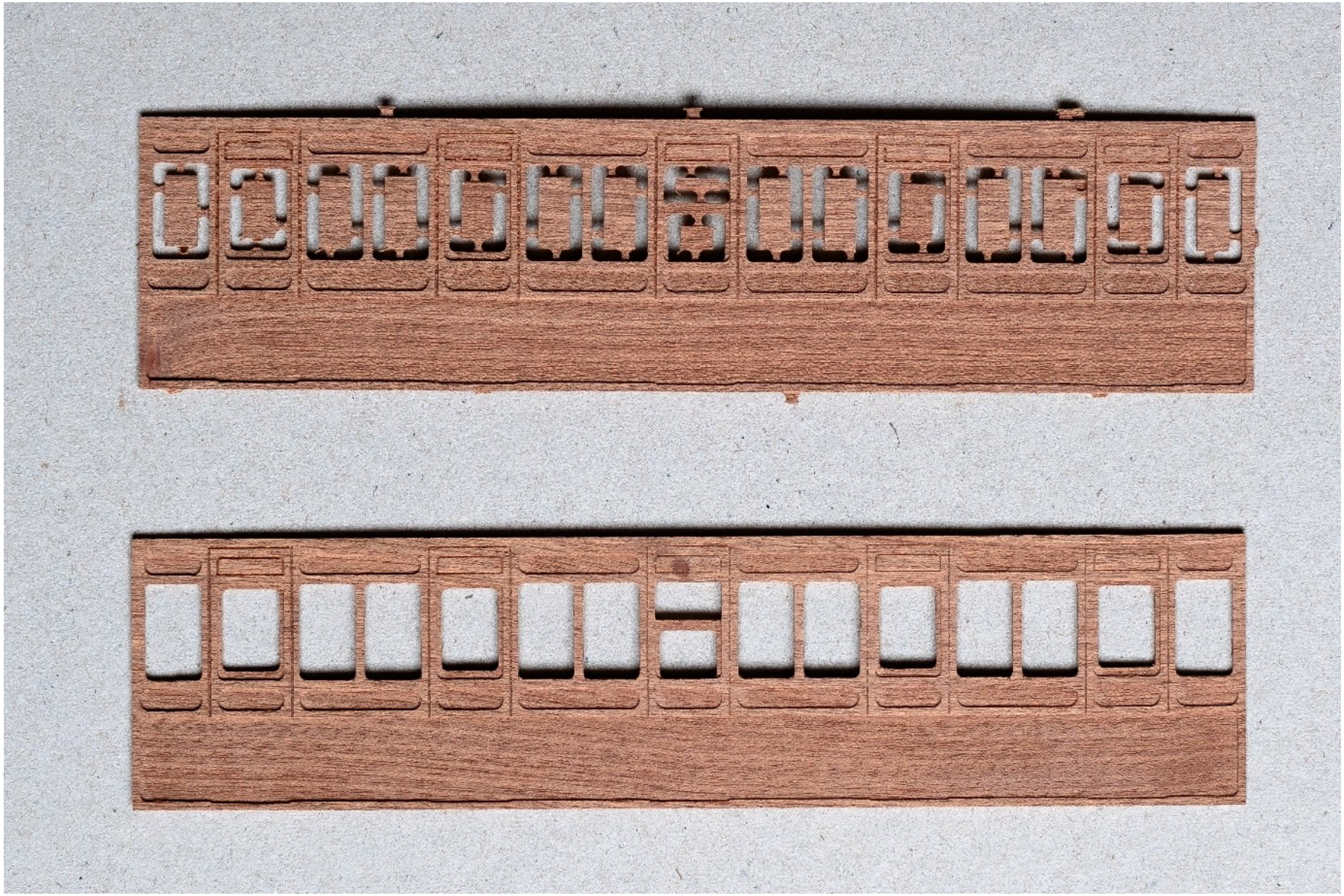
Using the “Offset” tool I created a separate layer with the profiles I wanted to line, offset by a small amount (The diameter of the Bob Moore lining pen tip). This was then produced as a stencil and attached to the carriage side by small pads of Blu-Tac.



## Enabler for 2D Machine Manufacturing

The are many processes that require an accurate 2D digital drawing that can be imported into their specific creative software, such as Digital Crafting Machines, CNC Routers (2D & 2.5D), Laser Cutting, and Chemical Etching.

The Stroudley 2D elevation drawings were produced primarily to experiment with using a CNC router. The creative software into which I imported the drawings was “Vetric”. I created the cutting paths and depths in this software, which then produced the code for the machine operation. I experimented with different sheet material, including wood, Plasticard and MDF. The following pictures show two stages of this process.

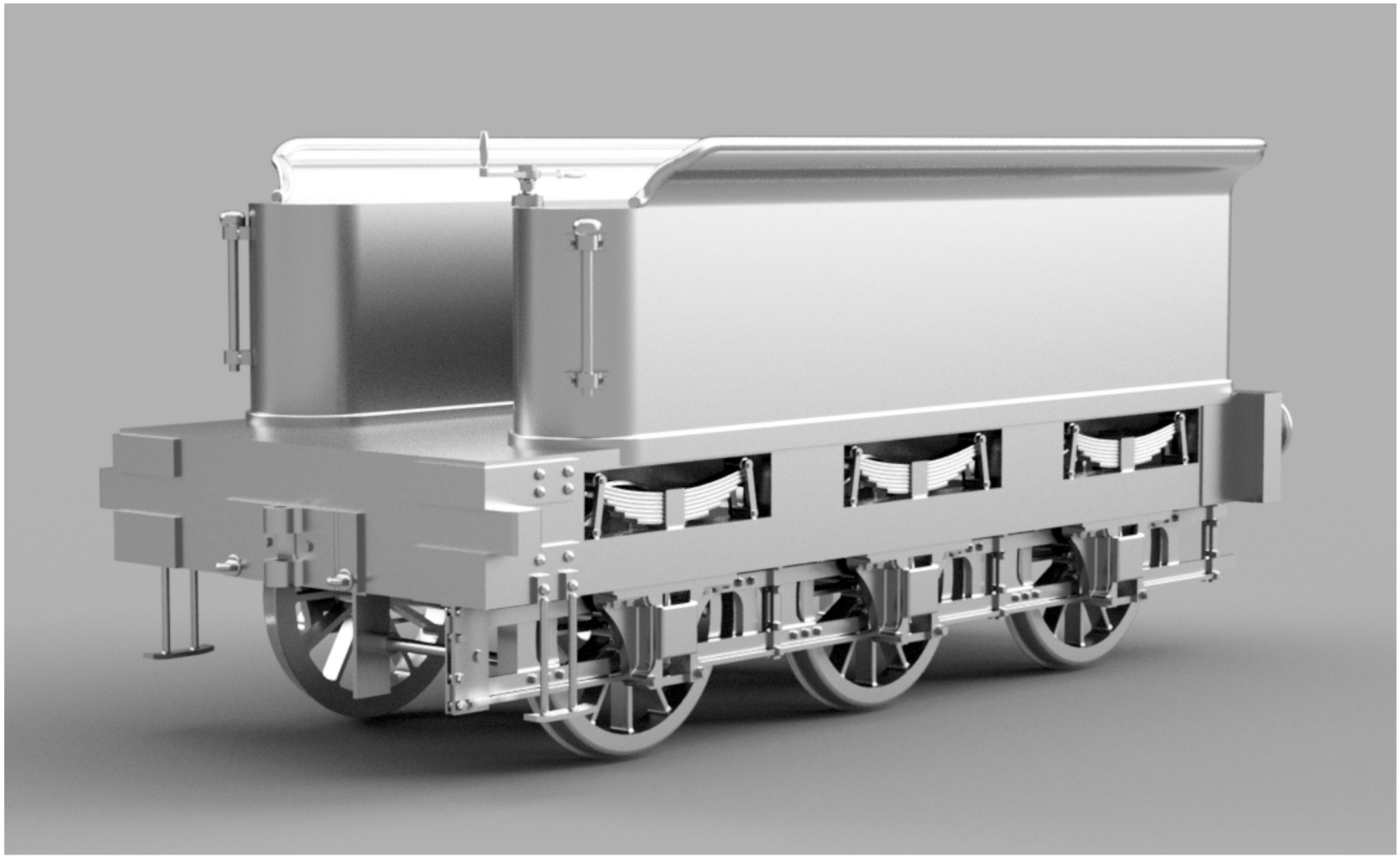


It is not necessary to own any of these machines, as there are many small companies and individuals offering these services online. You just need to know the format in which they require the information.

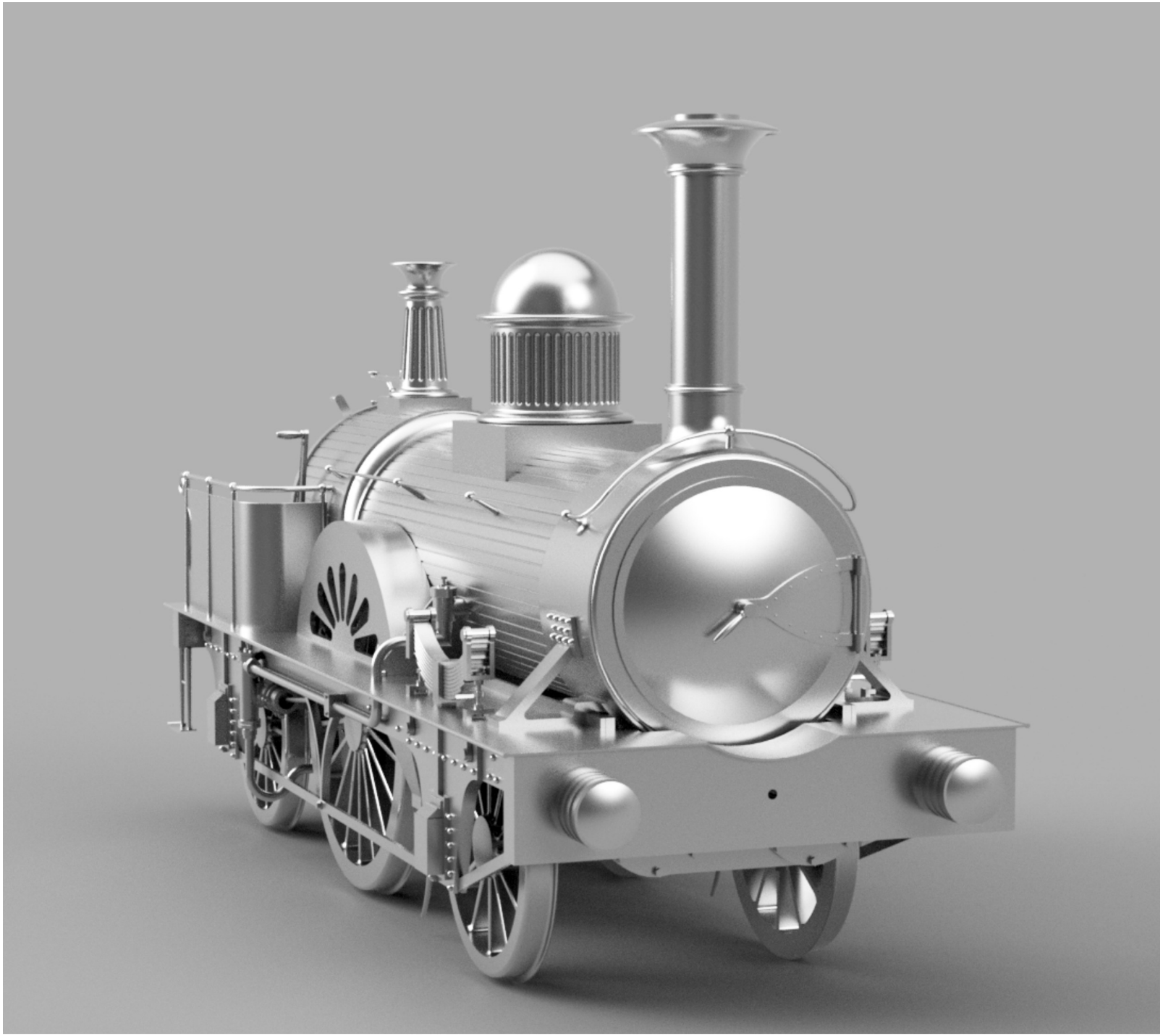
## 3D Drawing – Solid Modelling

At the beginning of this article, I mentioned that I started using CAD 30 odd years ago. I did not start in 2D, I launched straight into 3D drawing and found it very satisfying. All the advantages of 2D drawing are equally applicable to 3D modelling, however, the most powerful additional advantage of Solid Modelling is the visualisation of the design you are producing. With the ability to render the model's photo realistically, the virtual modelling became a hobby in itself. I have spent many years modelling the structures of Lewes station up to 1890 and it was only in the recent years that I started to model a significant number of them physically.

More recently, in a move to trying Fusion CAD software, I modelled my first locomotive, the single, Jenny Lind, and following that its tender.
Note: In contrast to modelling buildings full size, the locomotive was modelled with a view to 3D Printing, which requires more thought around wall thicknesses and clearances for a working model. In these cases, following advise, I modelled in 7mm/ft. Interestingly, I could also print 4mm and 2mm scale versions with minimal changes to some components. These modified components were contained in the same drawing file but in dedicated folders (Layers), again showing the efficiency of using CAD.



These two screen-shots are higher resolution renders than the working render, which I find stunning.

