



Garden Bridge

Written & designed by David Watkins

Simple by design yet decorative by nature. This ornate Garden Bridge will rest proudly amongst most garden backdrops. The fiddliest step in this project is the formation of the handrails, because they are curved. A straight hand-rail, although less attractive, would be a much simpler design should you prefer it.

Your Triton gear will be put to good use during this project, but don't be too concerned if your collection of Triton product doesn't extend past a Workcentre - there is more than one way to skin a cat. You'll notice from the illustrations that a Triton Superjaws is used consistently throughout this project. While a number of the jobs can be accommodated using a bench vice, Superjaws proved indispensable. If you don't already own one, maybe now's your opportunity!

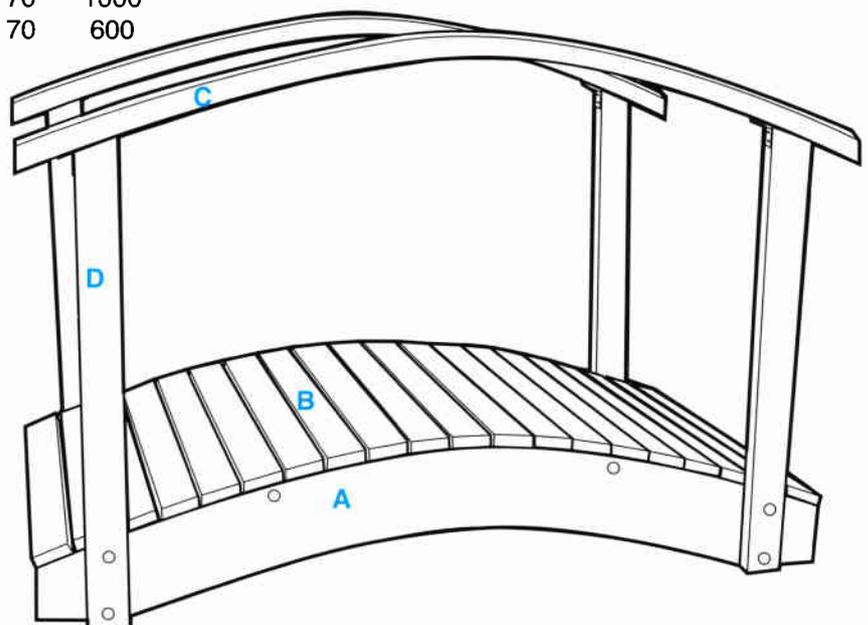
Component Specifications

All dimensions are in mm.

Part	Description	Quantity	Width	Thickness	Length
A	Arch	2	295	45	1500
B	Tread	20	20	70	800
C	Handrail*	2	35	70	1600
D	Post	4	35	70	1000
E	Reinforcement brace	4	20	70	600

*** NOTE:**

The handrail is laminated from 6mm strips cut from these pieces. The thickness stated here will reduce by a series of saw kerfs. The handrails end up around 50mm thick.



Tool Requirements

1. ESSENTIAL Triton Workcentre with power saw; jigsaw; electric drill with 5mm, 3.5mm and $\frac{5}{16}$ " (or 8mm) drill bits; sander (Triton Random Orbital Sander is perfect for the task); electric or hand planer; measuring tape; pencil; square; F-clamps or similar; G-clamps; Octopus straps; small handsaw; Triton Hard & Fast Woodworking adhesive (or similar); Liquid Nails (or similar) paint or stain of choice.

2. USEFUL Triton Superjaws; Triton Sliding Extension Table; Triton Planer Attachment Kit; Triton Random Orbital Sander; 8mm wall plugs

