

## **Rumney Models - LMS Milk Tank Detailing Instructions**

### **Notes**

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.

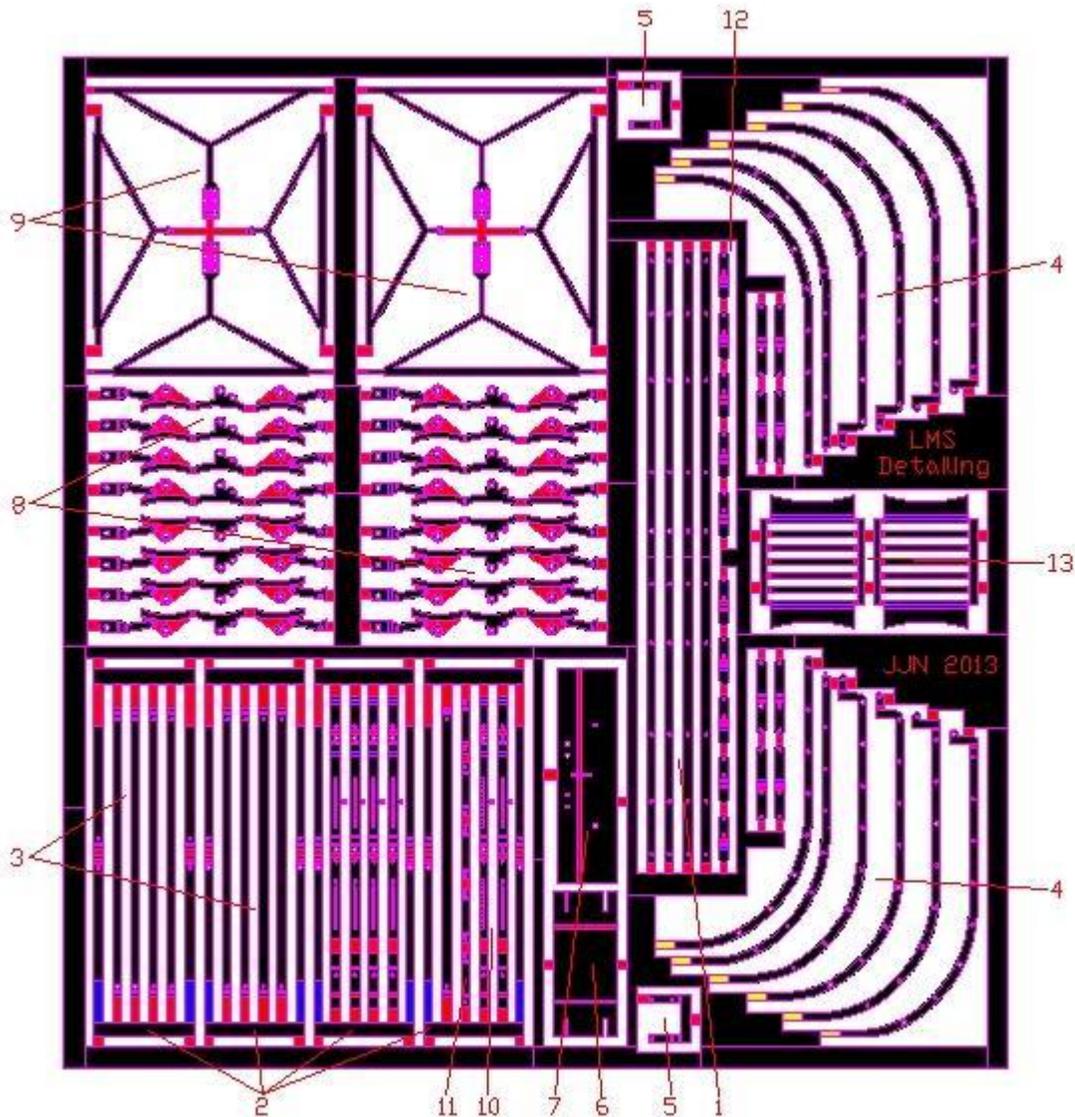
Everyone has their own soldering methods. I now use a temperature controlled soldering iron with predominantly 145° solder and La-Co paste flux. For a long time I used an Antex 18W soldering iron on virtually everything with few problems.

