Rumney Models – GWR Milk Tank Detailing Instructions

This etch is designed to compliment the chassis kits that I produce though they can be used on their own to enhance the David Geen model as it comes. There are sufficient components for two vehicles included.

Read through the instructions first and familiarise yourself with the components. Drawings and photographs taken during the construction of the test etches are included to attempt to make my waffle clearer. Prototype photographs are also included at the end for reference.

A note on ladders and brake lever guards. These are designed to be pinned to the chassis using 0.31mm wire. There is a ladder/lever guard drilling jig to help with this. It is easiest to drill the holes out in the chassis before anything is attached to either the solebars or running plate.

All fold lines are through 90° with the fold line on the inside unless stated otherwise.

Everyone has their own soldering methods. I now use a temperature controlled soldering iron with predominantly 145° solder and La-Co paste flux. For a long time I used an Antex 18W soldering iron on virtually everything with few problems.

Check all holes before removing parts from the fret. The drawing process for etching if you use a CAD program as I do is extremely accurate but the actual etching process itself not an exact science. If the fret is slightly over etched then there is no problem but if they are under etched the holes will need enlarging. I find that this is easiest to do before removing parts from the fret. The hole sizes will be noted at the appropriate points.

For pressing out rivets I use a drop head rivet press with the part held firmly over one of those green cutting mats that everyone seems to have.

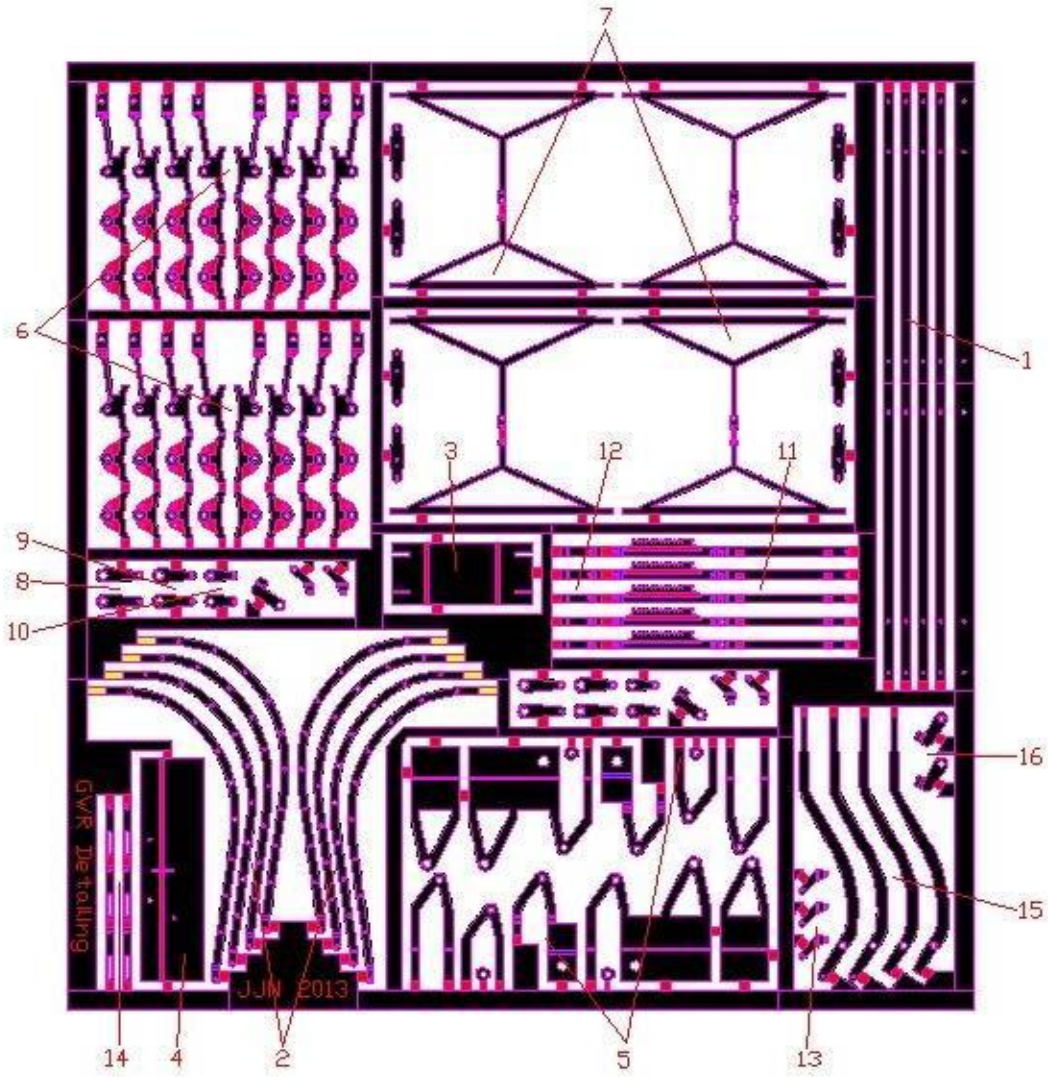
Materials list

The following will be required depending on which items you are constructing.

0.31mm wire	Tie bars, Ladders, brakegear
0.5mm wire	Pinning brake shoes to my chassis kit (if required)
0.6mm wire	Brakegear
0.8mm wire	Brakegear

Components List

1 – Tie bars
2 – Ladder sides
3 – Ladder assembly jig
4 – Ladder and brake lever guard drilling jig
5 – Brake Vees
6 – Brake shoes
7 – Brake yolks
8 – Cranks for main bake shaft
9 – Cranks for brake lever shaft
10 – Cranks for lifting link
11 – Brake lever guards
12 – Brake lever guards brackets
13 – Brake lever guard stays
14 – Lifting links
15 – Brake levers
16 – Brake lever actuators



Tie Bars

Tie bars (1) are included for use with my GWR chassis kits. You will need to make sure that the holes will accept 0.31mm wire before removing them from the fret.

If you are not planning on making them removable then they can be pinned and soldered to the W-Irons. Thread lengths of 0.31mm wire through the tie bars and holes in the W-Iron and the corresponding holes on the opposite W-Iron. Solder in place. Fit the other tie bar and solder in place. Trim the wire so that it represents bolt heads on the tie bars and is nearly flush with the back of the W-Iron.

If you want to make them removable to allow the axles to be dropped out then you will need to solder 0.31mm pins through the holes in the tie bars. I find the easiest way of doing this is to use one pair of holes as a jig and drill a pair of 0.3mm holes into a piece of scrap wood. Short lengths of 0.31mm wire can then be threaded through the tie bars locating into the holes in the wood. These can then be soldered in place and filled back to represent bolt heads before removing and doing the next pair. You will need to make sure there is at least 0.75mm of wire projecting from the back of the tie bars otherwise the spring carriers will be able to fall out when everything is in place. It is also a good idea to leave at least one of the pins in the tie bar as long as possible to give you somewhere to hold them when painting. Once the tie bars and the chassis are painted they can be glued together on final assembly. The glued joint can be broken and the tie bars removed if you find it necessary to remove the wheels at any point.