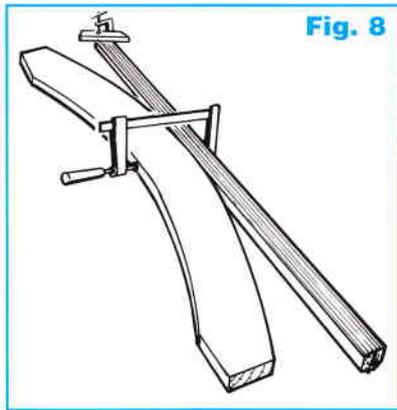


Fig. 8

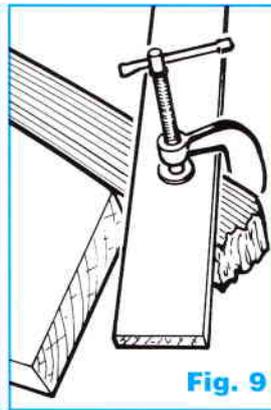


Fig. 9

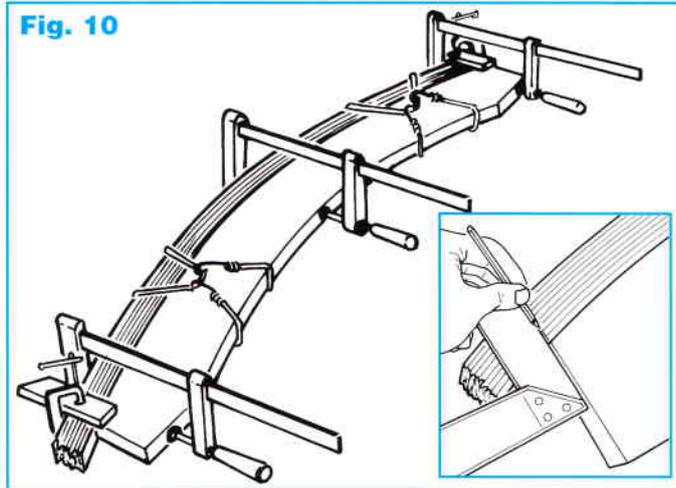


Fig. 10

Rest a straight edge against the ends of the arch and mark a vertical pencil line at each end of the hand-rail as a cutting line for the ends of the hand-rail. **Fig. 10 Inset.**

If there are enough clamps left over you can repeat the above procedure to form the remaining handrail, otherwise you should wait until the glue has fully set.

Measure the thickness of your handrail, and if necessary nip the points off your 50mm wood screws until they are at a length where they protrude most of the way through the handrail without pearcing through the other side.

Drill three 3.5mm countersunk holes through the top of the handrail - one in the centre, and one at each end, just inside your cut lines. Ensure you just stop short of drilling through the other side of your hand-rail - mark your drill bit with some tape to identify when to stop drilling. Drill five 3.5mm holes in the underneath of the handrail - one just-off centre, one at each far end, and one centrally on the left and the other on the right. Fasten the screws into position, taking care they do not go all the way through the handrail.

Repeat this procedure with the remaining hand-rail.

When the glue has fully cured remove the clamps and sand the sides of the hand-rails until the laminations are flush. Once again, Triton's Random Orbital Sander smoothed it over in no time.

Use your jigsaw to cut the ends off your hand-rails.

5 Measure and mark 160mm in from the ends on the "OUT" side of each arch, and use your square to rule a line at right-angles to the base of the arch. **Fig. 11**

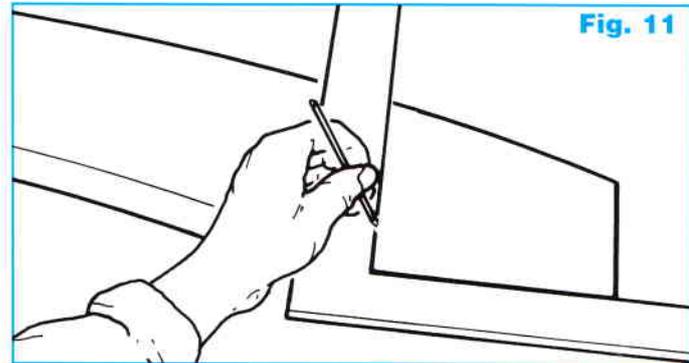


Fig. 11

Drill two 8mm holes 20mm & 130mm up from the bottom of each post (D). Clamp the handrail support to the outside of the line on your arch, ensuring it is flush with the base of the arch and level with your line. Use the two holes as a template to drill through the arch **Fig. 12** As you will be drilling through three sections of material you may need to drill as far as your bit will allow, then remove the post to complete the drilling.