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.

## Component list

- |  |  |
|--|--|
| 1 – Tie bars                             | 8 – Clasp brakes                             |
| 2 – Two part tie bar cross pieces        | 9 – Yolks                                    |
| 3 – One part tie bar cross pieces        | 10 – Brake lever guards and solebar brackets |
| 4 – Ladder sides (three types)           | 11 – Brake lever guard stays                 |
| 5 – Square bottom ladder base            | 12 – Lamp Irons                              |
| 6 – Ladder assembly jig                  | 13 – Planked type walkways                   |
| 7 – Ladder and lever guard alignment jig |  |



## Materials List

- 0.31mm wire for just about everything things
- 0.5mm wire for pinning the claps brakes if using my LMS chassis.

## **Tie Bars**

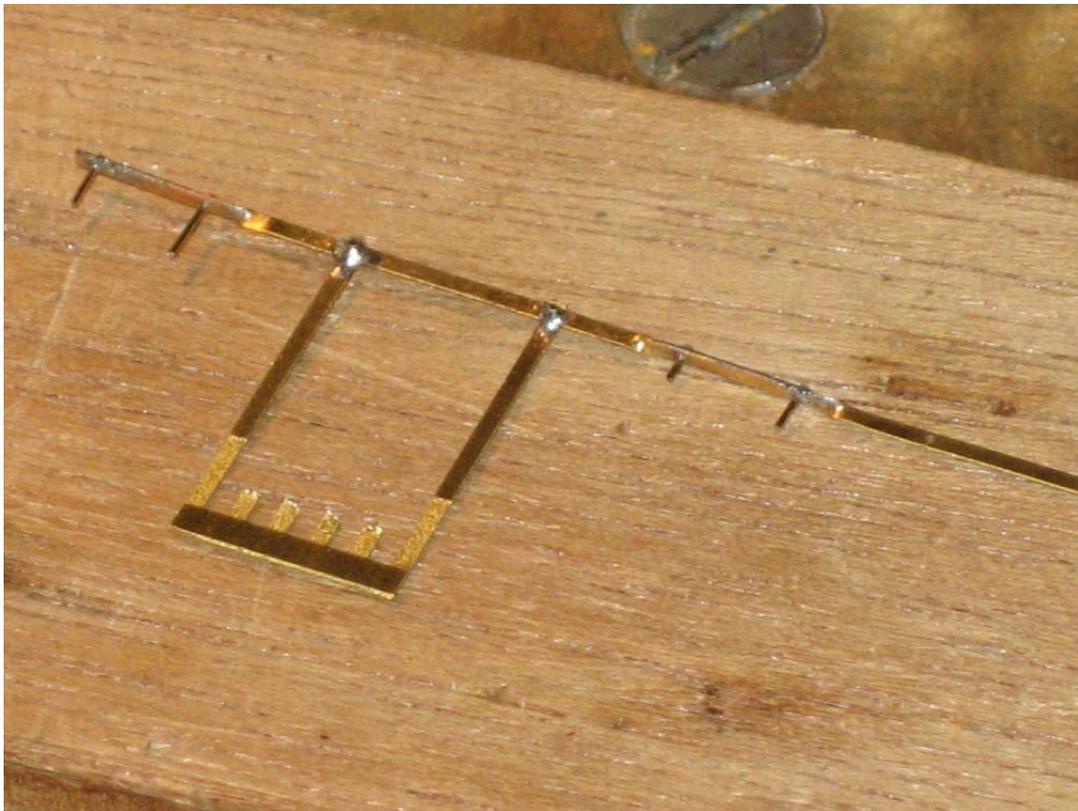
Tie bars (1) and cross pieces (2) or (3) are included for use with my LMS chassis kits. You will need to make sure that the holes will accept 0.31mm wire before removing them from the fret.