Ladders

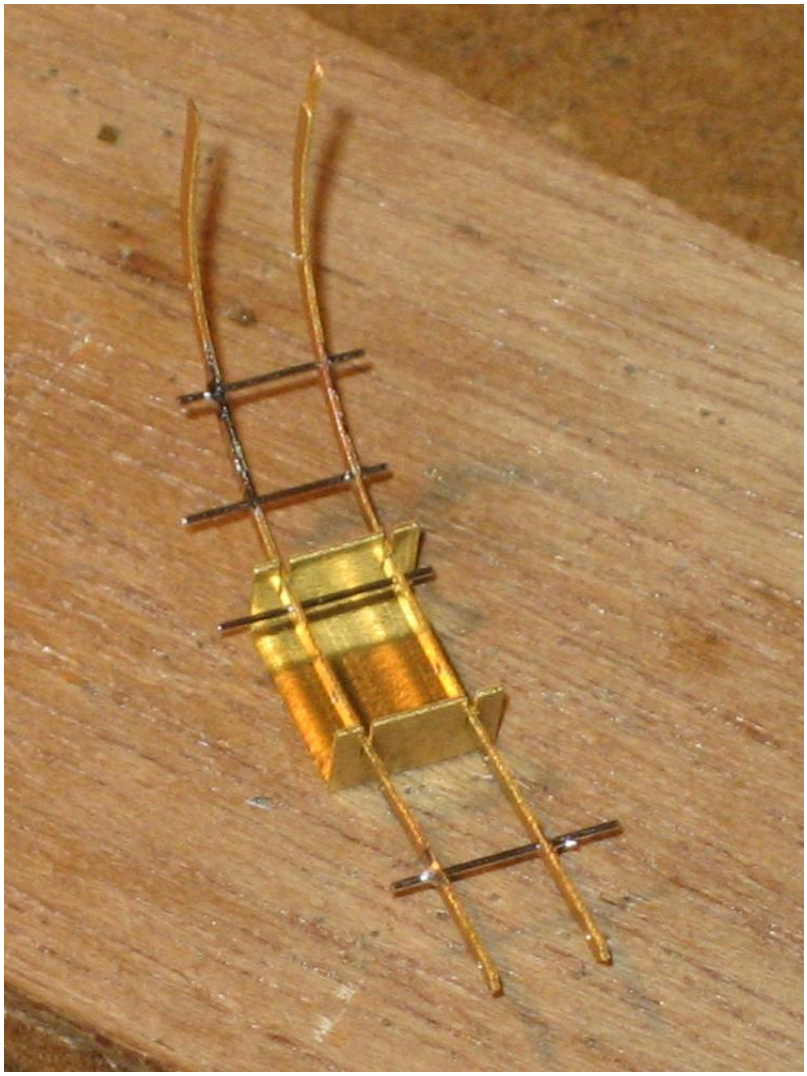
There are ladders included in the David Geen kit but these provide a slightly different more rounded profile for variety. I'm also unsure of the arrangement of the rungs at the top of the David Geen ladders and have altered them on the ones I've constructed which are a bit of a pain. There are two pairs included.

The ladders are designed to be assembled as two sides with 0.31mm wire rungs. They are rather delicate until they have been soldered together. A jig is included to keep the sides parallel and square whilst they are assembled. I have designed them so that they are attached to the running plate of the milk tank using 0.31mm brass pins and there are tabs at the top that you can glue to the tank manhole. I dislike relying on simple glued joints with these things as they are vulnerable and the pins help provide a more positive location. A ladder/lever guard drilling jig (4) is provided to aid drilling holes for the pins. It also helps to make things easily removable for painting. I strongly recommend leaving the final fixing to the milk tank until after everything has been painted.

Remove the ladder assembly jig (3) from the fret and fold into a channel. Reinforce the folds with solder.

Ensure that the holes in the ladder sides (2) can accept 0.31mm wire. Remove them from the fret ensuring that you leave as much of the connecting tab at the top of the ladder on the ladders sides as possible. These areas are marked in yellow on the parts diagram. Fold up the bottom part of the ladder and place in pairs in the slots in the ladder jig. I start with two lengths of 0.31mm wire are threaded through the holes in the sides. It is advantageous if these are overly long. They will be cleaned up later. If you clamp one of these pieces of wire to the vertical part of the jig whilst soldering the other this will ensure the rungs are square to the sides. Solder the rung to the outside of the etched sides. Solder the other piece of wire in place and then work through the remaining rungs keeping the ladder in the jig. Reinforce the fold lines at the bottom of the ladder with solder taking care not to flood the holes with solder. Once everything is in place any excess wire can be trimmed and then filed flush.

For some reason I didn't take any photographs of the drilling jig in action drilling holes for the ladders. However there is a photograph of me using it to drill a hole for locating a brake lever guard later in the instructions. The principal is the same. There is a slot in the centre of the jig. This should be aligned with the centre of the tank manhole which will be in line with the centre axle in most cases. Drill two holes using the jig in the running plate using a 0.3mm drill and then fit short lengths of 0.31mm wire in place to act as locating pins. Note that the riveted overlays for the chassis top will need to be fitted before doing this.