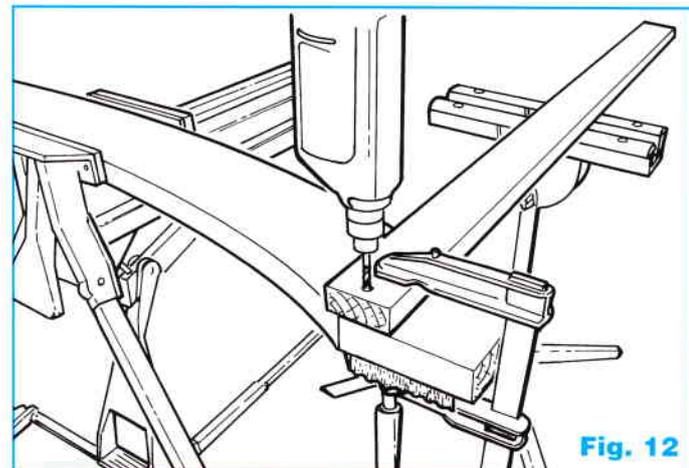


Fig. 12

Finger tighten the Coach Bolts, washers and nuts through the holes to fasten the post into position. **Note:** 4" bolt in the top hole and 4 1/2" in the bottom. Repeat the above procedure with the remaining three posts.

Turn the arches over and drill 8mm holes through the arches at the opposite ends of each brace then tighten 5/16" x 3" Coach Bolts, washers and nuts through these holes. **Fig. 13**

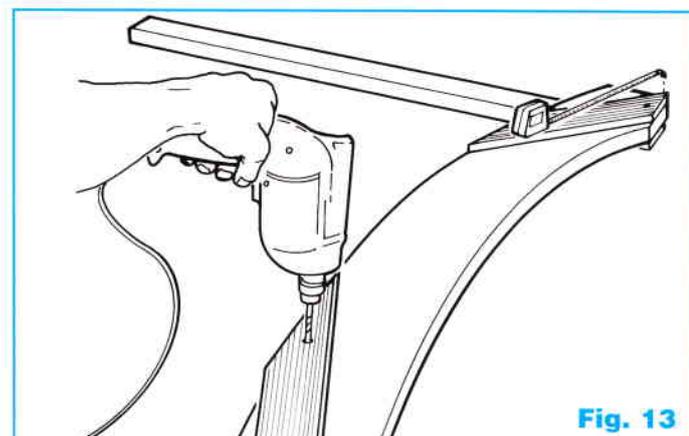


Fig. 13

Position this arch squarely on top of your second arch ("OUT" side down) and trace the curve with a pencil. Use your jigsaw to cut out the curve as done previously.

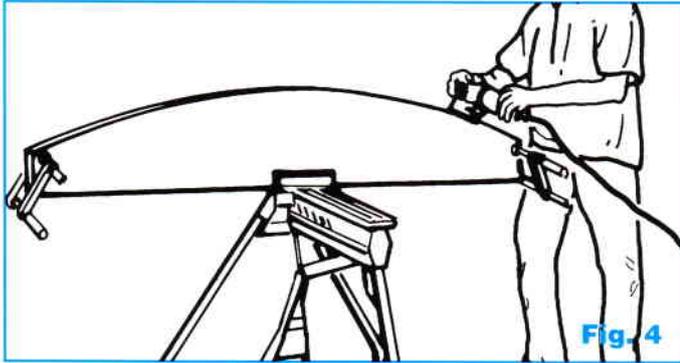


Fig. 4

Clamp the two arches together ("OUT" sides facing each other) and sand the two curves evenly. Fig. 4 Using a coarse grit on a Triton Random Orbital Sander made light work of this otherwise laborious task. Depending on the quality of your jigsaw cuts and the availability of an aggressive sander you may need to plane them before commencing your sanding.

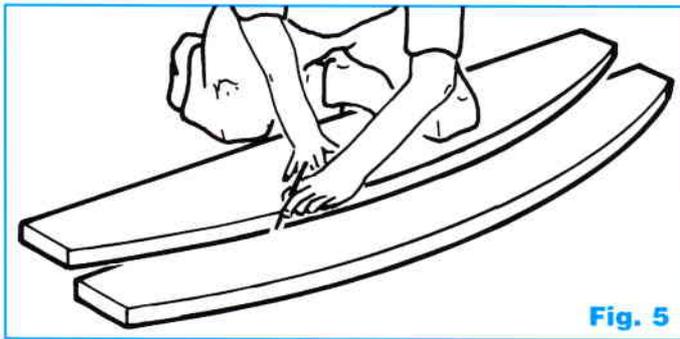


Fig. 5

Along the bottom edge on the "OUT" side of one of the arches make a pencil mark 200mm in from the left and from the right. Place the other arch on top ("OUT" sides together) and position it so that the cut curve begins and ends at the two pencil marks and the ends line up.

