Volume 25 Issue 2, April 2023

LeedsLines

Newsletter of The Leeds Society of Model and Experimental Engineers

In this Issue

Front Cover

LSMEE Stand at Harrogate 2023

From the Chair **John Hunt**

Writing this, thoughts of the recent Harrogate Model Engineering Exhibition are still fresh in my mind. Taking over the organisation from the well established and well thought of Lou Rex was I thought , a brave move by Simon Boak, the new organiser. Many thought (myself included)

that the lead up organisation seemed a little laid back and relaxed, that the trade would not support the venture too well and that a venue that had previously proved too expensive was to be re used was a recipe for problems. What a relief when the event in my opinion was one of the best so far. The brave move of reducing the 'engineering' bias and introducing a greater spread of modelling interests worked really well. It can be hoped that the modellers of the smaller gauges will in later years turn their hand to large scale models and keep our hobby thriving with interest from a younger demographic.

With the announcements of meteorological spring and the equinox coming we are looking forward to warmer days and getting out with our hobby. Clubs such as York, Rugeley and Bradford have all approached us with a view to an individual visit or if we can rustle up enough interest, to throw their track and facilities open to us to have a group run. They are all sympathetic to our homeless state and want to keep our interest up with a good run. If you have any suggestions or would like to organise a day out, please let us know.

We are getting a broad calendar of events for our portable track. No doubt the current list will be featured elsewhere in this newsletter. Please don't think of it as an exclusive club. All members are encouraged to turn up and lend a hand. Obviously if you have a suitable locomotive or a car with a towbar you will be made most welcome but there are lots of other jobs people can fill. Seeing the delight of children (and adults) having a train ride, possibly for the first time is reward enough but it makes economic sense to the society as it is one of the main sources of keeping us solvent to pay for insurance, meeting venue hire etc.

Finally a thanks to all our members for their continuing support. The turn out for the exhibition ensured we had one of the better and more varied displays than most clubs. The portable track checking and boiler testing session at Drax club was very well attended and a fun day out with an excellent breakfast to start. Our thanks to the Drax club steward for loaning us the facilities and feeding us well!

Thank you all and looking forward to meeting up at our events.

Trophy Night

President's Cup - Gauge 1 LSWR Coaches **Steve Russell**

I got the engine, an Adams Radial Tank because they look so graceful when running and after running it a couple of times I realised that it really needed some coaches that were from the same era rather than BR

mark 1's. The loco is in LSWR livery of about 1890 and coaches from that time were often 4 wheeled or 6 wheeled before they became longer and had bogies .

An acquaintance in Doncaster just happened to have some coach sides which were suitable so I got started building. They are plastic and had been machined to look like wooden frames with panels which saved a lot of work. All the compartments are Third class and one has a guards compartment with duckets so the guard can see out.

The Salmon and Brown colour scheme is correct for this era. The local car paint people in Scunthorpe mixed the paint for me.

The roofs were constructed with wood strips on a frame a bit like an upside-down boat.

To finish them I need some door handles and some transfers.

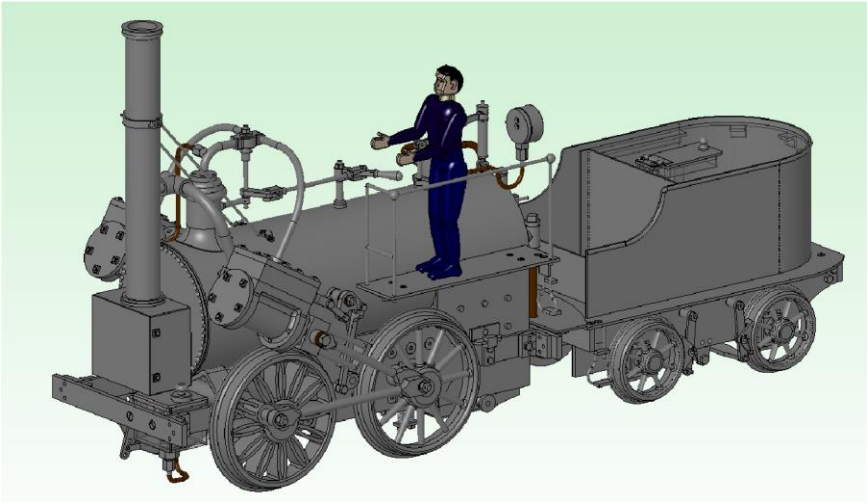
Invicta—*The Geoff Haythornthwaite and Wanless Trophies.*