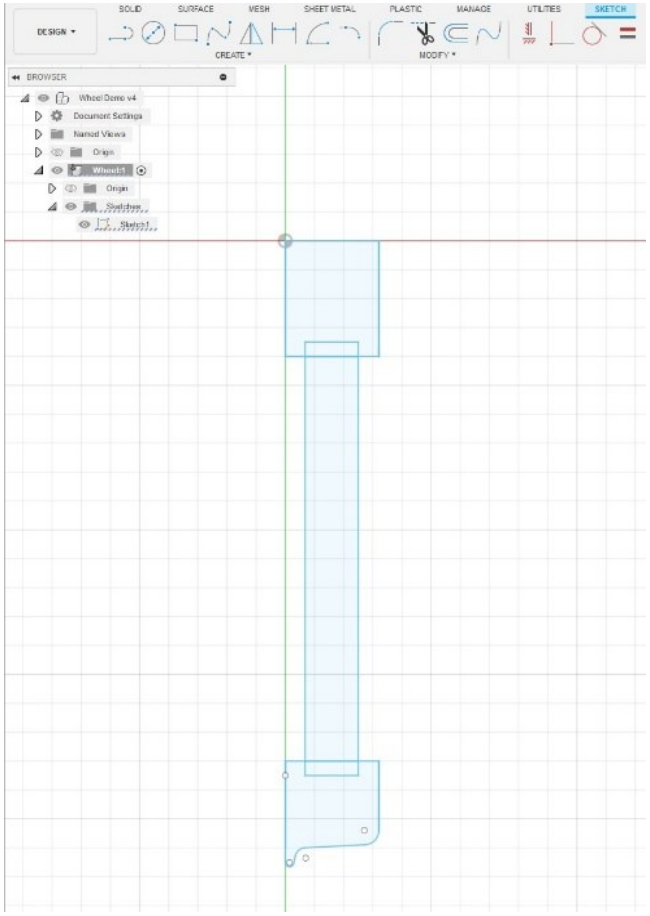


The working render below of the chassis is included to show that if I structure my models well, I can isolate assemblies, sub-assemblies and parts to review them individually.

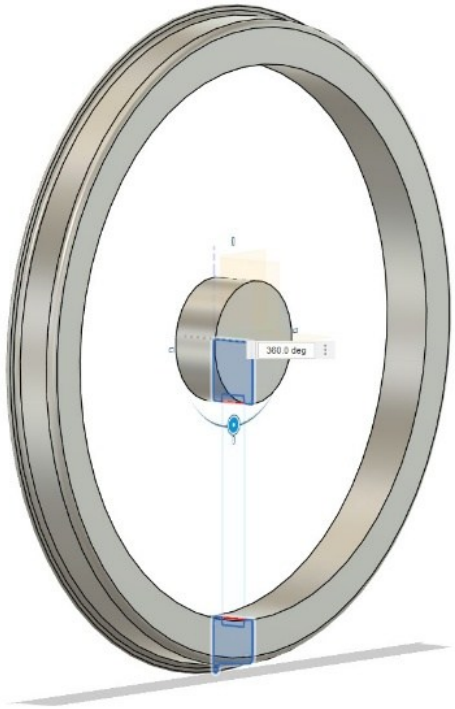
I would say that 3D modelling is no more difficult than 2D modelling. If you want a 2D drawing or elevation of the full assemble or an individual part, this can easily be created from the model. Also, it is important to note that in 3D modelling you will still need to use 2D drawing tools, as you will see below.

In 3D modelling there are many additional tools specific to creating solid features. Basic shapes such as Spheres and Boxes are very useful and quick to create but frequently you will want to create more complex features. This is generally done by defining a “Plane” to create the part from, then using 2D drawing tools to create profiles on that plane. Switching back to 3D tools, the profile can be extruded. There are many “extrude” tools beyond the basic perpendicular to profile operation, such as including a draft angle, extruding along a path, rotating about an axis. The examples below show the steps in creating a profile and extruding. It also demonstrates more advanced Copy/Paste type tools mentioned in the 2D section.

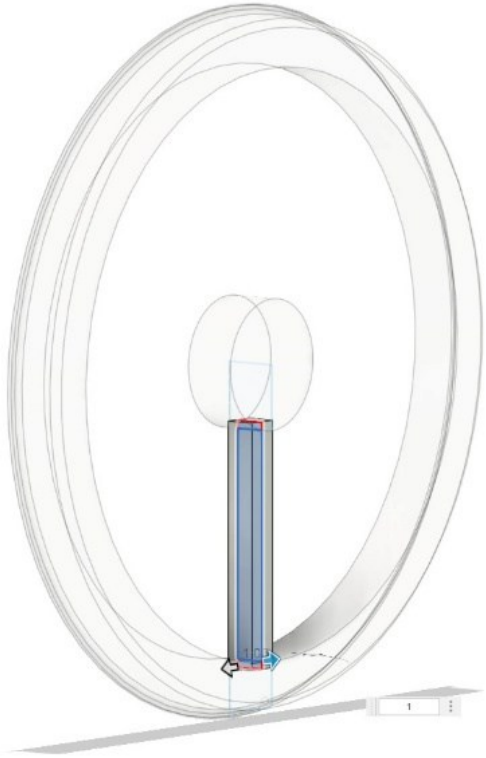
# A Simple Wheel



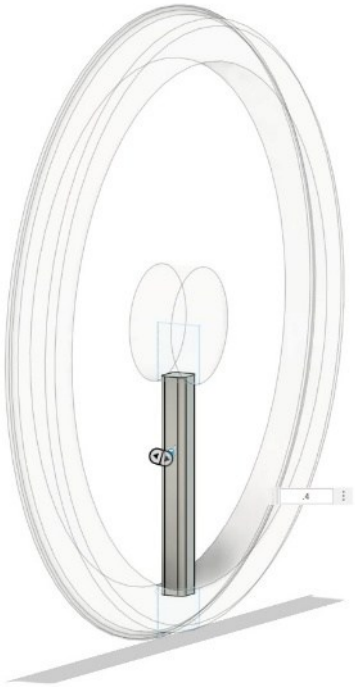

Draw 2D half section profiles of hub, spoke and tyre.



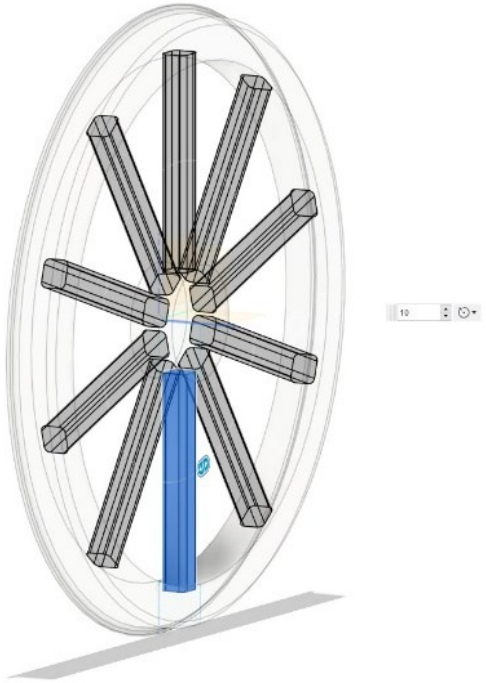

Create hub and tyre solid parts by using the “Revolve” tool, selecting the profiles and axis of rotation. The profiles are extruded around the axis.



Create a solid spoke by using the “Extrude” tool symmetrically each side.



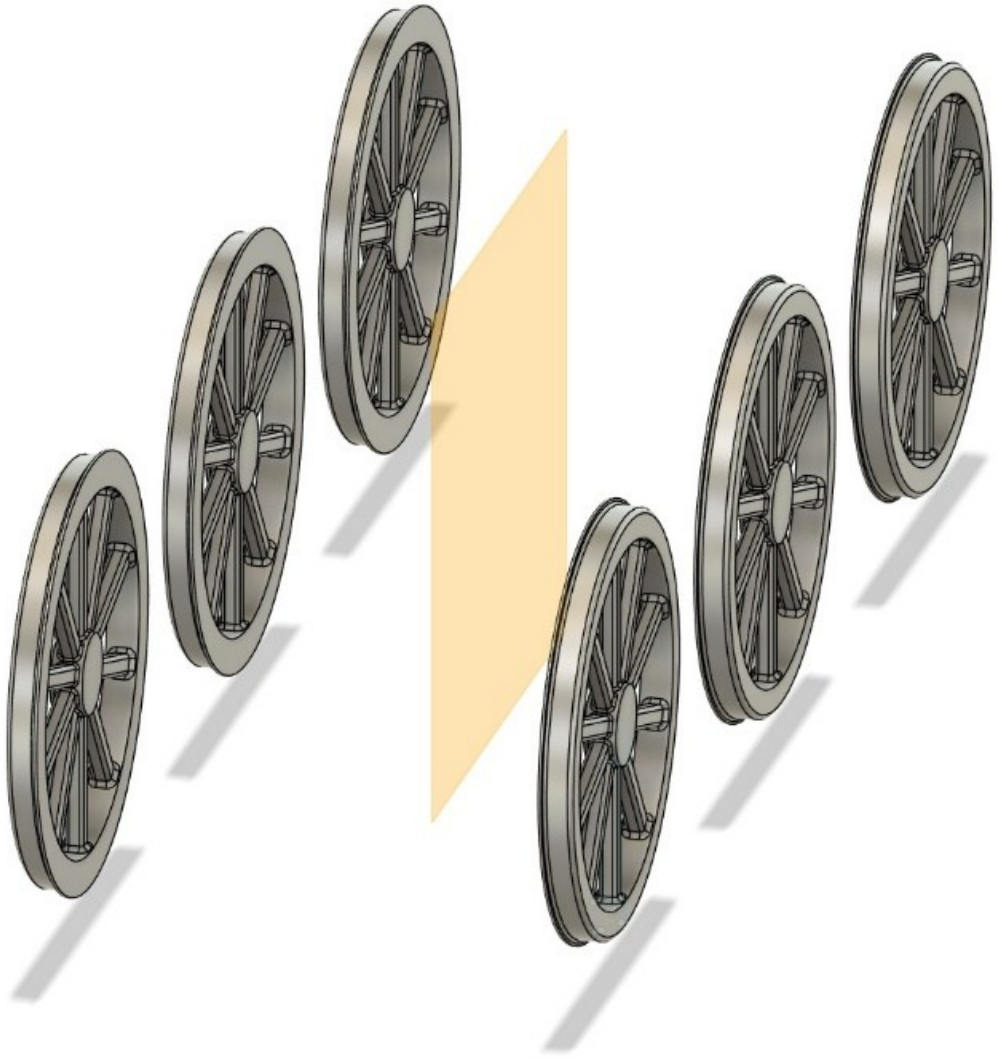
Radius the long edges with the “Filet” tool.



Create the remaining spokes using the “Circular Pattern” tool, specifying the number of spokes.

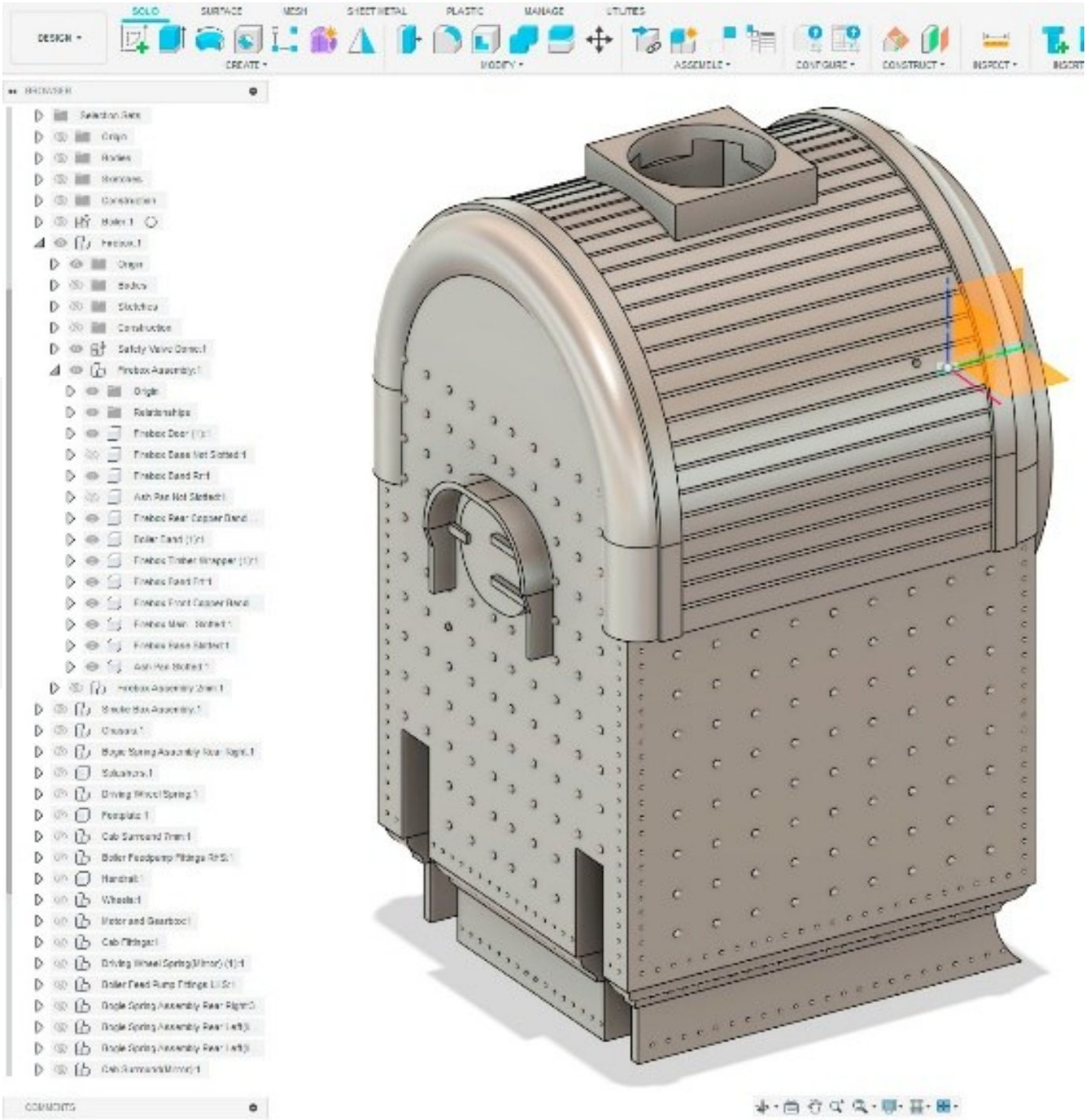
Use the “Combine” tool to make the wheel one solid part and filet each end of the spokes using the “Fillet” tool.