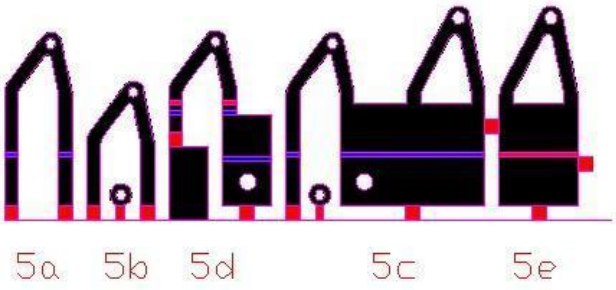


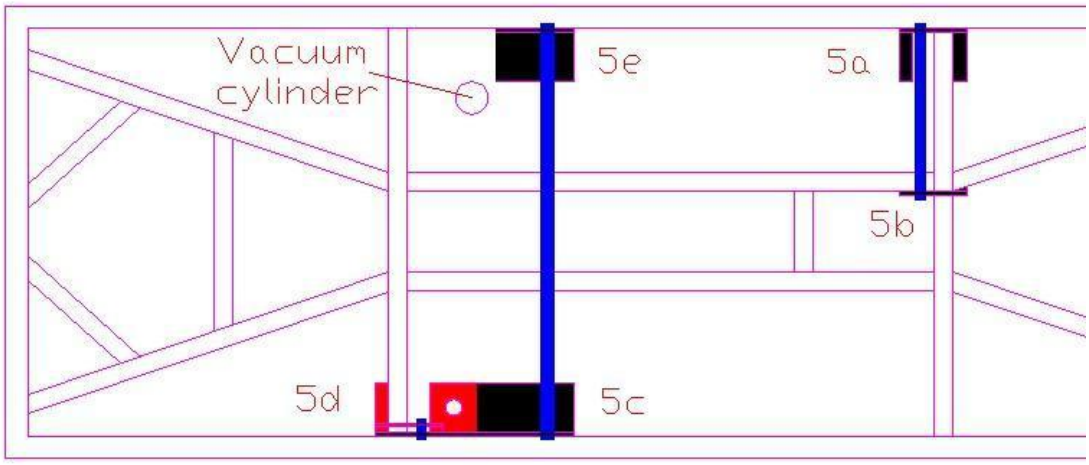
Vees

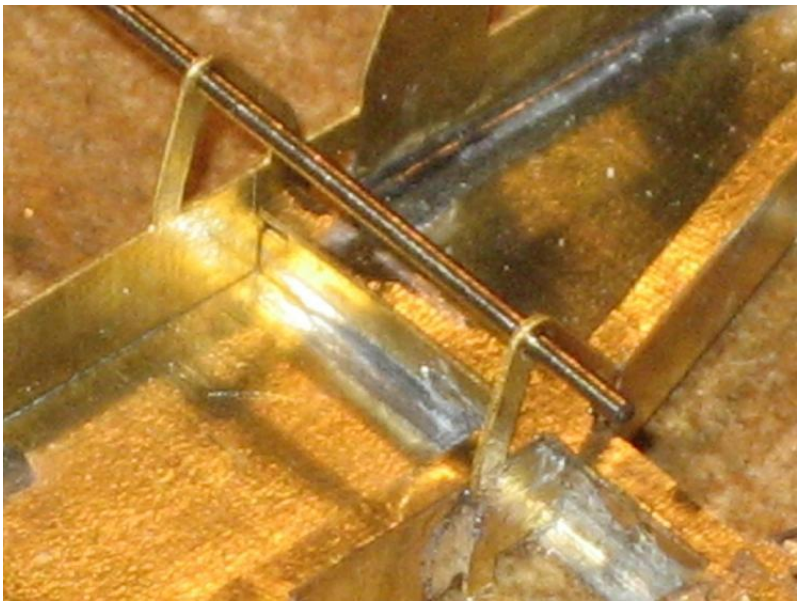
The GWR lever brakes along with the GWR/SR platforms were the things I most wanted to do when started these detailing etches. They open up a wonderful array of diagrams to model. In a way I'm surprised that David Geen didn't do them with the GWR kit. The basic chassis is identical for the Dean-Churchward and lever braked examples as are the vees for the main brake cross shaft.

There are complete sets of vees included for those not using my chassis. Fig.1 shows the arrangement of the vees. Note that the view is from below and that 5d is cranked and goes on top of 5c with the holes aligning. There is a double vee at this point and the brake lever goes between them. Also see the prototype photographs. If you are using the vees in conjunction with my chassis kit then you will only require parts 5b and 5d as the others are already in place.

Fig. 1



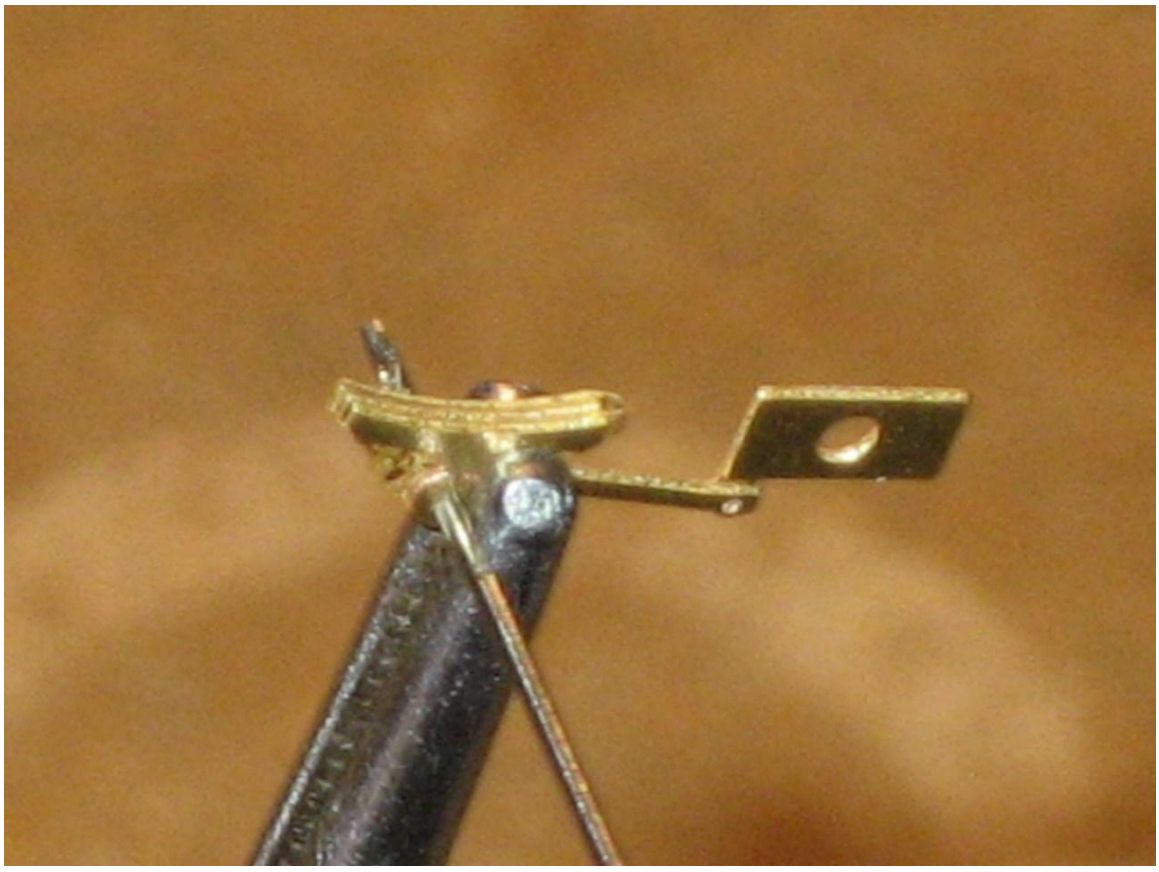




Part 5b fitted to one of my chassis and the 0.6mm brake lever shaft.

Clasp brakes

The clasp brakes (6) are designed to be folded up as one piece, soldered and then tidied up afterwards. They are a bit delicate until they are in place on the chassis with the yolks fitted so take care. If you wish press out the half etched rivets at the top of the hanger bracket. I use a drop head rivet press for this with the parts held on one of those ubiquitous green cutting mats. Remove from the fret and fold up. The two detail overlays for the brake shoes wrap around the main stem. The detail overlays on the brake shoes need to be aligned and soldered in place. I do this by putting a 0.5mm drill bit through the holes for the yolk and clamp the three etched layers together using a pair of self closing tweezers. If you hold the drill in one hand you can rest the base of the tweezers on the workbench leaving one hand free for the soldering iron. It's easier than it sounds, see attached photo. Note that the base is different from the one in the photograph. Solder together. You can now clean up the connecting tabs on the brake shoes and then fold the base through 90°.