If you are not planning on making them removable then the tie bars can be assembled with the one part cross piece (3) and then they can be pinned and soldered to the W-Irons. Twist the tie bars so that the sections in between the W-Irons are at a right angle to the W-Iron sections. Fold the very ends of the one part cross pieces and then use 0.31mm wire to pin them to both tie bars. Solder in place and then file the wire back to represent bolt heads. See the photos below. They show the separable two part cross pieces but the principal is the same. The tie bars can then be pinned to the chassis. Note that once this is done there is absolutely no chance of getting the wheels out. 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 front of the tie bars (leave the bolt that attaches to the lever guard stay a little longer) 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 (1) that correspond with the W-Irons. 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 filed back to represent bolt heads before removing and doing the next pair. It is a good idea to leave the two bolts that locate the lever guard stays a little longer. 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. This can be trimmed afterwards.



Once the W-Iron pins are located on the tie bars the separable two part cross pieces (2) can be added. These have a half etched areas on them that are designed to overlap once in place on the chassis. This gives an area to tack glue them together so you can get them apart if necessary. See photos below. Fold the very ends up and familiarise yourself with the two part cross pieces so that you get the correct arrangement of half etched areas. One you are happy with this use 0.31mm wire to pin the cross pieces to the tie bars and solder in place. Trim and file the wire to represent bolt heads.

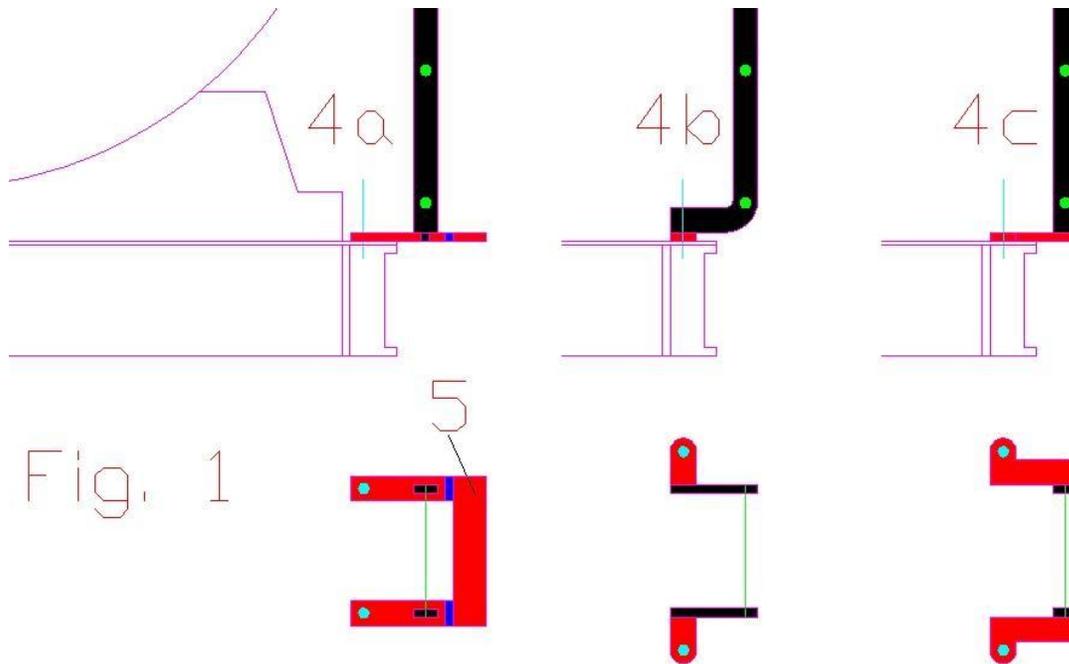




Once the tie bars and the chassis are painted they can be glued together on final assembly. The glued joint can be broken and the tie bars removed if you find it necessary to remove the wheels at any point.