As some of you will know, I have been amusing myself recently by building a model of *Invicta*, which was built in 1830 by the Stephensons for the Canterbury & Whitstable Railway. It immediately followed the famous *Rocket* in their production. As built, *Invicta* had a multi-tubular boiler and being four-coupled, should have worked well on the 1 in 56 climb out of

Whitstable. However, the copper tubes wore out and the firebox furred up with the chalky Kent water. Unable to undertake repairs to the firebox, they removed the tubes and firebox and shoved on an additional boiler ring and turned it into a single flue boiler like *Locomotion*. (It wasn't possible to ask the Stephensons to repair it because the C&W owed them substantial amounts of money already.) It was even less successful in the single-flue form, and was confined to a one-mile level stretch of the railway. That is how it now exists in Whitstable Museum.

Back in 1952, LBSC designed his version of *Invicta* in 3½"G, *Canterbury Lamb*.

I started off making a 3D computer model of LBSC's version, using SolidWorks CAD.



During the virtual build of the LBSC design, I came across a number of problems with parts fouling, but modifying virtual components is a lot easier than having to modify something already in the metal! One thing I did do was to increase the wheelbase by 2mm. By moving the front wheels forward slightly, it enabled more clearance on the valve gear linkage, as it was perilously close to the front wheel flanges. I found several other instances where I had to carve away clearances, or in the case of the front frame gussets, fit them outside the frames in order to fit the lubricator as LBSC intended. I've even modelled a Jim Ewins version of the lubricator.

As LBSC designed it, the poor driver has to balance on what is effectively an 8" wide plank, completely devoid of any means of getting up to it, or

staying on if the locomotive should lurch suddenly. It was very apparent how dangerous it was when I plonked on a suitably-scaled "bloke" model in place. So I've come over all health-and-safety, so that there are now railings, a step up and at least it's wide enough to stand on!

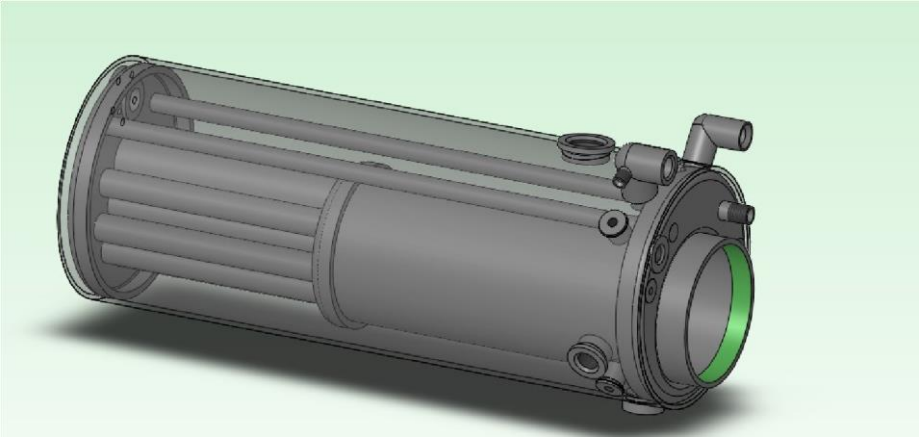
As with many LBSC designs, it's only a caricature of the real one. It does make up into a reasonable working model, but it's very small in 3½" gauge – *Tich* sized - and would only really pull the driver, providing he's avoided starchy foods for a while. So I looked into what could be done to make it in 5"G. It has already been done, I know, but it would be an interesting exercise to see how much more like the real thing it could become, but still a working model. Looking at the real loco, the wheels are rather spindly affairs; the commercially-available 3½" gauge castings are very chunky. The leading wheels have wrought iron spokes with wrought iron tyres shrunk on. LBSC provided *Canterbury Lamb* with substantial plate frames, and as can be seen by the photo of the real one, *Invicta*'s actual

frames are just bits of 1" x 4" wrought iron bolted and forge-welded together – just like *Rocket,* as would be expected. The boiler forms part of the structure.