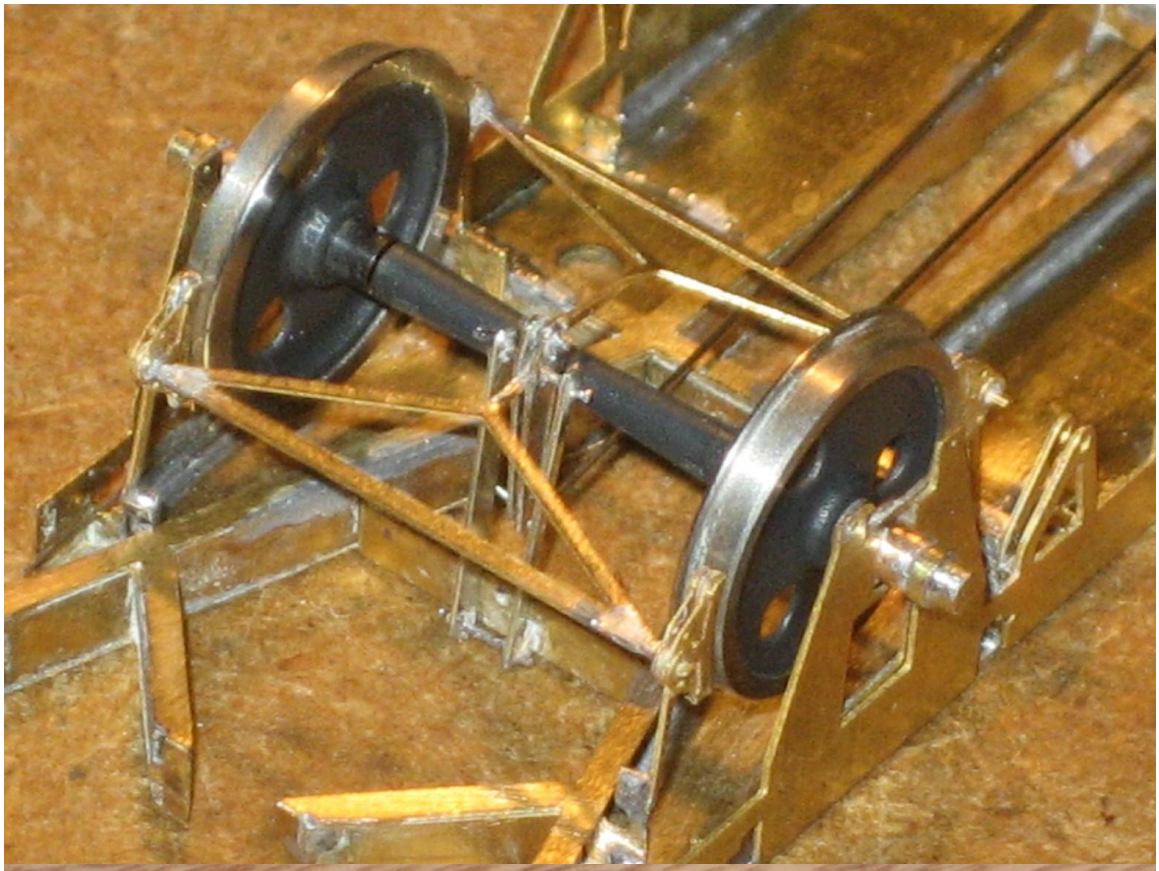
If attaching to one of my chassis the job of aligning things is made easier by using 0.5mm wire to pin the brake shoes to the chassis and then solder in place. These holes are tailored for P4 but they should be fine for EM as well. Some work will be required if building in OO. It may be an idea to reverse the base of the brakes and pin them the wrong way around. I haven't checked the dimensions for this though. If using the David Geen kit as supplied the brake shoes can be attached to the whitemetal framing either with low melt solder or glue.

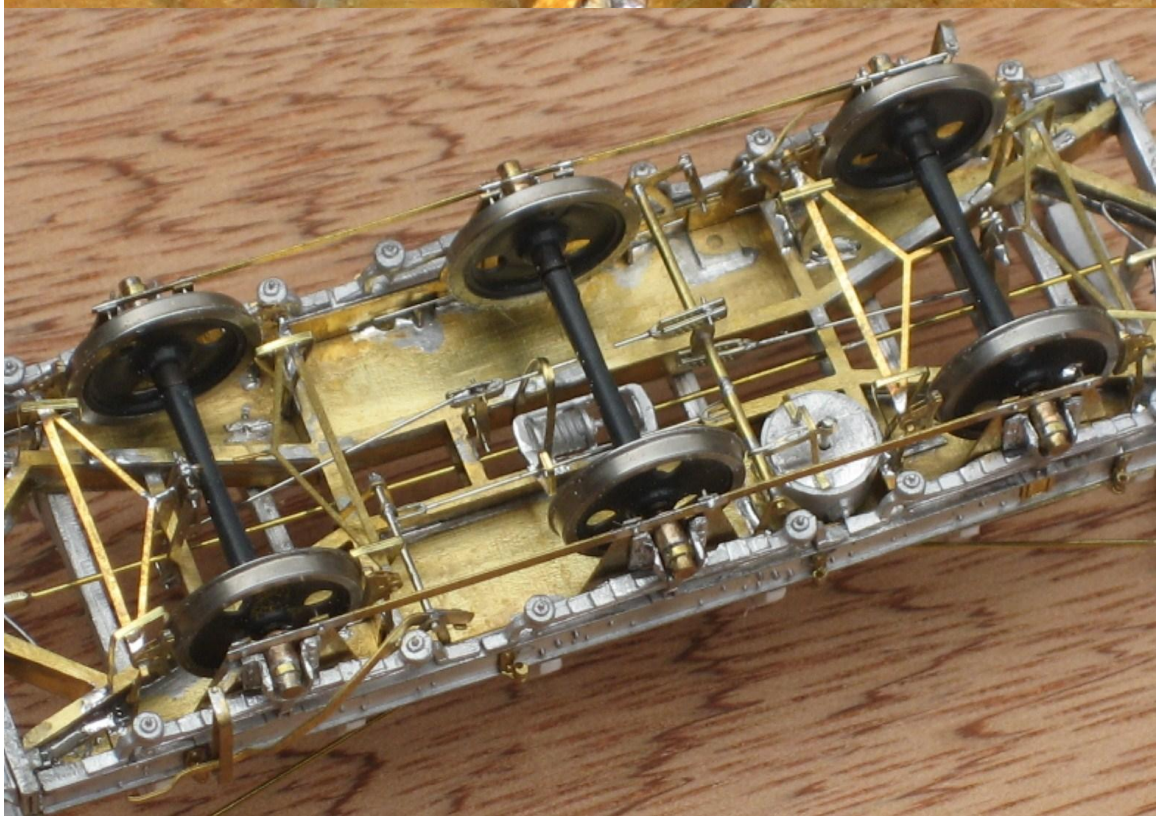
Brakegear

Once the clasp brakes are attached to the chassis the rest of the brakegear can be assembled. There are a number of parts that will need to be used from the David Geen etches in order to construct the brakegear. Refer to Fig. 2 and the included photographs for the basic layout. Those parts prefixed by a letter (e.g. E/7) are from the David Geen fret.