## Ladders

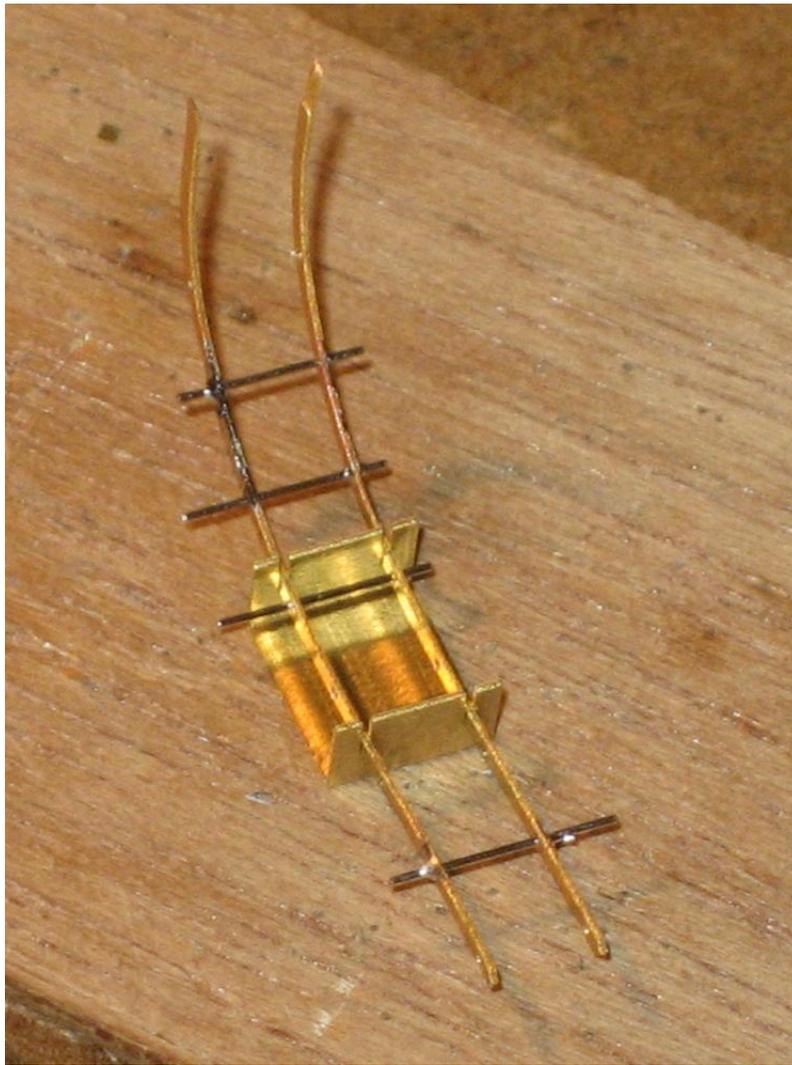
There are three types of ladder included with a pair of each type. Essentially they are the same apart from the point at which they meet the running plate on the milk tank. I have no idea why the LMS saw need for these variations. Fig. 1 shows the three types. Construction is the same for all apart from 4a which needs the base (5) soldering in place after the ladder has been put together.



