made a little narrower as they will fit over the wales which stand proud of the external planking. When you are happy with the shape and fit for these pieces you can glue them onto your model. Note their locations on the plans.

Depending on your skill level you may want to carve the outside edges for these elements. The head rails were often carved with a fancy molding profile. These details can be scraped into the cheeks or carved by hand. One method would be to use a sharp #11 blade to lightly score each cheek. Only use the lightest pressure and make a cut for each groove you intend to create. This cut mark will serve as a guide only. You will only have to score a shallow cut. Then use an awl as shown in the photo below to lightly indent the cut mark along your scored line. Start with a light pass at first and start applying more pressure with each succeeding stroke. The awl should be held at an angle so the wood fibers won’t tear. It is more akin to shaping than carving. You won’t be removing any wood. You will be denting the cheeks with each pass of the awl. This creates the groove of your molding profile. You will soon see how that first cut with your hobby knife only acts as a guide for your awl to follow. It prevents the tip from wandering off and ruining your piece.

Once glued to the bow the cheeks segments that extend along the stem (sometimes called hair brackets) can be made using the same techniques. They are also laser cut from a 1/16" thick sheet of basswood. Be sure to stain all of these pieces ahead of time before you glue them onto your model. Some glue will affect the way the finish reacts on the wood. It’s better to stain them first. The laser cut pieces provided for each segment of the head rails were designed to give you a little “wiggle” room to sand them to shape afterwards. Every model will be slightly different and require some tweaking to fit properly. The cheeks are no exception. These pieces were left slightly longer so you can adjust them, especially to get a good joint between the two segments. See the photos provided for step one. It shows both cheek pieces glued into position. The decorative molding and scrollwork can be carved using

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**Chapter Ten  Head Rails and Figurehead**

Constructing the head rails for any period ship model can be a challenge. There are some very complex curves and angles for each piece. It goes without saying though that these features give any model its character and are very important. The delicate and graceful nature of the head rails can make your model look very elegant. However if done poorly and out of scale it would make an otherwise well done model look very crude. For this reason the process of constructing the head rails has been broken down into smaller tasks. Each task should be considered a small project itself and produced with care. Templates for each portion of the head rails are provided for you on the plans. Most of the elements have been laser cut for you. They are still need to be custom fit for your model however. Step one will begin with the construction of the cheeks.

**Step One —** There are a pair of cheeks on each side of the head. These cheeks support the head timbers and the head itself. Each cheek is made up of two sections. First is the portion of the cheeks that are placed on the bow of the model. The hawse pipes are positioned between them. Then they continue onto the stem where the second sections are added. The tail of the mermaid (Syren) figurehead will fit between these. Their forward ends are finished off with a small scroll or volute.

These sections have been laser cut for you from a 1/16” sheet of basswood. Sand them to shape and test them on the model for a proper fit. The lower cheek piece can be
To finish step one, (step 1A) two layers of 1/32” thick basswood are glued between the two cheeks on the bow in preparation for drilling the hawse holes. The first layer is cut with a scalloped aft edge. This will give you the “fancy” edge that is shown after the second layer is applied. The second layer is made the same way only a little shorter than the first. The first layer is used to level the surface with the thicker wales. It gives you a nice flat surface to glue the second layer onto. The hawse pipes can be drilled through them when you’re done. The hawse pipes are drilled parallel to the keel. They are also angled upward as they work their way inboard. See the detailed drawing provided on the plans. The outside holes will be slightly lower than those made inboard. Only drill through the outboard layer of planking first. Then create the inboard hawse holes by drilling through the inboard planking just above the waterway. See the inboard plan for details.

Finally a small decorative piece of wood can be added between the two scrolls of the lower cheeks. You can see it in the photo 1A. A dowel was sanded or filed to shape. The volutes on the ends of the lower cheeks will extend past the front edge of the stem and the space between them will be filled in with this carving. Sand and shape it to suit.

Step Two — The upper rail is laser cut from a 1/8” thick sheet. It is made in one piece. The upper rail tapers to 1/16” thick as it works its way towards the scrollwork of the cheeks. This is very important to the overall look of the head rails. The other end will stay 1/8” thick and a timber head is carved into it. Use a file to shape the timberhead on all four sides. The carved grooves and molding profile can now be made also. See the photo provided. Test the fit of the upper rail on the model. Once again it has been left a little long. There should be at least 3/8” to 7/16” between the upper rail and the first gun port. This is crucial as there needs to be ample room for the cathead and middle rail you will build in Step three. Before gluing the upper rails on the model make sure you temporarily position them on both sides of the head to check the symmetry from the front of the model. The rails should be at the same height and distances since many of the remaining head elements are positioned based on the upper rail locations.

Step Three - The cathead and middle rail. The catheads should be made before you actually start shaping the middle rails. The middle rail will originate directly under the catheads and they must be glued onto the model first. The catheads are also made in two pieces. The first is shown in photo 3A. This portion of the cathead was made using a 1/8” x 1/8” basswood strip. It was cut to length using the plans as a guide. The outboard end was shaped and two sheaves simulated through that end. Three small eye bolts were glued into pre-drilled holes along the forward edge of the cathead. An additional third sheave is shown on the opposite side. This will be used for the cathead stopper cable when you rig the anchors later in the project. This sheave was created using 1 wood strip that was 1/64” x 1/16”. Two pieces were used as shown in the photo provided. A small disc was shaped from the same material and used to create the sheave itself. Place the sheave on the cathead first followed by the wood strip behind it.

Step 2 - Upper head rail  
Step 3A - Cathead is created in two pieces. Note the cleat made using 1/64” thick wood with a small disc to simulate the sheave. It is for the cathead stopper.