Note that the ends of the brake yolks (7) will need twisting through 90°. I'm still not sure how the yolks are supposed to be attached to the cranks (E/5) in the David Geen kits. There is talk of tiny brackets (E/7) but the measurements don't seem to work out for these. There are forked joints on the ends of the yolks on the real thing but I find the easiest way is to clamp the cranks to the outside of the yolks. See photo. It may not be completely prototypical but it's an awful lot easier! The yolks included in the detailing etch are only suitable for EM/P4. If building to OO then you will have to use the appropriate yolks contained in the David Geen kit.

Note that the non lifting link brake lever and crank for the lifting link (10) will need to be fitted behind the vees so do not solder the main brake shaft (0.8mm) or the brake lever shaft (0.6mm) in place yet. The link between the main brake shaft and the lever brake shaft can be formed using cranks (8) and (9) as per Fig. 2 either now or more easily after the brake levers are in place. The main brake shaft crank (8) will need to accept 0.8mm wire and the brake lever shaft crank (9) 0.6mm wire. Don't forget to fit the vacuum cylinder actuators (E/13) before soldering the shaft in place. When I constructed my lever brake fitted milk tank I assembled the clasp brakes with their hangers and brackets and then did the brake levers before finishing the cranks on the brakegear.





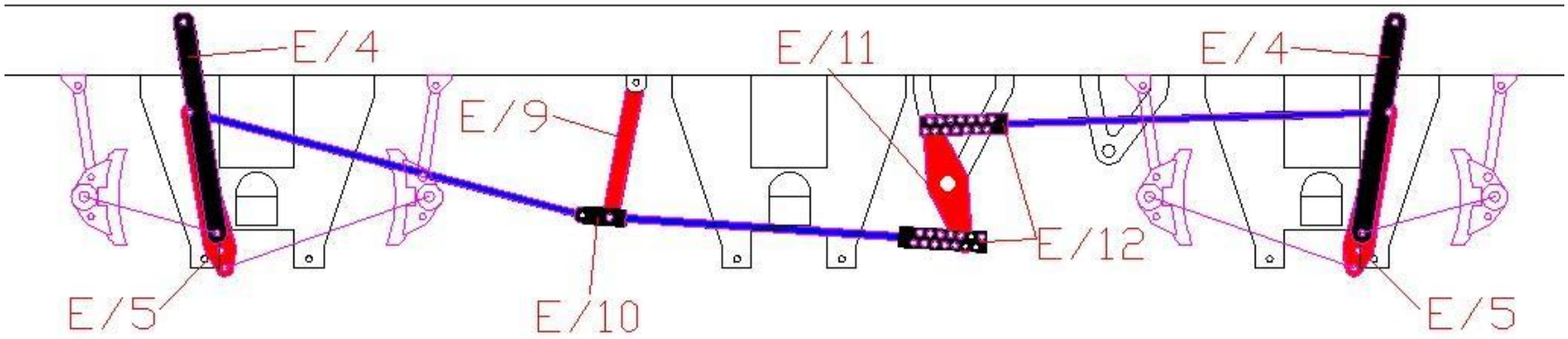
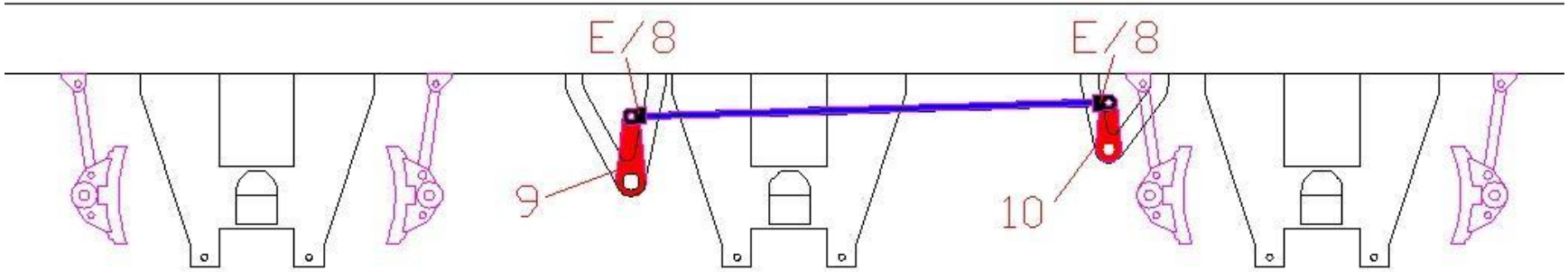


