

Alexander Brodie Galley Stove (Part 2 of 2)

This is an example of one method that has been used to replicate the Brodie Galley Stove for a 1:64 scale model. Initially it was made for H.M.S. Fly until research revealed that the Brodie Stove would not have been fitted. Examples of 'completed' stoves can be viewed on the Internet, but no instructions for their construction have been found. It is for this reason that these guidance notes have been published to help other modellers.

From trying to understanding how the stove operated, it was possible to build a simple model. Other than the information that was found in 'Part 1', *[all assumptions to its internal construction are this authors view only, and no guarantee can be made to its accuracy.](#)*

Using the plans in 'Part 1' from Arthur Buglers book, 'H.M.S. Victory, Building restoration and repair', a 1:64 scale stove could be drawn, Figure N1. From the original ship plans of H.M.S. Fly, the stove is shown to occupy an area in the forecastle of 1,392 mm x 1,104 mm (54.80 inches x 43.46 inches), and is situated in the space between the 'Supports for Riding Bitts Pt No 57'; it is on these measurements that the plan below are based.

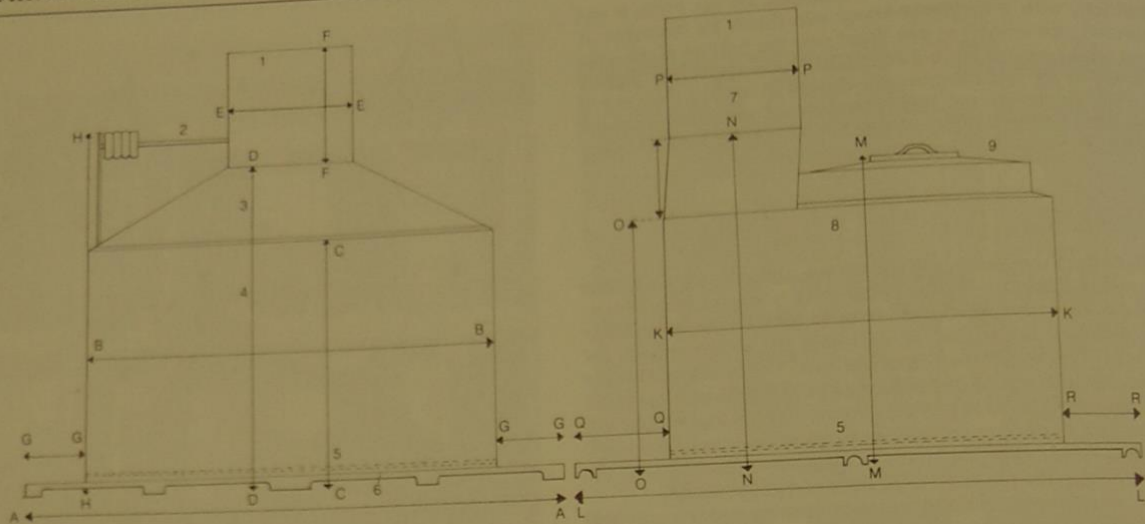
Important Amendment:-

The dimensions of galley stoves depend upon the type of ship they were destined for. Modellers should therefore build their model stoves according to the scale dimensions for the ship being built. Brian Lavery in his book, "The arming and fitting of English ships of war 1600 -1815 (Conway Maritime, 1987 [Batsford, National Trust and Conway Anova Books]) p.198, provides a table of these dimensions, and this is below.

It has been pointed out to this author that there is a debate as to whether the dimensions given in Arthur Buglers "H.M.S. Victory: building restoration and repair" p.77 are correct; Victory is a 100 gun first-rate ship.

[Note: - Click here for Figure N1 printing scale 1:1](#)

Part IX: Internal Fittings



Dimensions of firehearth, c1775.

- 1. Lower part of the chimney funnel.
- 2. Chain wheel and spindle of smoke jack.
- 3. The sloping cap.
- 4. Front of body of hearth.

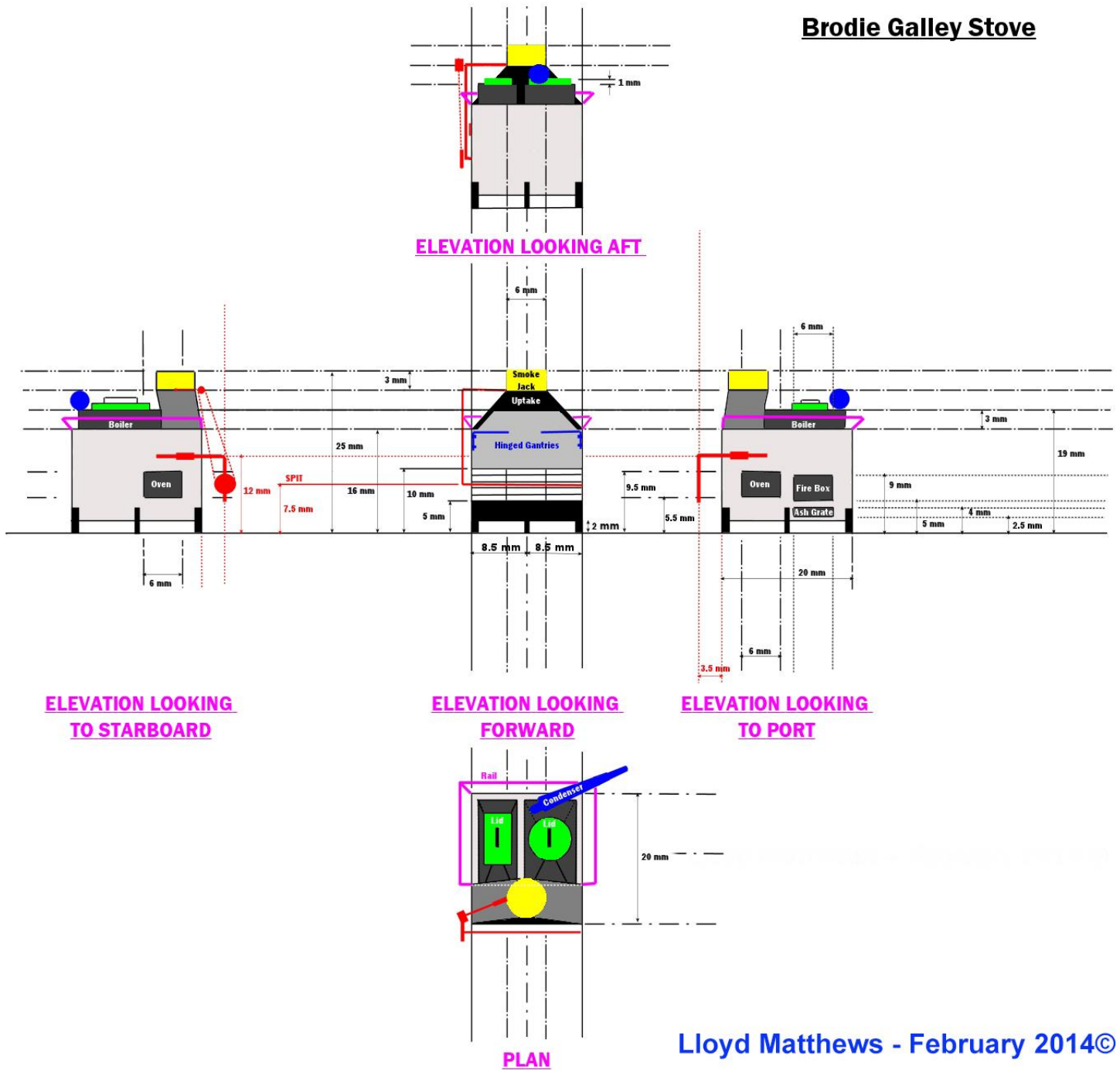
5. Additional bottom.

- 6. The bearers.
- 7. Side of sloping cap.
- 8. Side of body of hearth.
- 9. Boiler cover.

Dimensions

Rate or no of guns	Front (in ft. and in.)							Side (in ft. and in.)								
	A-A	B-B	C-C	D-D	E-E	F-F	G-G & G-G	H-H	K-K	L-L	M-M	N-N	O-O	P-P	Q-Q	R-R
100	9.8	7.4	4.6	5.11	2.3	2.2	1.2	6.8	6.11	9.11	5.3	5.11	4.6	2.3	1.8	1.4
90	9.6	6.11	4.6	5.10½	2.2	2.1	1.1	6.7	6.7	9.8	5.0	5.10½	4.6	2.2	1.7	1.2
80	8.8	6.8	4.4	5.8	2.2	2.1	1.0	6.6	6.4	9.0	4.11	5.8	4.4	2.2	1.7	1.1
74	8.4	6.4	4.4	5.8	2.2	—	1.0	6.6	6.2	8.10	4.10	5.8	4.4	2.2	1.7	1.1
64	7.9	5.9½	4.3	5.7	2.1	—	1.0	6.5	5.9	8.3	4.9	5.7	4.3	2.1	1.6	1.0
50	7.2	5.4	4.2	5.7	2.0	—	0.11	6.5	5.1	7.5	4.8	5.7	4.2	2.0	1.6	0.10
44	5.6	5.0	4.0½	5.6½	1.11	—	0.3	5.3	5.0	7.2	4.6	5.6½	4.0½	1.11	1.6	0.8
38	5.2	4.8	4.0½	5.3½	1.11	—	0.3	5.3	4.9	6.11	4.5½	5.5½	4.0½	1.11	1.6	0.8
36	5.2	4.8	3.10	5.3½	1.11	—	0.3	5.3	4.9	6.11	4.3	5.3½	3.10	1.11	1.6	0.8
32	4.10	4.3½	3.10	5.3	1.10	—	0.3	5.3	4.7	6.7	4.3	5.3	3.10	1.10	1.4	0.8
28	4.9	4.3	3.10	5.3	1.10	—	0.3	5.3	4.6	6.6	4.3	5.3	3.10	1.10	1.4	0.8
24	4.8	4.2	3.10	5.3	1.9	—	0.3	5.3	4.0½	5.11½	4.2½	5.3	3.10	1.9	1.4	0.7
20	4.7	4.1	3.10	5.3	1.9	—	0.3	5.3	4.0	5.11	4.2	5.3	3.10	1.9	1.4	0.7
18	4.2	3.8	3.8	5.0	1.8	—	0.3	5.3	3.9½	5.7½	4.0	5.0	3.8	1.8	1.3	0.7
16	3.10	3.4	3.7	4.11	1.7	—	0.3	5.3	3.7	5.4	3.11	4.11	3.7	1.7	1.2	0.7
14	3.7	3.1	3.4½	4.8½	1.6	—	0.3	5.3	3.2	4.10	3.9	4.8½	3.4½	1.6	1.1	0.7

Brodie Galley Stove



Lloyd Matthews - February 2014©

Figure N1 - Plan for 1:64 scale 'Brodie Stove' (print scale 1:1)

To print this image 1:1 scale, ensure that the print scale is set to 100%, Figure N2.

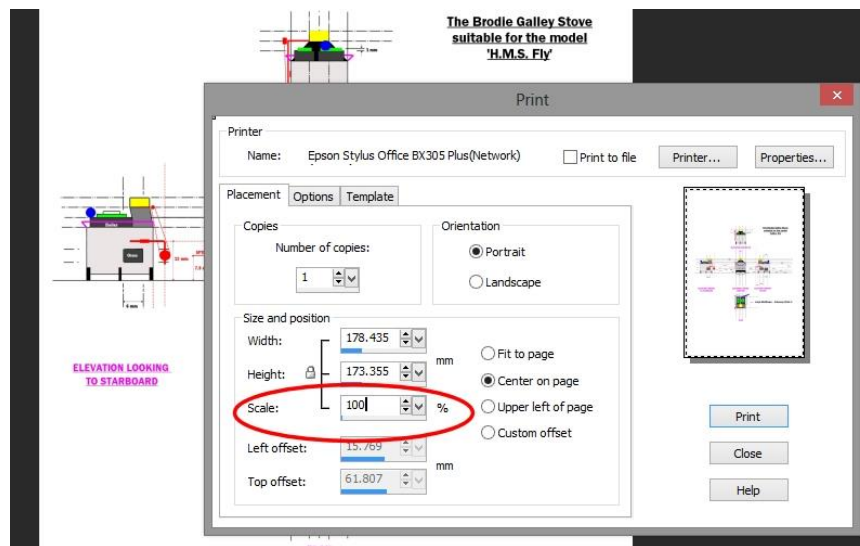


Figure N2 - To print the plan 'one to one', ensure print scale is set to 100%.

To visualise what the stove could have looked liked the following images were studied, Figure's N3, N4, N5, N6 and N7.

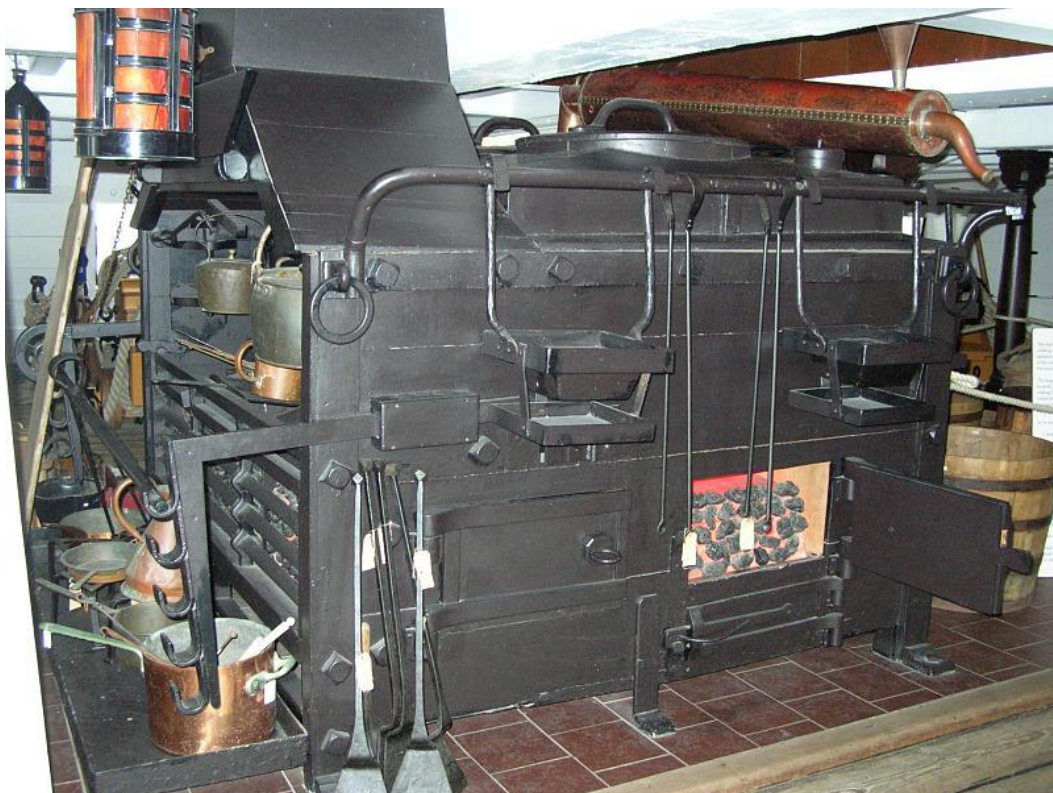


Figure N3 - View looking to Port



Figure N4 - View looking to Port



Figure N5 - View looking forward



Figure N6 - View looking to starboard

To understand how the stove may have functioned an idea is drawn in Figure N7- *Note this is a suggestion only.*

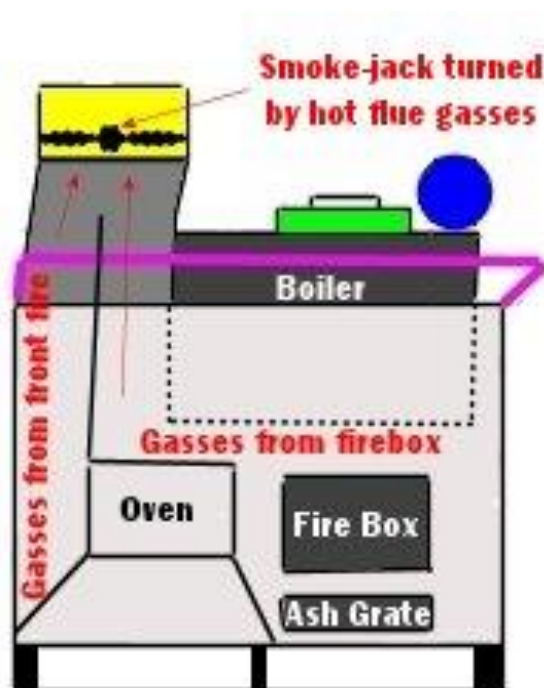


Figure N7 - Suggestion of how the Brodie stove may have operated

The spit is turned by the 'Smoke-jack' operated by the hot flue gasses; this method of rotating a spit was commonly used in large kitchens, Figure N8.

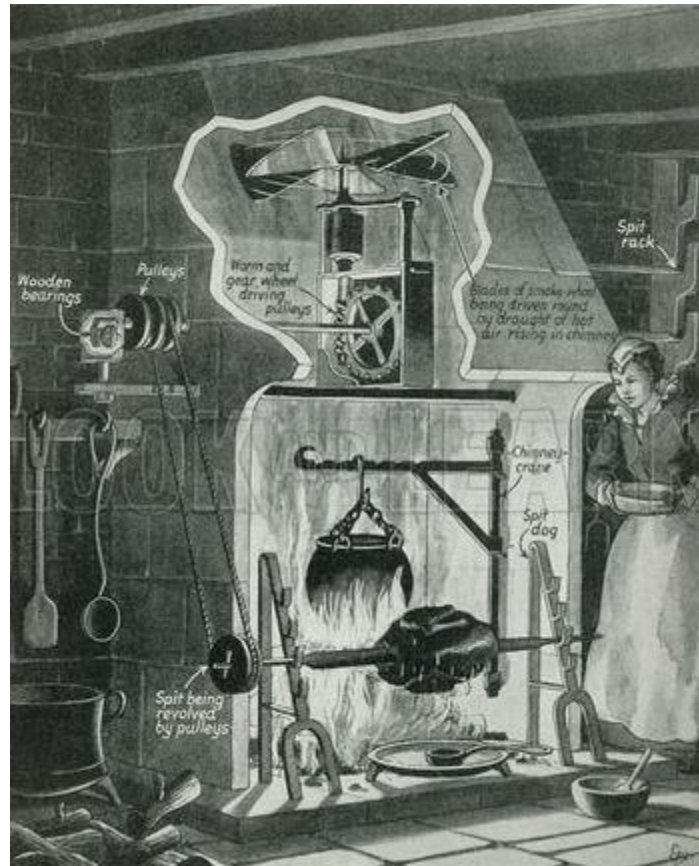


Figure N8 - Smoke-jack turning a spit in front of kitchen fire

Source:- <http://www.lookandlearn.com/history-images/M815950/How-the-Smoke-Jack-Turned-the-Spit?img=141&search=press&bool=phrase>

The plan was drawn without any idea of how it was going to be constructed. In reality there will be some variations to the dimensions shown in the plan, mainly to accommodate the material that is commonly available, so making it simpler to build.

Using Figure N7 as a guide, the main body of the stove Figure N9, is constructed from 15 mm x 15 mm pine Figure N10.

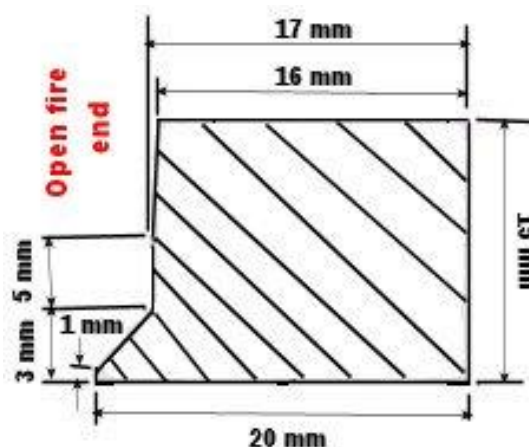


Figure N9 - Cross-section of main body of stove

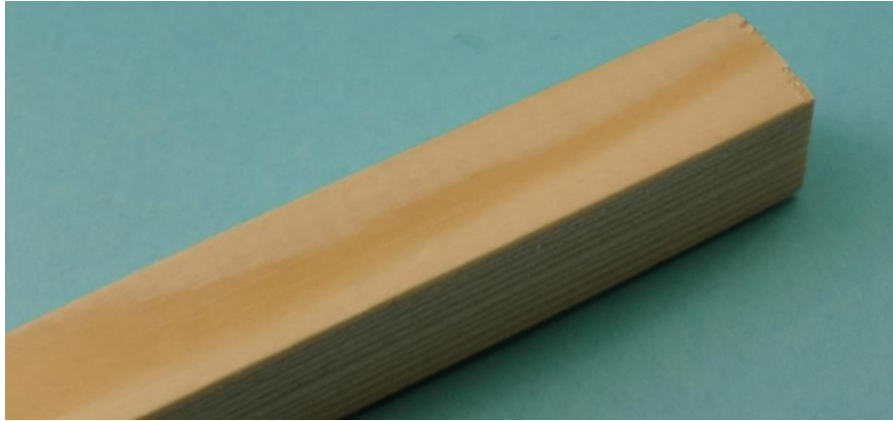


Figure N10 - 15 mm x 15 mm pine

The wood needs to be cut square, and this author used the following method. The 20 mm long section is marked using a ruler and 'set square' on all four sides, Figure N11 and N12.