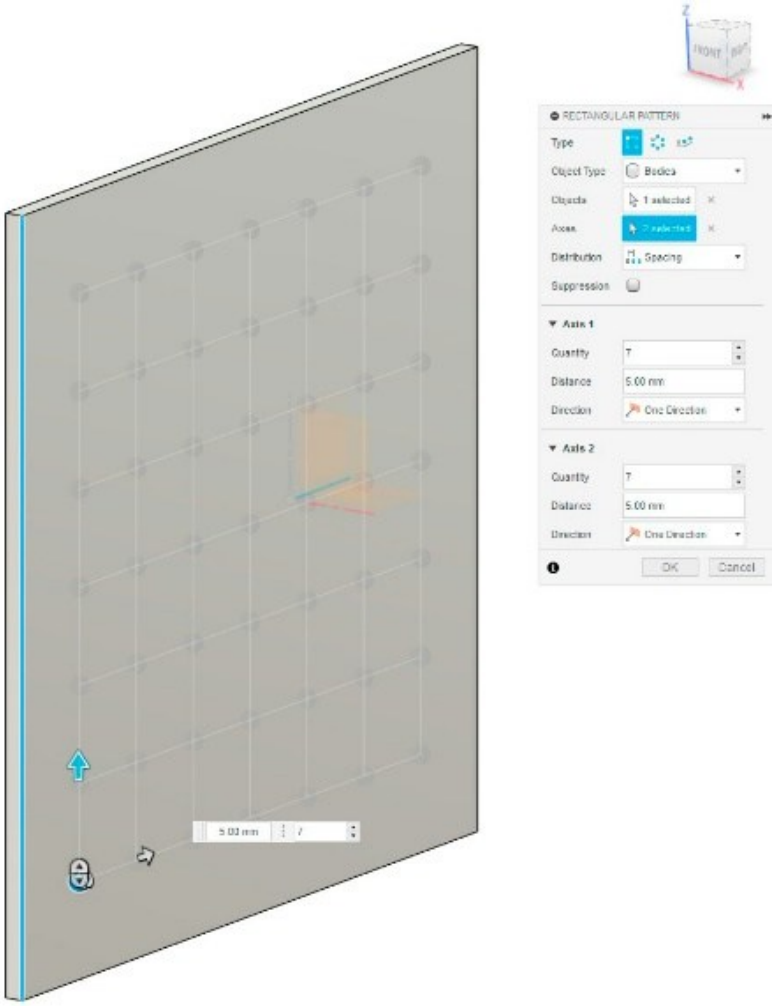
If this wheel were for a 3-axle tender, I can copy and paste it to two more locations to complete one side and then “Mirror” copy the 3 wheels about the orange plane to complete the other side. I can also choose to have them linked, so that if I modify one the others will update automatically.

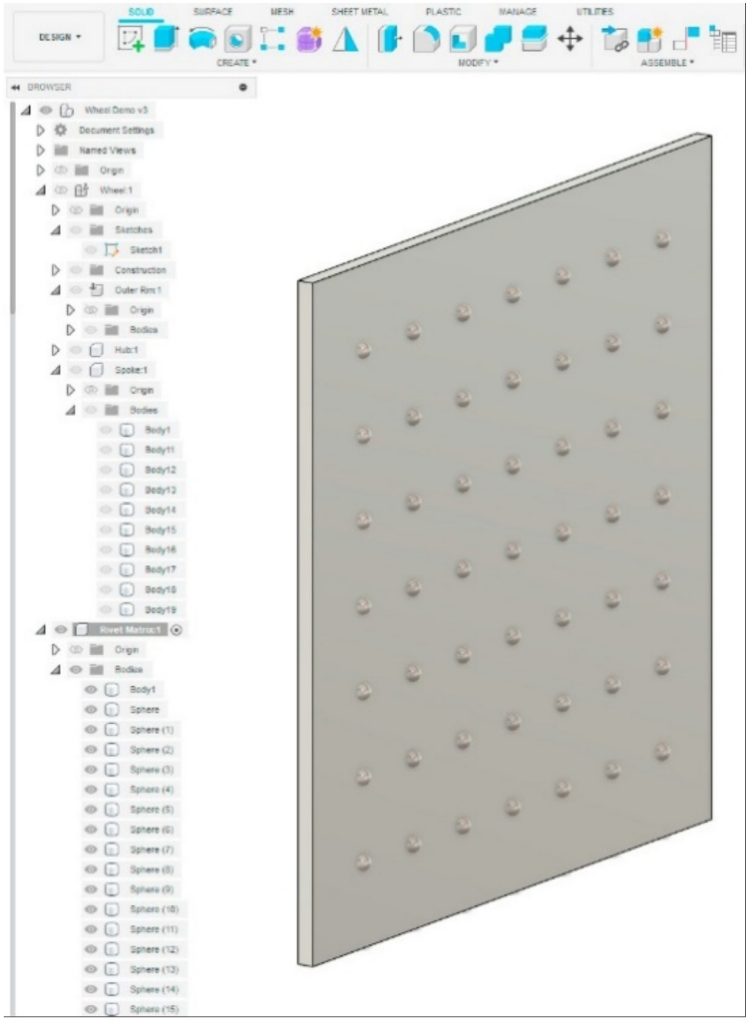


## Rivet Detail

The screenshot to the right shows the firebox sub-assembly of my CAD model of Jenny Lind. You can see a mass of rivet detail but, using the tools available, the process is simpler than you might think.





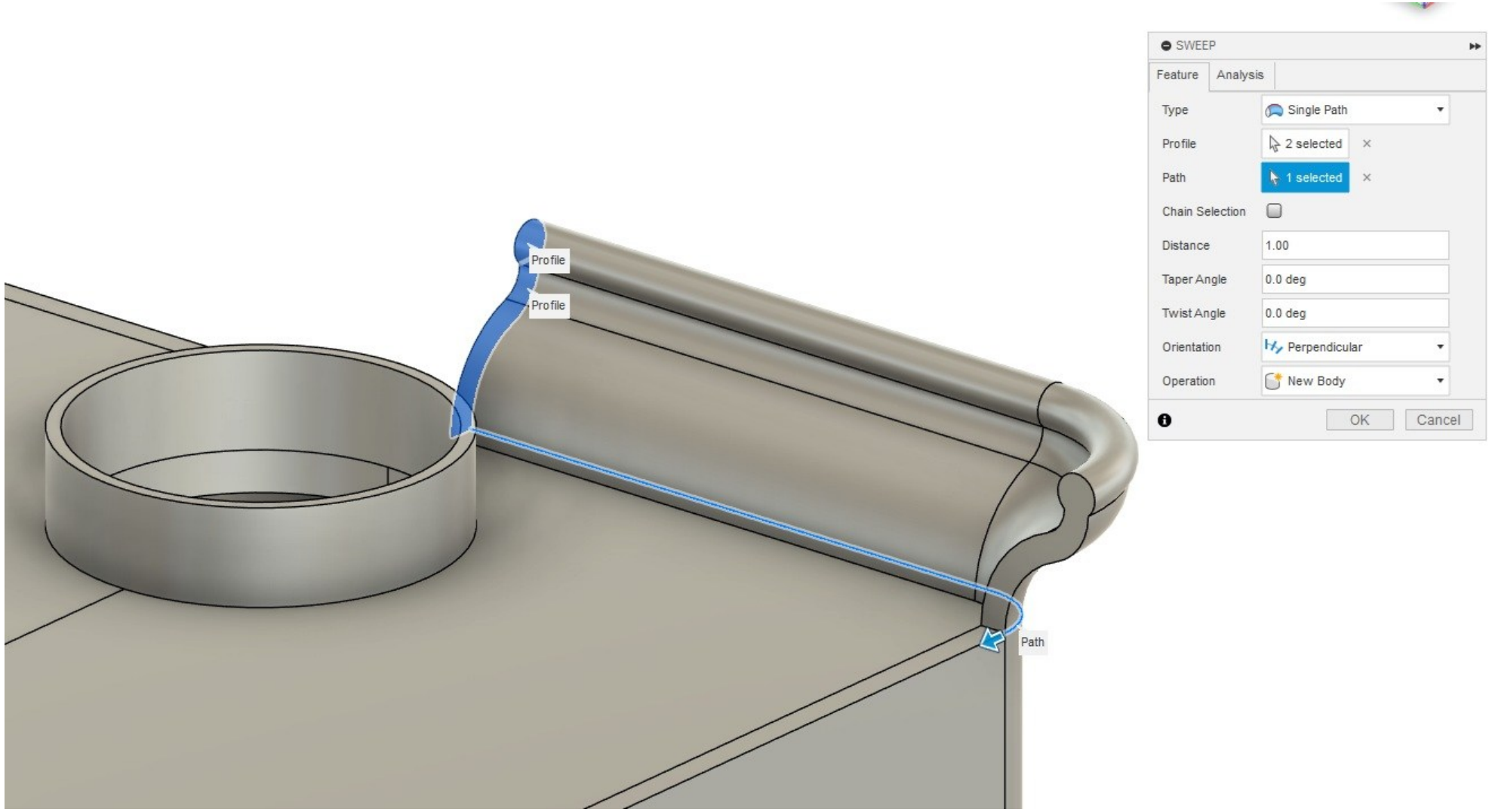

These two screenshots demonstrate how quickly an array of rivets can be produced.

Above left - Having created a steel plate with the “Box” tool, I embedded in the lower left corner a “Sphere”, the protruding part representing a rivet head.

Selecting the single rivet and using the “Rectangular Pattern” tool, I defined the spacing and the number of the rivets required in both the X and Y directions, pressed “OK” and you can see the result above right.

## Extruding a profile along a path

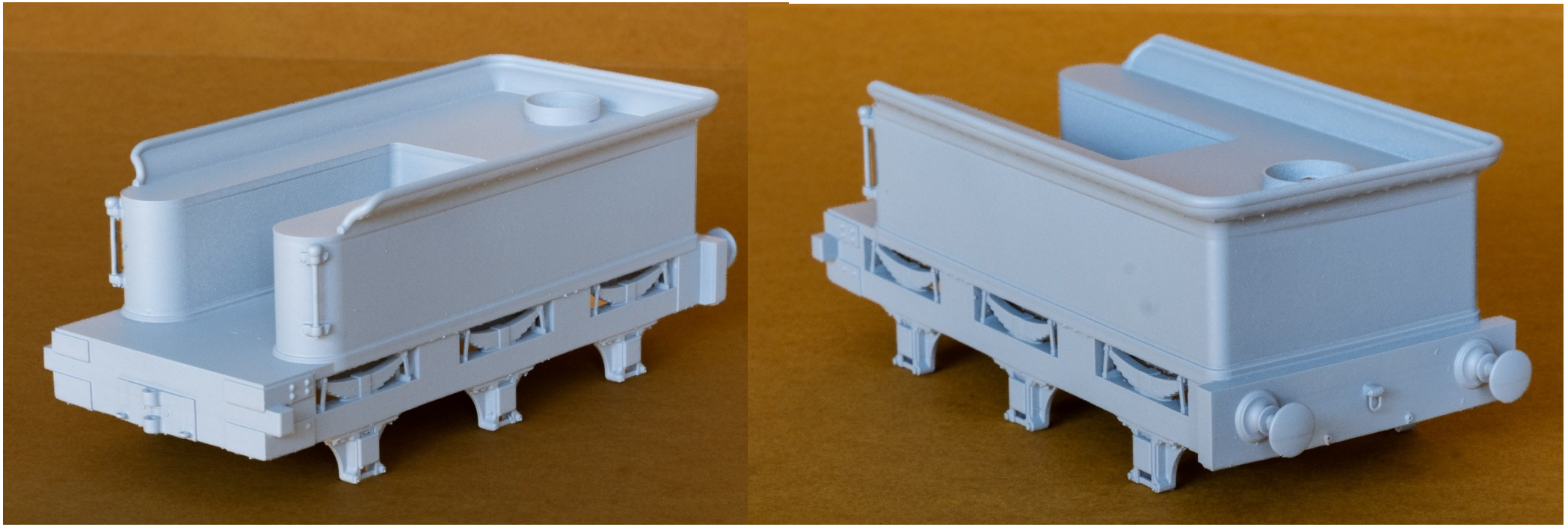
The last example of an Extrude tool is “Sweep” which I find very useful and powerful. The screen shot below is from the tender that I have modelled for Jenny Lind. Here I show just a short sweep for clarity. Again, it starts with creating a profile or profiles, which can be seen as the blue shaded areas. After selecting these I define the path I want the profiles to be swept along. In this case it is the top edge of the tank. The result is clear to see.