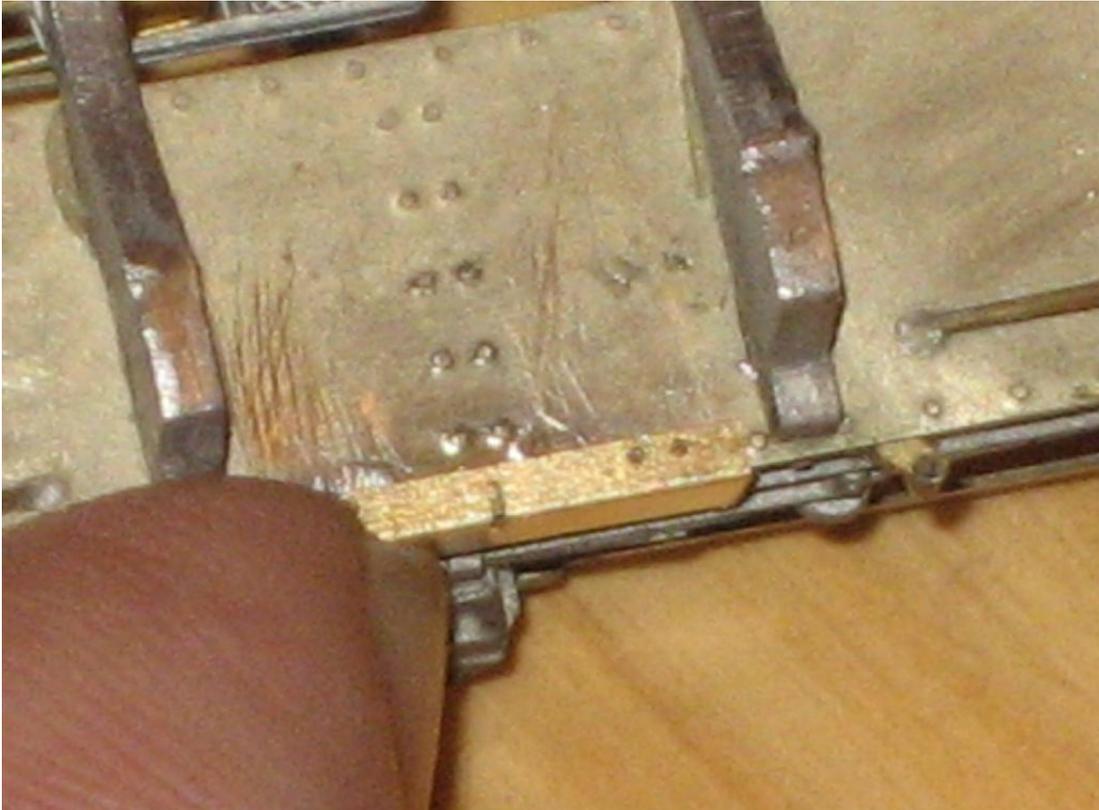
The ladders are designed to be assembled as two sides with 0.31mm wire rungs. They are rather delicate until they have been soldered together. A ladder assembly jig (6) is included to keep the sides parallel and square whilst they are assembled. I have designed them so that they are attached to the running 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 (7) 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 (6) from the fret and fold into a channel. Reinforce the folds with solder.

Choose your ladder type according to prototype and ensure that the holes in the ladder sides (4) 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, for types 4b and 4c, 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 type 4a ladders the square bottom ladder base (5) can be soldered to the bottom of the ladder. The part that connects the two sides of the base can then be removed.



The ladder and lever guard alignment jig (7) can now be used to drill holes in the running plate on the milk tank which will accept 0.31mm wire pins. These pins will provide alignment for the ladders. Remove the jig from the fret and fold into an L shape. This should be placed over the solebar and running plate. There is a slot in the centre of the jig which should be aligned with the centre of the tank manhole which in turn will be in line with the centre axle. There are four holes in the top of the jig. The inner two are for the type 4a ladder and the outer two holes are for types 4b and 4c. Drill two holes, according to your ladder type, 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.