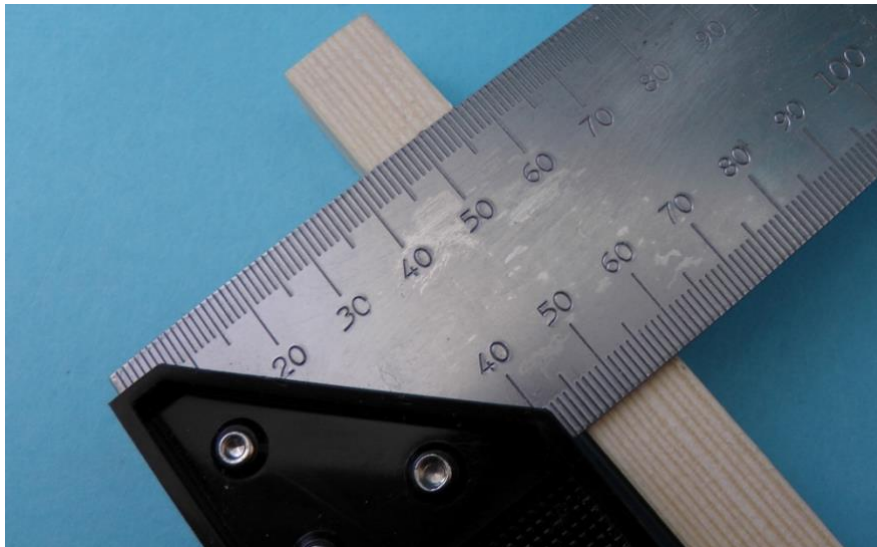


Figure N11 - Pine marked using a 'set square'

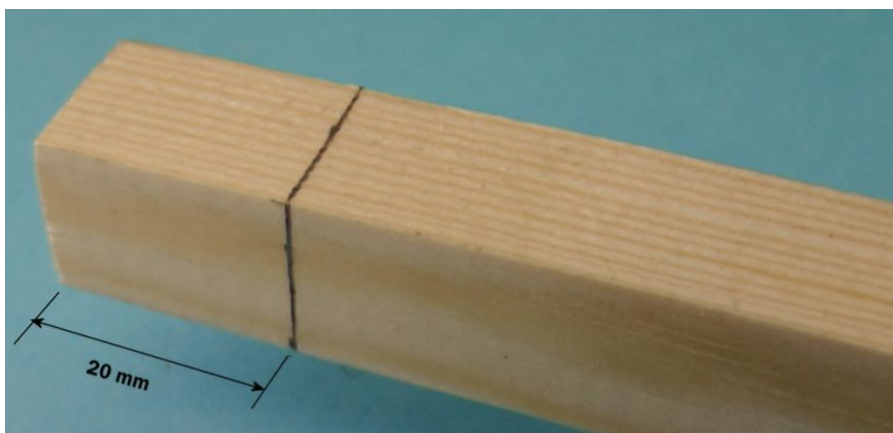


Figure N12 - Pine marked on all 4 sides

The pine is successively cut a little at a time on each side with a 'junior' hacksaw, Figures N13, N14 and N15. A new saw blade was used at the start of this operation.

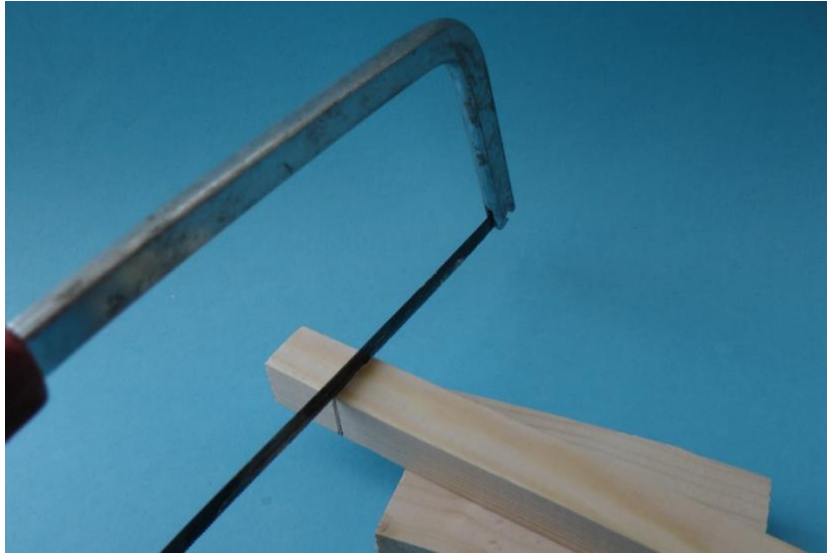


Figure N13 - 'Junior' hacksaw used to cut the pine

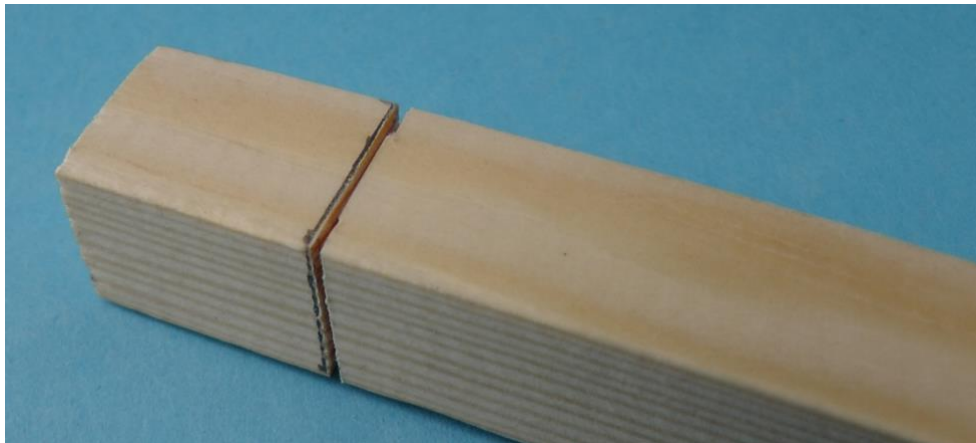


Figure N14 - Pine is successively cut a little at a time on each of its four sides



Figure N15 - Pine is squarely cut

The open fire is cut into one end of the 20 mm pine section; this is achieved using a rotary sanding disc attachment for the craft drill. These can be purchased from - http://www.gaugemaster.com/item_details.asp?code=RTRAB8300. This author cuts his own sanding discs and fits to the attachment with two sided sticky tape Figures N16, N17 and N18.

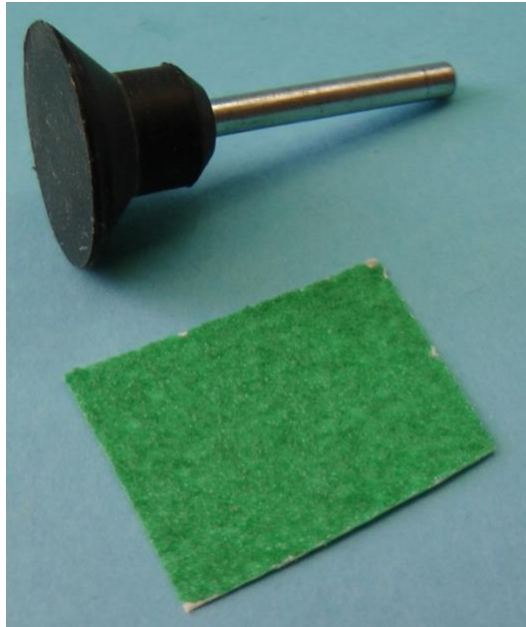


Figure N16 - Sanding disc attachment and sand paper



Figure N17 - Round disc cut from the sand paper and two sided sticky tape applied to the back

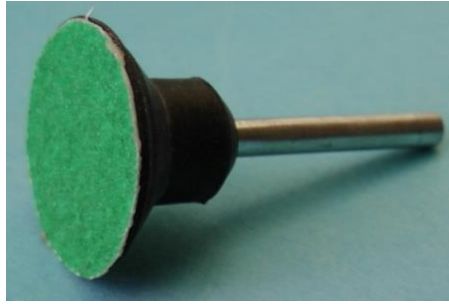


Figure N18 - Disc stuck to rotary sanding attachment

The craft drill is fitted in its stand with the rotary sanding attachment Figure N19.



Figure N19 - Craft drill fitted into stand

The shape of open fire end of the pine section is created using the rotary sander; needle files and sandpaper is used to finalise the shape Figure N20.



Figure N20 - Open fire end created in the pine section

The finished pine section is similar in shape to the cross-section shown in Figure N9
Figure N21.

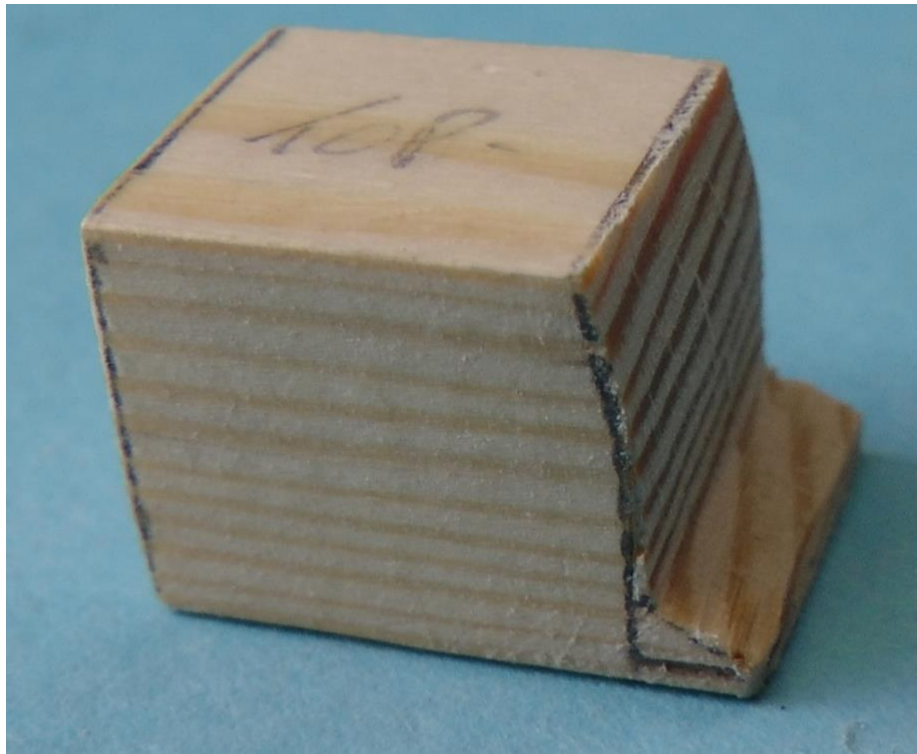


Figure N21 - Open fire end of the pine section

The sides of the stove are made from scraps of deck planking Figure N22. Clear sticky tape is put onto the cutting mat and odd strips of 0.5 x 3 mm Tanganyika (deck planking) are glued side-by-side. To ensure that they are held together, clear sticky tape joins each plank together, Figure N23. The first plank is pushed against the edge of a ruler.



Figure N22 - Odd pieces of deck planking

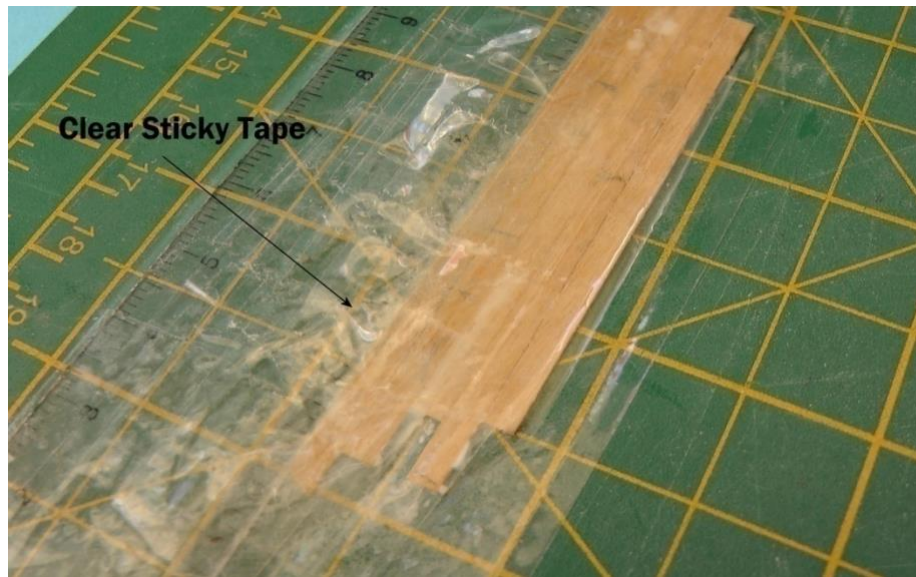


Figure N23 - Planks held together with clear sticky tape

When dry, the planks are carefully lifted from the clear sticky tape, and a set square and a block of wood is used to mark a square line across the planks Figure N24 and Figure N25. The block of wood below the planks helps to support them when the line is being drawn. This enables square edges to be cut which is very important for something that is so small.



Figure N24 - Square line being drawn on the planks



Figure N25 - Square edge drawn on the planks

The correct sizes are drawn and cut for the side's of the oven Figure N26, and then they are both glued to the side of the pine section Figure N27.

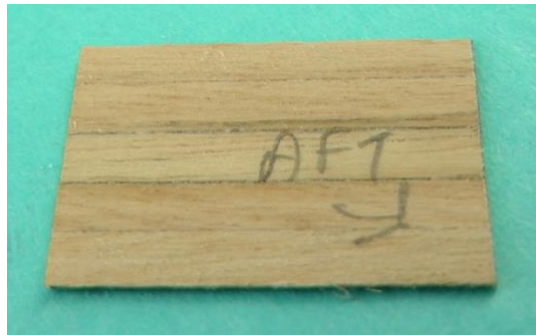


Figure N26 - Planks are cut to the correct size for the side's of the stove

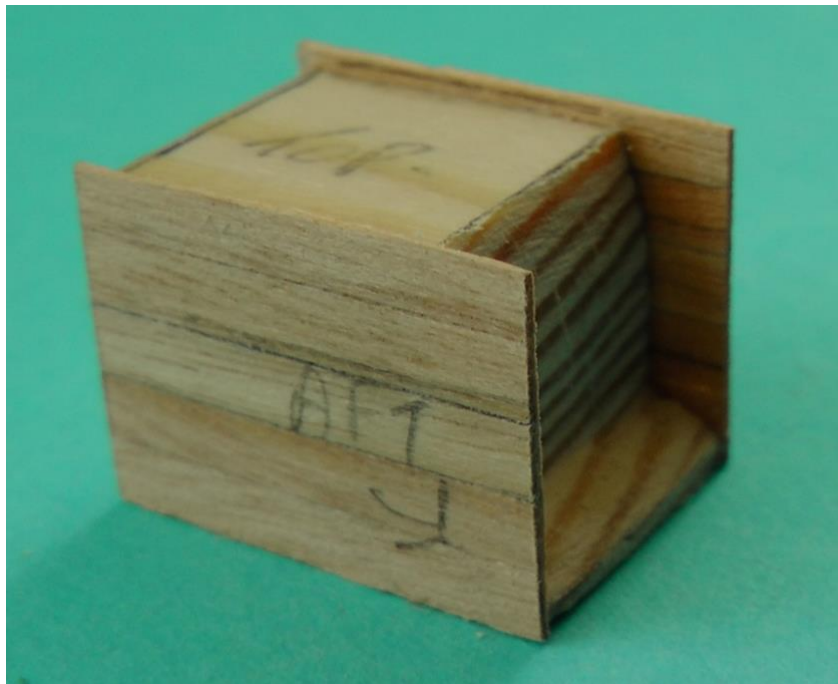


Figure N27 - Sides are glued to the stove.

This process is repeated and a further two sides are fitted to the stove Figure N28.

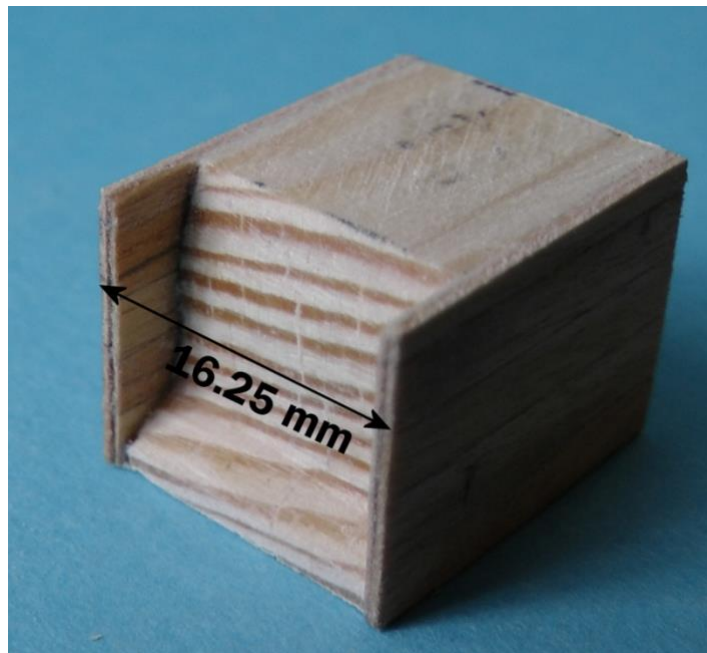


Figure N28 - Further two side's glued to the stove

The external width of the stove is approximately 16.25 mm, compared to the plan which is 17 mm.

The bottom part of the open fire end is fitted; this is approximately 2.5 mm in width Figure N29.

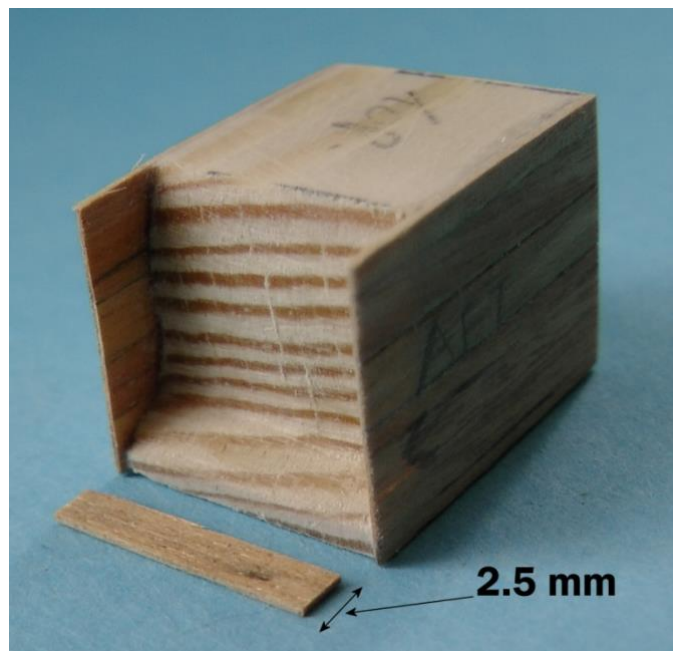


Figure N29 - Bottom part of the open fire is cut to size
(photograph was taken before two sides were fitted to the stove)

The smoke hood is made next, which requires a little patience; use the plans as a guide to how it will look. First a 6 mm section is cut from the 15 mm square pine; lime wood strips are glued either side, and the opening of the smoke hood are drawn on this 6 mm section Figure N30.

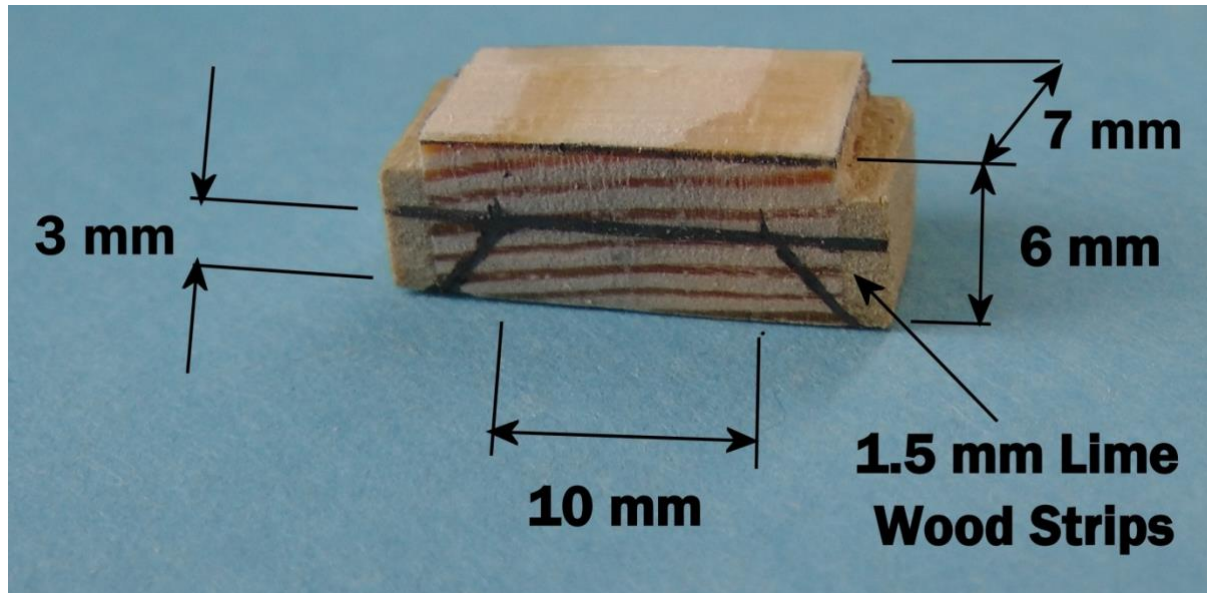


Figure N30 - Smoke hood

The smoke hood is held in a medium sized 'bull dog' clip Figure N31. A selection of mini craft drill routers were used to create the uptake in the hood Figure N32.