Trace your lower curve onto the arch. Fig. 5

Use your jigsaw to cut this lower curve, then trace it onto your remaining arch ("OUT" sides together") and jigsaw this as well.

Clamp the arches together and even them up with your sander. Neatness of these lower curves is not critical as they are not seen, however you should ensure the curves on the "OUT" faces look neat and even.

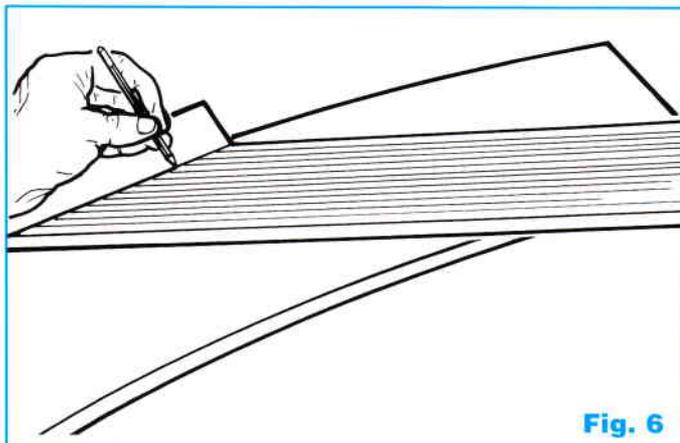


Fig. 6

Lay the two reinforcement braces (E) diagonally across the back of each arch, in the positions shown in Fig. 6 & 7. If your decking boards have a grooved side, ensure the smooth side is against the arch. Mark upper and lower cut lines on each brace at the edges of the arch. Number your braces and the arches to identify their location when re-fitting.

Adjust your protractor to match the angle you've marked and dock it off in the tablesaw mode. Repeat this with all the remaining angles.

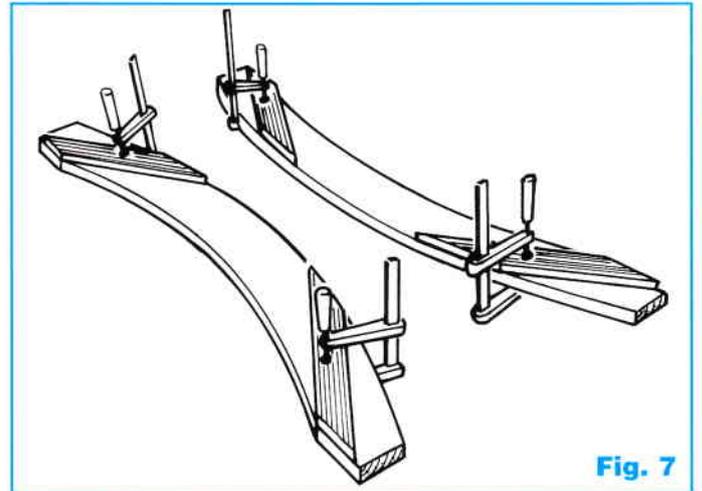


Fig. 7

Mix up some Hard & Fast Woodworking Adhesive (or similar), wipe clean your workpieces then glue and clamp the braces into position. Fig. 7

4 Wipe clean all the handrail battens and lay them alongside one another. Keep the two lots of battens separate. If you have any battens with a radiussed edge put them to one side and use them for the tops and/or bottoms of your handrails.

You will be using an arch to help form your curved handrails, so keep it handy, along with 3 F-clamps (or similar), a couple of Octopus straps, some smaller G-clamps and small timber offcuts.

Only attempt one handrail at a time. Apply epoxy glue to one side of each batten (except one with a radiussed edge). If there is a job that Triton Hard & Fast Woodworking Adhesive was designed for this is it - we highly recommend it!