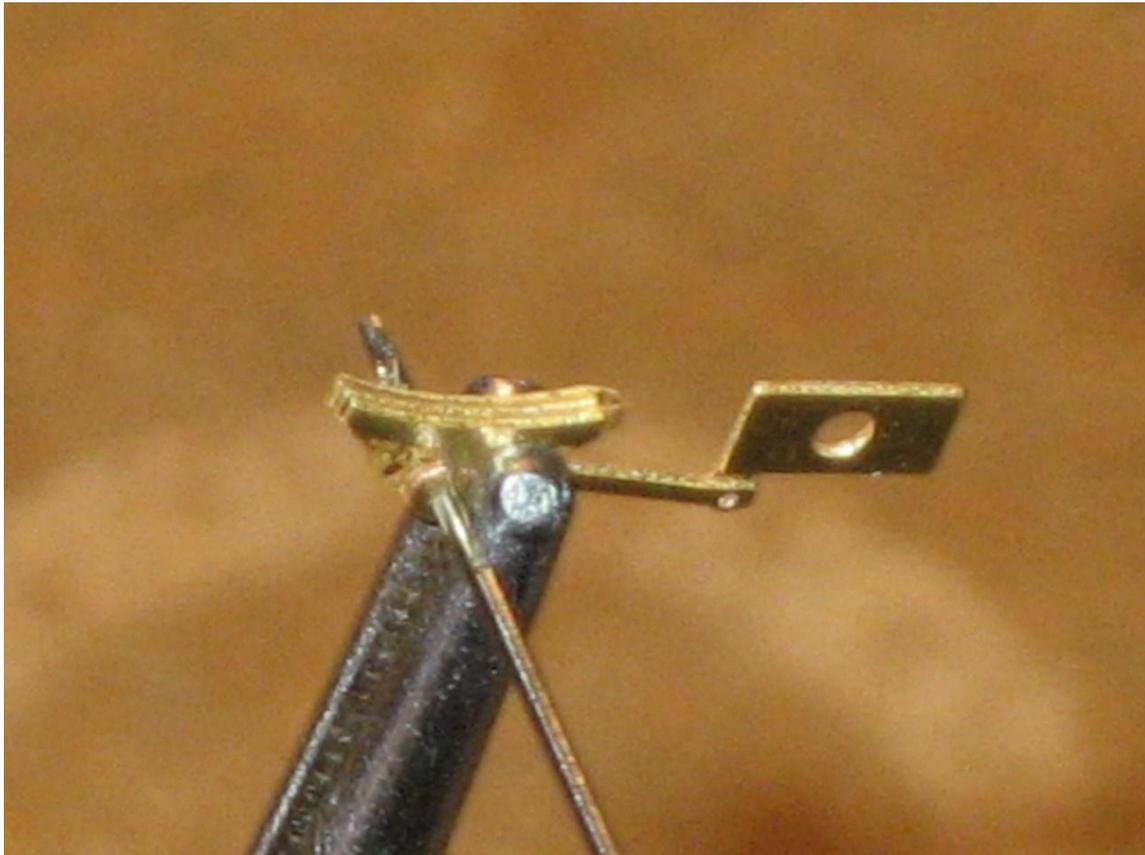
The photo actually shows the drilling jig for the United Dairies GWR/SR platforms but the principal is exactly the same.

The ladders can be painted separately from the rest of the milk tank and then glued in place on final fitting using the wire pins in the running plate to provide positive location.

## Clasp Brakes

The clasp brakes (8) are designed to be folded up, soldered together 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. Unfortunately I couldn't arrange them to fold up as one piece which is what I usually try and do. The brake shoes are therefore in two parts. There is a fold up part with base, stem, outer detail and shoe centre and then a further inner detail overlay. The inner detail overlay doesn't have to be included but this will of course reduce the width of the brake shoes.

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 separate the two parts then fold up the main assembly. The inner detail overlay needs to be aligned with the other parts of the brake shoes 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, if you haven't already done so, fold the base through 90°.