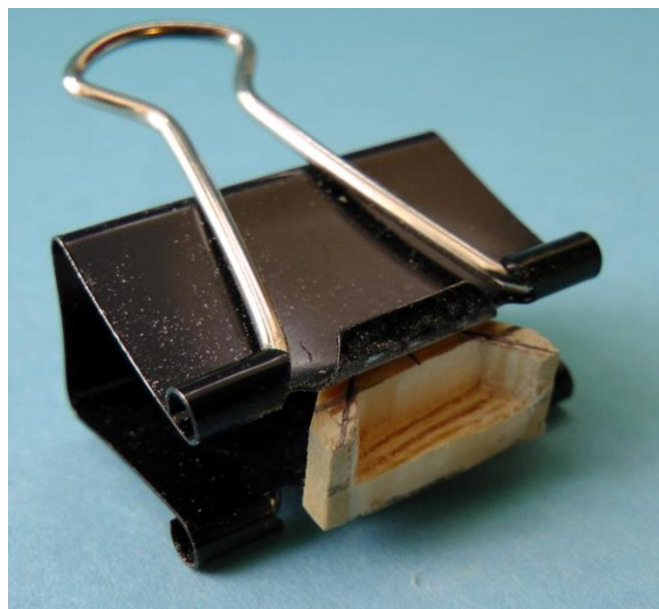


Figure N31 - Smoke hood held in 'bull dog clip'.

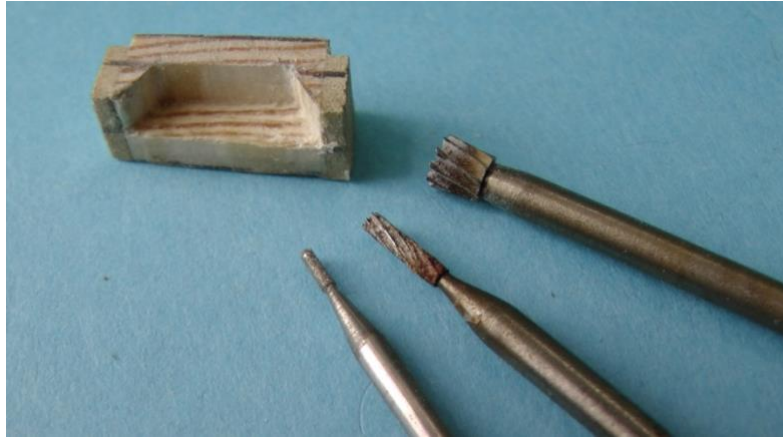


Figure N32 - A selection of craft drill routers were used

The corners were carefully removed with a chisel craft knife Figure N33.



Figure N33 - The top corners of the smoke hood are removed

The hood is shaped according to the plan; securely holding it in place will aid this process and a method is suggested using a bulldog clip Figure N34; it can then be shaped Figure N35, and the finished smoke hood is shown in Figure N36.

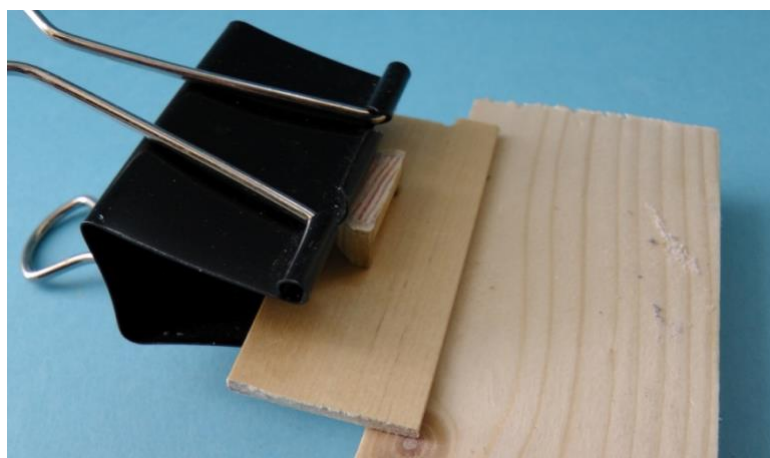


Figure N34 - Smoke hood held with a bulldog clip

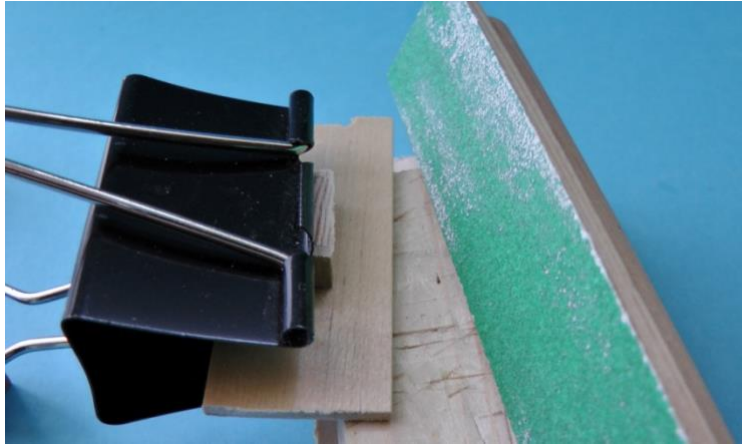


Figure N35 - Smoke hood is shaped



Figure N36 - Shaped smoke hood

A feature of the Brodie stove is that three separate fires can be lit in its open grate; two fire dividers are cut from deck planking Figure N37 and fitted Figure N38.



Figure N37 - Fire dividers for open fire

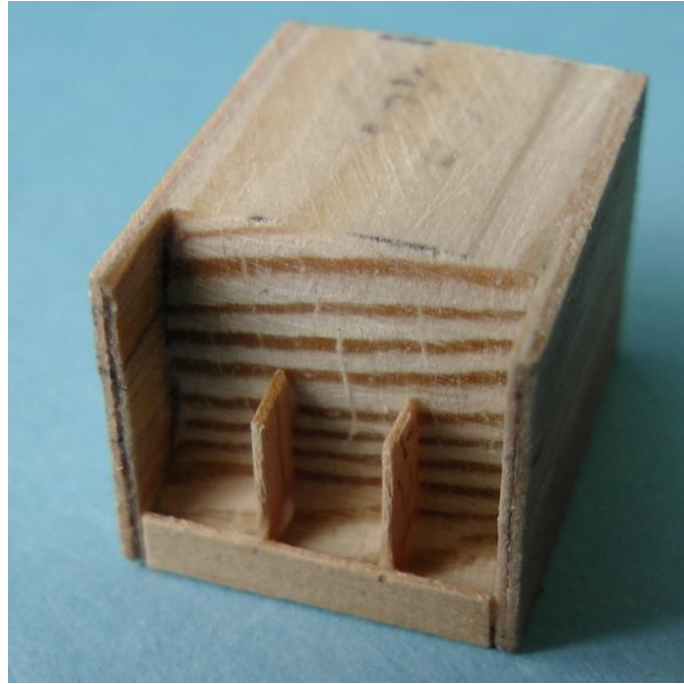


Figure N38 - Fire dividers fitted

Fire bars are made from 0.3 mm brass rod; these are available from Albion Alloys Ltd - <http://www.albionalloys.co.uk/>. A 80 gauge twist drill is required to drill holes; these are available in a 'Microbox Wire Gauge HSS Twist Drills Nos. 61 - 80 set' - <http://modelshop.co.uk/Shop/Item/HSS-twist-drills-wire-gauge/ITM4094>. The fire bars will be spaced at approximately 1 mm intervals Figure N39, and six will be fitted Figure N40.

Note: Care should be taken when drilling the holes to ensure that they are evenly space; this authors first attempt were not so evenly spaced!!

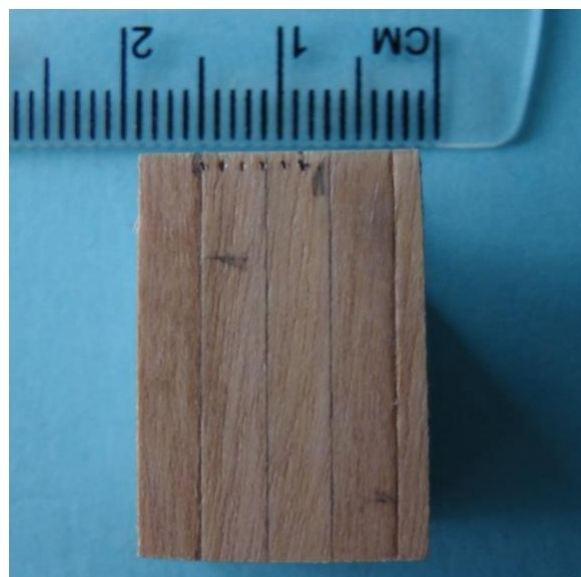


Figure N39 - Holes are spaced at 1 mm intervals and then drilled

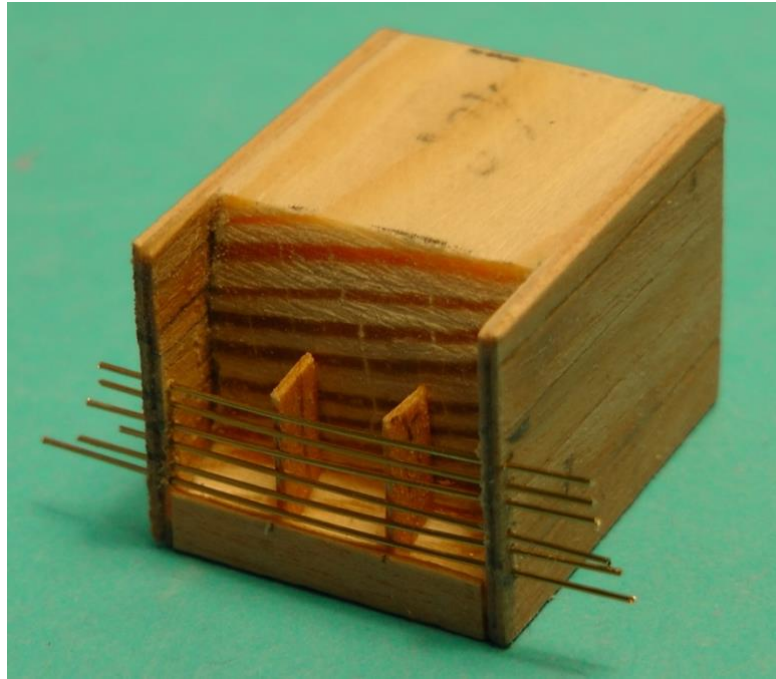


Figure N40 - Fire bars fitted

Note:- This author found the 0.3 mm metal rod was relatively easy to insert from the outside of the stove side, but where it threaded through from the inside, a pair of tweezers were required to guide the rod into the hole.

A small amount of super glue is squeezed onto a piece of paper; a pin is dipped into it and a small amount was sparingly brushed along the holes and the fire dividers, so fixing them in place. The excess wires are removed with a pair of nail clippers Figure N41, and the fire bars are completed Figure N41.

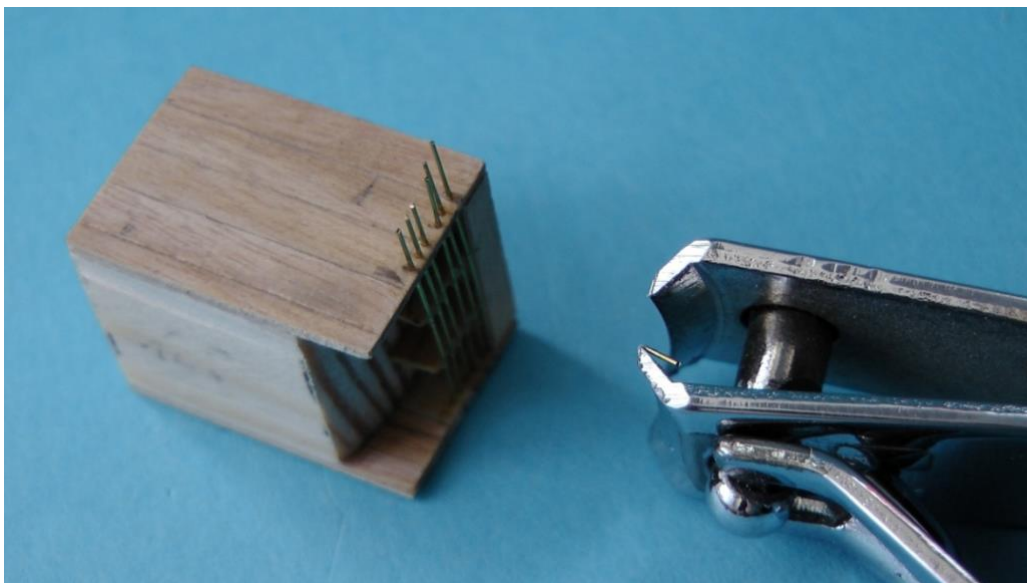


Figure N41 - Nail clippers are used to remove excess metal rods

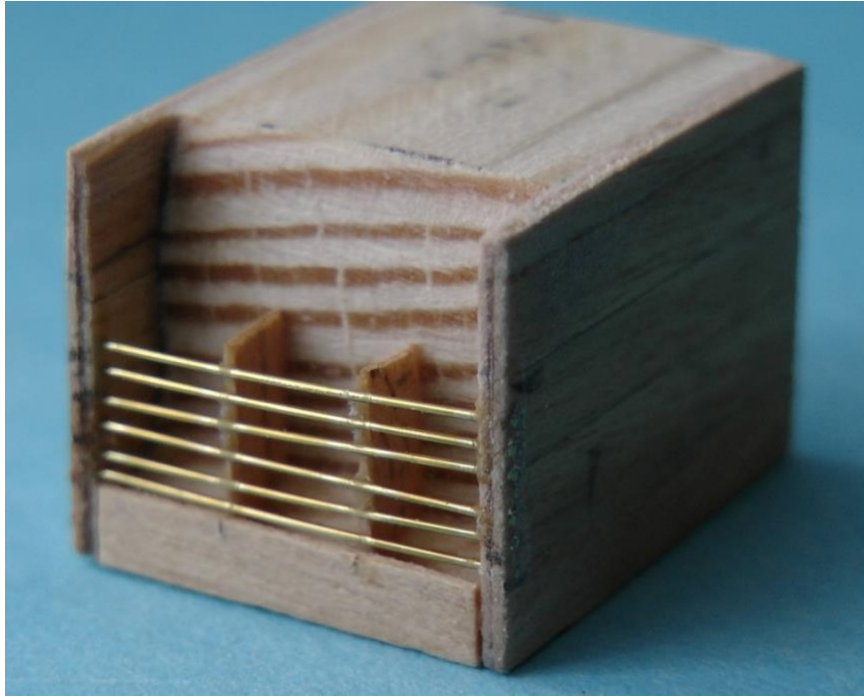


Figure N42 - Completed fire bars

The smoke hood is glued to the stove Figure N43.

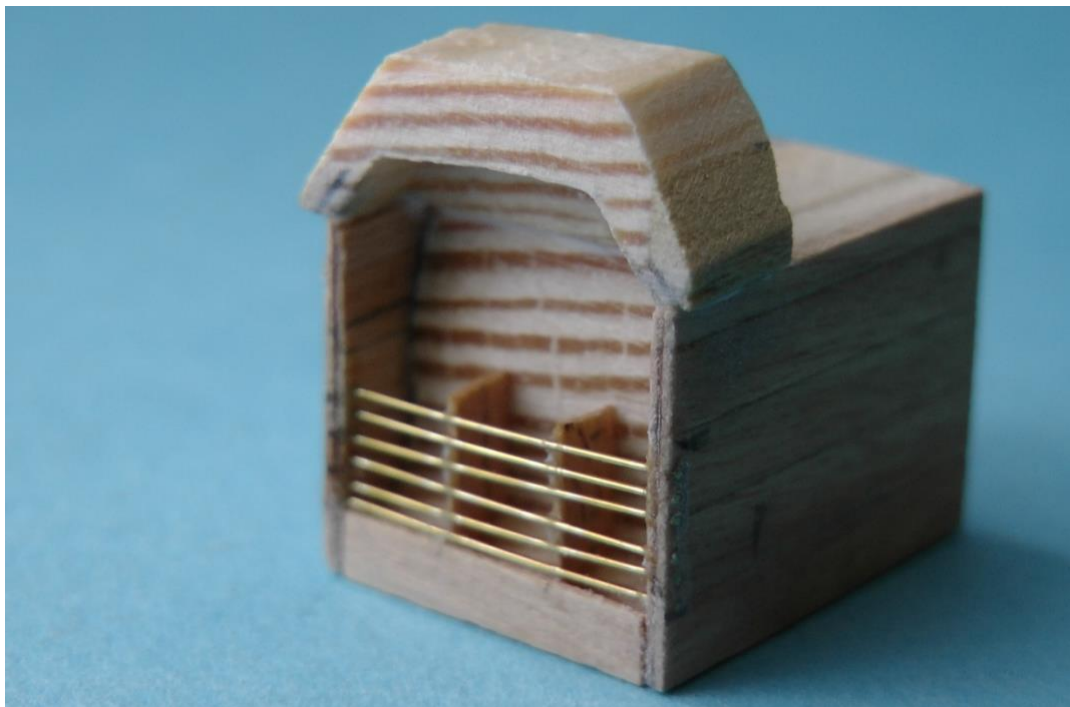


Figure N43 - Smoke hood glued on stove

The smoke hood now has its final shaping, creating a finer appearance; for this a 'diamond' grinding tool is used Figure N44 and N45. *Note:- Prior to its shaping, use a*

coat of 'sealer' or something similar to help strengthen the wood. This helps prevent it from splitting.

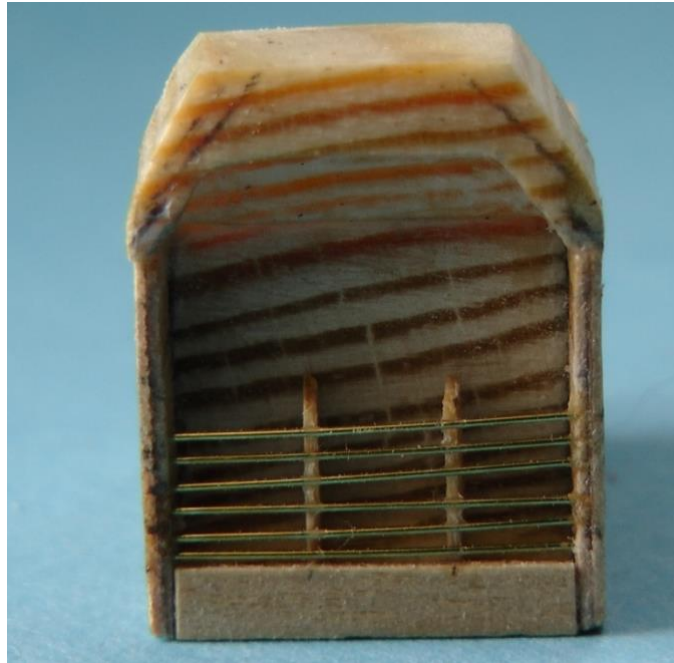


Figure N44 - Smoke hood ready for final shaping

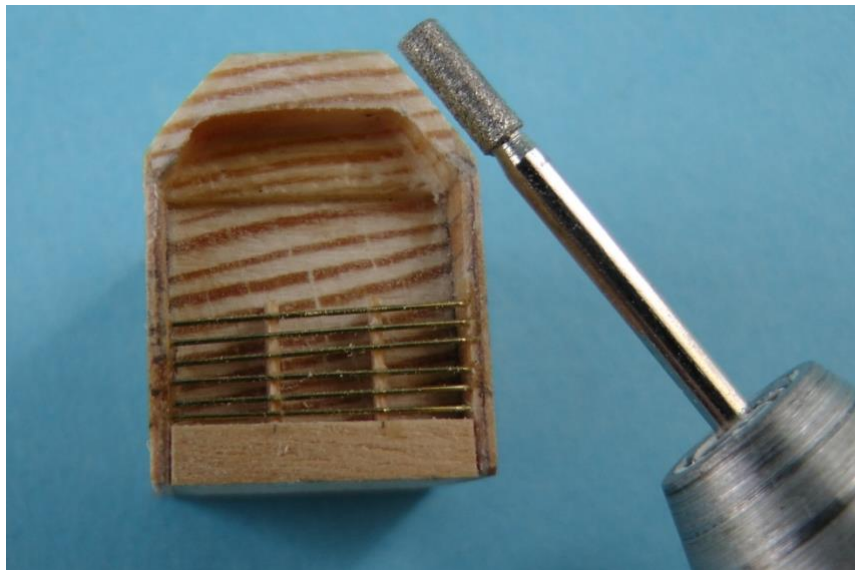


Figure N45 - Diamond grinder used for final shaping of smoke hood

A copy of the plan Figure N1 is printed 1:1 scale and the two sides, fwd end and top are cut out Figure N46.

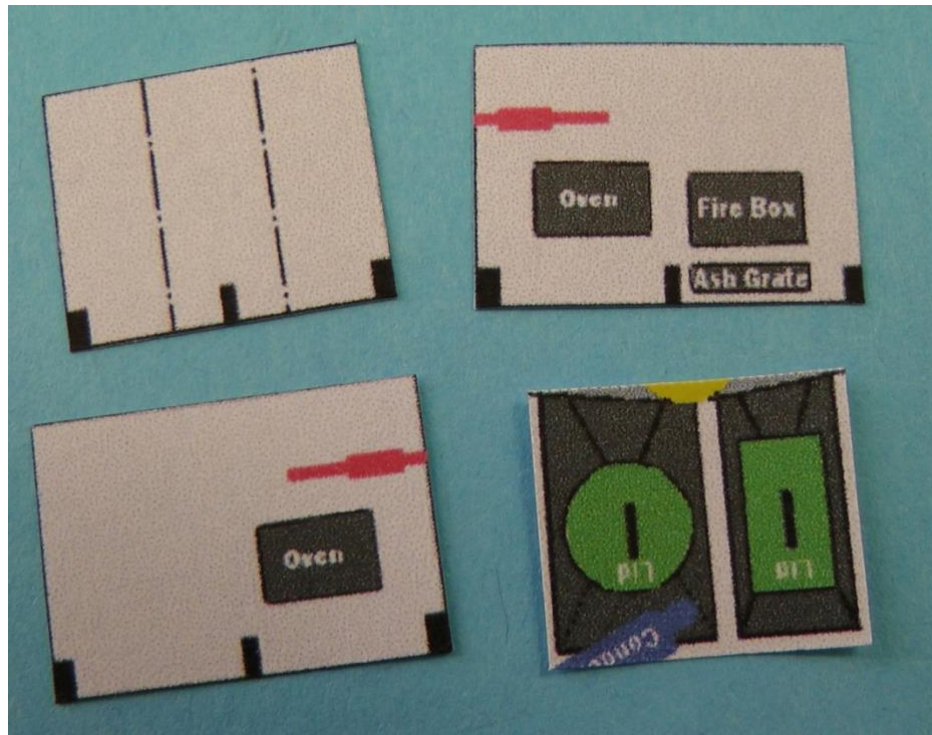


Figure N46 - Parts of the plan are cut out

These parts are then stuck on the part-completed stove; the reason for doing this was to ensure that the oven doors, lids, etc would line up correctly. At this scale any mistake is instantly noticeable. The pieces of the plan were fixed to the stove with diluted PVA adhesive Figure N47.