Stack all the battens on top of each other leaving any radiussed edges for the top and/or bottom of the handrail. Tap all the battens level at the sides and on the ends. Sit them on top of the arch and using an F-clamp tighten it onto the centre of the arch. Fig. 8 Use a couple of G-clamps and some timber offcuts to keep the battens even at each end. Fig. 9 Using two more F-clamps tighten the ends of the battens down onto the ends of the arch. Check that all the battens are flush and use a couple of Octopus straps to hold them down evenly along the arch. Fig. 10

6 Pre-drill and countersink all your treads using a 5mm drill bit. Drill one central hole, approximately 20mm down, at each end of the tread. **Fig. 14**

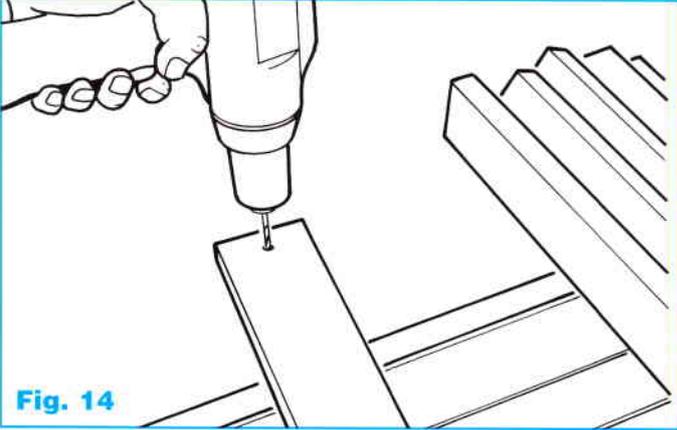


Fig. 14

Sit the arches 800mm apart on a flat surface with the "OUT" sides facing away from each other.

Check that all your treads (**B**) are an equal length, and make any necessary adjustments. Span the treads across the arches to check your spacing. Space them evenly by eye and cut an additional tread if you prefer a tighter gap. When you're satisfied with the spacing find some suitable spacers of the correct width. In our case 8mm wall plugs did the trick. **Fig. 15**

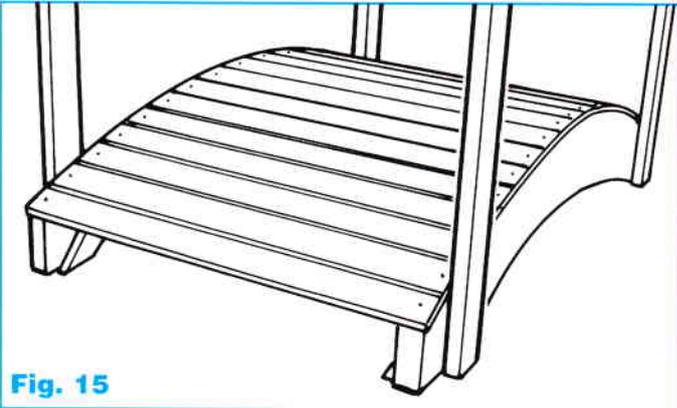


Fig. 15

Drill 3.5mm holes into the arch, using the treads as templates and lightly screw each into position using 50mm countersunk screws. Start with each of the end treads first and work in towards the centre using your spacer each time - check for squareness as you go. Continue this procedure until you have 4 - 5 treads left in the centre. **Fig. 16**

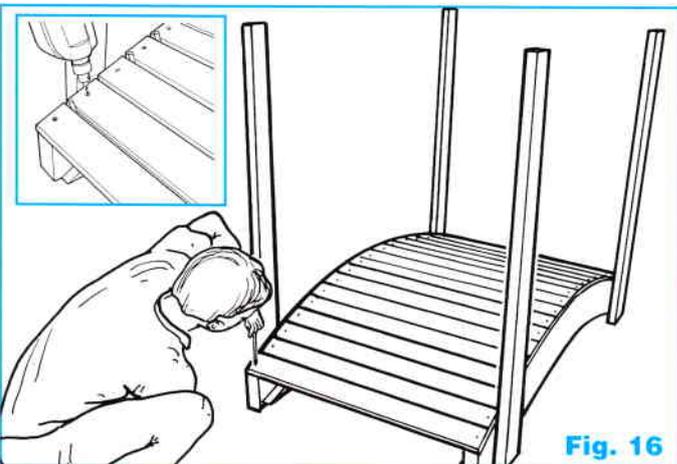
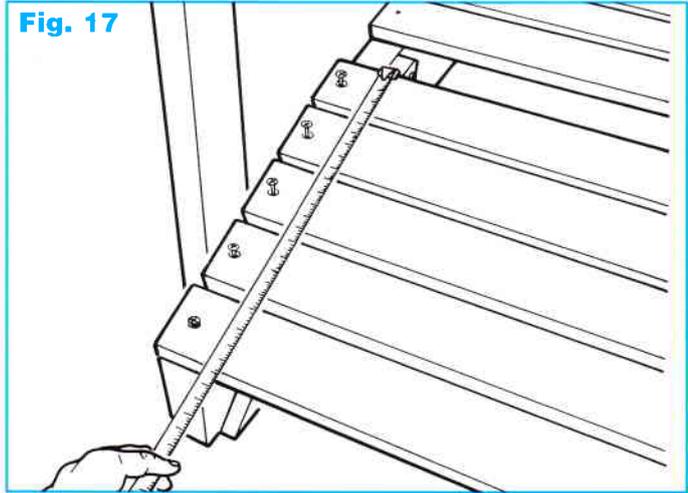