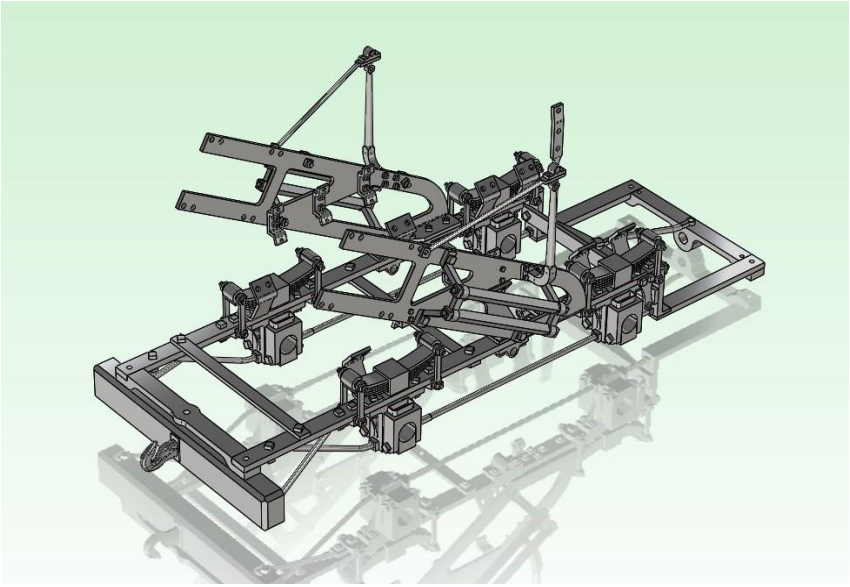
Here is a contemporary image of the opening of the railway, showing *Invicta* in original condition (but incorrectly with different-sized wheels) and the two-wheeled tender – the hilarity of which was one of my reasons for building the model! The tender was lost after 1845, so no photos of it exist. Hence I had a certain amount of latitude in designing my version of it.

Because the boiler forms part of the structure of the locomotive, it is pierced in many places by screws. Rather than drilling lots of holes into a nice shiny copper boiler and then wondering why it leaked, I schemed out a steel outer shell, which could be drilled and tapped *ad nauseam* and a copper boiler slid in from the back. Rather than LBSC's locomotive boiler – nothing like anything *Invicta* ever had – I designed a multitubular marine boiler which had the sole benefit of looking far more like the current boiler than *Canterbury Lamb*'s.

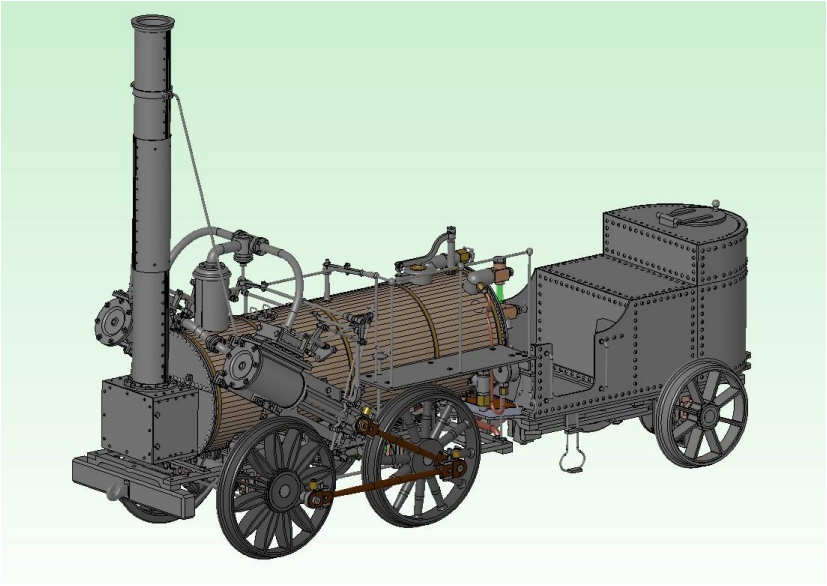
The “ears” sticking up at the end are for non-prototypical blower and water-gauge fittings.