**Enabler for 3D Manufacturing Technologies.**

As well as supporting all the manufacturing technologies identified in the 2D section, 3D Solid Modelling adds the option for 3D Printing, and 3D CNC Routing.

As stated earlier, you don’t have to own your own printer; there are many providers out there. I had wanted to try 3D printing for some time, and the CAD model gave me reason to take the plunge and buy a resin printer. The technology is very accessible now and I was printing very quickly with a minimum of set up. I have published pictures of the locomotive before but not the tender, so have included some to show the level of detail that can be achieved.



## Summary

This article only scratches the surface of the capability of CAD and picks on examples that I frequently use. I have not touched on other useful capabilities that some software packages have, which include Surface and Sheet Metal modelling. For mechanical designs, the ability to define joints and articulate components to see their relative motions may be useful for some modellers.

I hope that sharing some of my experiences helps with the understanding of CAD capabilities and advantages. If it does nudge you over the brink to have a go, there is plenty of online help for the better-known software, as well as books for all levels of experience.

## Appendix

Technologies I use and have referenced in this article are:

TurboCAD Professional by IMSI Design

AutoDesk Fusion for Personal Use

Vetric CNC Software

Stepcraft D600 CNC Router

Elegoo Saturn 4 Ultra Resin Printer

A website showing Lewes Station Solid Model Buildings is at : https://www.2bdeveloped.co.uk/

Images copyright David Rigler

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# 70 Years of Open A Wagons in 4mm Scale

Nick Holliday



British Railways built the 16T steel open in 100,000's, the Midland Railway built their D299 5-plank open in 10,000's, whilst the LBSCR had less than 10,000 Open A 5-plank wagons. Nonetheless, the Brighton wagon has probably been produced, in 4mm scale model form, by more "manufacturers" than either of these other more prolific designs. There is a long and varied history for these LBSC models, which I hope to present in chronological order, but some dates are rather loose, as the dates of introduction of some of the earlier offerings are lost in the mists of time, and not spotted in the Railway Modeller archive.

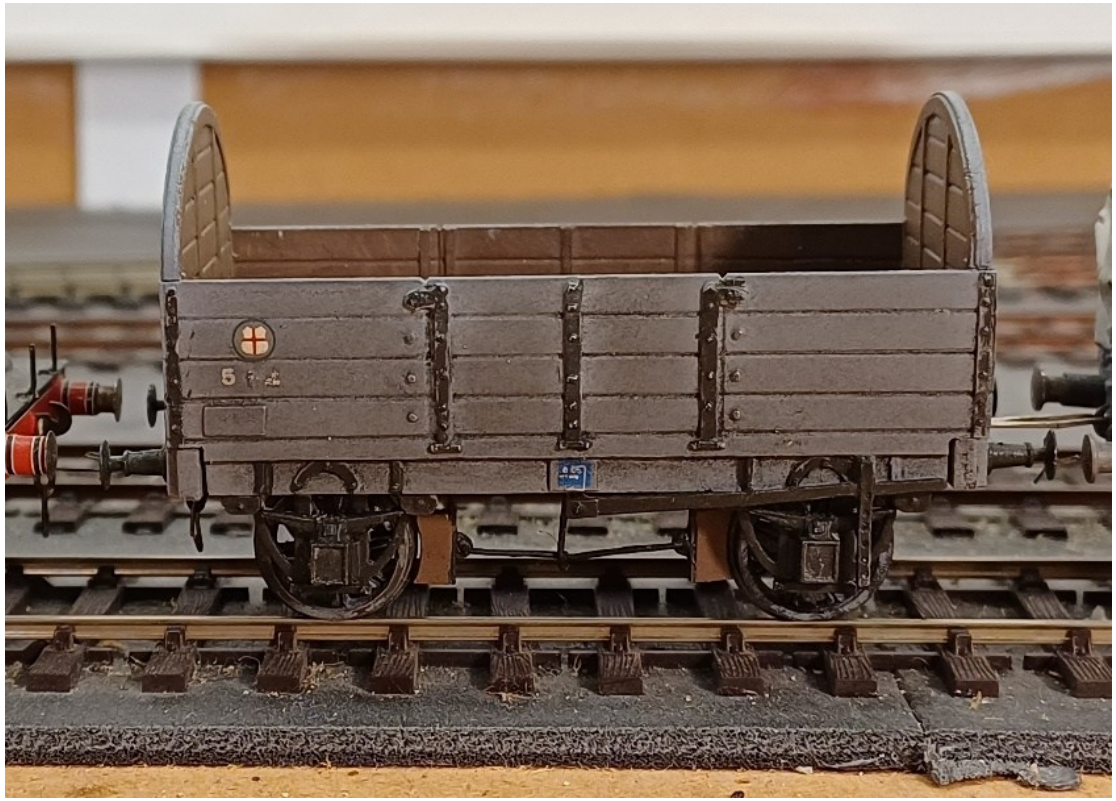
The LBSCR was unique amongst the major UK railway companies in that the basic set of goods wagon designs – 5 plank open, covered van, cattle wagon and bolster wagons - created by Willliam Stroudley around 1880, formed the basis for all further production until 1922, albeit with minor tweaks and improvements. Like many companies, the Brighton had, in the early days, adopted a high rounded end for their opens, to support tarpaulin sheets to protect loads, but this was eventually reduced to the familiar arc shape, whilst the neighbouring LCDR and SER kept the high end and the LSWR adopted a distinctive multi-radius form. These high ends made them very distinctive and easy to identify in photographs of trains, without needing to read any lettering. Brighton Opens were spotted in many locations, including Scotland, even before the wagon pooling introduced during the Great War.

The LSWR version from an ABS model.


The SER style, shortly to be released by Rapido (photo courtesy of Rapido)

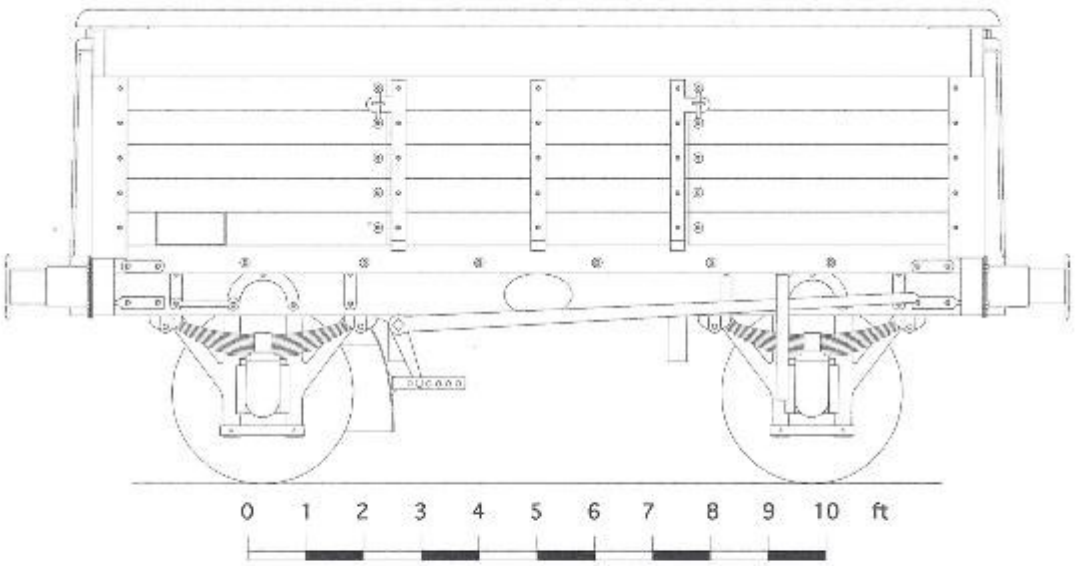
## A brief history of the development of the Open A design

When Stroudley arrived at Brighton in 1870, Craven had left him with a wagon stock of just over 4,000. Many were fairly new and all had been kept in good repair, but, just like his locomotives, there was a wide variety of designs and the Board were keen to have a measure of standardisation, and they decided upon the standard patterns for coaching and goods vehicles for Stroudley's guidance. These included what would became known as the Open A, a five-plank general merchandise wagon with a raised end, presumably to accommodate tarpaulins, as vans in that era were few. It isn't clear how much input Stroudley had into the designs, but production of the new wagons commenced around 1872, and by 1889 the total wagon stock had risen to 7,077, and most of the pre-Stroudley stock had been eradicated. However, part of this enlarged fleet comprised "rebuilds" making use of the old ironwork and other parts from scrapped wagons.

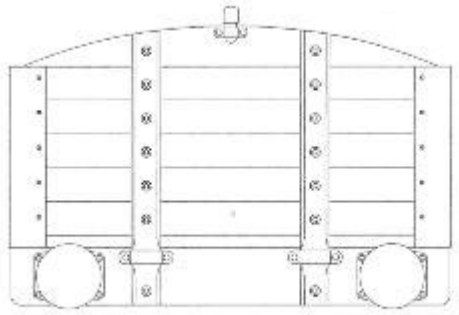


An example, in model form, of the sort of robust, but perhaps dated, wagon stock that Stroudley inherited. Built by Eric Gates from a 5&9 kit.

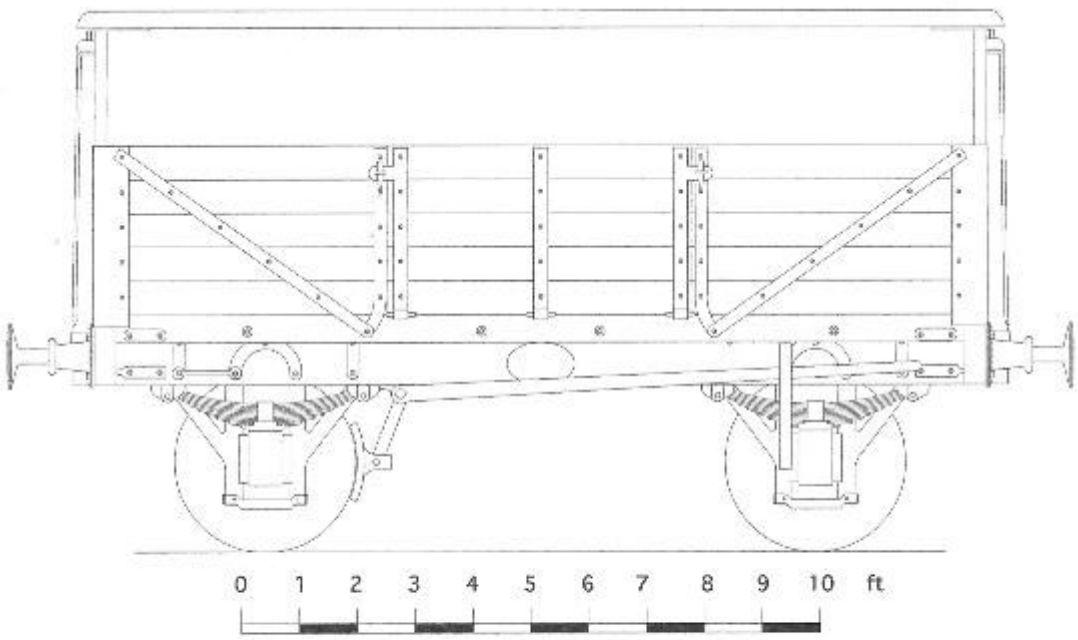
The first Open A's , (Type I – note that this is my classification), built from 1872 to about 1883, had a 9' 6" wheelbase, wooden underframe, with inside knees but no diagonal strapping, a single wooden brake, locomotive-style buffers and carried either 8 or 10 tons. Most of these featured the familiar medium height raised end, but three batches were built with low raised ends, and some were only equipped with dumb buffers. Initially the tarpaulin support consisted of a chain, but others featured a stout timber spar that fitted onto the end. Most of these wagons would have disappeared by the turn of the century, a typical life of 30 years or so, with their ironwork being recycled into new wagons.



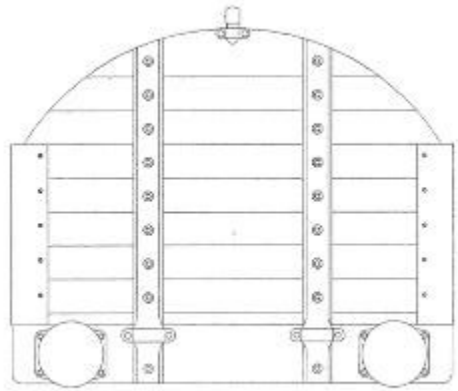

LB&SCR A class Open Wagon
As per No.A4878 built 1876
Drawn by S.T.Turner *May 1998*



At some point in Victoria's reign the design was updated with external diagonal strapping, ending in a hockey stick shape where they joined with the knees located beside the door opening. (Type II) At around the same time, standard wagon type buffers were fitted, typically a single pair of brakes, on one side only, shaped wooden door bangers fitted and the tarpaulin support modernised, using a movable steel bar to Williams' patent design. Some of these were built with no raised end, and were considered as Open D². In Southern days, many of the later Open A's also had their raised ends removed, probably because the more general introduction of vans had reduced the need for tarpaulins.