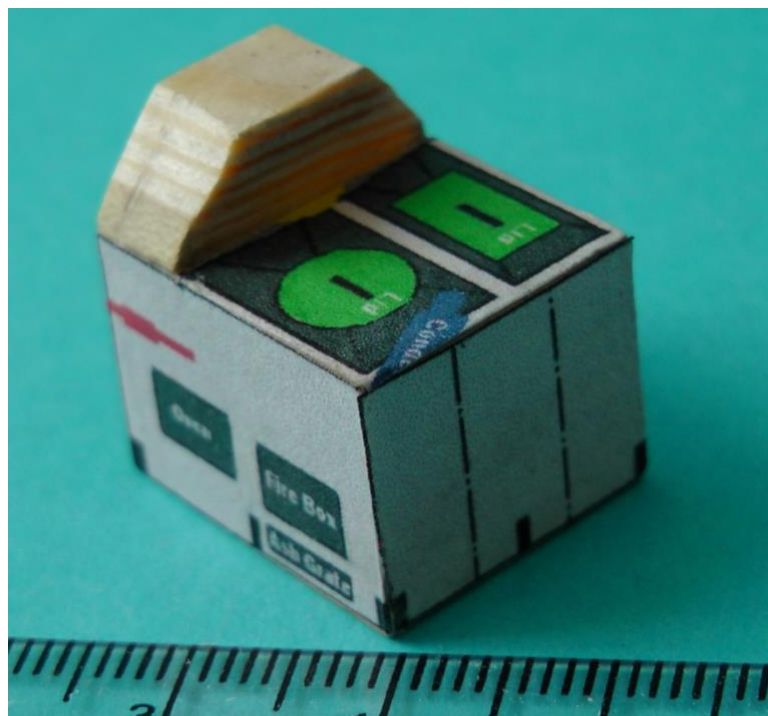


Figure N47 - Parts of the plan glued to the stove

For creating the oven doors, ash grate door, boilers and lids odd scraps of wood are used.

The two boilers are cut from 3 mm ply; one lid is cut from 1 mm ply and the other from 1 mm Walnut planking Figure N48; the position of the handles are marked on the lids.

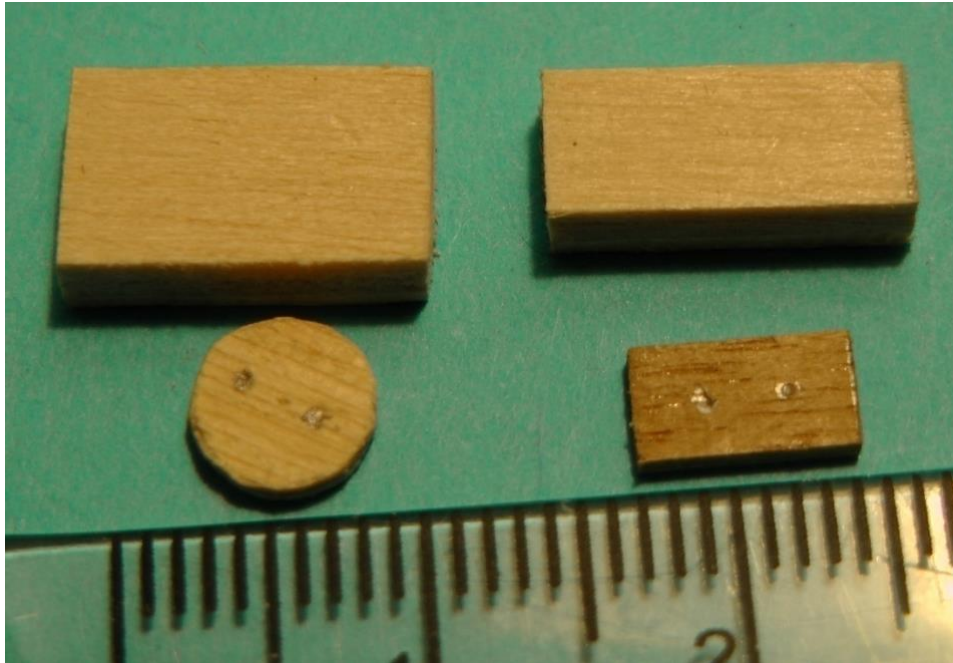


Figure N48 - Boiler's and lids cut from scraps of wood; position of handles marked

The lids are positioned and glued onto the boiler tops Figure N49.

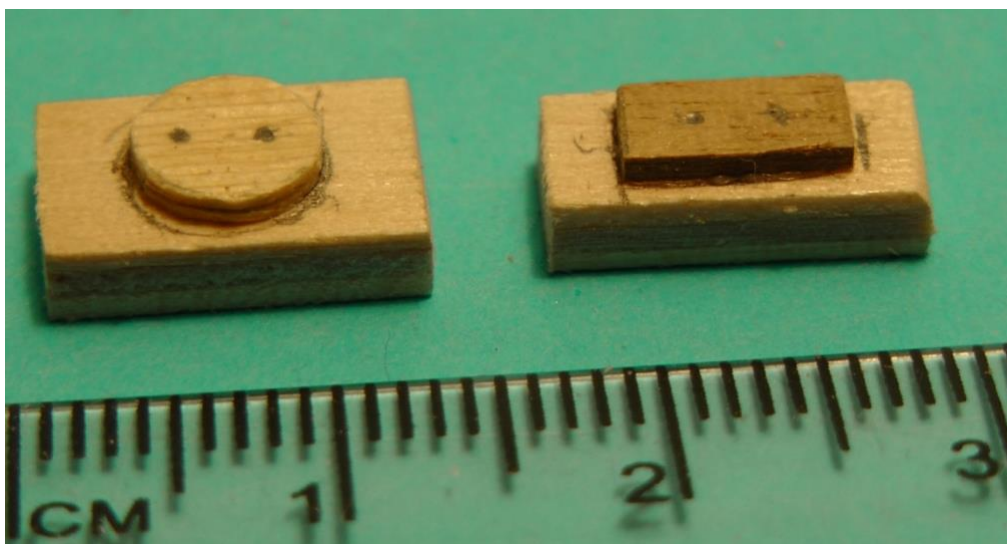


Figure N49 - Lids glued to boiler tops

The handles are made from 0.3 mm brass rod and the holes are drilled using 80 gauge twist drill. The rod is bent using a pair of small flat nosed pliers, whose width are 2 mm, which is ideal for creating the handles Figures N50 and N51.



Figure N50 - Handle being bent



Figure N51 - Flat nosed pliers used

The handles are cut to the correct length with nail clippers and inserted into the drilled holes in the lid Figure N52; a drop of super glue is put on a scrap of paper, and with a pin a small amount is brushed around the bases of each handle to secure them.

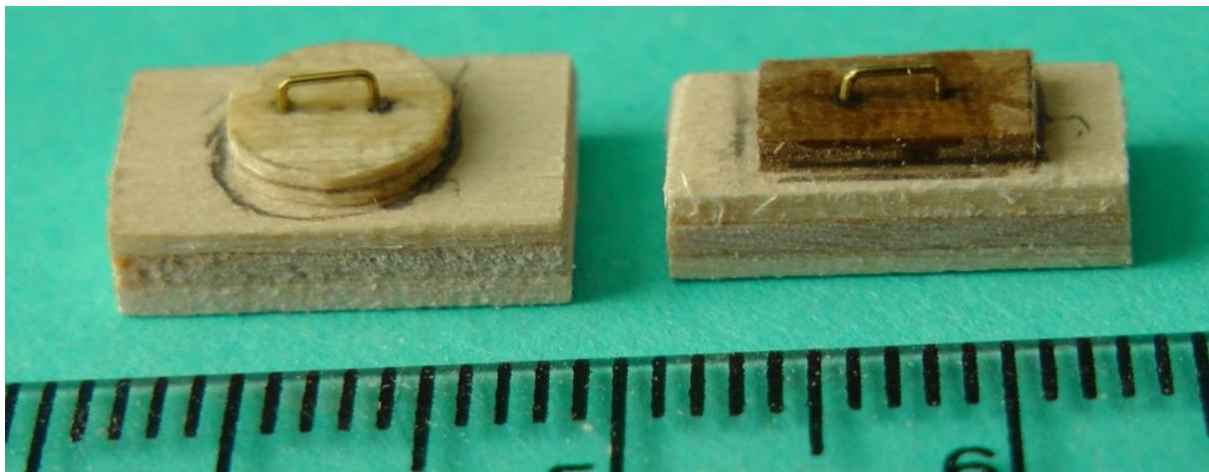


Figure N52 - Handles inserted into lids; superglue is brushed around bases to fix handles

The boiler tops have diagonal strengthening, which is shown on the plan Figure N1; these are replicated on the model with 0.2 mm brass rod.

The boiler top is prevented from moving by fixing onto two sided sticky tape; the brass rod is held on a 3 mm piece of ply that is also secured with two sided tape. The brass rod is positioned, fixed with masking tape and super glue is brushed over the area of the rod that is contact with the wooden boiler top, with a pin Figure N53.

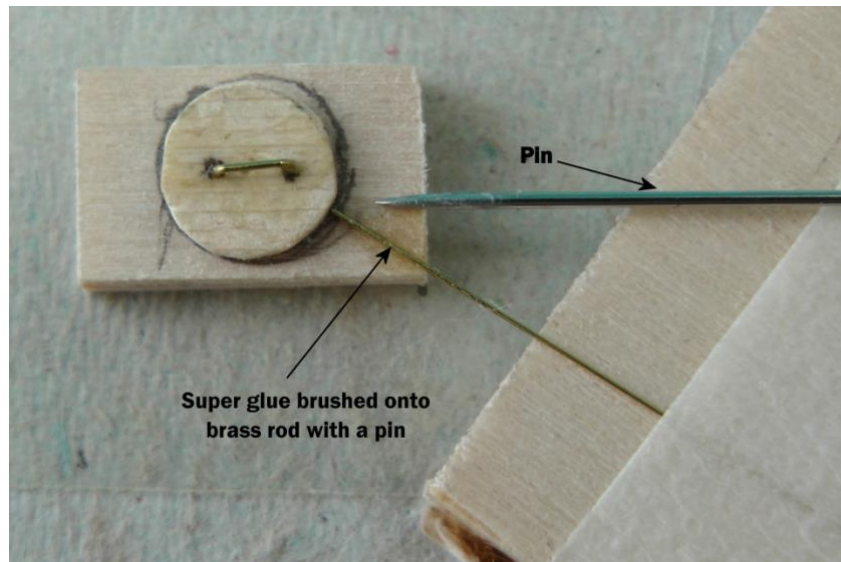


Figure N53 - Brass rod super glued to boiler top

The brass rod is cut with nail clippers Figure N54.

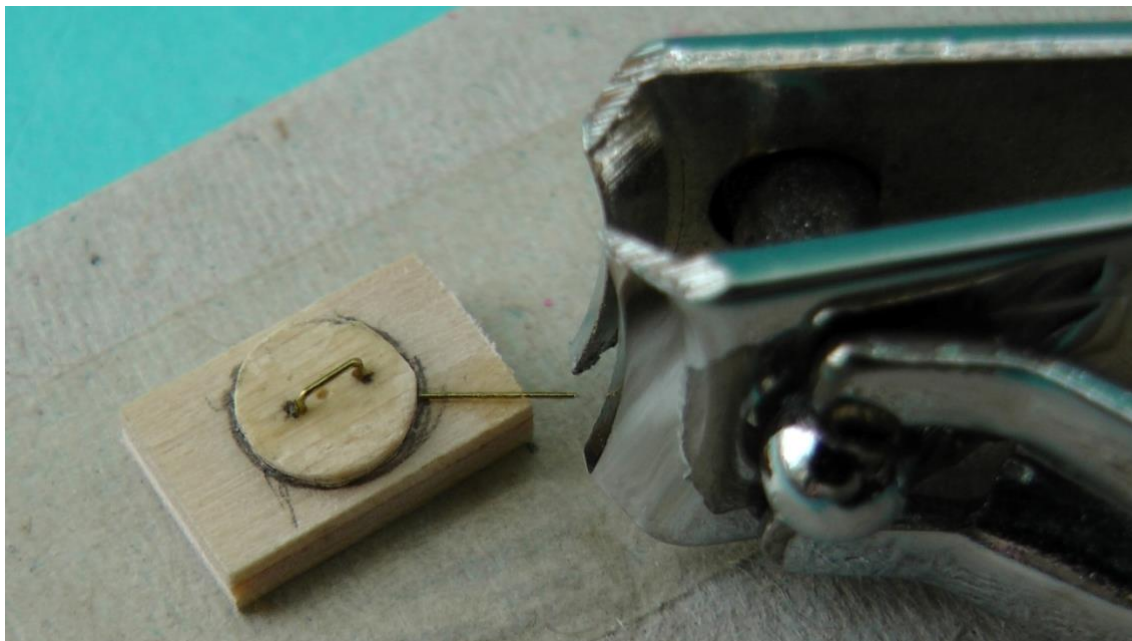


Figure N54 - Brass rod cut with nail clippers

The above process is repeated for all four corners of both boiler tops; the excess brass rods are clipped off and a needle file is used to smooth the end of each rod Figure N55.



Figure N55 - Completed boiler tops with lids, handles and strengthening

Loosely positioning the boiler tops on the stove gives an indication of what it will look like Figure N56.



Figure N56 - Boiler tops loosely positioned on stove

Doors for the oven, fire box and ash grate are made out of the 0.5 mm Tanganyika that was used for the oven sides Figure N57.

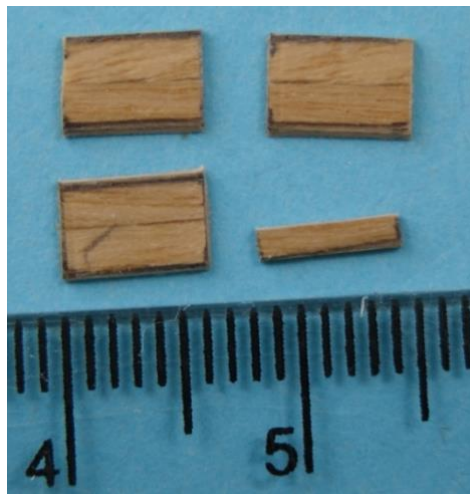


Figure N57 - Oven, fire box and ash grate doors

The shape of the doors are taken from Figure N3; note the side on which the hinges are positioned as hinges will be fitted. A 1 mm strip of paper is cut and glued to the top and bottom of the fire box and oven doors, and for the ash grate door 0.5 mm paper strip is used Figure N58.

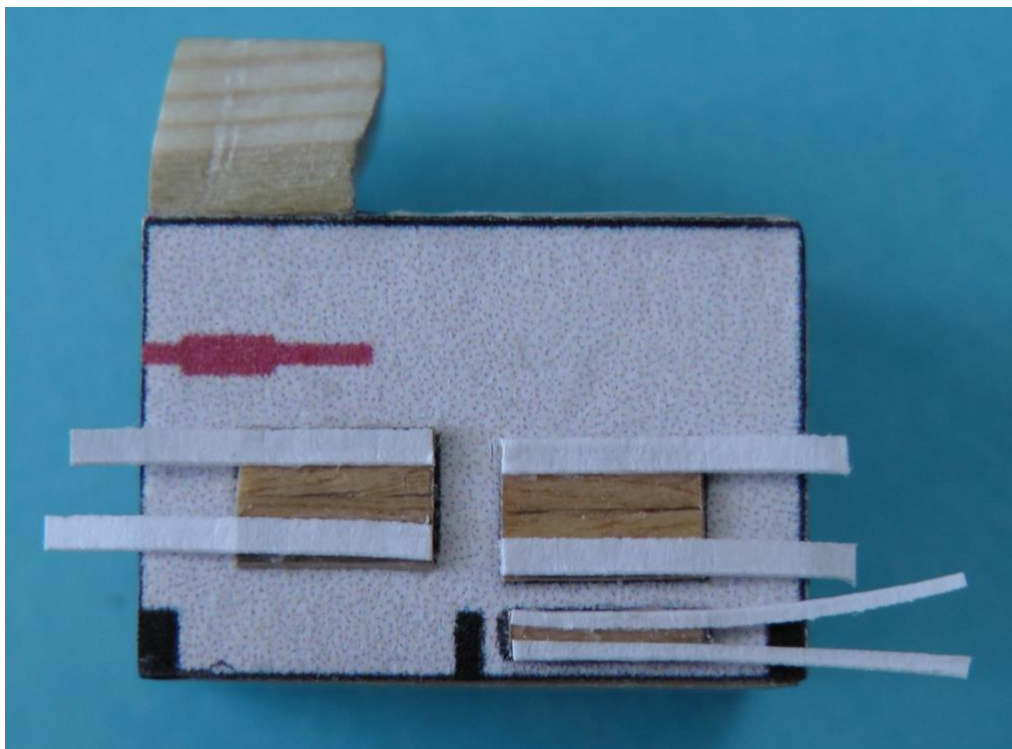


Figure N58 - Strips of paper glued to the oven, furnace box and ash grate door's

The hinges are replicated using 0.4 mm brass rod; for the oven and fire box doors the rod is cut using nail clippers into approximately 1.25 mm lengths. A small amount of PVA adhesive is applied to the underside of the excess paper strip, and the paper is then folded around the rod. When the glue is dry the excess paper is removed with a craft knife.

For the ash grate door hinges the brass rod is cut into approximately 0.25 lengths and the excess paper folded around. This is an extremely fiddly operation and this author has only attempted this to see if it were possible to achieve Figure N59.

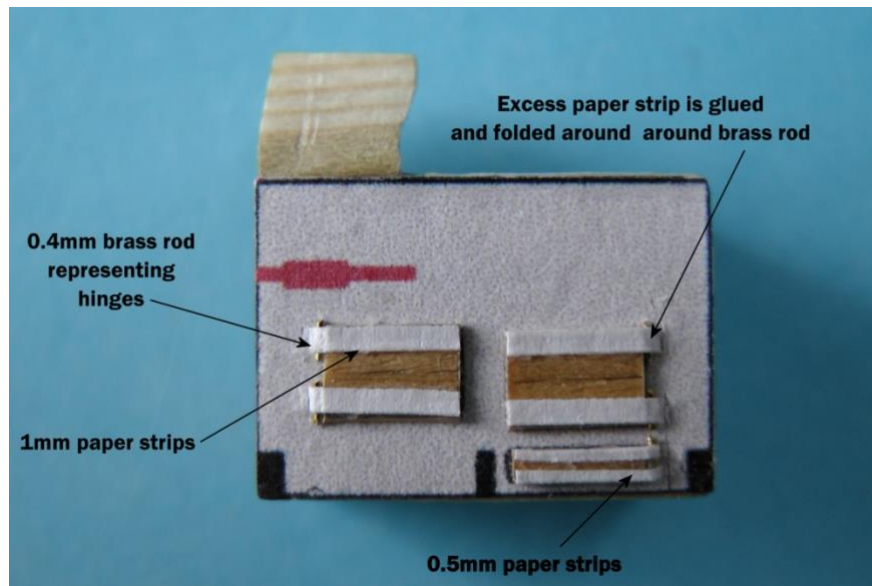


Figure N59 - Brass rod used to replicate the hinges on the door's

Two hanging gantries are made from 0.3 mm brass rod and 0.6 mm o.d. x 0.4 mm i.d. brass tube Figure N60.

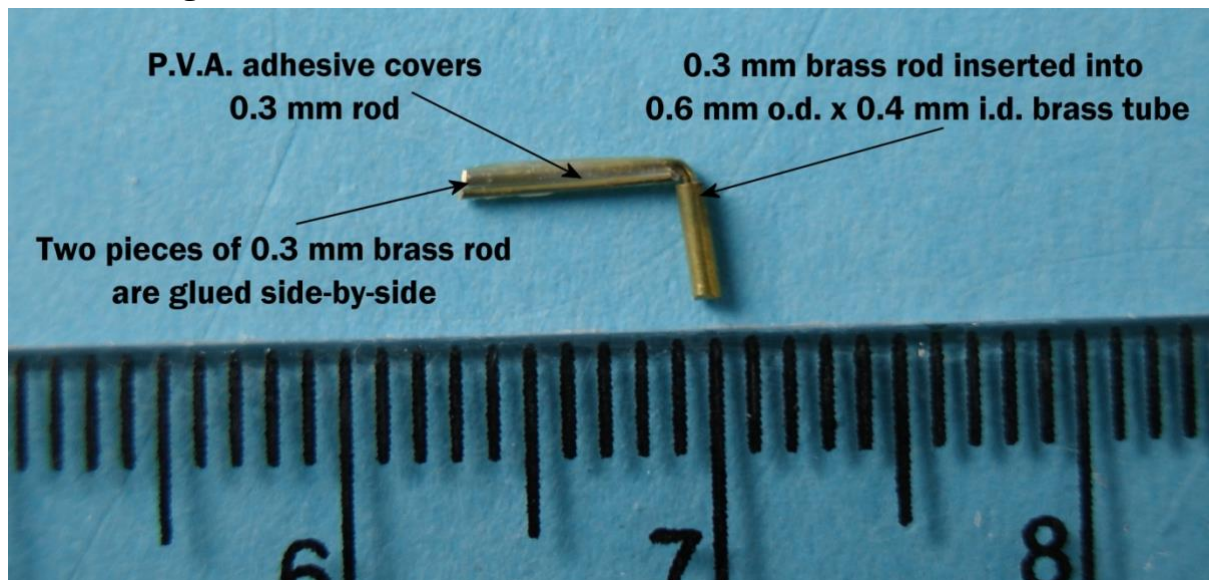


Figure N60 - Hanging gantry

To position the gantries in place, hold it in place with a pair of tweezers (not shown); then hold the brass tube with a pair of self closing tweezers Figure N61.