I had to fabricate the wheels; the front “petal” ones from bits of sheet steel bent up and then silver-soldered into the hub with the rim also silver-soldered into position. The rear wheels were easier as the roundsection tapered spokes could be let into a hub and screwed to the rim before being silver soldered. Why are the wheels different? It’s because *Invicta* was taken out of service in about 1839 and it spent several years jacked up as a stationary boiler in Ashford works. The front wheels – originally wooden, like *Rocket*’s, were chucked away with the coupling rods, but the rear ones kept because they needed to rotate occasionally when they needed to use the feed pump. (No injectors in those days...) In time those wooden wheels became unusable so they dug out a pair from somewhere and fitted those.

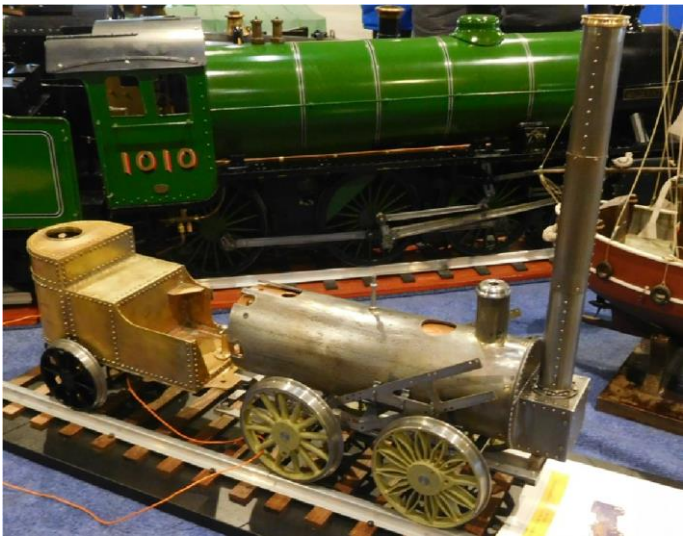


The CAD model of the frame assembly – spindly bits of wrought iron, or in my case 1/8" x 3/8" steel.



The CAD model of the loco plus tender – which as you may notice only has two wheels.

The CME of the North Eastern Railway, meanwhile, was arranging a 50year celebration of the Stockton & Darlington. Mr Edward Fletcher had been *Invicta*'s first driver, so he knew all about her, and asked the South Eastern Railway if he could borrow her for the anniversary. Cue a frantic search at Ashford for a second pair of wheels. It's thought they found a pair in a scrapyard somewhere and fitted those. A two-wheeled tender is all very well, but a two wheeled loco offers a number of interesting problems...



By the 2023 Harrogate Show, I had more or less completed the tender – those "rivets" on it are actually round-head Posidrive screws with the heads turned down a bit. The ones on the smokebox and tender are hammer drive screws.

Frankly, I doubt whether it will be possible to burn a coal fire in my model; the firebox is, after all, only a length of 2" diameter copper tube. However it won't stop me trying it – we are the Leeds Society of Model & *Experimental* Engineers after all; and I don't call it *Hoapit Works* for nothing. But if coal-firing doesn't work, there's always gas...Next step is to complete the loco frames and then start on the cylinders.

Nigel **21-March-2023**

Dates for Your Diary - April—July

19th April	Unusual Locos John Charlesworth	19:00
29th April	Wensleydale Railway Portable Track	
30th April	Wensleydale Railway Portable Track	
1st May	Wensleydale Railway Portable Track	
8th May	Collingham Coronation Day Portable Track	
14th May	Ackworth Fun Day Portable Track	
10th June	Goole RSPCA Portable Track	
17th June	Strensal l Gala Portable Track	
1st July	Badsworth Gala Portable Track	

Breakfast Club meetings Mondays 09:30

The venue for meetings and breakfasts will be

The Mid Yorkshire Golf Club
Havercroft Lane
Darrington

WF8 3BP

Note. On non meeting night Wednesdays an informal meal, drink and natter is usually held at Drax social club.

Society Officers and Committee

President:	Arthur Bellamy
Treasurer:	Nigel Bennett*
Committee:	John Hunt
	Martyn Chapman*
	Mark Batchelor
	Geoff Midgley
	Judith Bellamy

*** Denotes Boiler Inspector plus**

Steve Russell*

Geoff Rogers*

Newsletter

To receive the newsletter by email or provide an article for publication contact the editor at ***leedslines@gmail.com***

For more, and up to date information visit the club website ***LSMEE Events Calendar***