Fig. 16

Fig. 17



Lay your last 4 - 5 treads across the remaining gap then drill and screw them evenly into position compensating for any gap discrepancies. **Fig. 17**

Once you are satisfied with the positioning of the treads, remove and replace them one at a time, applying Liquid Nails (or similar) before fastening them firmly back into location. **Fig. 18**

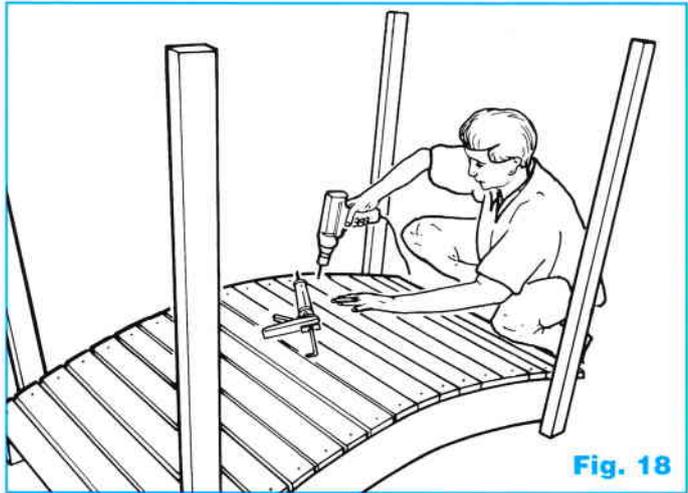


Fig. 18

7 Clamp the handrails into position on the outsides of the posts, ensuring an equal height at each end. Our hand-rail sits 650mm up from the base of each post, however we have allowed extra post length in case you would prefer a higher hand-rail. **Fig. 19**

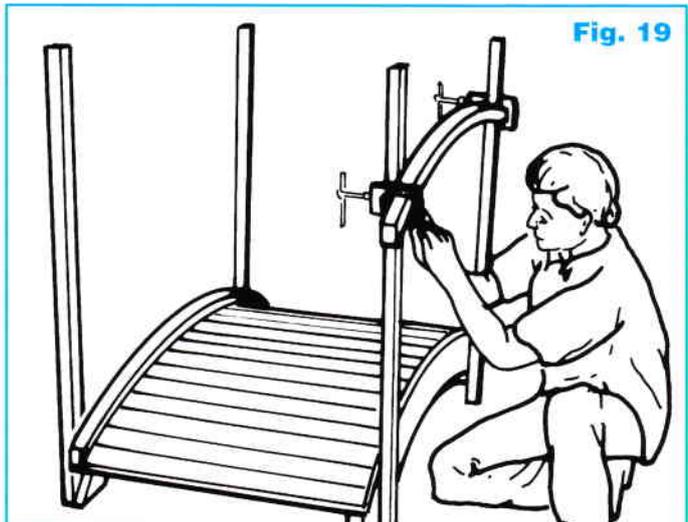
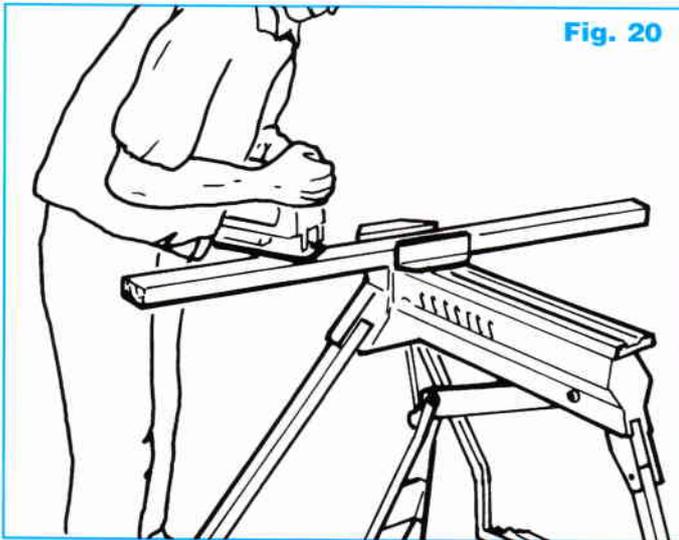