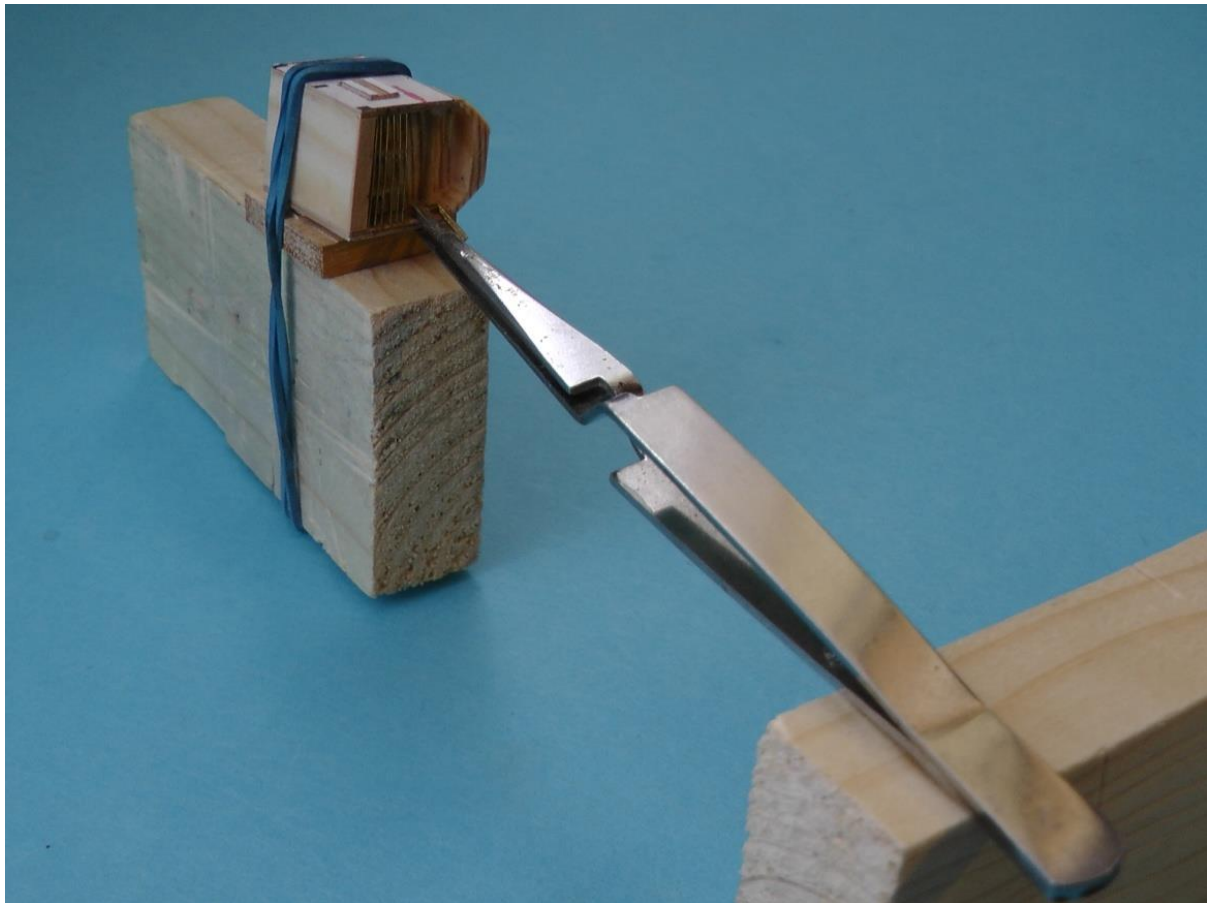


Figure N61 - Holding the gantry in place for gluing

It can be seen that in Figure N61 the stove is held on a block of wood to prevent movement, whilst the tweezers are being held in place. Prior to gluing wrap one side of the tweezers arm in clear sticky tape, so preventing the P.V.A. from sticking to the tweezers Figure N62.

Using a sewing pin, apply a small amount of P.V.A. adhesive to the brass tube and the wood. Leave for approximately 30 minutes and carefully remove the tweezers. The P.V.A. will still be a little 'tacky', so the gantry can be re-positioned if needed.

After several hours apply more P.V.A. adhesive Figure N62.

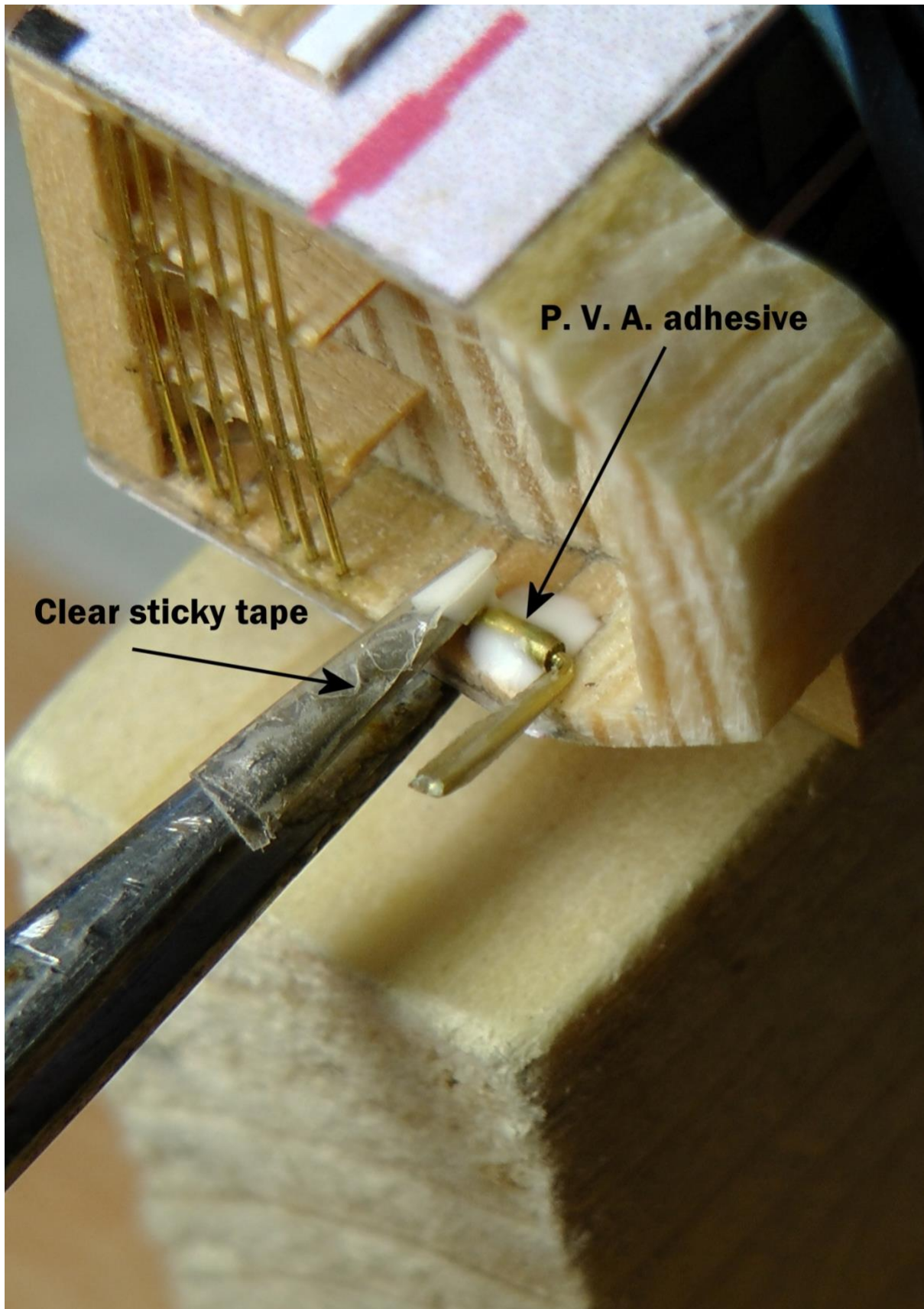


Figure N62 - More P.V.A. adhesive applied

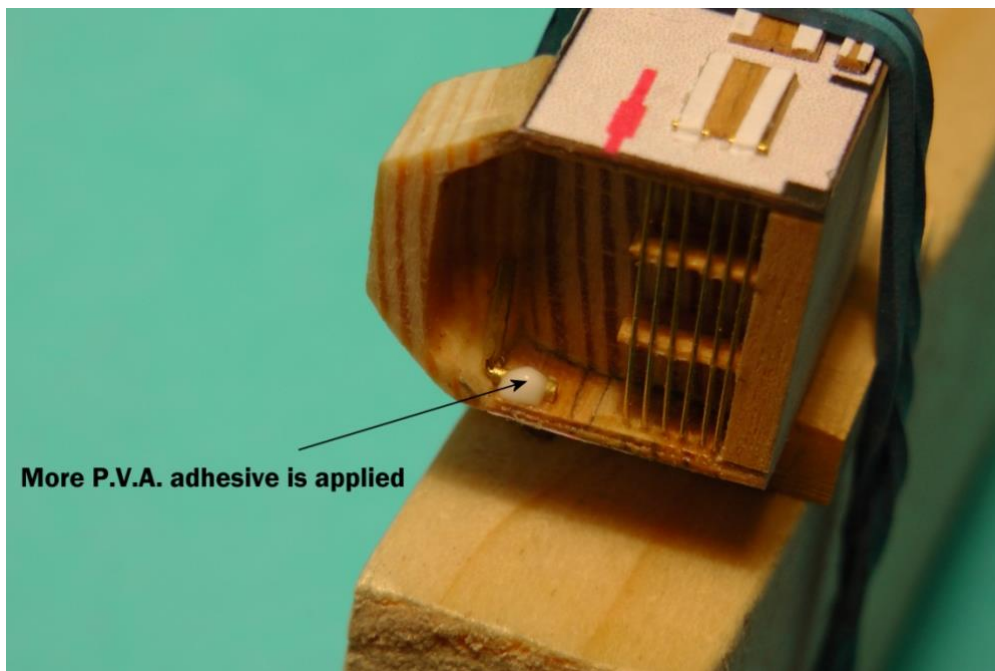


Figure N63 - Further P.V.A. adhesive is applied (*photo out of sequence*)

The hanging gantries will swing 'in and out' Figure N64.

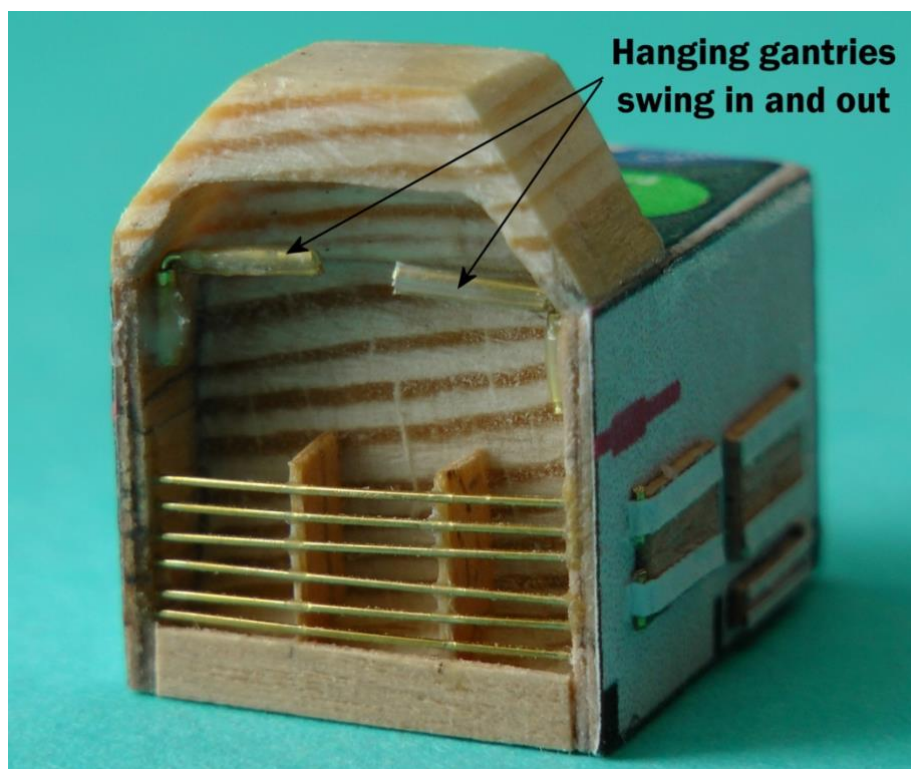


Figure N64 - Swinging hanging gantries fitted to stove

There are probably many different ways that the 'spit mechanism' could be constructed, and the following is an insight as to how this author approached the solution. Initially it was considered using Tanganyika deck planks for the two spit brackets either side of the stove, but after several experiments it proved too difficult to shape them. Viewing Figure N3 it was decided to experiment with brass rod, and to assemble the side brackets so they would be similar, and this proved to be very effective. Initially super glue and PVA adhesive was used Figure N65, but it was thought to look 'clumsy'. Soldering was attempted Figure N66, and this proved more promising, so this method is now described.

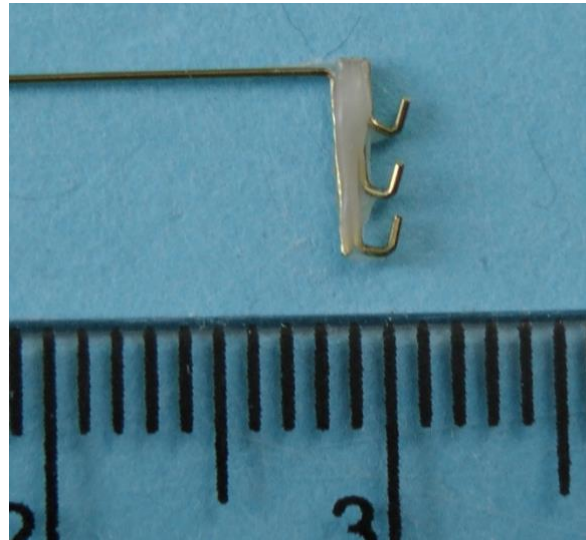


Figure N65 - Spit brackets assembled using superglue and P.V.A. adhesive

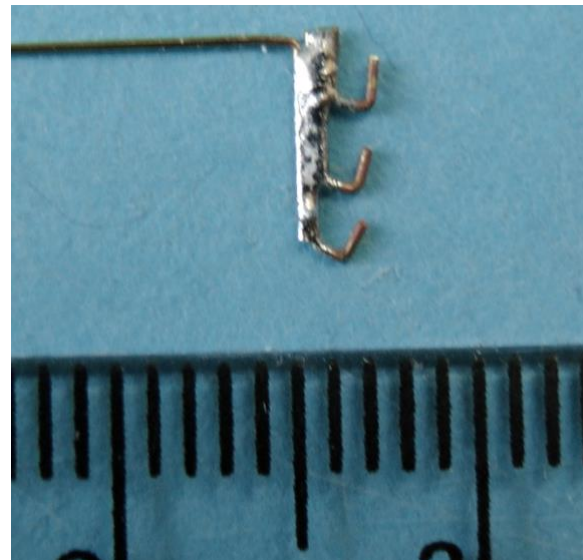


Figure N66 - Spit bracket assemblies with soldering

Using 0.3 mm brass rod, the end was bent at right angles Figure N67, and sticky taped to a piece of flat wood.

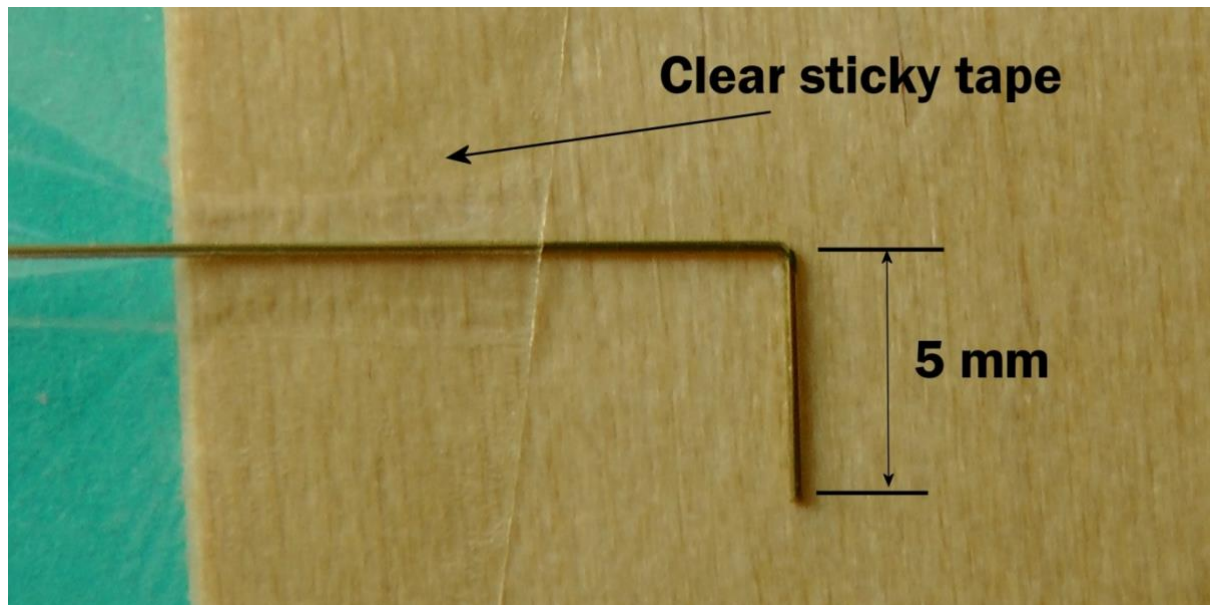


Figure N67 - 0.3 mm brass rod bent at right angles

The first 'hook' for the bracket was bent and sticky taped into position Figure N68, then the second Figure N69 and then the third Figure N70

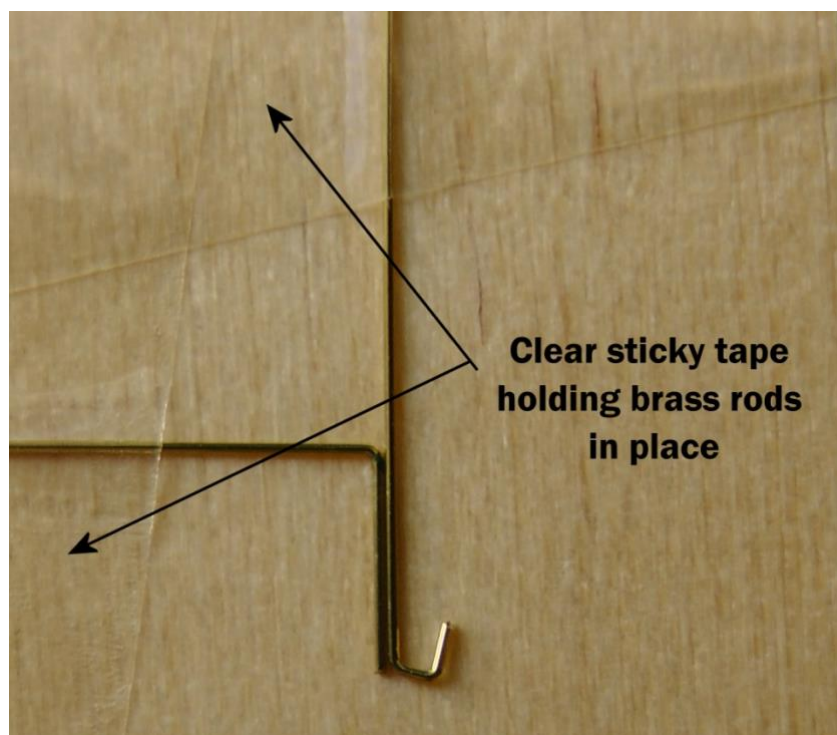


Figure N68 - First hooked rod laid in position



Figure N69 - Second hooked rod is laid into position



Figure N70 - Third hooked rod laid into position

A little soldering flux is smeared over the four rods that are to be soldered Figure N71.

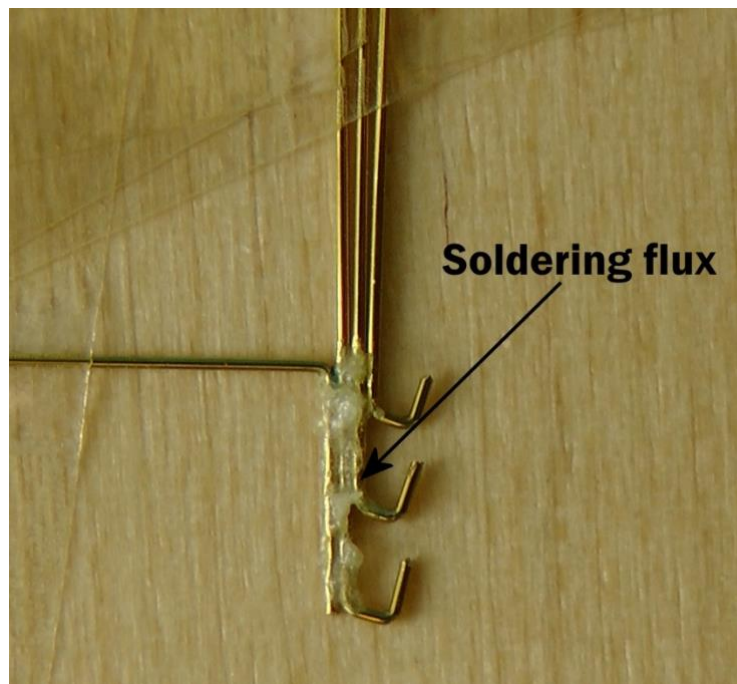


Figure N71 - Soldering flux smeared over brass rods

***Important:** When using the 'mini' electric soldering tool, ensure that all safety precautions supplied with the tool are followed.*

A little drop of solder is placed on the hot tip Figure N72, then this is applied to the brass rods to be soldered Figure N73.