LB&SCR A class Open Wagon
As per No.A6328 built 1899
Drawn by S.T.Turner *May 1998*



Between 1896 and 1900 1,250 Open A's were ordered from the Birmingham Carriage & Wagon Co. and Cravens of Sheffield (Type III). They were different in that the underframes, still 9' 6" wheelbase, were of steel, although unusually, the channel was reversed so that the outer, visible face was flat. The diagonal strapping was internal, with prominent boltheads on the outside, a substantial steel backstay was fixed across each end and the door bangers were in steel. Those built by Cravens had square ends to the headstocks, whilst BRCW cut them off at an angle.

The wooden framed Type II opens continued to be built until 1904, some receiving various patent designs of either-side brake gear. Although many were renewed before Grouping, over 1,000 became Southern property.

In 1905 the wheelbase was reduced to 9' 3", (Type IV) although the design remained fundamentally the same, with pulley-shaped rope hooks for securing sheets starting to appear. One batch of 100 wagons, built in 1908/9 by the Metropolitan Amalgamated Carriage & Wagon Co. featured Freighter brakes, working on both sides of the wagon, whereas others built at the time just had single-sided brakes until they were banned for all new-build wagons in the UK.

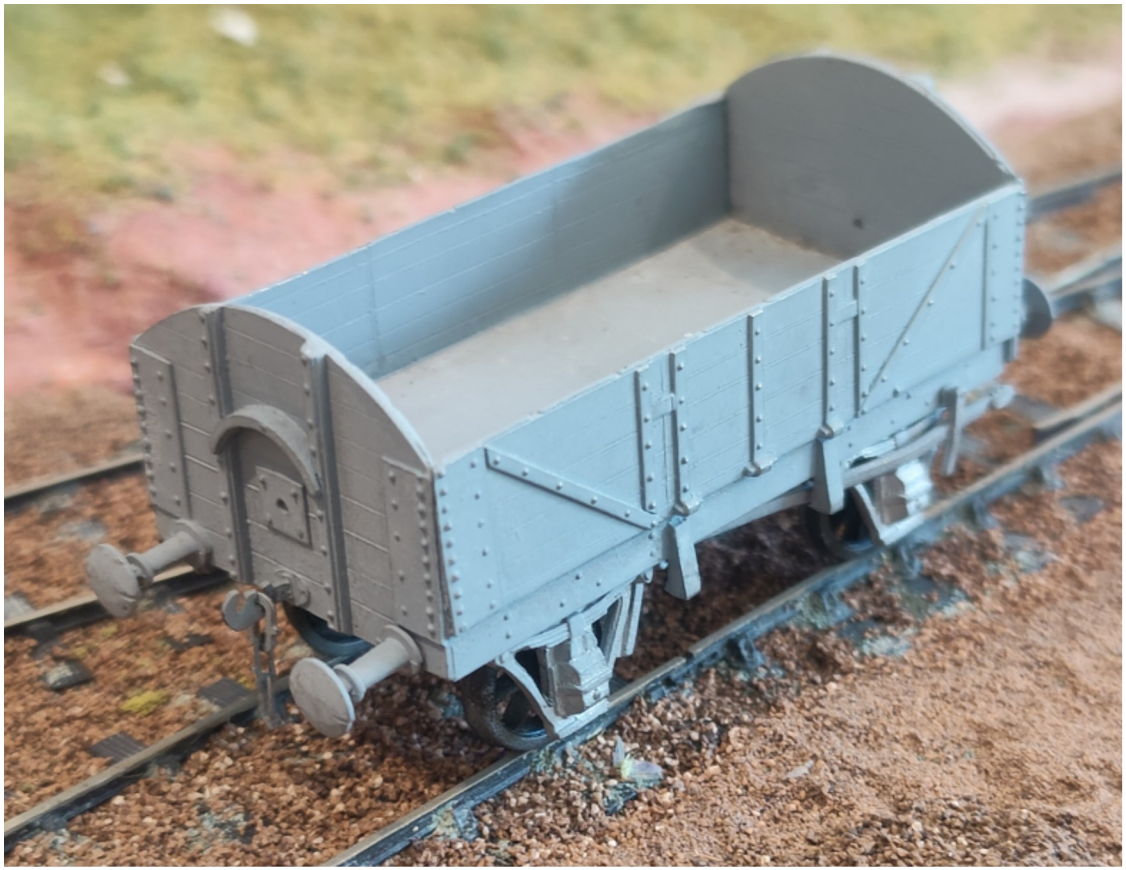
Subsequently, in 1912, the use of prominent outside knees began, the diagonal strapping lost the hockey stick end, and the end was bolted to the curbrail. (Type V)

The finale for the Open A was a batch of 500 built by the Metropolitan Carriage, Wagon & Finance Co. in 1920/1. (Type VI) Although visually similar to the previous designs, these were modern vehicles with steel underframes, four-hole wheels, either-side brakes and built to RCH specifications.

At the time of grouping, there were nearly 8,000 Open A's in service. One factor that mitigated against the further survival of the older wagons was that their journal spacing was non-standard, causing problems if they strayed too far from home territory, although they were known to reach the Scottish Highlands. As a result, the Southern took the opportunity of sending many survivors to the Isle of Wight to replace the indigenous stock, where maintenance would not be a problem.

## The Models

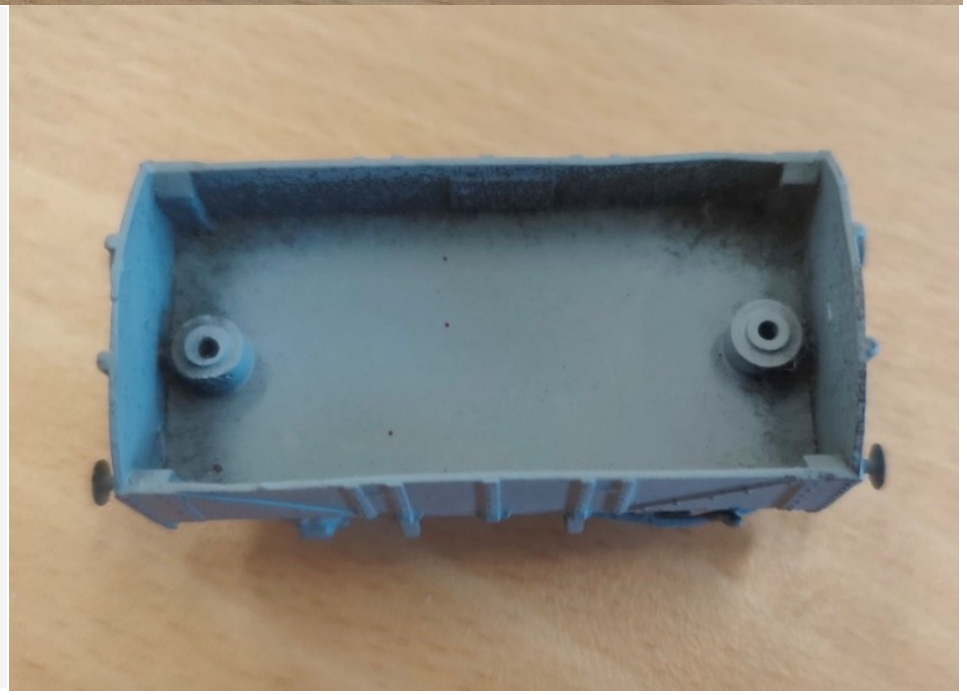
### Keyser



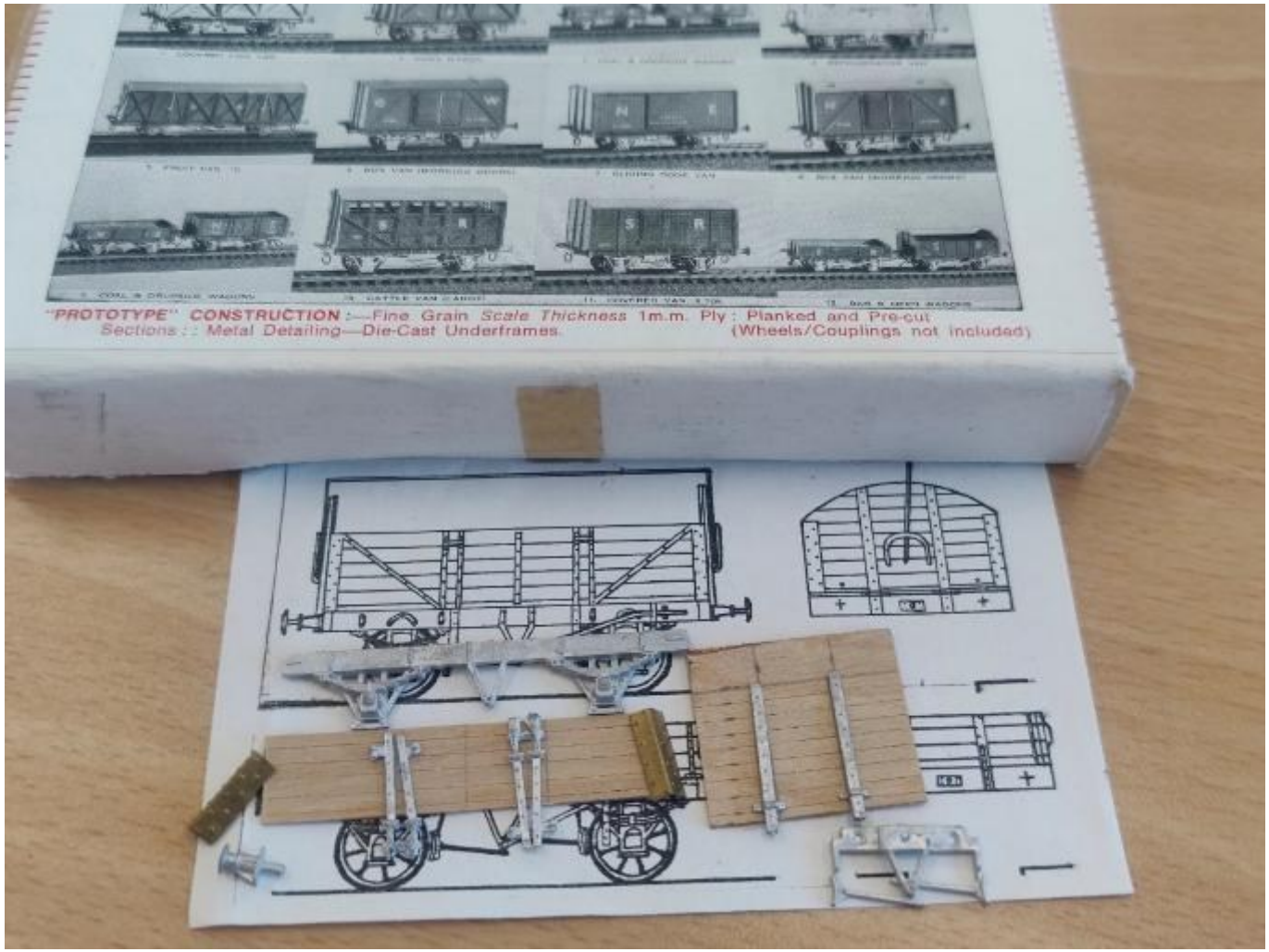
Despite the Brighton Open A being a rather obscure prototype, it has attracted a lot of attention from manufacturers. Around 1957, two pioneers were producing white metal kits for 4mm wagons, and one of them, Keyser (K's,) issued a kit for an "SECR" open, as one of the first in their range. Rather mysteriously, the wagon is a pretty good replica of a Brighton Open A, and nothing like anything the SECR or its constituents had, and it remained little known for the life of K's kits and beyond! It is, however, a rather mixed blessing. The bodywork is fundamentally Type V, but the single wooden brake block is more in keeping with Type I, and the wheelbase is approximately 8' 10½". (Note: on several of the kits to be discussed, the w-irons were separate from the solebar, either provided in etched brass or white metal castings, and the resultant wheelbase may be rather dependent on the builder's skill in fitting these to match any details on the solebars, whilst keeping the axles aligned.)

There seem to have been two masters made, the one I bought new in 1976 had mitred corners and rather primitive looking buffers, whereas a pair that I purchased second-hand, already built, had substantial blocks in the corners, a Keyser nameplate on the inside face and turned brass buffers – I do not know which is the earlier version.


My version with white-metal buffers and one completed as SECR. The interior of the latter is shown, although the cast floor has been inverted to allow fitting of a sprung coupling, but the bosses, included for proprietary couplings, have not been removed.



## Kenline




A round the same time in the fifties, card wagon kits started appearing, and Kenline, noted for their excellent white-metal cast details, also produced a range of complete kits. Among them was a set of two wagons, a single plank open and a Brighton Open A. The kits comprised thin ply body panels, mostly pre-cut with hand-scribed plank lines on the outside face. Castings, for the vertical ironwork each side of the door, and formed brass corner plates, with bolt heads, were provided and plastic strip was supplied for the diagonal strapping. The chassis was a simple white metal casting of solebars and w-irons and springs, with separate brake gear. The kit I bought recently doesn't have the radius end pre-cut and some cast pieces appear to be missing, but, as consolation, there are the parts to build the other wagon – which may be an LSWR stone wagon!

The wheelbase is 9' 0", probably one of a handful of standard dimensions for the whole range, and it would otherwise appear that the intention is to represent a Type V vehicle.