Fig. 2

0.31mm Wire

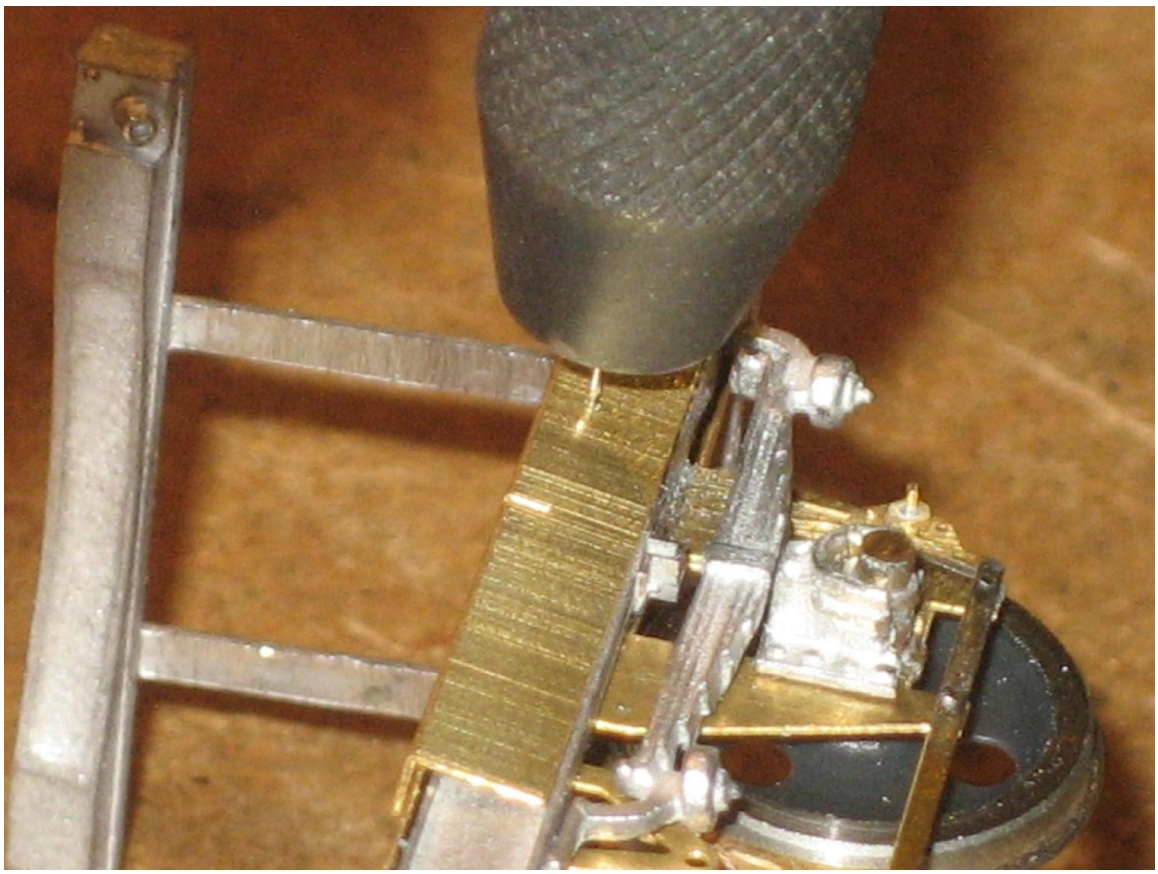


Brake levers

There are two slightly different brake levers depending on whether they are intended for the lifting link side or not. Firstly make sure that the holes in the following item can accept the correct size of wire:

Cranks for lifting link (10) 0.8mm and 0.31mm
Brake lever guards (11) 0.31mm
Brake lever guards brackets (12) 0.31mm
Brake lever guard stays (13) 0.31mm
Lifting links (14) 0.31mm
Brake levers (15) 0.6mm and 0.31mm
Brake lever actuators (16) 0.6mm

In order to aid location of the brake lever guard (11) on the solebar a ladder a brake lever guard drilling jig (4) is provided. This needs to be folded up and the fold line reinforced with solder. In the centre of the drilling jig is a slot. Place the jig over the solebar with the slot aligned with the axle centre. A hole can then be drilled through the jig and into the solebar. This will provide a locating point for the lever guard. Note that the riveted running plate overlay should be fitted to the chassis before doing this.



The brake lever guards (11) can be now folded up. Separate the lever guard from the lever guard bracket (12). Holding the lever guard firmly in a vice fold up the toothed section. Fold the rest of the lever guard along with the lever guard bracket as per Fig. 3. There are half etched slots on the rear of the lever guard to help with the curved sections at the front. Press out the half etched rivet on the brake lever guard stay (13) and fold the base up. Solder the lever guard and bracket together using 0.31mm wire. Trim the wire but make sure that the wire projects beyond the bracket to form a pin to enable the assembly to be located to the solebar. It would be helpful to place the brake lever guard stay at the bottom of the lever guard at this point. A piece of 0.31mm wire can be used to locate but the stay must be able to move freely until the whole assembly is in place. The assembly can then be glued in place on the solebar using the pin to locate it on the pre-drilled hole on the solebar. The stay can then be soldered to both the lever guard and the W-Iron and any excess wire trimmed off.