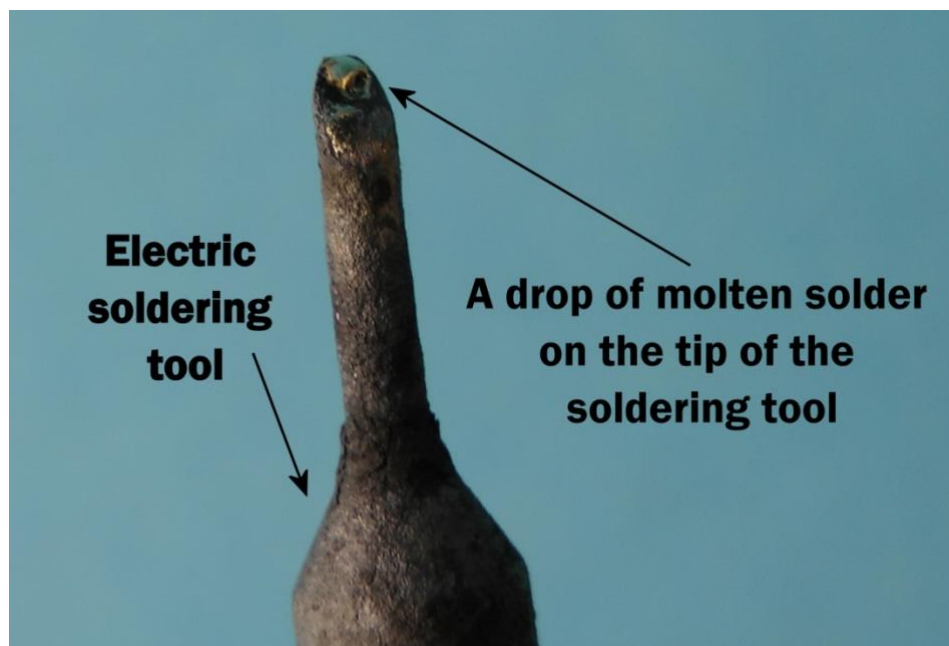


Figure N72 - A drop of molten solder on the soldering tool

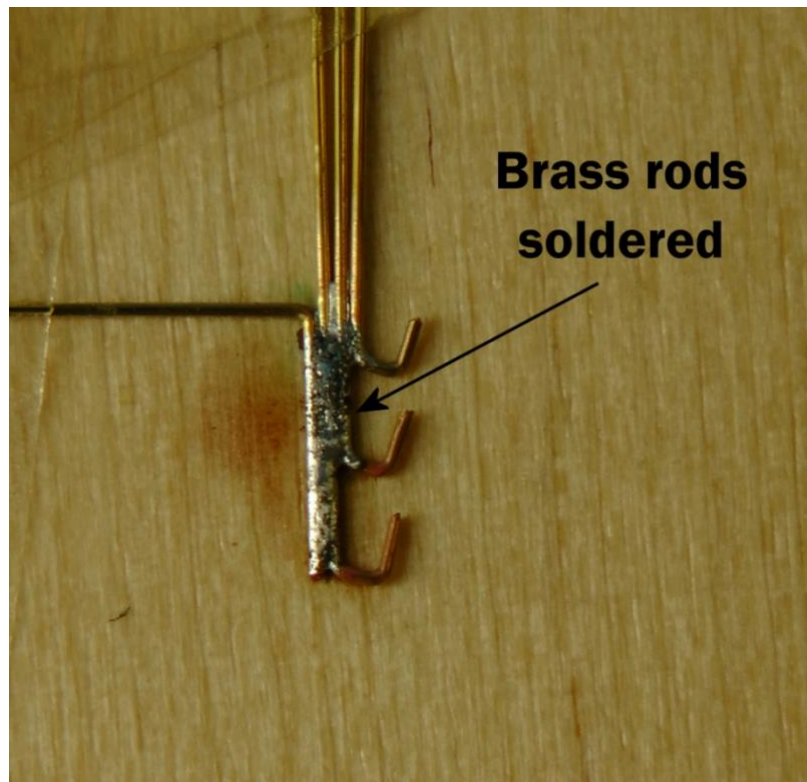


Figure N73 - Brass rods soldered

The soldered brass rods are cut away from the wood, sticky tape and the excess rods are removed with a pair of nail clippers Figure N74.

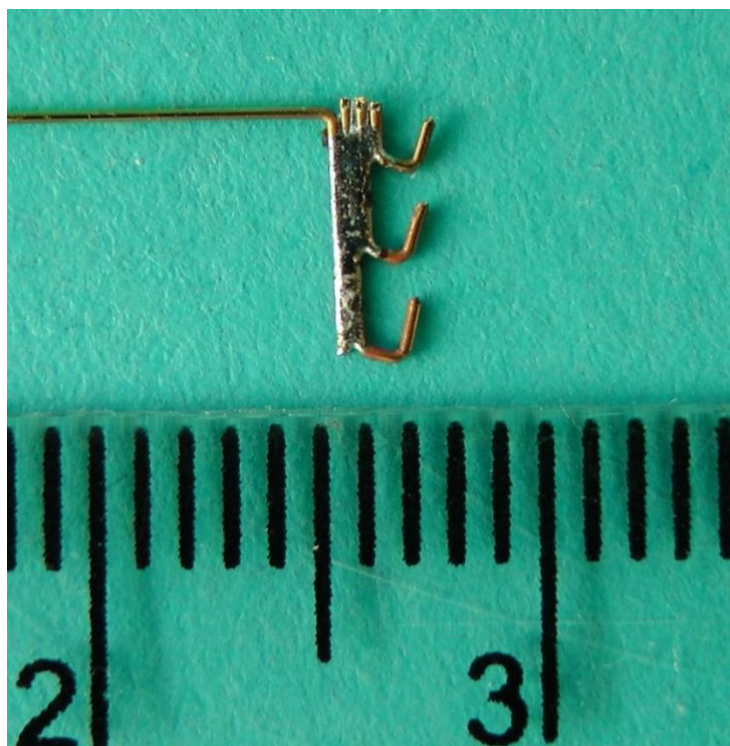


Figure N74 - Wood, sticky tape and excess brass rods are removed

The brackets side supports are made from two brass tubes cut 2.5 mm in length and 0.6 mm o.d. x 0.4 mm i.d. Figure N75. When cutting ensure that the 0.3 mm brass rod is inside the tube, as this will prevent it from being squashed when cut; the tube end is filled so the rod can be inserted through the tube.

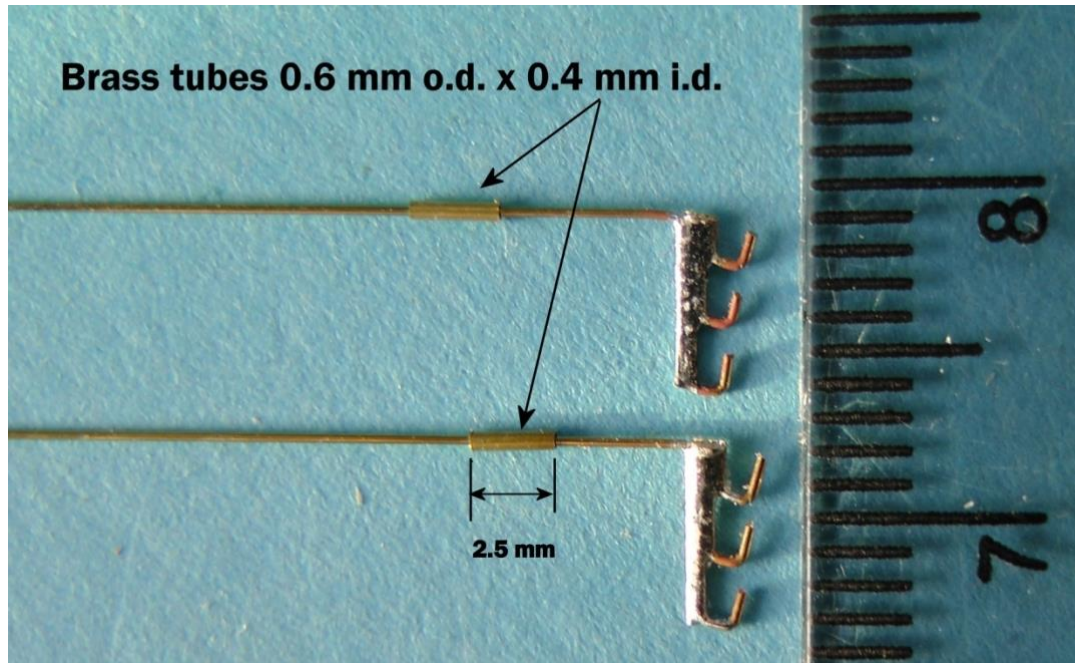


Figure N75 - Two side brackets for spit

This is then fixed to the side of the stove with P.V.A. according to the plan Figure N1.

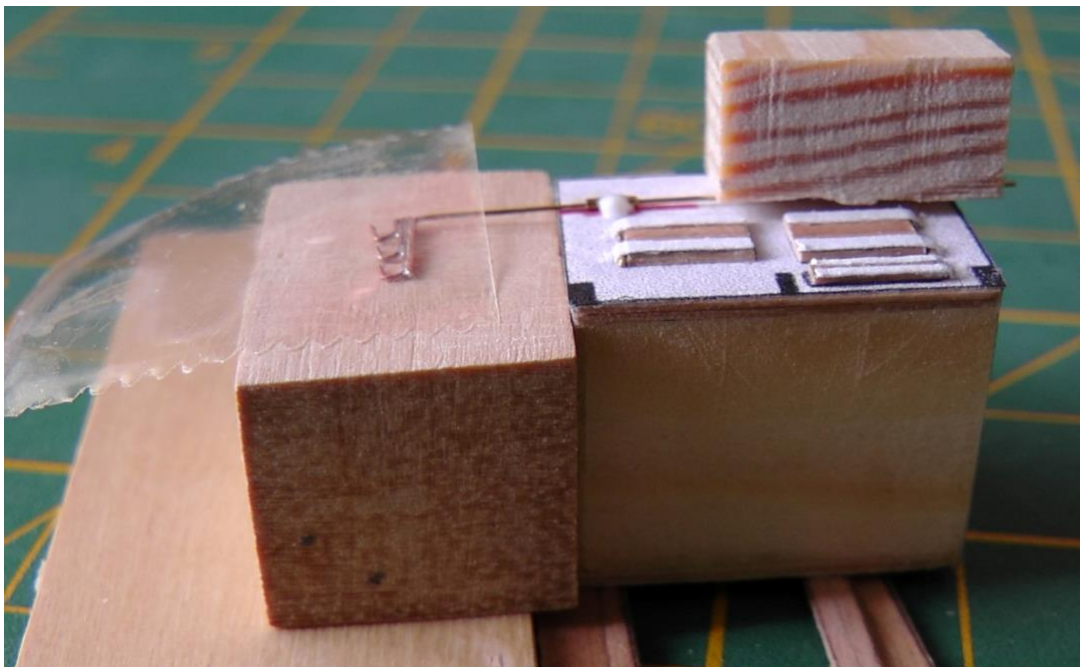


Figure N76 - Spit brackets fitted to side of stove according to the plan

Please see Figures N86 and N87 and accompanying note

The smoke jack and spit pulleys are made from 'beads', which were obtained from the local craft store. It was not sure which ones would be suitable so a range of shapes and sizes were purchased Figure N77.



Figure N77 - An assortment of sizes and shapes of beads

The spit pulley was made from a round bead approximately 4.5 mm diameter. A drop of superglue was put on the end of a round toothpick and secured pushed on. The bead was inserted in the craft drill and a craft knife was used to shape the spit pulley Figure N78. The craft drill was in effect being used as a 'makeshift' lathe.

Note: Do wear safety glasses in the event the craft blade breaks.



Figure N78 - Craft drill adapted as a bench lathe to shape the pulleys

For the pulley chain the thinnest that was available from the local jeweller was purchased, and it was made to fit Figure N79.



Figure N79 - Spit pulley shaped to fit necklace chain

The protruding part of the toothpick is cut away from the bead, but the super glued tip of the toothpick will remain in the centre. A 0.6 mm brass rod is used for the spit; the centre of the bead is drilled using a 74 gauge twist drill, and superglue is used to fix the rod; the spit is cut to the correct length Figure N80.

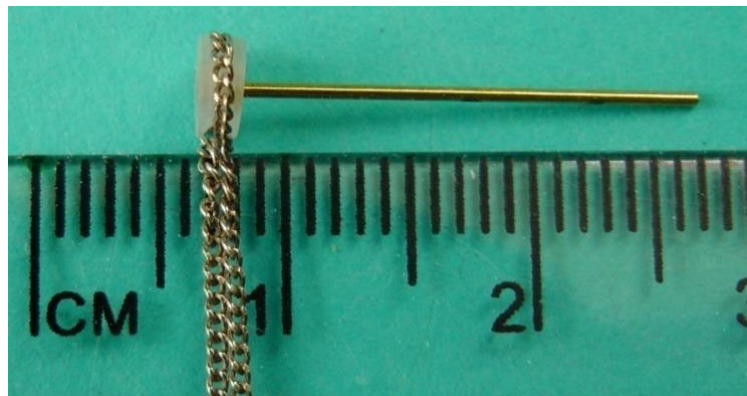


Figure N80 - Completed spit, pulley and chain

A smaller wider bead is selected for the smoke jack pulley, and the same process is repeated. The brass rod used for the smoke jack is 0.4 mm, so the centre of the bead is drilled using a 78 gauge twist drill; the chain groove is slightly wider Figure N81.

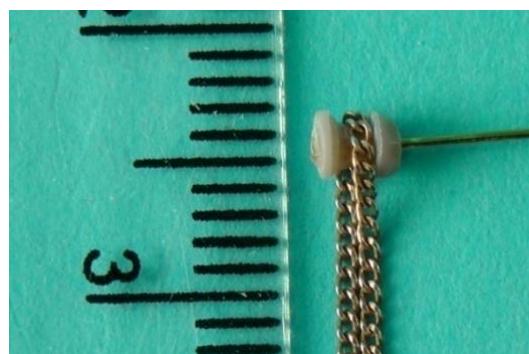


Figure N81 - Smoke jack pulley and chain

The stove chimney is made 6 mm diameter and in reality anything could be used. The height will depend upon the model in which it will be fitted, and a small hole for the smoke jack pulley rod to be inserted is made in the side Figure N82. The chimney is then fitted on the stove Figure 83.

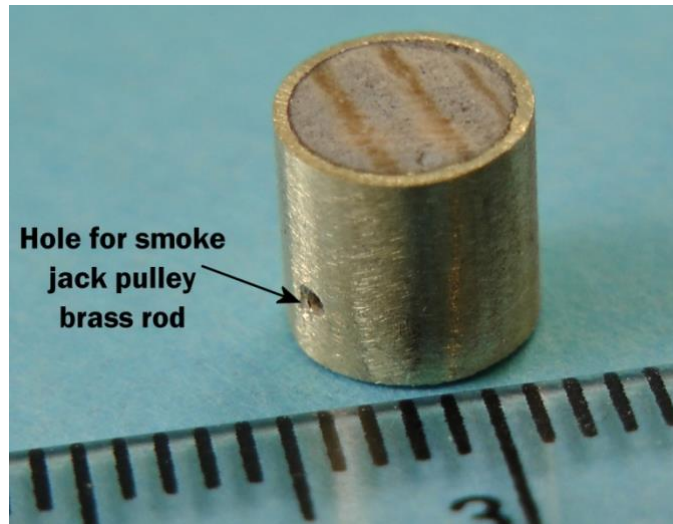


Figure N82 - Chimney for stove



Figure N83 - Chimney fitted to stove

The excess brass rod on the spit side brackets are removed Figures N84 and N85. They are fixed into place with a drop of superglue or P.V.A. adhesive.

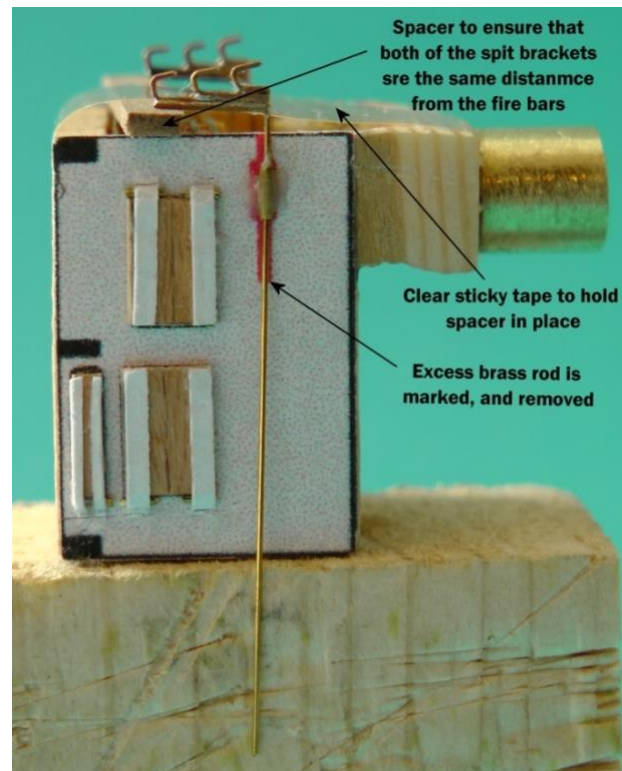


Figure N84 - Excess brass rods removed from spit brackets

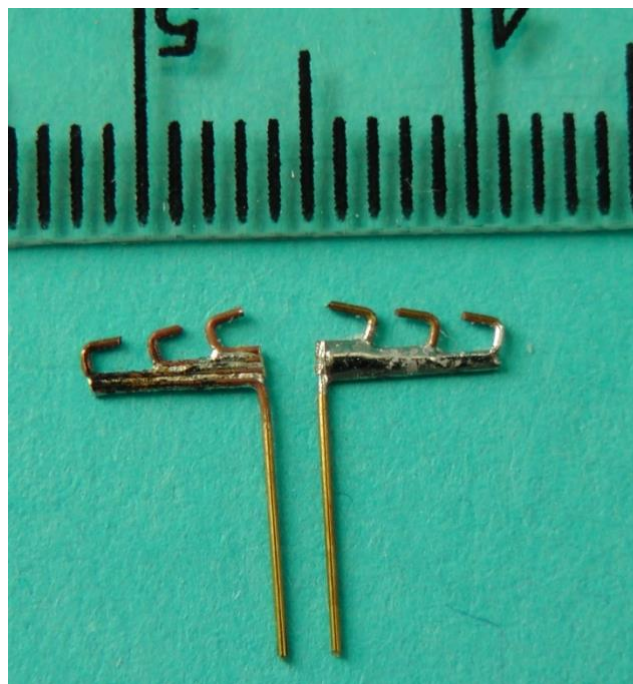


Figure N85 - Spit Brackets

Note:- This author failed to check properly that the spit brackets would hold the spit perfectly level, so consequently they had to be slightly bent Figures N86 and N87.



Figure N86 - Spit brackets had to be slightly bent after having fixed them

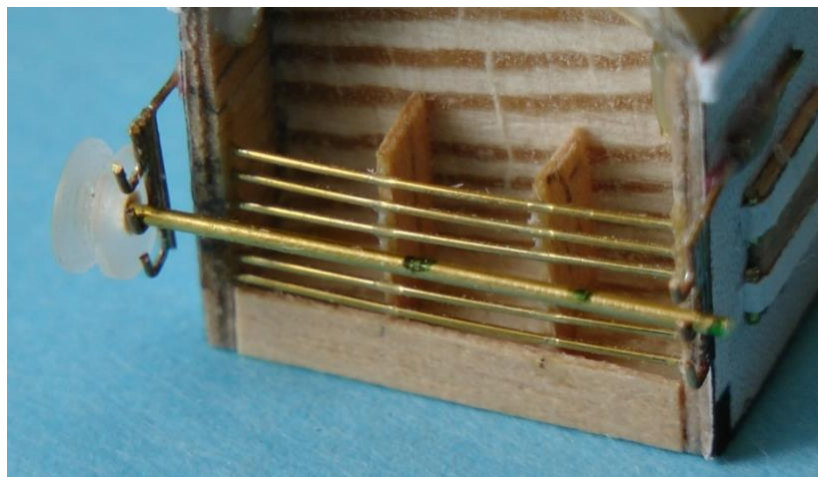


Figure N87 - Spit on the adjusted brackets

The smoke jack pulley was from 0.5 mm Walnut cut to a width of approximately 1.5 mm and a hole is drilled with a 78 gauge twist drill at the top for the pulley rod; it is with a spot of P.V.A. adhesive Figure N88.



Figure N88 - Smoke jack pulley support fitted

The smoke jack pulley and rod are fitted a superglue is brushed into the hole in the chimney to secure the pulley rod; the spit is also fitted and the chain checked between the two pulley's Figure N89.