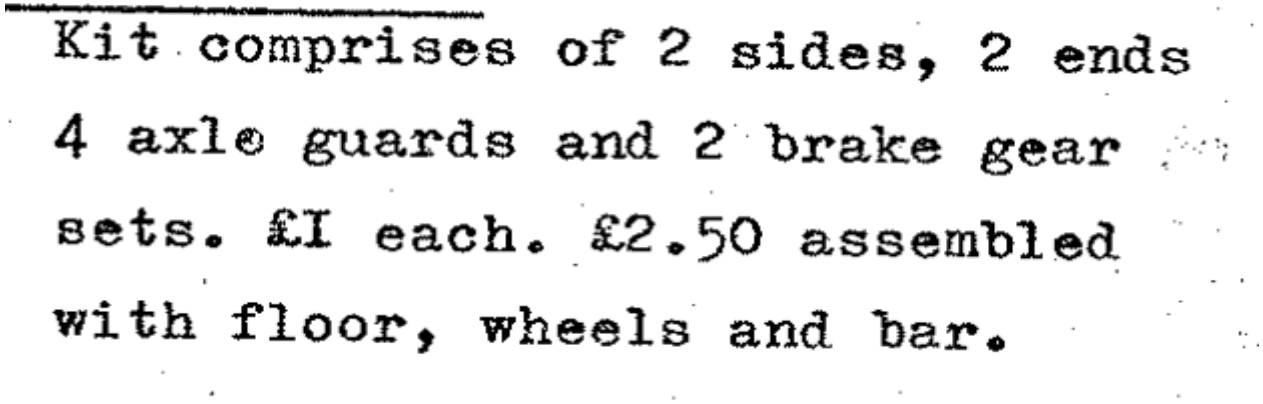
## JNT

I have come across another early offering, although there is little known about it. A company called JNT produced this, which I spotted on eBay. From what can be made out, the kit seems to have a card body, with colour printed sides, cast metal components for the chassis and plastic wheels, which are shown better in the NER wagon kit. Sadly, the Open is only liveried for SR days, and I have no knowledge of what type it represented.



The NER wagon kit from JNT to demonstrate the content.

## Brighton Circle member


Kit comprises of 2 sides, 2 ends
4 axle guards and 2 brake gear
sets. £I each. £2.50 assembled
with floor, wheels and bar.

These offerings would have to suffice for Brighton modellers until 1980, when Paul Newham, erstwhile Modelling Steward of the Brighton Circle, announced in the one and only edition of “The Single” that he intended to produce a simple cast metal kit for the Open A (an unspecified type described as a Tarpaulin Wagon).

Although samples were seen at a Brighton Circle AGM, unfortunately Paul temporarily went off the radar, and nothing more came of this venture. I wasn’t able to secure a kit at the time, although expense could hardly have been a consideration!

## Publication of Information

The publishing of the OPC book, “An Illustrated History of Southern Wagons – Volume 2”, by Messrs. Bixley, Blackburn, Chorley and King in 1985 provided a lot more information for potential modellers to get their teeth into; previously there were simple weight diagrams or the Skinley and Hamblings drawing to work from.

## Nu-Cast

In 1989 Nu-Cast announced the production of a kit for the LBSC C2X 0-6-0 goods locomotive. In a bold and somewhat unusual move, the company recognised that a goods loco required suitable wagons to haul, and produced white-metal kits for not just the Open A, but also single and double bolster wagons, a covered van and a seven-plank open wagon, 225 of which were ordered in 1911 to a design for the SECR. The Open A is again based upon the Type V version, although the wheelbase appears slightly short, at 9’ 1½”.

When Nu-Cast went out of business, many of their wagon kits were passed to ABS. Although a couple of LBSC designs re-appeared under this name, the Open was not one of them.


The Nu-Cast wagon kit with transfers by Roxey Mouldings.

## Woodham Wagon Works

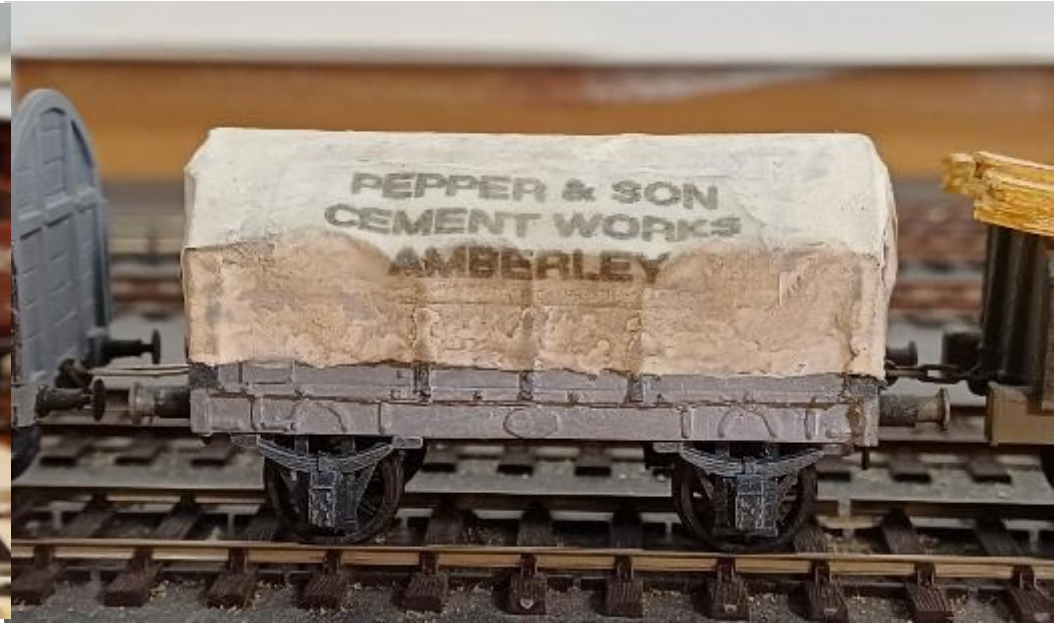
At about the same time, Eric Gates acquired a casting machine and started producing Woodham Wagon Works kits, eventually encompassing a wide and esoteric selection of early wagons and coaches, mainly Brighton subjects and Private Traders' wagons. To complement the Nu-Cast range the Open A's that he chose to represent were the early Type I and Type II. The Type I kits initially came with sprung Gibson buffers, to represent the loco style used on the originals, later ones had cast buffers. The Type II were originally produced without buffers, perhaps because of the complexity of casting them, and also the SRG had made excellent white metal LBSCR wagon buffers easily available. The wheelbase on the example I had assembled appeared to be slightly short at 9' 4", but this might have been an assembly error on my part, with separate cast w-irons having to be lined up with the ironwork on the solebars!


The Woodham Wagon Works kit for a Type I, Open A built by Eric Gates. The wagon appears in the lavender grey livery without lettering but with the totem mark.

By 1994, WWW had added kits for the alternative Type I's mentioned earlier, the lower raised end version, one with dumb buffers, and the square ended D² type.

On the basis that Open A's spent much of their time fully sheeted, WWW also experimented with a cast resin version with the tarpaulin in situ; the experiment was a qualified success and was not pursued.

Relocation from Woodham meant that WWW ceased trading from the mid 1990s.



## 5&9 Models

In 2001, another Brighton Circle member, Chris Cox started casting white-metal kits under the name of 5&9 Models, initial items being the same as several of the WWW range, which he extended considerably. Sadly, a couple of years ago, Chris decided to concentrate on other matters, and production of these kits is now  suspended.

## Cambrian Models

In 2002 Cambrian Models produced a high-quality injection moulded plastic kit, which is still available today. It represents a Type V (again) and is easy to assemble, although a bit light in weight. Its wheelbase scales at the correct 9’ 3”. Cambrian helpfully provide two sets of ends, with the squared-off cut-down version suitable for post-grouping.

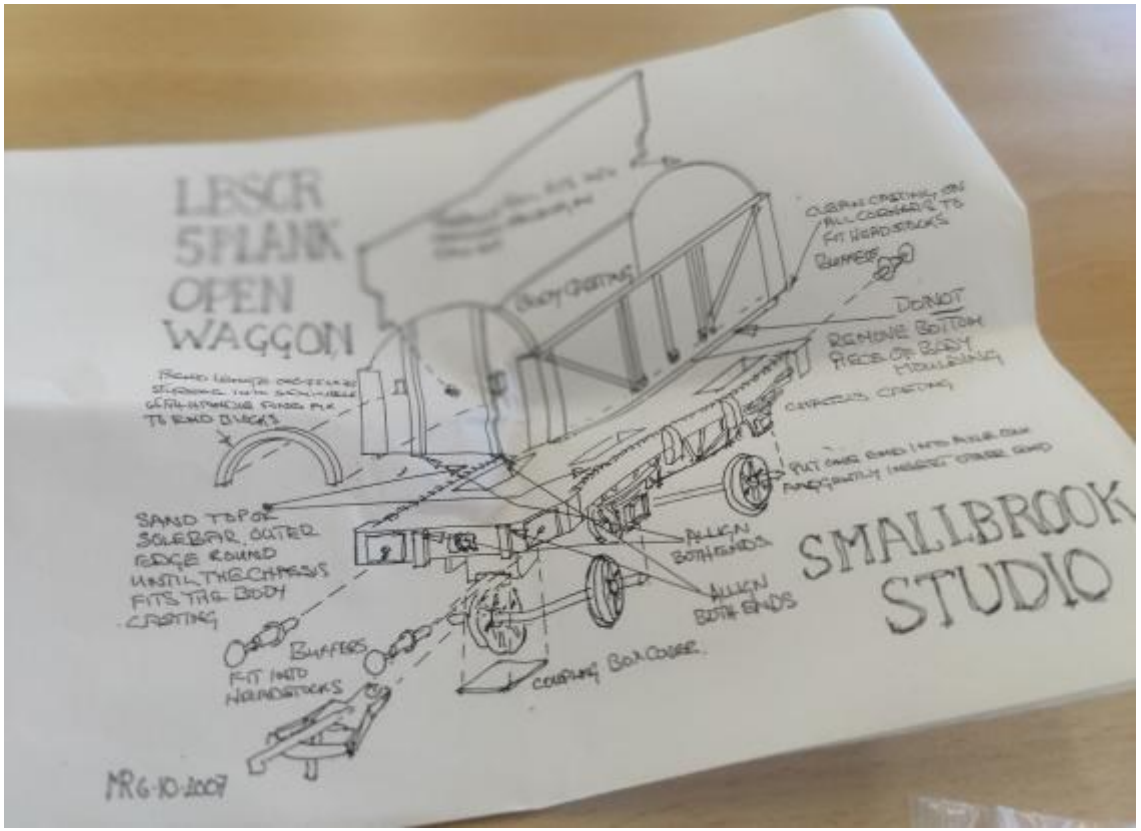
**Golden Arrow**

In 2004 Golden Arrow, known mainly for their cast resin loco kits, decided to enter the wagon market, and chose a Brighton Open for this first venture. The kit comprised a resin cast body including solebars, with white metal castings for the w-irons and buffers. Another Type V and a short-lived project. The wheelbase is correct at 9’ 3”, if assembled correctly.

## Smallbrook Studio

A few years later, Smallbrook Studio decided to follow up their neat LBSCR steel-framed van kit with an Open, reflecting their intention to cover stock that ran on the Isle of Wight. As the instructions show, it consists of a cast resin body, and a separate chassis casting, with additional parts for buffers and plastic strip to form the arc for the sheet rail. 00 wheels and couplings are provided to make a very simple kit for beginners – the wheels fit directly into the chassis casting, making for easy assembly and true running. Again, this represents a Type V but the wheelbase seems to be only 9’ 0”.






Smallbrook also offer a square ended version for post-grouping use.