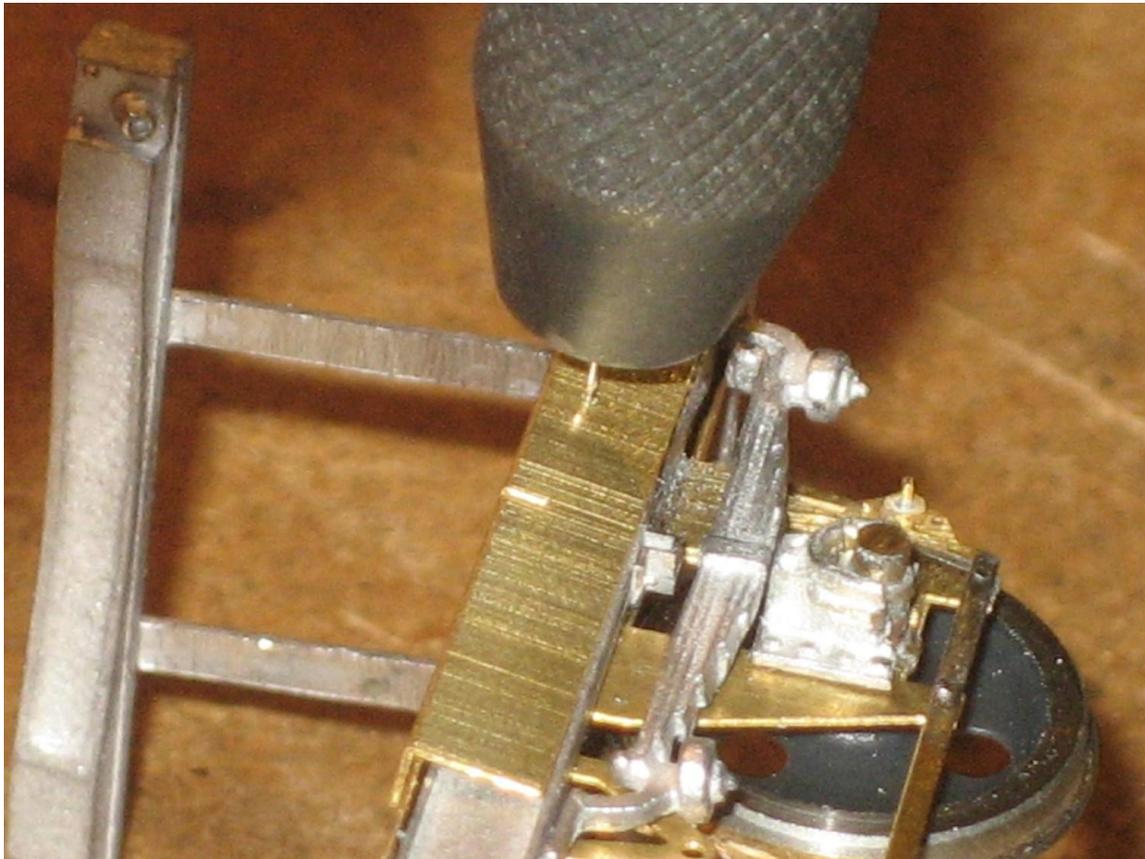
If attaching to one of my chassis the job of aligning things is made easier by using 0.5mm wire to pin the brake shoes to the chassis and then solder in place. These holes are tailored for P4 but they should be fine for EM as well. Some work will be required if building in OO. It may be an idea to reverse 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.

I have included new brake yolks (9) on the fret. These are only suitable for EM/P4. If you are constructing a vehicle to OO gauge then you will need to use the appropriate yolks from the David Geen kit.