Don’t forget to add a 5mm cleat here painted black

Cathead in position with the second inboard piece. Sand the joint between both pieces so the top is curved as shown.
Then place the last strip on top of both of them which does a good job of creating the right look for this fitting. Last, a small hole is drilled through the top of the cathead as shown on the plans. It will be used to secure the cathead stopper. Paint the entire assembly black and glue it on top of the cap rail. But first you should notch the overhang of the cap rail and the sheer strake outboard to make room for the middle rail. It will be placed right below the cathead against the hull. It will be nearly impossible to do so later.

The second part of the cathead is also made from a 1/8” x 1/8” strip of wood. It will be placed inboard and glued along the bulwarks. See the photo provided. The top is rounded off and you can use some wood filler on the seam between both pieces so it is smooth. After sanding it, paint it black. Don’t forget to add a cleat to the cathead as shown on the inboard plan.

Now it’s time to build the middle rail. This is the trickiest rail to build. See photo 3B above. They will be built in the numbered sequence shown in that photo. Sand the 1st laser cut piece from the 1/8” sheet of basswood. Note the top view shown on the plans which you can use as a guide while shaping it.

This segment should taper to 1/16” wide towards the front of the head and gradually increase back towards the bow. Note how it turns slightly where it will be glued against the bow. There is plenty of thickness in that 1/8” rail to shape it as shown. Test it on the model. The middle rail should be set a little closer to the stem than the upper rail when viewing the head from above. It was left a little longer so you can adjust its length until you are satisfied. Don’t place them too close to the stem. Examine the photos below for an idea of where they should be positioned. You can carve the molding profile on the outside edge of this segment before you glue them onto the model.

The second piece of the middle rail is also cut from a 1/8” sheet of basswood. It is also curved when viewed from above. It is very slight but a drawing is provided to give you an idea of how to shape it. Once again it was left a little longer on each end so you can adjust it with some sandpaper. Try and get a good fit at the seam between each of the two segments. Carve the molding profile as shown and glue it into position. Try and line up the decorative grooves between both pieces. The other end should rest against the bottom of the cathead. When working on the other side be sure to check the model from the front so you can keep each side symmetrical. The third piece is the hanging knee under the cathead which supports the weight of the heavy anchors. It is laser cut from a 1/8” sheet and it needs to be
shaped it to suit. There should be a smooth transition from this support knee onto the 2nd piece of the middle rail.

**Step 4** - You can now cut and position the head timbers between each head rail. These are the vertical timbers that hold the rails together securely. There are four of them. You will creating each of them however in two pieces. Each piece is cut from a 1/16" x 1/16" strip of basswood. These are a little tricky at first. The ends of each piece have to be angled so they rest flat against the top and bottom edges of the rails they are placed between. It will take a little practice and you will certainly make and discard several of these before you are satisfied with how they look. Be careful to line up the top and bottom pieces of each head timber so they actually look as though they are one timber. To help you space the four head timbers an equal distance apart it will probably be easier to place the first two on either side of the gammoning slot. Then the two remaining head timbers can be spaced on either side of these an equal distance apart. The head timber closest to the bow is actually placed on top of the upper cheek against the bow.

**Step 5** - One last rail called the “top rail” needs to be built using a 1/16" x 1/16" strip of basswood. If you examine the plans you can see it is supported by four stanchions. The stanchions are made from 22 gauge wire. It is easier to cut the top rail to length and test it's fit on the model. Note where the top rail originates against the timber head. It is level with the cap rail and it’s angle is such that it creates a continuation of the sheer of the bulwarks. Test it in position until you are satisfied that it has a smooth run to the stem when you view the model from the side.

Before you finish the top rail you should take the opportunity to place four eye bolts into position on the bow. There are four eye bolts on each side of the stem as shown in photo 5A. It will be very difficult to do so after the top rail is glued onto the model. Examine the belaying and standing rigging plan for details on their exact locations.

Then you can create the molding profile as you did before and drill 4 small holes on the bottom of the rail for the stanchions. You can establish their positions while the top rail is placed temporarily on the model. Glue four extra long pieces of 28 gauge wire into the holes. Then place the rail back on the model so you can mark their lengths. See photo 5B provided. They will eventually be inserted into corresponding holes you will drill along the top of the upper rail. So leave them just a hair longer for now.
stanchions back a little until you are satisfied with their rake when viewed from many angles. Remove the top rail and cut the stanchions to length.

Then test it once again on the model and mark the locations for the holes you will drill along the upper rail. Drill those holes being careful not to drill all the way through the upper rail. You can now glue the top rail into position. You don’t have to glue the stanchions into the holes along the upper rail. If they are pushed into the holes it will be sturdy enough. You only need to glue it at each end. It is easier to push the stanchions into the holes and then pull the whole rail towards you a little out of position. Then place a drop of glue on the timber head and the upper cheek and push the top rail back into position. When working on the other side check the symmetry from many angles before you glue it onto the model.

With the head rails completed you can now add the figurehead. The figurehead was cast in three pieces. Once again you can paint them to look like wood or use the colors of your choice. Paint them all before you glue them into position. Glue the torso on the stem and then add each tail piece afterwards. Then use a little wood filler to conceal the joint between the torso and tail sections. Touch up those areas with some paint to match.

To finish it all up the bumpkins should be created. The bumpkins rest on the top of the headrails as shown in the photo below. A 1/16” diameter dowel was used for both bumpkins. They should be tapered and the end shaped as shown on the plans. The inboard end is simply glued to the hull. You might want to use a length of wire as a peg to make it even more sturdy when installed. Just insert the wire into a pre-drilled hole on the end of the bumpkin. Leave a little of the wire exposed to be inserted into a corresponding hole drilled into the hull.

Use a paper strip or sliver of copper tape to simulate the iron bracket holding the bumpkin down on the top of the headrails. Paint it black.

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