## Turbosnail

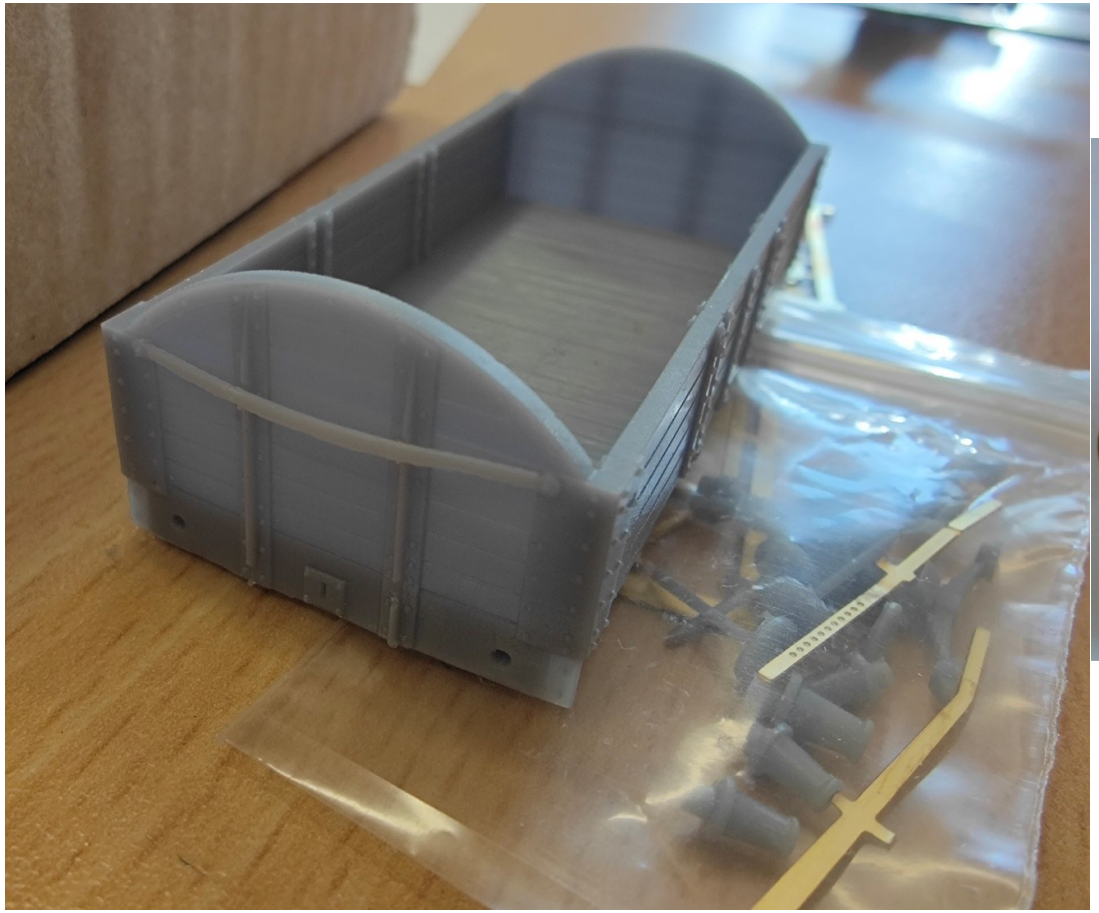
The Twenty-twenties has seen an outburst of modellers acquiring 3D printers and setting themselves up in production. For some reason, many have considered the Brighton Open A as a worthy subject, some more successfully than others. In 2020 Turbosnail displayed on RMweb a fine set of southern wagons including the steel-framed Opens Type III, and made them available for sale. With an accurate 9’ 6” wheelbase and a fine attention to detail they are impressive examples of what can be achieved in this medium, although it can be rather fragile. With the rather plain steel solebar, I added small holes for horse haulage and a small ticket holder from Rumney Models to add some interest. Simple amendments to the code allowed the correct interpretation of the straight and angled ends of the two manufacturers.

**Oak Hill Works**

In 2024 Oak Hill Works started producing the Type III in both versions. The prints are made from Turbosnail's files, although, on my example from Oak Hill, the depth of moulding is not quite as deep, but this may be a function of different printers or materials required for a more commercial scale of production.

## Pre-Grouping Models

In the same year, Marc Dobson of Pre-Grouping Models produced a similar pair of steel framed Open A's to Type II. These kits consist of a printed body and solebars, with separate prints for buffer stocks, buffer heads and springs, with etchings for the brake gear and w-irons. Some doubts have been expressed about the etchings being reduced from their 7mm range, making fitting wheels difficult, and, on my early example, the steel backstay across the ends was too short.



## Kernow Model Railway Centre

Finally, last, but not least for the moment, we have got the Kernow Models RTR version. Another Type V and accurately modelled with the 9’ 3” wheelbase, this is the first to come in LBSC livery, as well as Southern and BR versions. (The JNT wagon appears to have come only in SR brown)

I was told by Kernow that the latest batch, at least, had moveable brake levers for that authentic goods yard scene!


Photographs are variously courtesy of the original manufacturers, with whom copyright remains, or by Nick Holliday

## Liveries

Note that the first Opens (Type I) would have appeared in a light (lavender) grey with no lettering but the “Illiterate” totem carried at the left-hand end, the company name being displayed on the numberplate on the solebar. By 1895 the grey had become darker and white lettering was introduced, initially LB&SCR$^{y}$ and later LB&SCR in 9 or 10 inch lettering (Types I – IV). From 1911, i.e. before the Type V appeared, a new livery came into use, with 18” letters, LBSC, and Kernow have so far correctly only released their products in this appropriate scheme.

## Current Availability

Please note that the majority of the suppliers listed above are no longer trading, although examples of their products may end up on the second-hand market, sometimes at inflated prices. Currently (2026) Cambrian, Smallbrook, Oak Hill, Pre-Grouping Railways and Kernow examples are available new.

Cambrian Model Rail SR Pre Grouping (LBSC, LSWR, SECR)

Smallbrook Studio 4mm 00 LBSCR 5 plank Round End Open Goods Waggon S.R. Dia. 1369

Oak Hill Works LB&SCR Kits – Oak Hill Works

Pre-Grouping Railways

PGR-83 London Brighton and South Coast Railway/SR 8 ton 5 Plank – Pre-Grouping Railways

Kernow Model Rail Centre SB009V LBSC Diagram 1369 5 plank open wagon LBSC Grey

If anyone knows of any further candidates, or has more information about those I have covered, please let the editor know for a possible update article.

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# Patcham 2026

## The Spring meeting of the Brighton Circle

The annual Brighton Circle Spring meeting was held at Patcham Community Centre near Brighton, on Sunday 12th April. As usual, the meeting included a display of models, some trade stands, Arkwright's Emporium (the well known source of second hand treasures) and, in the afternoon, presentations.

On this occasion, there were three presentations, the first by David Jones of the Bluebell Atlantic Fund, describing the process of constructing Beachy Head at Sheffield Park. This was followed by the award to David of the Jeoffry Spence Award for the team's contribution to promotion of the LB&SCR.


David Jones, on behalf of the Brighton Atlantic Fund, receiving the award from the Chairman of the Brighton Circle, Dr Dave Searle.

Following on after a break for tea, there were slide shows by John Minnis, describing LB&SCR advertising material, and by Nicholas Pryor on some recently acquired documentation from the LB&SCR. Members of the Brighton Circle can access a recording of the three presentations on the Members' Area of the Circle website.

Apologies for some of the photos that follow where the settings have had to be adjusted rather drastically to compensate for the ambient lighting!


A small card cut-out, which can be folded so that it stands upright. It was probably intended to be displayed in an agent's window.

From John Minnis' collection


Huw Evans' 2mm scale diorama of Lewes Road in its entirety!


Above and previous page, Coombe Wharf, displayed by Roger O'Neil.

John Shaw’s display of 7mm scale models, showing (from back to front)

D tank, number 294, ‘Falmer’,

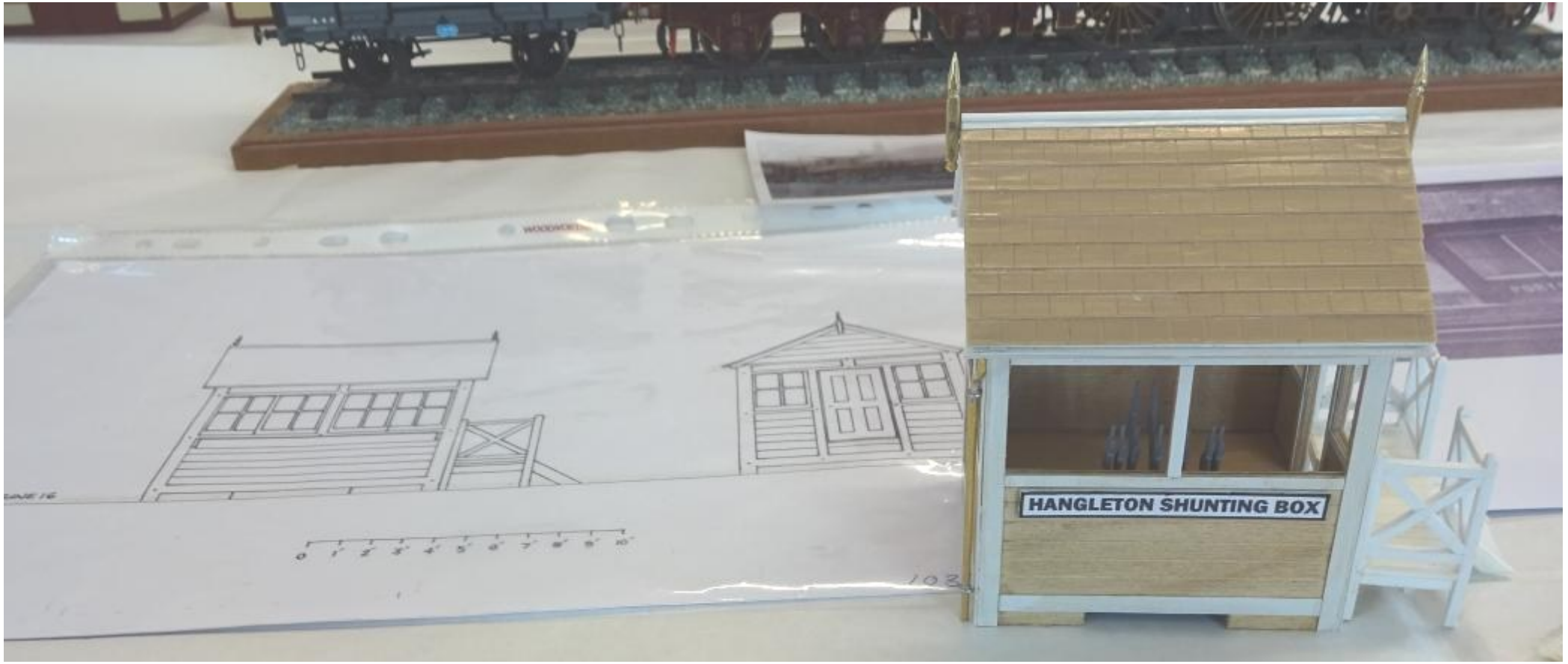
G class single, number 327,’Imberhorne’,

Stephenson single, rebuilt by Stroudley as number 203 ’Sussex’,

Terrier, number 677, formerly ‘Wonersh’, in Marsh umber livery.

The Stroudley 2-4-2 might have been tank loco, described by Colin Paul in this issue.


Collin Paul's B2, Wolfe Barry and van above and, below, his current project.




Knowle, with some of the Craven carriages described in Andrew Mortlock's article elsewhere in this issue (with rather better photos).

A selection of locomotives by Barry and Christopher Luck, all scratchbuilt to P4 standards.

Left

B2, Rastrick.


Right

E4x, no 478, formerly Newick.


Left

C3, no 309


Buildings under construction by Mike Waldron for his harbour station.

Mr Craven's engines.

Those in Craven Green are by Eric Gates and originate from Ian White's scratchbuilder aid, etched frets in three cases (nos 165, 166 and 176), one EBM kit (no 250) and one scratchbuilt (no 170).

No 400, Sussex and Seaford, in Improved Engine Green, belong to Nicholas Pryor. They are all elderly models from the late 70s-early 80s, built with 2mm thick brass frames and originally powered by Tri-ang TT gauge open frame motors and coarse worm drives. They were nicely finished and remain unaltered externally apart from careful cleaning.  They now have new wheels, a can motor and a High Level gearbox to modern standards, so their running is much improved

Photographs copyright John Shaw and Eric Gates

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# A Diorama from the Recycling

Eric Gates

For a “big number” occasion some years ago, my wife and I were presented with a magnum of champagne in a wooden box. The champagne was disposed of in the traditional way, but the box seemed too good to throw away and I spent some time considering how it could be put to good use.

A string of battery powered, fairy lights in a pound shop sparked the idea of using the box as a display stand, with built in illumination, and thinly disguised as a loco shed.

The interior is built up around a foam board base, with one end partitioned off to hold the battery box for the lights. The base has rails inset and the end is covered in kitchen foil to suggest further space. The back and the other end are made up with some Wills brick sheet, that had been in the box of useful stuff for rather a long time. The roof is made up from black modelling card, with smokejacks from foamboard, which help to screen the lights.

The brickwork is mostly whitewashed, with the bottom four feet or so painted black, following an interior view of Epsom shed. It is, of course, much too clean and tidy, but reaching locos in to pose on the rear road is already precarious, without adding more obstacles!

The locos are a Sharpie, that has been rebuilt by Mr Craven into a tank engine, and a Jenny Lind, that has had the wooden boiler cladding sheathed in iron and painted. Both originate from 5&9 Models. The third loco is a 3D print, by Killian Keane, of a tank engine rebuilt from a Jones and Potts single, dating back to 1845. Colour images from Peter Wisdom's "Southern Style Part 2" have been added behind the windows, to create the suggestion of locos standing outside.

And, for those who like a more modern image

Nasmyth Wilson single Polegate (by 5&9), with Stroudley rebuild Seaford (Killian Keane) and Craven/Stroudley 0-4-2 tank (EBM).


Photographs copyright Eric Gates

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# Rapido - 4mm scale

# Evolution Horse Box and Carriage Truck

Rapido has announced an addition to its range of Evolution, generic pre-grouping carriages. A horsebox and a carriage truck are to be added to the range and are now available for pre-order.

Both are priced at £39.95



Both will be produced in a range of liveries to match the Evolution carriages that are already announced.

The Brighton vehicles will feature versions in both Mahogany and Umber.

There is also a private owner livery for Sir Ernest West Bt of Epsom Downs.

The carriage trucks come complete with an appropriately liveried delivery van as a load.



A short commentary appears immediately following, to identify the similarities to Brighton vehicles.

For those who appreciate the exquisite liveries of the Evolution range and are happy with the trade offs compared to specific Brighton prototypes, these are most attractive models.