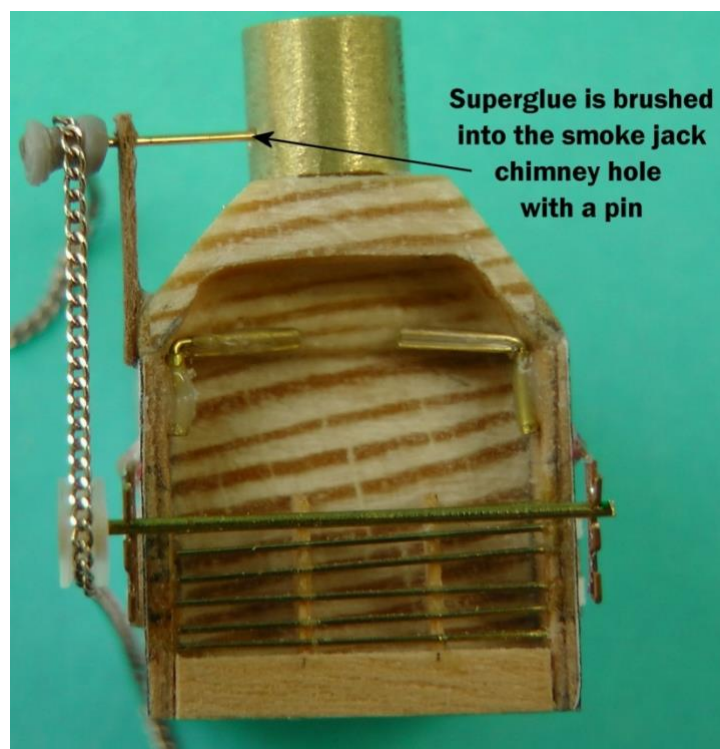


Figure N89 - Smoke jack pulley is fitted with the chain to the spit

This author made the condenser from a 'cable stitch' needle Figure N90, but anything similar will do; approximately 14 mm of the tip is removed and the ends 'squared' Figure N91.



Figure N90 - Cable stitch needle (approximately 2.5 mm in diameter)

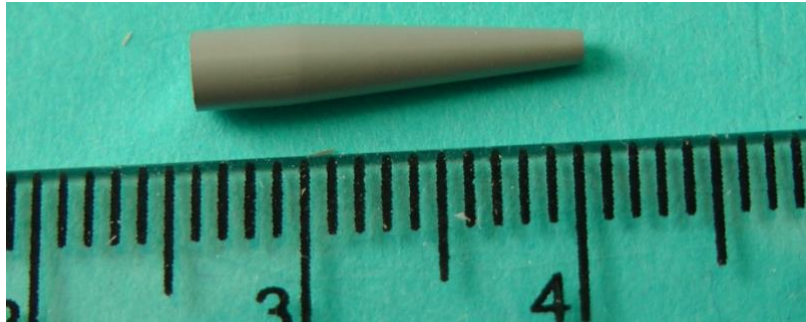


Figure N91 - Cable stitch needle ends squared

To represent the pipe from the boiler top the condenser 0.8 mm brass rod was bent at 90 degrees. The needle tip was held in the chuck of the craft drill, and a 67 gauge twist drill was held in a brass collet from the AMATI 'Action Kit 7383/20, positioned at the centre of the needle, held still, and a hole drilled Figure N92.

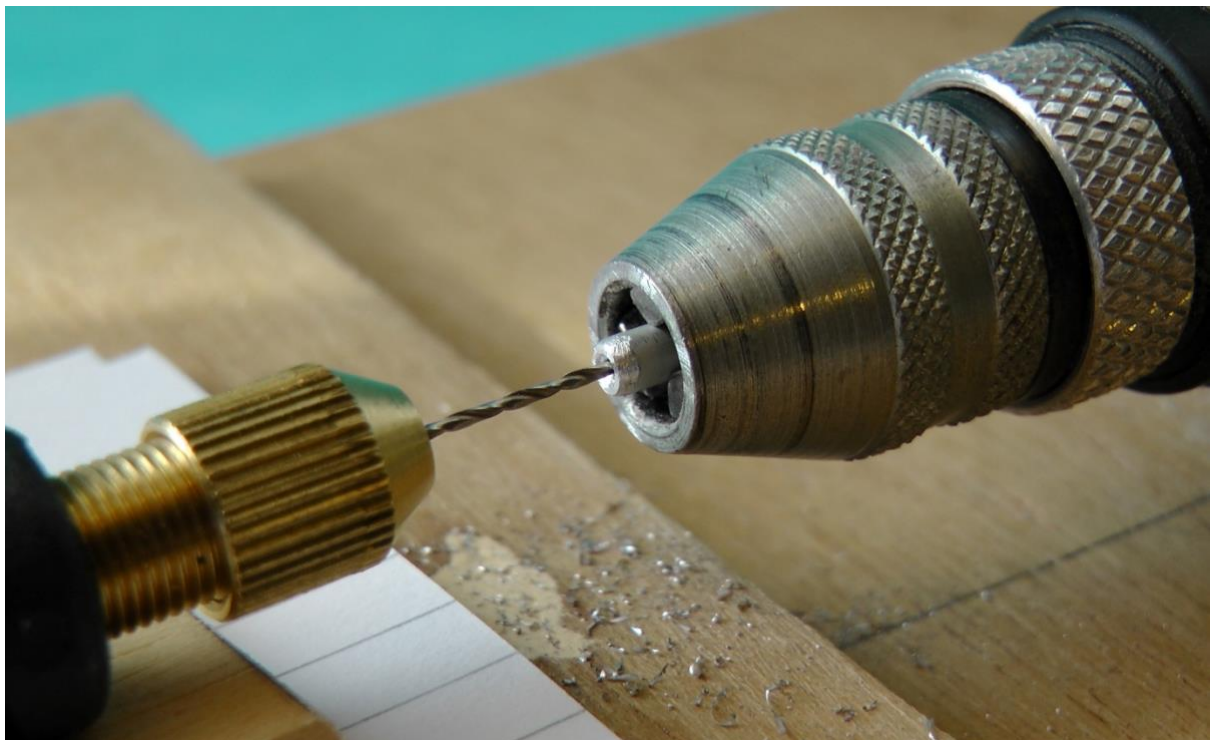


Figure N92 - Holed drilled in end of cable needle

The right angled brass rod is super glued into the end of the needle Figure N93.

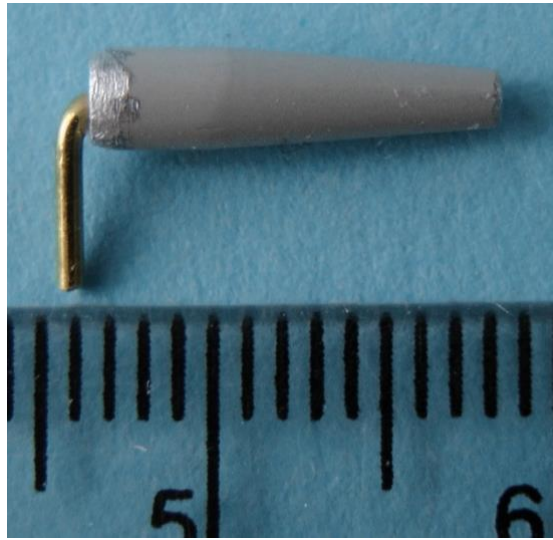


Figure N93 - Completed condenser

A thin card strip 0.5 mm wide, is cut and stuck around the top edge of the stove Figure N94.

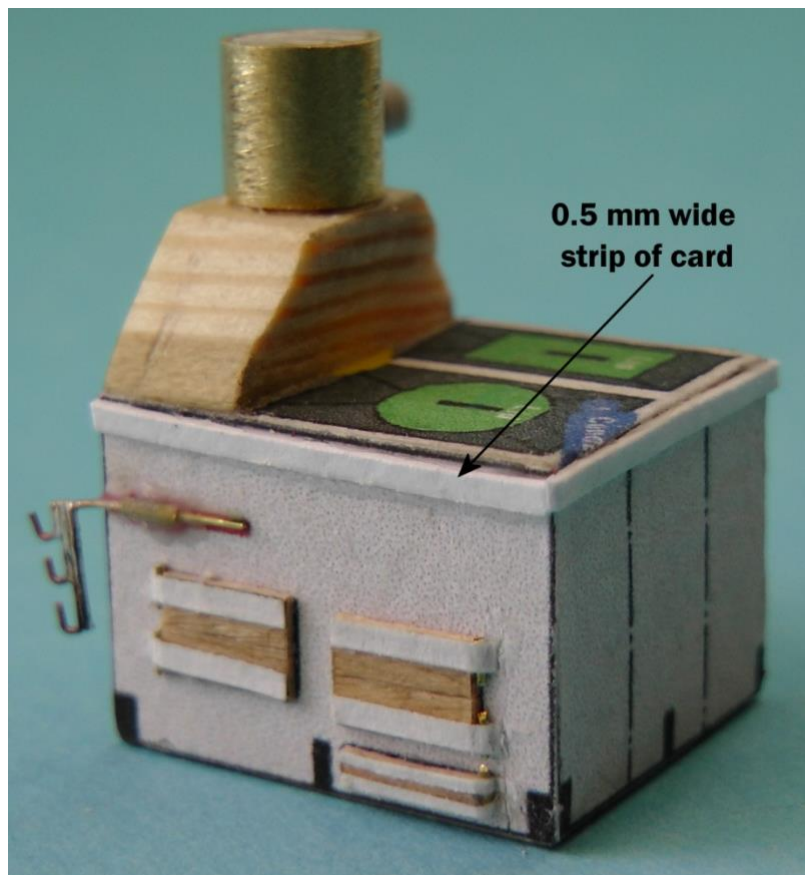


Figure N94 - Thin strip of card is stuck around the top of the stove

The hanging rail around the top of the stove can be fitted using a variety of methods, and the following is one solution.

There are two individual 'bent' rails Figure N100, on the side of the stove, and one 'straight' rail across the back; 0.4 mm brass rod is used, and the corners will be soldered. This author created a 'dummy' stove just to get used to the method of fixing, them through 'trial and error', prior to fitting them to the actual model.



Figure N100 - Stove side rails

Four holes are drilled using a 78 gauge twist drill, at approximately 45 degrees at the two top back corners of the stove edge, and two shallow ones approximately 2 mm from the front corner behind the smoke jack pulley. Those on the back stove can be deeper.

A support is made to hold the back rod whilst it is being soldered in place, to the two side rails Figure N101.



Figure N101 - Support for back rail whilst it is being soldered to the side rails

The two side rails are positioned; be sure to check that they are evenly placed on both sides. A spot of superglue applied with a pin can be put where the brass rod enters the hole. Alternatively it can be done after the soldering has been completed. The brass rod is positioned and sticky taped to the support Figure 101, and then placed beside the back corners of the side rails Figure N102. Soldering flux is put on the corners to be soldered Figure N102, and then the solder is applied Figure N103. The excess rod is removed with nail clippers and the corners smoothed with a needle file Figure N104.

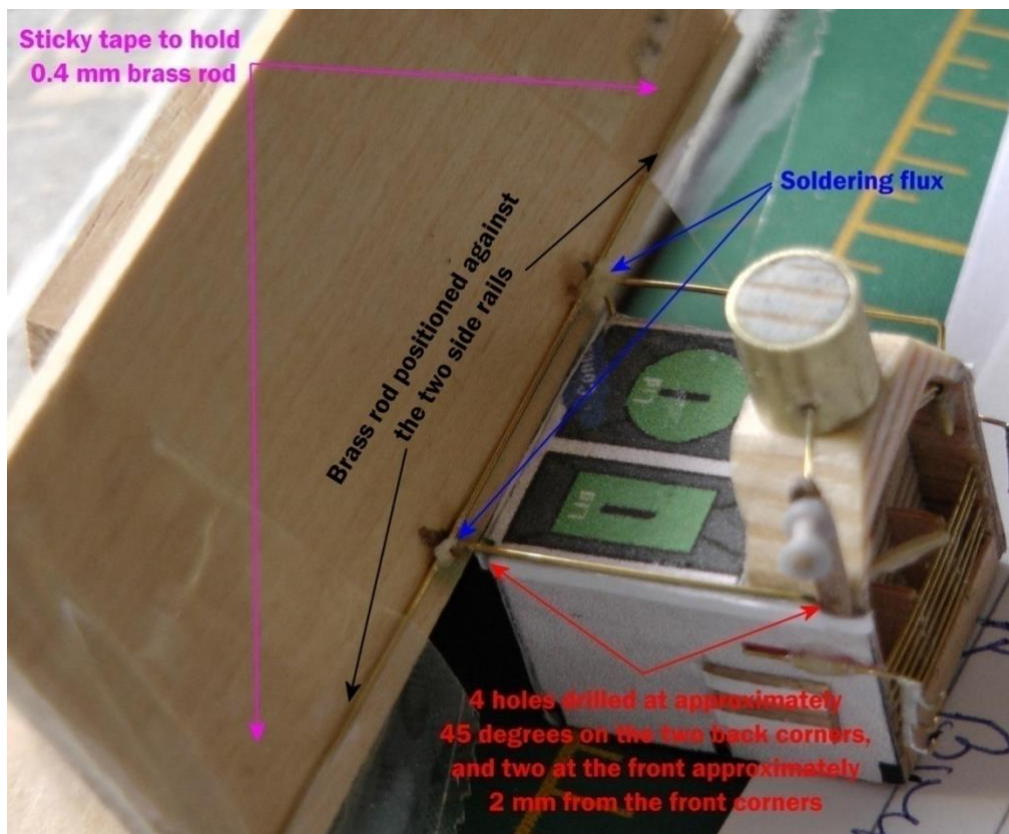


Figure N102 - Positioning the back rail and apply solder to the corners

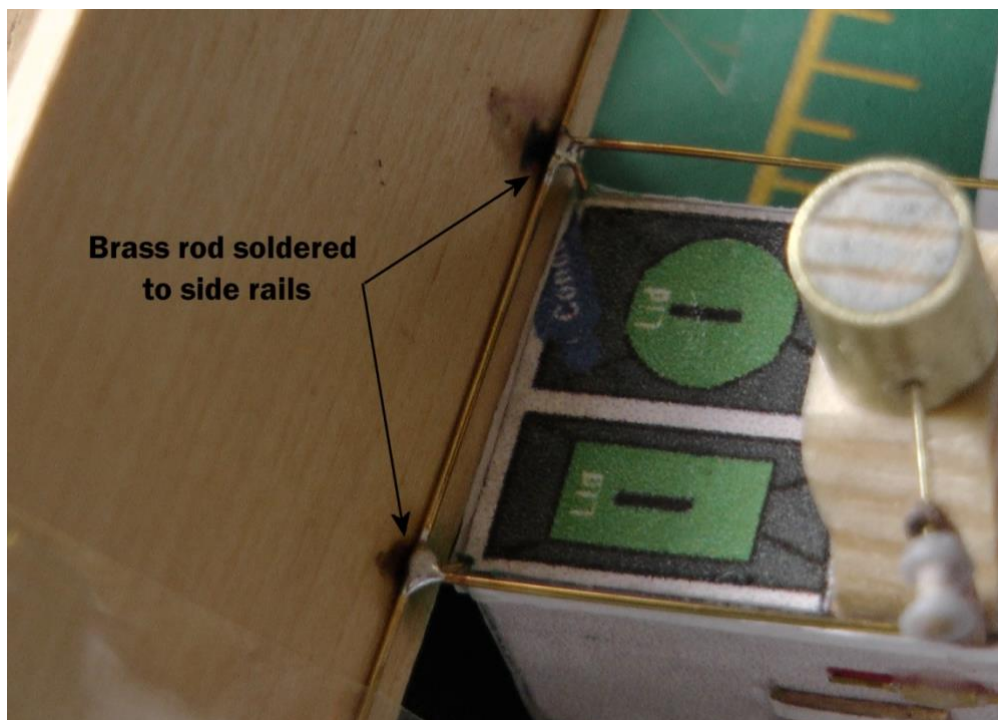


Figure N103 - Rail corners are soldered

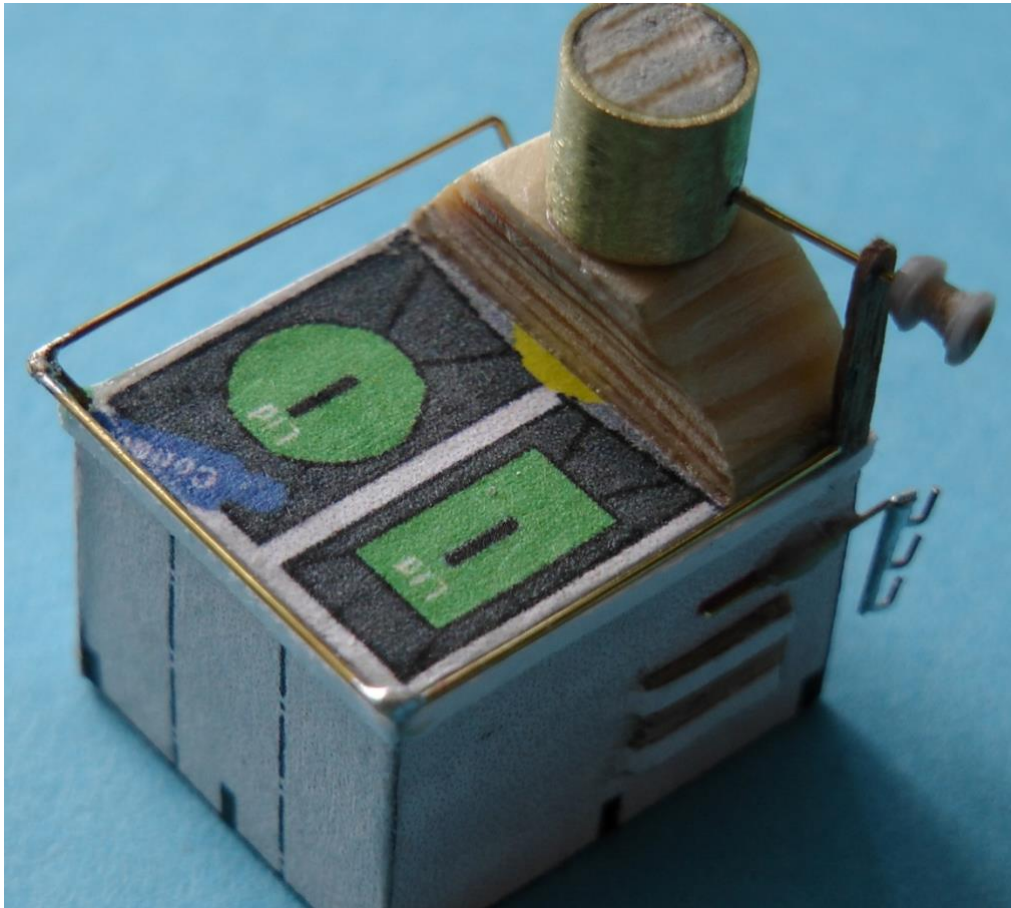


Figure N104 - Completed hanging rail around top of stove

The feet are fitted to the bottom of the stove; to ensure that they are all level the stove is placed on a small piece of wood 1mm or 2 mm thickness depending on how high the stove is off the deck.

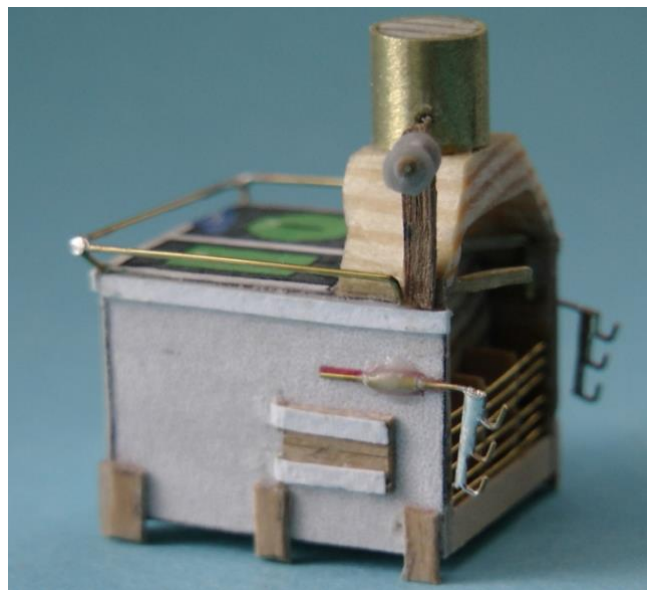


Figure N105 - Feet are put on the stove

Masking tape partly covers the position where the boilers will be fixed. When the painting is completed they are removed and it will help position the boilers Figure N106.



Figure N106 - Masking tape covers the position of the boilers

Spray 'Etch Primer' is applied as an initial coat of paint to enable the paint to adhere to the brass components. It is strongly recommended that an odd piece of wood is practised on first, to obtain a 'feel' as to how to apply the spray. **ONLY PRESS FOR HALF OR ONE SECOND BURSTS.** Spray about 12 inches away, and let the spray settle on the stove. Do a little at a time; allow it to dry, and then move its position. This author used a small box, placed the stove inside and then sprayed; this help contained the paint spray Figure N107 and N108 and the fully primed stove Figure N109. The boiler tops, spit and condenser are also primed Figure N110.