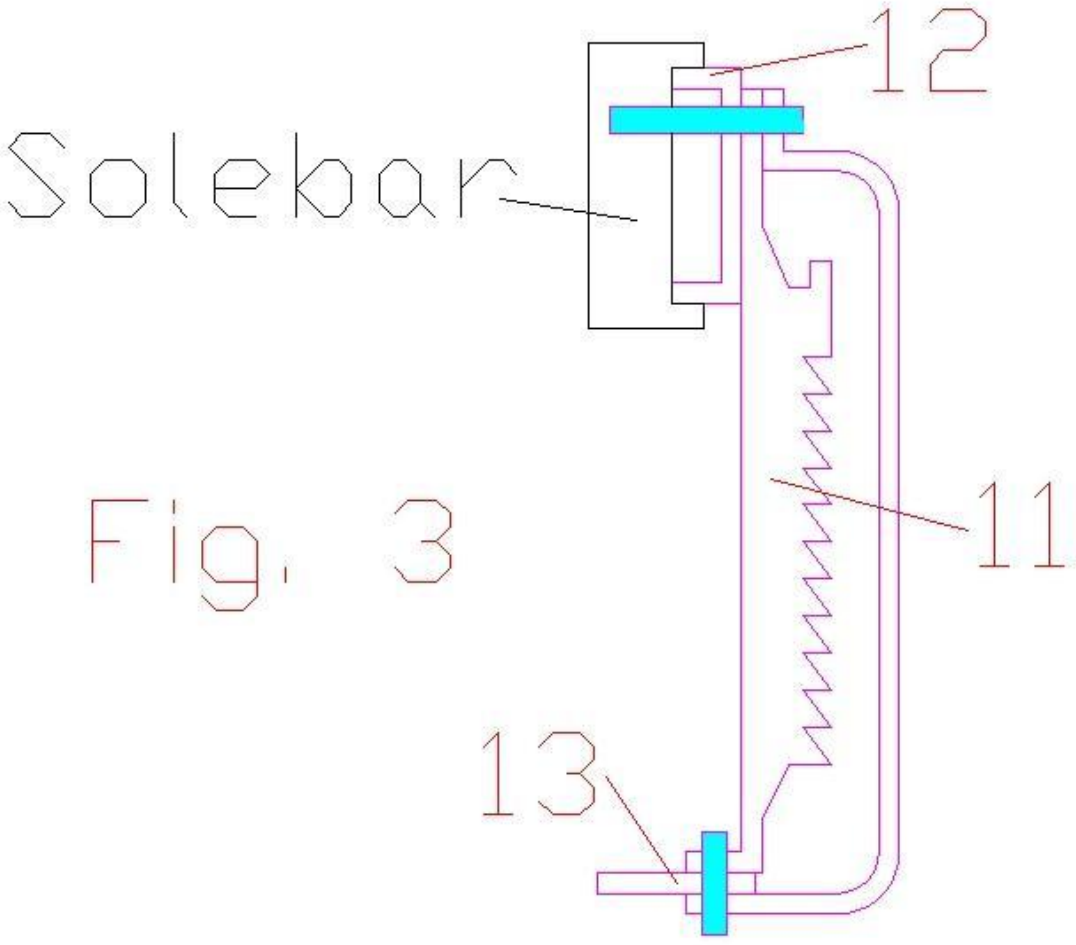
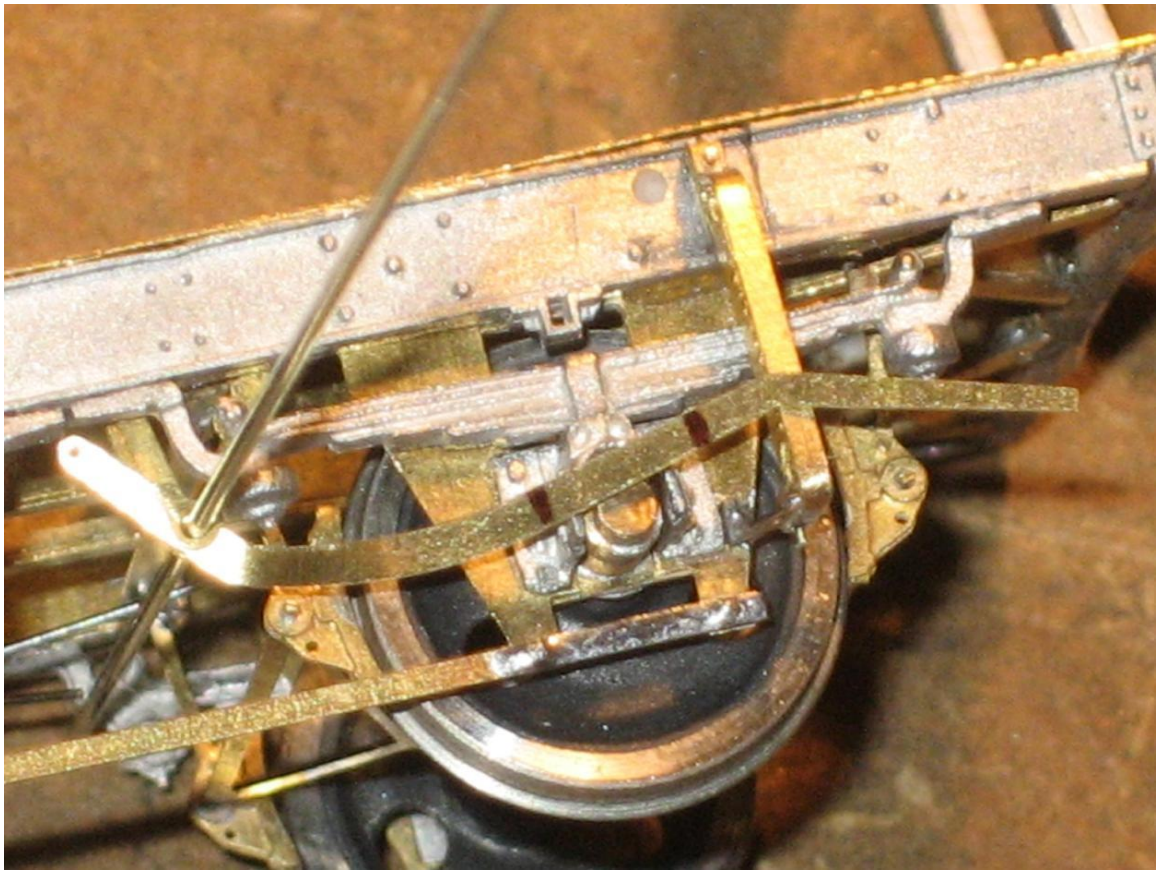
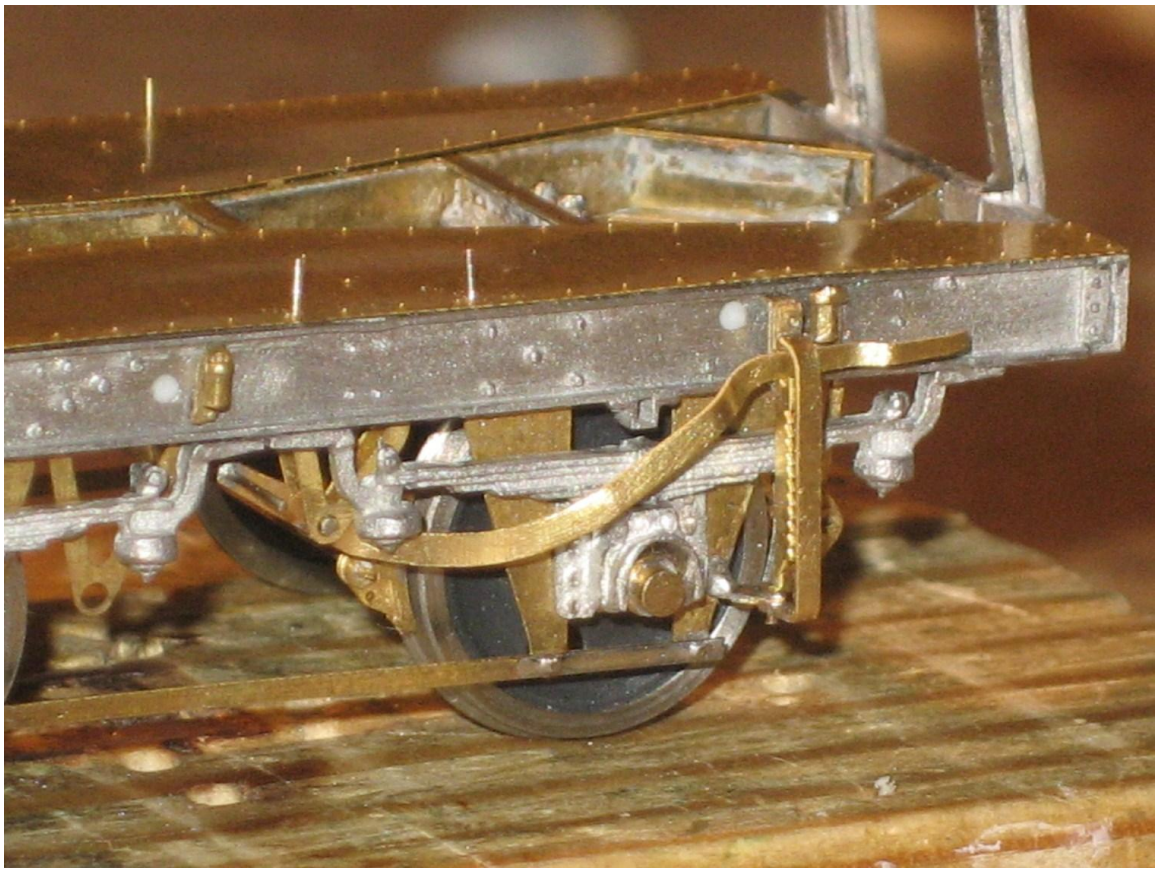