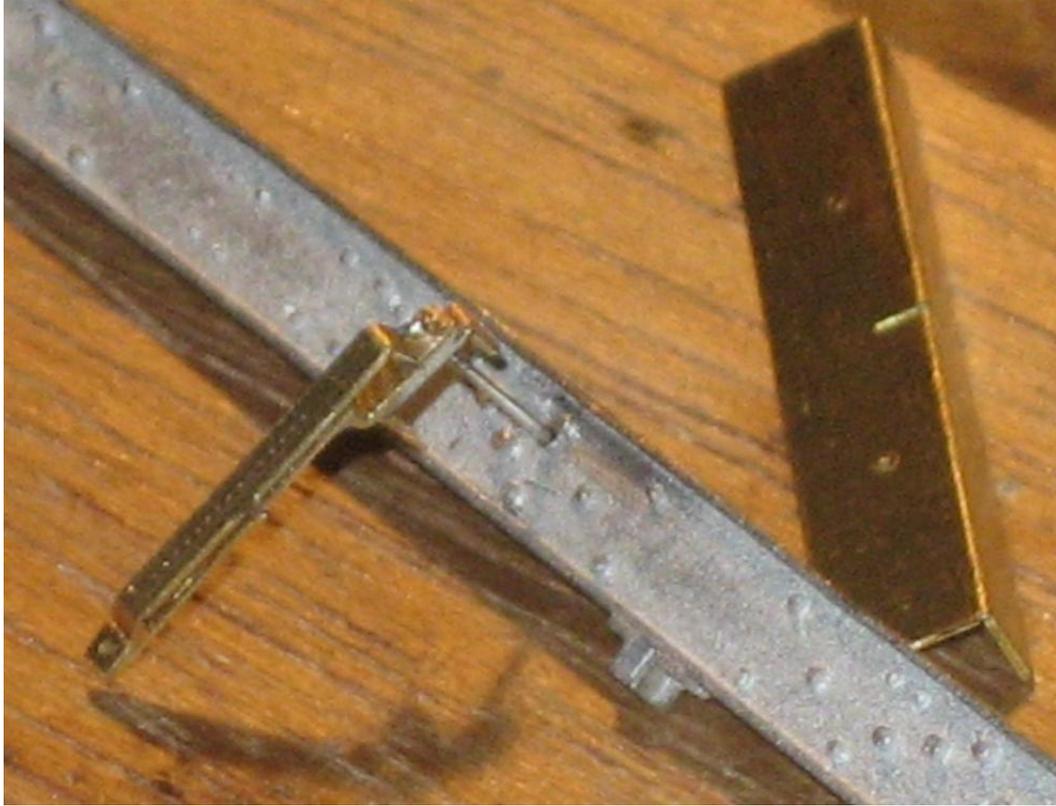
## Brake Lever guards

I have included new brake lever guards, solebar brackets and stays on the fret. I wasn't too keen on the David Geen ones.

In order to aid location of the brake lever guard (10) on the solebar a ladder and brake lever guard drilling jig (7) 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. On the Morton clutch side this will be the centre axle and on the other side the right hand axle. There are two holes in the jig. The left hand one should be used on the Morton clutch side and the right hand one on the other side. A 0.3mm hole can then be drilled into the solebar using the jig as a guide. 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 (10) can be now folded up. Separate the lever guard from the lever guard bracket and fold the lever guard along with the lever guard bracket as per Fig. 2. 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.



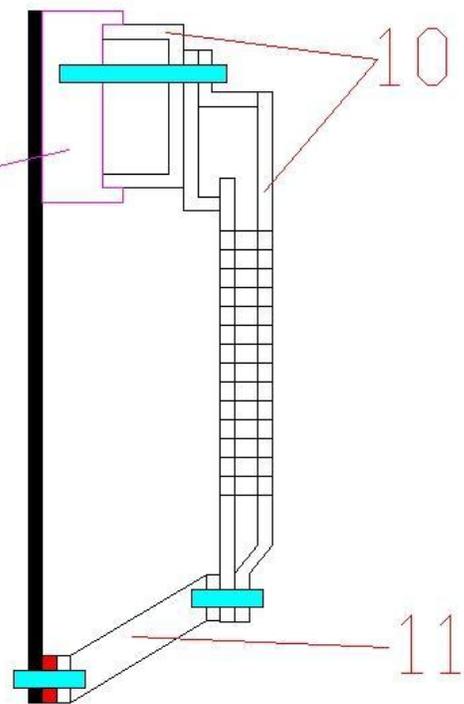
It would be helpful to place the brake lever guard stay at the bottom of the lever guard at this point. A piece of 0.31mm wire can be used to locate it but the stay must be able to move freely. The assembly can then be glued in place on the solebar using the pin to locate it in the pre-drilled hole on the solebar. If you aren't making the tie bars removable then the stays can then be soldered to both the lever guard and the tie bar and any excess wire trimmed off. If you are making the tie bars removable then the lever guard stays can simply be located over the appropriate 'bolt' in the tie bars. If you need to remove the tie bars then the stay can simply be moved. I have done this on my LMS milk tank and the system works fine.

Fig. 2

Solebar

W-Iron —

Tie bar —



## Walkways

The GWR style planked type walkways (13) were fitted to at least one M.M.B. LMS D.1994. There may well have been others. As I wanted some for one of my LMS milk tanks I have included them here.

The walkways are quite delicate affairs and will require some care in order to fold them up. Although it may seem the wrong way around you should start by folding the ends up. There isn't a lot of metal to the last plank and you will find it very difficult to do this after the sides. Make sure you hold the planked section of the walkway firmly in a vice or clamp when folding the ends. Once you are happy with the ends then you can fold the sides over. These need to be folded through 180° with the fold lines on the outside. Once everything is folded up they can be reinforced with solder. The finished walkways can be glued or soldered to the top of the milk tank.



An O.58 walkway during construction. The whole thing will next be soldered up and the sides cleaned up.

## Lamp Irons

For some reason they aren't included with the David Geen LMS milk tank kit. I have included 10 lamp irons (12) on the fret. Press out the rivets, fold up and then either glue or solder in place on the headstock.

Justin Newitt 2013