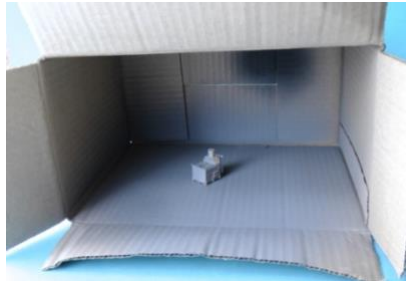


Figure N107 - Stove painted inside an opened box

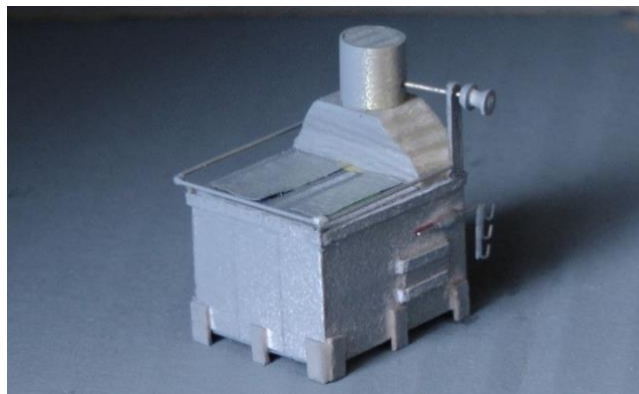


Figure 108 - Stove sprayed a little at a time

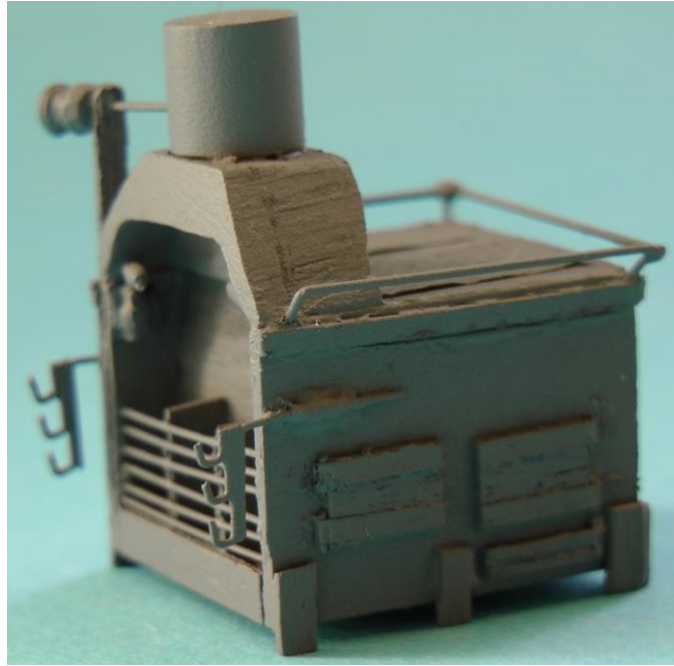


Figure N109 - Stove completely primed



Figure N110 - Condenser, boiler tops and spit primed

A 64 gauge hole is made in the larger boiler top for the condenser Figure N111.

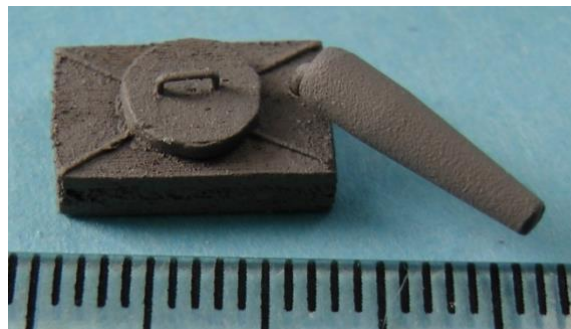


Figure N111 - Condenser fitted into boiler top to check fit

Experiment with odd pieces of wood on which printed paper has been glued, to replicate the actual stove. Three colours were tested, **1** - Enamel Spray Paint Matt Black (www.halfords.com); **2** - Halfords 'artfx' Dark Grey; **3** - Humbrol Acrylic Spray Black Satin 85 (www.humbrol.com) Figure N112.

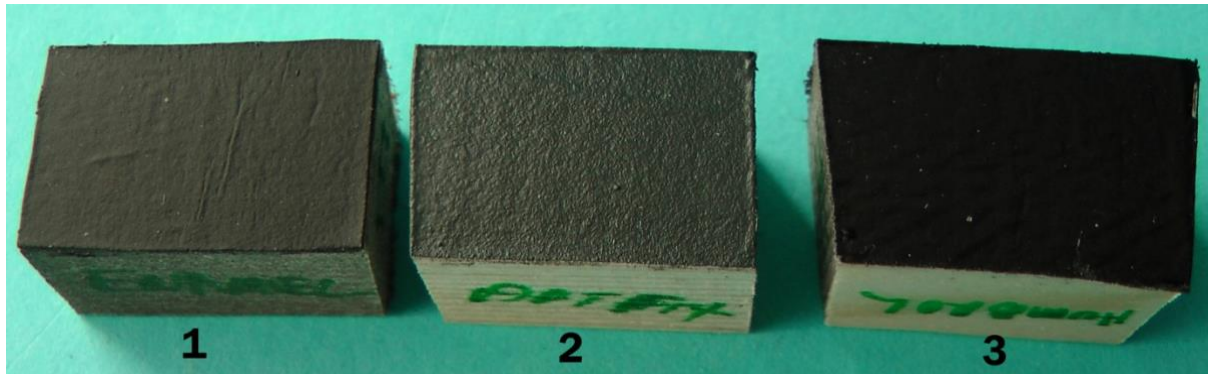


Figure N112 - Testing colours for spraying the stove

No.2 Halfords 'artfx' Dark Grey presented the most realistic colour against Figure N4.

Spray in very short 'bursts' and from a distance; only a very thin coating is required to avoid the paint being too heavily applied, especially around the front fire grate; remove the masking tape on the boiler tops Figure N113.

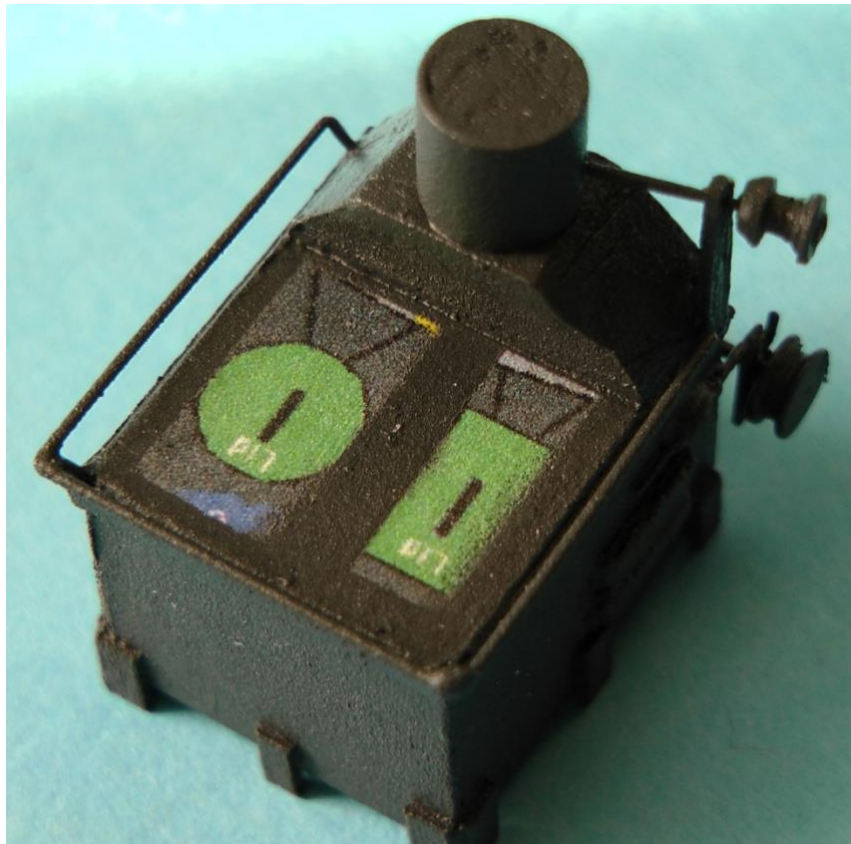


Figure N113 - Masking tape removed from boiler tops

The boiler tops and spit are painted and the condenser is painted Humbrol MET 55 and allowed 24 hours to dry.

Much thought was given to the base of the stove and various materials were experimented with. The base Figure N3 was used as a reference, and eventually it was found that a printed design Figure N114, produced the best effect. This was glued to a thin card with 'PRITT Stick' glue (Henkel Ltd); this was used as it is a thick adhesive, and so created a slight texture beneath the printed design. It has a coat of 'Flat Matt Varnish' painted on the printed surface, as this also created a 'dimensional' effect. The completed base has strips of Tanganyika glued around its edge Figure N115.

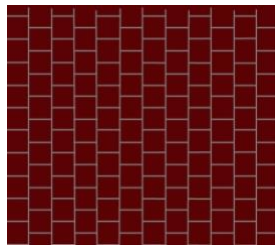


Figure N114 - Printed design for stove base

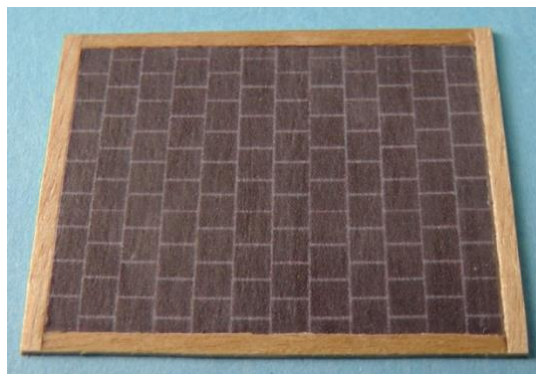


Figure N115 - Printed tiled base for stove

At the front of the stove there is a tray to catch the dripping fat from the spit. This is made from Tanganyika Figure N116 and N117.



Figure N116 - Tanganyika is used to make drip tray

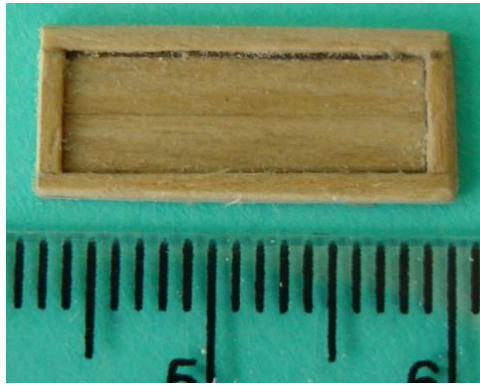


Figure N117 - Completed drip tray ready for painting

The drip tray is primed and spray painted Figure N118.



Figure N118 - Primed and painted drip tray

The chain between the smoke jack and spit pulley is made from the thick necklace chain; for doing this it is suggested that a table mounted magnifying glass is used. Doing this is very much by 'trial and error', but this author will describe a way in which it is achievable.

Cut a single link it two with a chisel craft knife on a cutting mat, and then hold this single link with a pair of tweezers Figure N119.



Figure N119 - Single link held with tweezers

The length of the chain is estimated, but again this will be a trial and error process until the correct length is achieved. One end is put onto the link Figure N120, and then the other is attached and the link is closed using mini pliers.

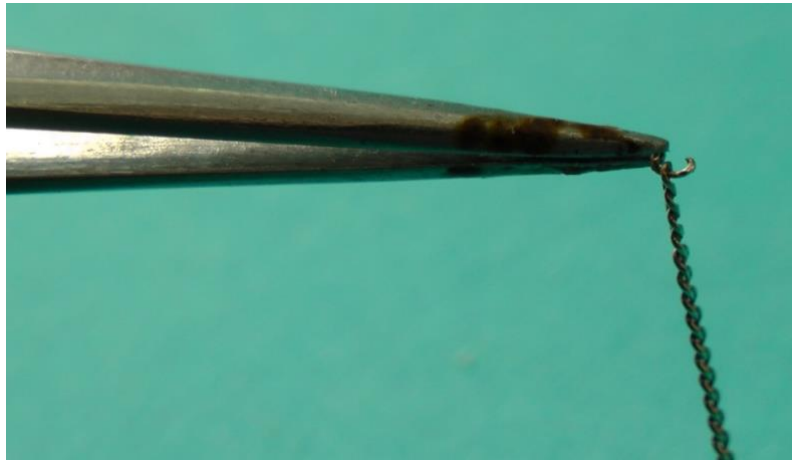


Figure N120 - One end of the chain is hooked onto the split link

The various components of the stove are assembled; using a pin, the spit and chain are fixed with a very small amount of superglue. The boiler tops are fixed using spots of P.V.A. adhesive and then the condenser is finally fitted Figure N121.



Figure N121 - All the components assembled on the stove

The stove is then placed upon the tiled base and the drip tray is fitted in front of the fire grate Figure N122.

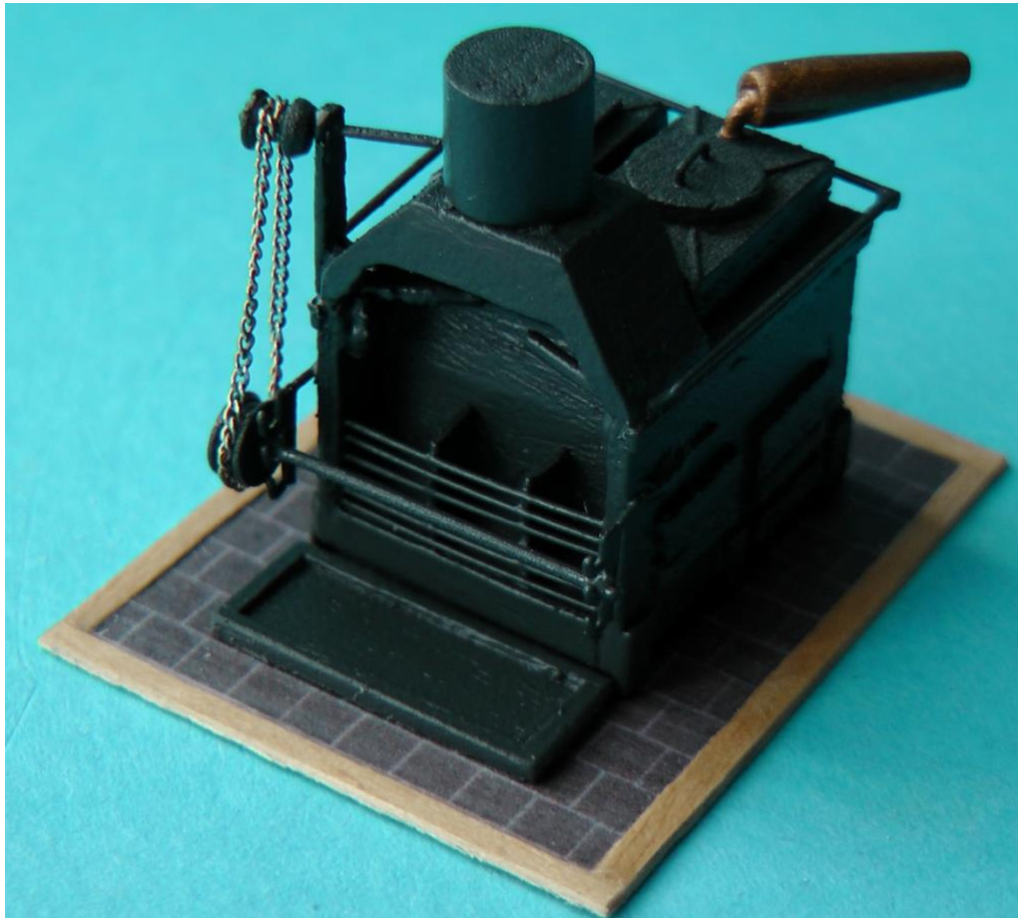


Figure N122 - Stove is placed on tiled base with drip tray in front

This author liked the idea of a fire glowing in the grates as shown in Figure N5. A red plastic bead cord was used Figure N123, and this was chopped up into small pieces Figure N124.



Figure N123 - Red plastic cord for bead making

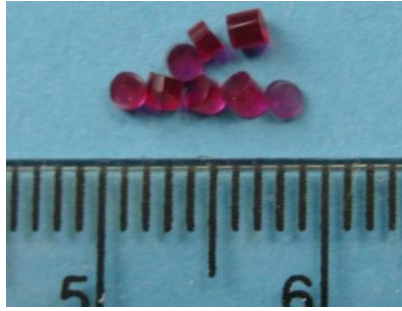


Figure N124 - Plastic bead cord cut up into small pieces

Using tweezers, the small pieces of plastic are put into the two outside fire hearth's, to replicate Figure N5. If these are required to be permanent, use a small amount of Flat Matt Varnish painted on the top level of the plastic pieces to keep them in place; when the varnish dries it will not be seen. The completed stove with the glowing fire grates is an alternative presentation Figure N125.

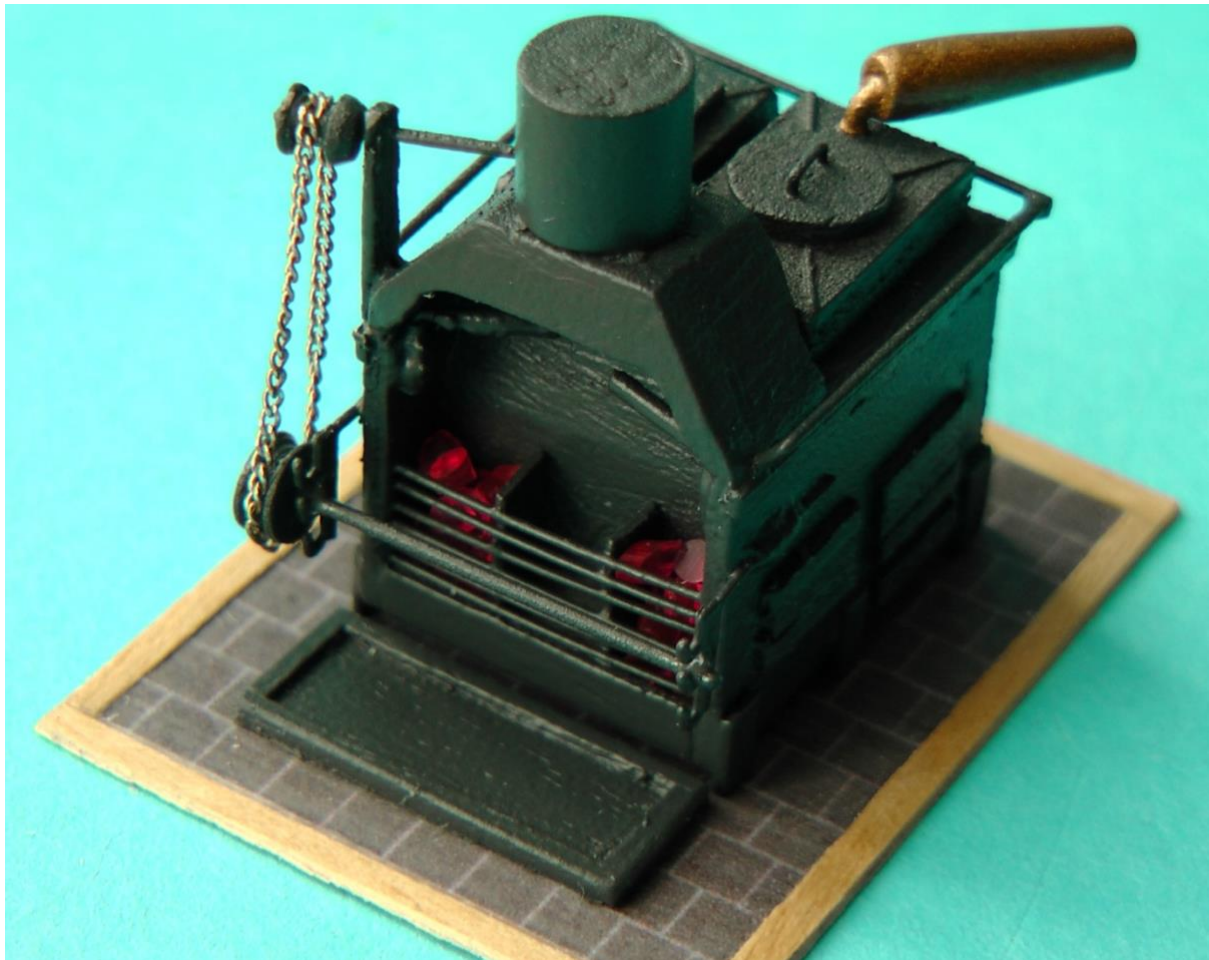


Figure N125 - Stove with glowing embers in the fire grate

Two views of the stove are shown in Figures N126 and N127.

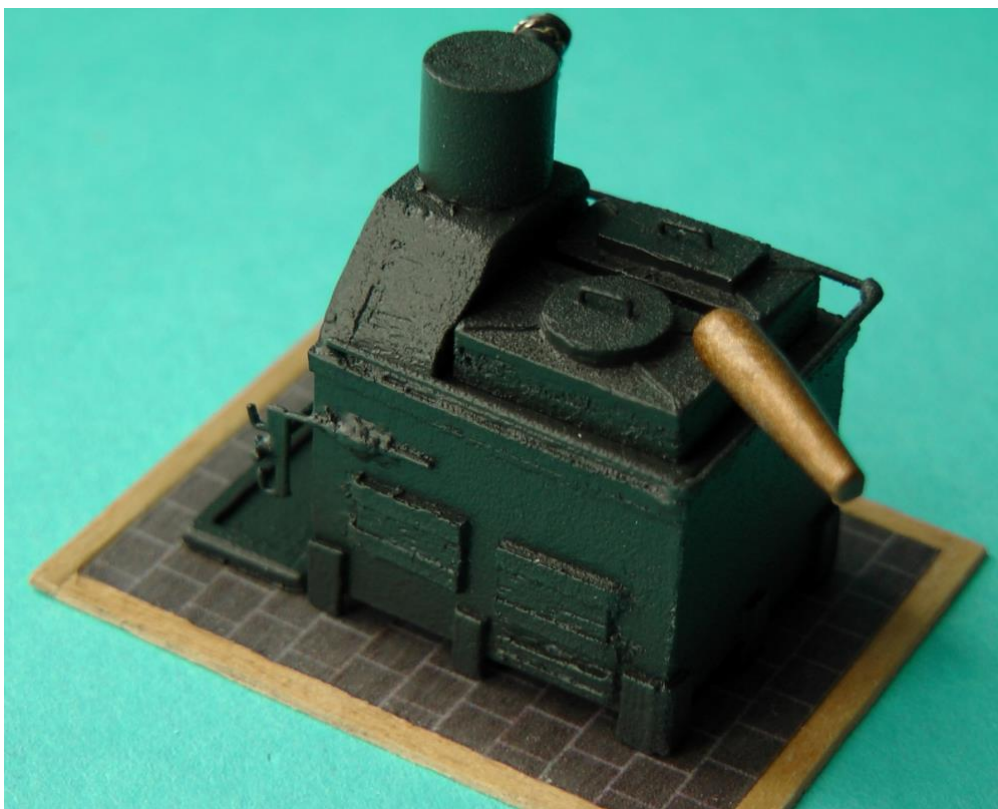


Figure N126 - View of stove



Figure N127 - View of stove

Lloyd Matthews - March 2014 ©