Fig. 3

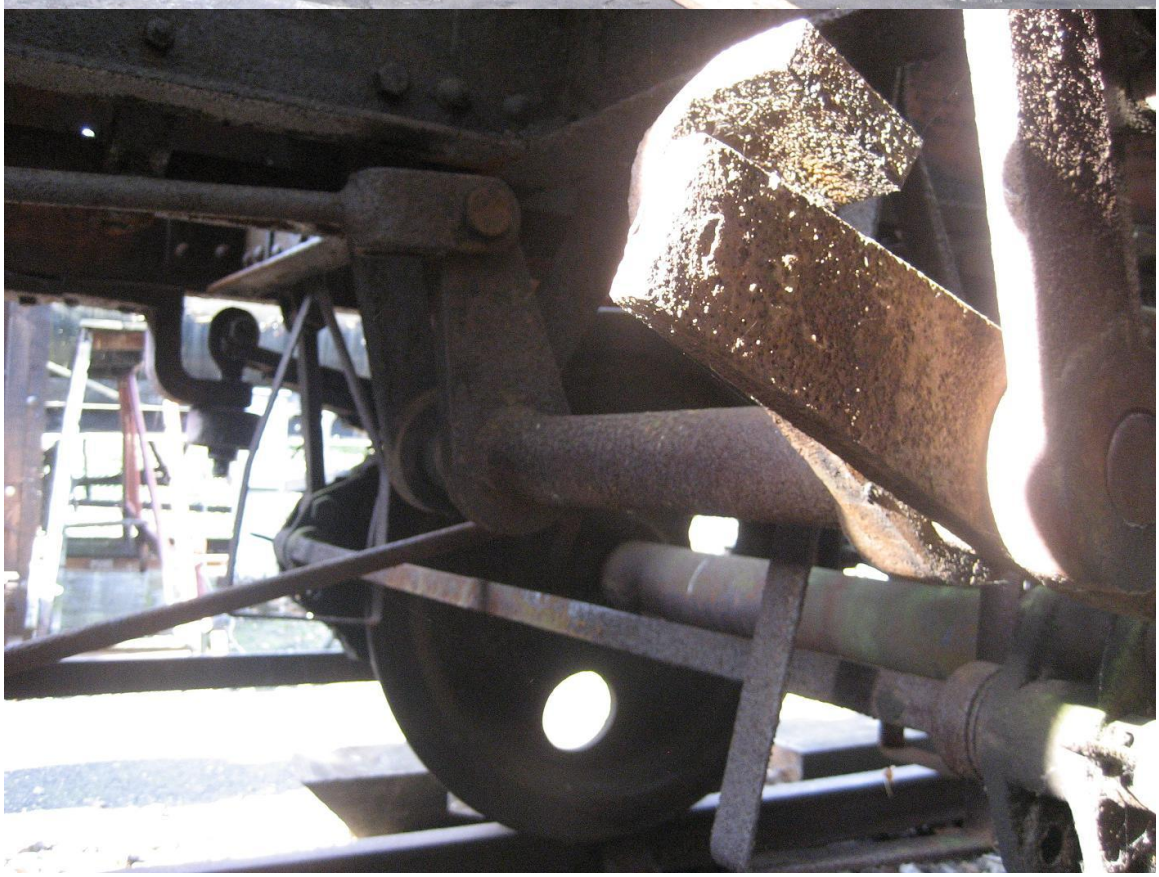
The brake levers (15) can now be addressed. Those for the lifting link side have a 0.31mm hole in them. A piece of 0.31mm wire needs to be soldered in place so that it projects at least 1mm on both sides. The same thing needs to be done with the crank for the lifting links (10). Fold up the brake lever actuator (16). This goes on the brake lever shaft behind the brake lever. See prototype photograph at the end. The brake levers need to be bent up as per the following photograph and the prototype photographs. Check on the model and adjust until you are happy with the shape. Once you are happy with the shape the lifting link brake lever can be fixed in place using 0.6mm wire, the lifting link crank (10) fitted on the main brake shaft and the non lifting link brake lever along with the brake lever actuator (16) fitted to the lever brake shaft. Note that the lifting link brake lever goes between the double vees and the non lifting link lever along with the lifting link crank go behind the vees. Fit the lifting links (14) in place joining up the lifting link brake lever and the lifting link crank and the solder in place. There should be two lifting links, one on either side of the lever/crank.



Bending a brake levers. Note the marks to indicate where lever needs to clear the axleboxes.

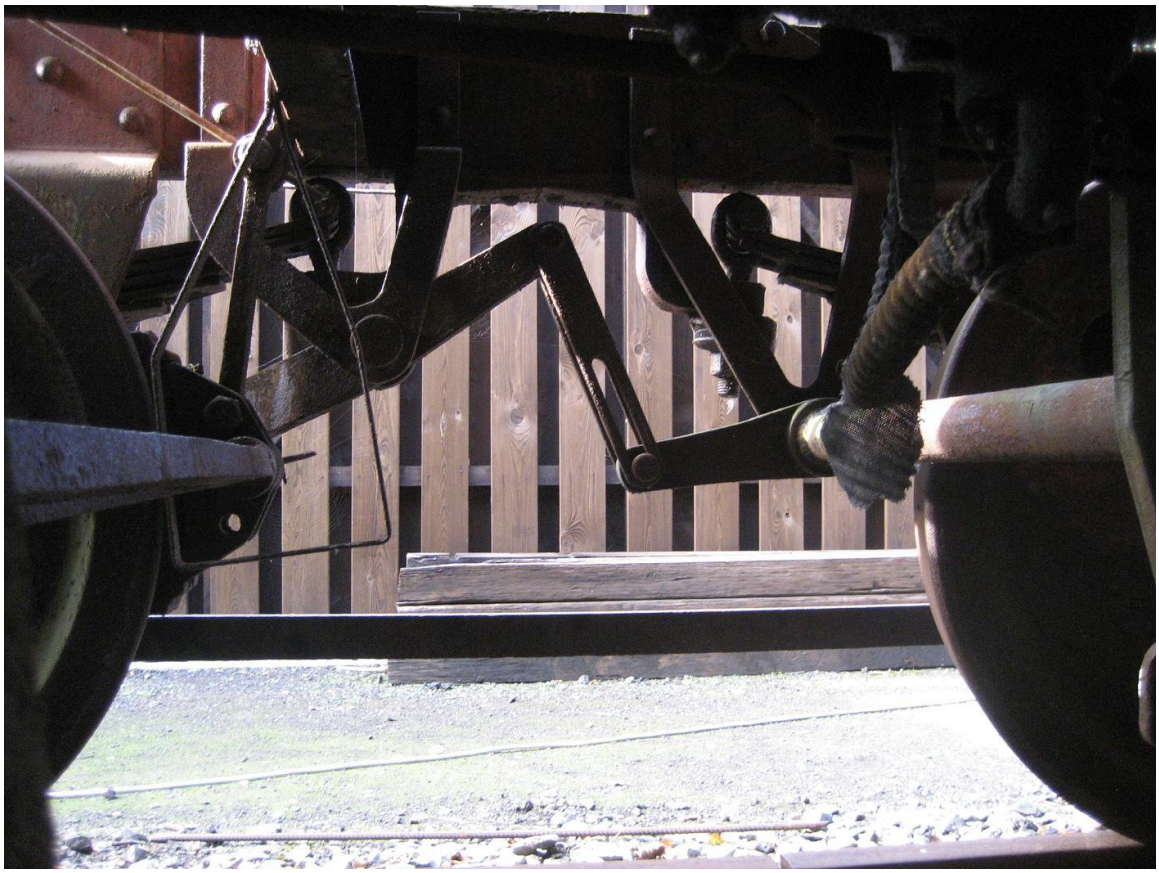


Lifting link brake lever fitted in place. Note the 0.31mm wire pin fixed at the end of the lever for attaching the lifting links. Also note the pins fitted in place for the ladders.



Note the brake lever actuator (16) in the above photograph just behind the end of the brake lever and the crank (8) on the brake lever shaft.

Note the cranks on the main brake shaft including the crank (9) to the brake lever shaft. Also note the safety loops and David Geen's E/10 bracket on the shaft to the clasp brakes.



The lifting links from the rear. Note the inner vee (5d) and the lifting link crank (10) behind the vee on the main brake shaft.

Justin Newitt 2013