Fig. 19

Ensure your posts are square to the ground then trace the curve of the hand-rail onto the post to create your cutting line. Mark a line on the underside of the hand-rail on either side of each post to identify where to position the corner brackets. **Fig. 20**

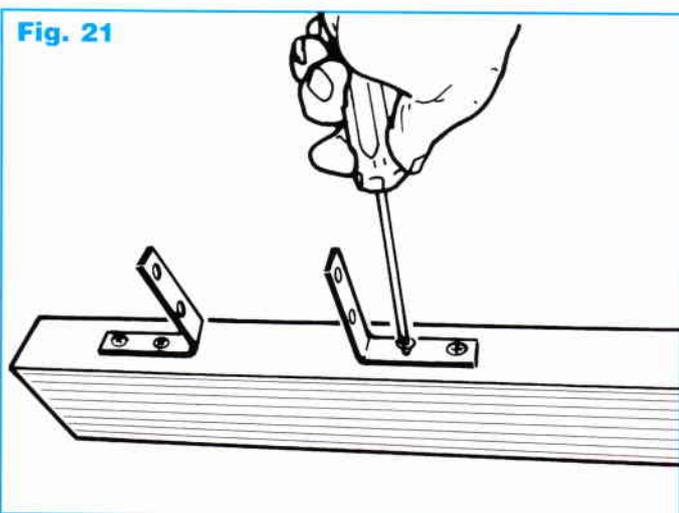


Mark numbers on the posts and match the numbers on the corresponding hand-rail ends to aid in re-fitting. Unclamp the handrails.

One at a time remove a post and jigsaw along your cut line before re-fitting. **Fig. 20**

Once you have cut and re-fitted all the posts firmly tighten all the Coach Bolts.

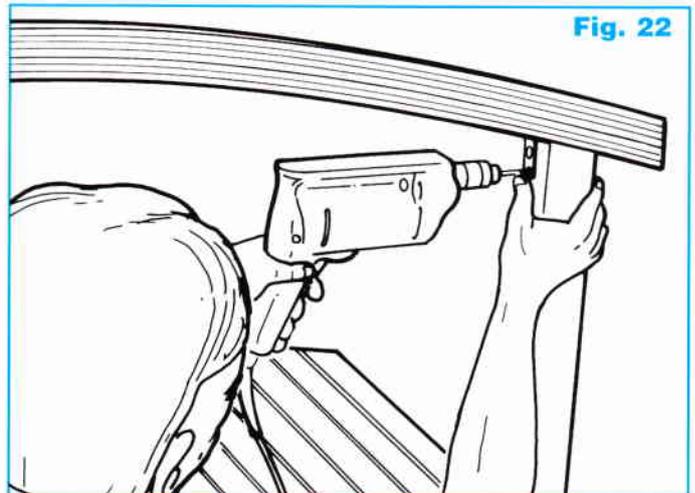
8 Sit your corner brackets on either side of the lines you marked on the underside of each arch then drill and screw them into position. **Fig. 21**



Using a hammer tap the protruding brackets outwards (ie. tap the prongs of the left side brackets toward the left end of the handrail).

Sit the hand-rails onto the posts in their correct locations (as per your numbering) and tap them into position. If necessary remove it and make further bracket adjustments.

With the hand-rails sitting flush on the tops of the posts drill through the corner brackets into the sides of each post.



Remove the hand-rails, apply Liquid Nails (or similar) to the tops of each post. Re-locate the handrail and screw into position. **Fig. 22** Wipe away any excess glue.

9 Give your Garden Bridge a light sand and finish it off in your choice of stain or paint.