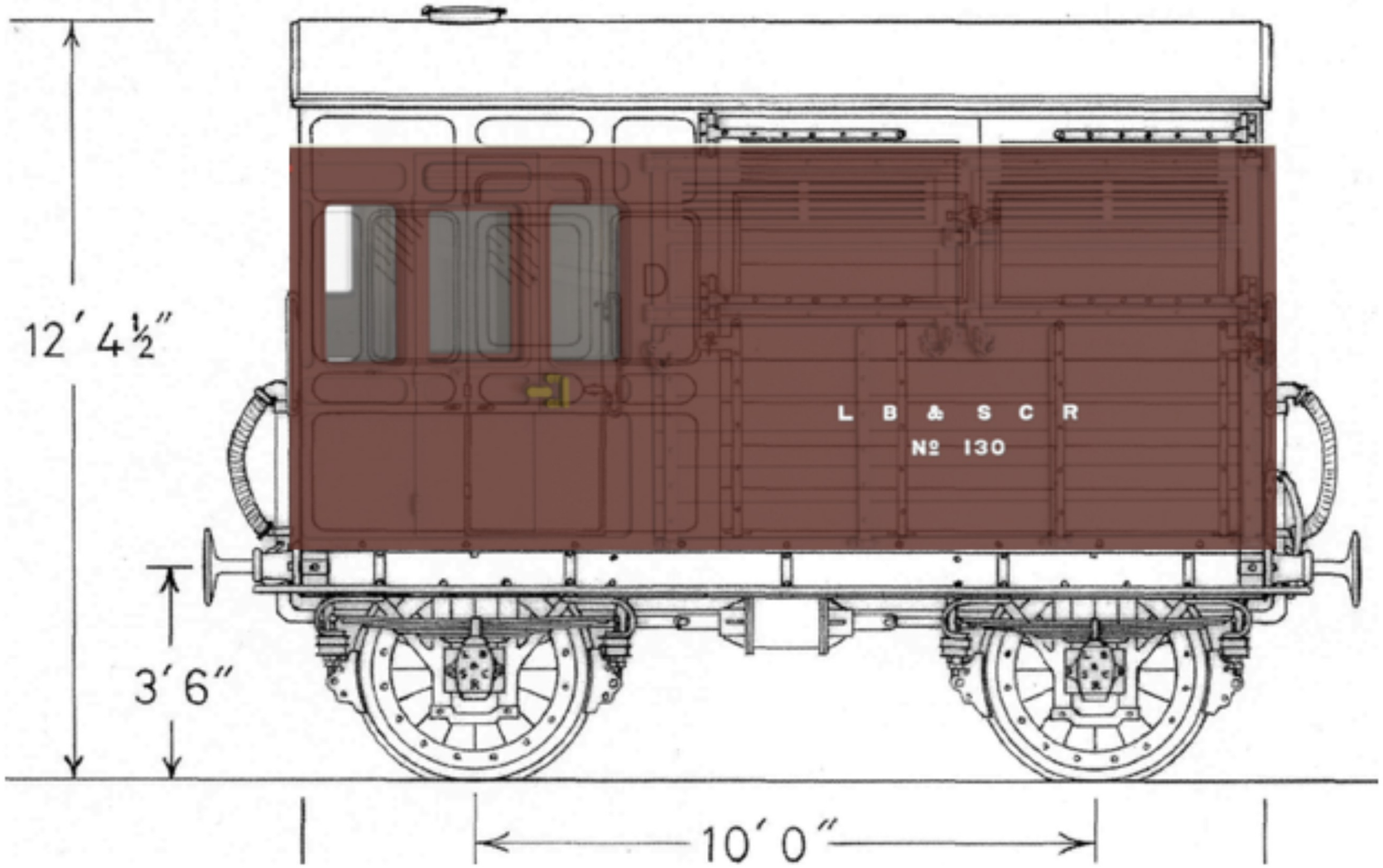
Images copyright Rapido UK

# Rapido Evolution Horsebox and Carriage Truck - a commentary

Nick Holliday

The recent announcement by Rapido of a range of generic horse boxes and open carriage trucks has raised a lot of interest. Current information is a bit limited, but taking a snapshot of the sample, and rendering it on Gimp, has resulted in the comparison below.

Rapido's intention was to create a generic horse box, requiring the selection of standardised features. The design is based on a 16' body length, which seems to be intended to contrast with the longer, post-grouping, examples from other RTR manufacturers. This maintains the pre-grouping feel, even though, as early as 1861, the army was insisting that long horseboxes (18' or more) should be available for troop movements. Many companies went straight from very early short boxes, like the Stroudley design, to a full length in Victorian times; shorter ones, with no tack cupboard, were in the minority. Two-light groom compartments and boarded construction were common but Rapido has opted for a three-light groom compartment, and passenger coach styling for the compartment and end panelling. These choices mean that the design has many of the features of the LBSCR 15'6" horsebox, D81/273 of which 10 were built in 1895, (Nos 39 & 81-89).




This overlay of the model against Gordon Weddell's drawing from the LB&SC Vol 2 gives an idea of the variations of the generic model from a Brighton prototype. The window spacing and compartment size is slightly different, the overall length is 6" shorter, and the grab handrails are different. The window nearest the horses' accommodation was a wooden, sliding shutter, as horses do not like to see out when travelling – Rapido has said that it will be providing

replacement droplight window panes, which suggests that the glazing might be easily removed, making it easier to convert the glass to a wooden panel.

One aspect that affects all companies is the height of the roof. To date no side elevations have been provided which would allow the height to be confirmed – the rendering of the side used above was adjusted for height to make the windows comparable with the drawing, so the difference may not be as great as I have shown. However, generally, companies provided their horse boxes with a higher roof than they gave their passengers; in the case of the LBSC this was some 6” higher than the Billinton roof profile. Whether Rapido is able to address this remains to be seen.

Rapido is producing three variants of the open carriage trucks which were announced at the same time, – open sided and plain and panelled plank sides – using the same 16 foot chassis as the horse boxes, and a similar generic approach.

Brighton OCT’s tended to have just a single plank side, sometimes hinging down, but without the ironwork that features on the model version. The available drawings do not appear to be a good match, but the LBSC tended to use re-cycled materials, and few drawings were prepared, so it is possible that there might have been a similar truck at some time. One major difference is that the Brighton always had an end plank, which hinged down over the buffers to allow unloading, whereas the model has permanently fixed steel plates and no end plank.

The proposed horse drawn vans are a pleasant surprise, and no doubt every Brighton layout will end up sporting one or both! However, goods vehicles belonging to local companies seem less likely loads than perhaps a more national customer, such as Spiers & Pond, Lyons, the Co-Op or Pickfords. The personal vehicles of passengers might also be possible, requiring a generic family saloon as a future release?

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# EFE Rail (Bachmann) 4mm scale

# Isle of Wight  Carriages in umber livery

The announcement of EFE's Isle of Wight carriages was noted in Issue 21 of the Digest.

The range has now been extended by the release of vehicles backdated into LB&SCR umber livery. The extent of the modifications to original Brighton designs, carried out before transfer to the Isle of Wight, was discussed in detail in Issue 22 of the Digest.

The resulting new release is a series of vehicles to very convincing Brighton designs, including the particularly characteristic style of commode handle.

# Kernow Model Rail Centre

# Moger PO Wagon - TT and 7mm scale

The Kernow Model Rail Centre Exclusive model in TT:120 gauge is being produced for KMRC by Peco, whilst the O gauge version is being produced by Dapol. The models are based on their seven Plank open wagon.

The Exclusive TT:120 gauge model TTC031 Peco 7 Plank Open Wagon No. 232 Moger & Co Ltd is priced at £25.00.

The Exclusive O Gauge model K7074 Dapol 7 Plank Open Wagon No. 232 Moger & Son London is priced at £65.99.

Both will be available at the date of publication.


Image copyright Kernow Model Rail Centre

# Wessex Wagons

# TT:120

Wessex Wagons has added the Corrall &Co of Brighton private owner wagon to the range for TT:120 modellers, at a price of £24.90 plus post and packing.

For 4mm scale modellers, the open wagon for Nightingale, Brick and Coal Merchants, and the van for the Steyning Brewers remain available.


Image copyright Wessex

# Gosport Railworks

# 2mm and other scales

Gosport Railworks now offers a comprehensive range of Billinton 48’ and 54’ bogie carriages, as shown on the schematics on the following pages.

Gosport’s website includes a considerable range of Brighton locomotives and rolling stock, produced by 3D printing. Two examples, built and photographed by Gareth Collier, are also shown.

Gosport Railworks’ original range is designed for 2mm scale, but it has been possible to rescale products to any scale, up to 7mm (with some limitations on vehicle length for S and 7mm).

d64 8cT.png

d66 7cTLav.png

d69 50ft 7cTLav.png

d195 5cS-TBk.png

d196 5cS-TBk.png

d197 5cTBk.png

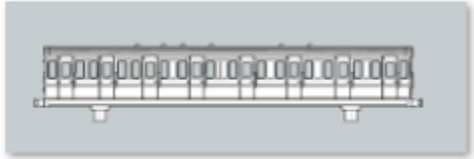
d201 5cTBk.png

d202A 6cTBk.png

d202B 6cTBk.png

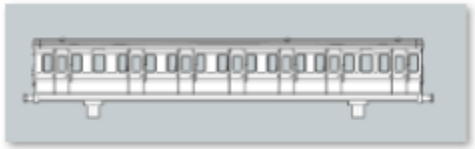
d327 7cC-328 7cC-511 7cF.png

d329 6cCLav.png



d335-348 8cC Rover.png

d341 6cCLav.png

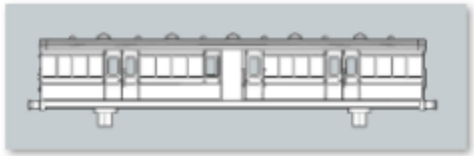


d347 7cCLav Rover.png

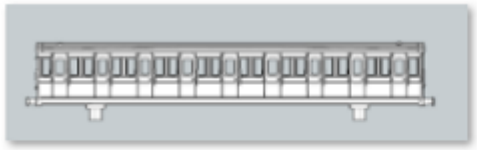
d432E 5cCBkLav.png

d515 5cFLav.png

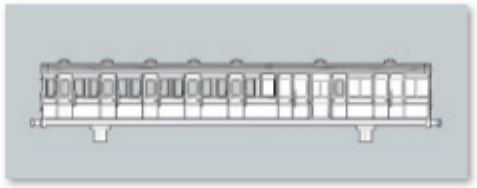
Luggage d905E.png



Luggage d905L.png

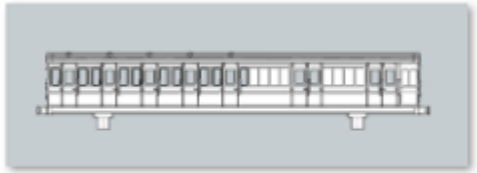


d71 9cT.png

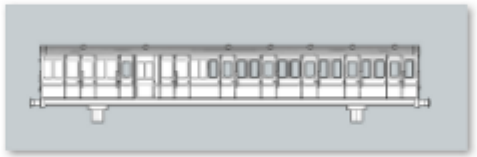


d183E 5cTBkLav.png

d183L 5cTBkLav.png



d198 5cTBk.png



d199 5cTBk Rover.png

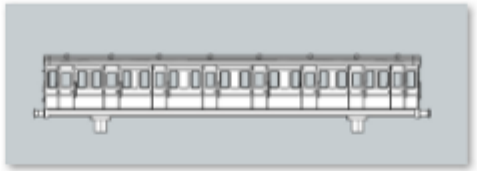
d200 5cTBk Rover.png

d203 6cTBk.png

d204 7cTBk.png

d205 4cTBk.png

d336 7cC.png



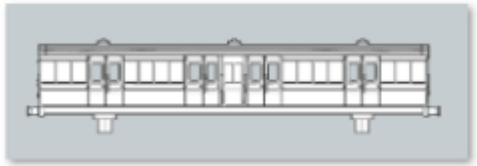
d337 8cC Rover.png

d340 9cCLav.png

d432L 5cCBkLav.png

d436 56ft 6cCBkLav.png

d514 6cF.png



Luggage d906.png



C3 0-6-0 and K class Mogul from the range, built by Gareth Collier.

# The Brighton Circle Facebook Group

There is a Facebook page (search for @LB&SCRBrightonCircle) and a lively and growing associated group, which currently numbers over 2,600 members.

See https://www.facebook.com/groups/249226986001750/

These are aimed at giving a presence on social media for the Circle.  It is a place for people, including non-members of the Circle, to post material, find out about the Circle, see some local history and to ask questions.

Please do visit the page if you are on Facebook.

# The Brighton Circle

The Brighton Circle is the Historical Society of the London, Brighton and South Coast Railway (L.B & S.C.R.). It is dedicated to the research and publication of information about the company and it produces a newsletter and a historical journal entitled the Brighton Circular, which is published three times a year.

While the Circle is primarily focussed on railway historical research, there has been an important interaction with preservationists, particularly on the Bluebell Railway, and with railway modellers. The Bluebell line provides an important source of original artefacts, which contribute valuable information about the company's practice. Modellers have benefitted by access to data about the physical appearance of the company and its operations and, as a result, members of the Circle have been able to produce scratch builder aids, kits, paint and lettering on a limited run basis, which are made available among other members.

Membership of the Brighton Circle for 2026 is

£23.00 for full membership

Applications should be sent to

membership@lbscr.org

The Circle is also in contact with local historians, industrial archaeologists, family historians and other groups whose interests intersect with those of the Circle.

# LV

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