FRAMED!

A DIY guide to picture-framing

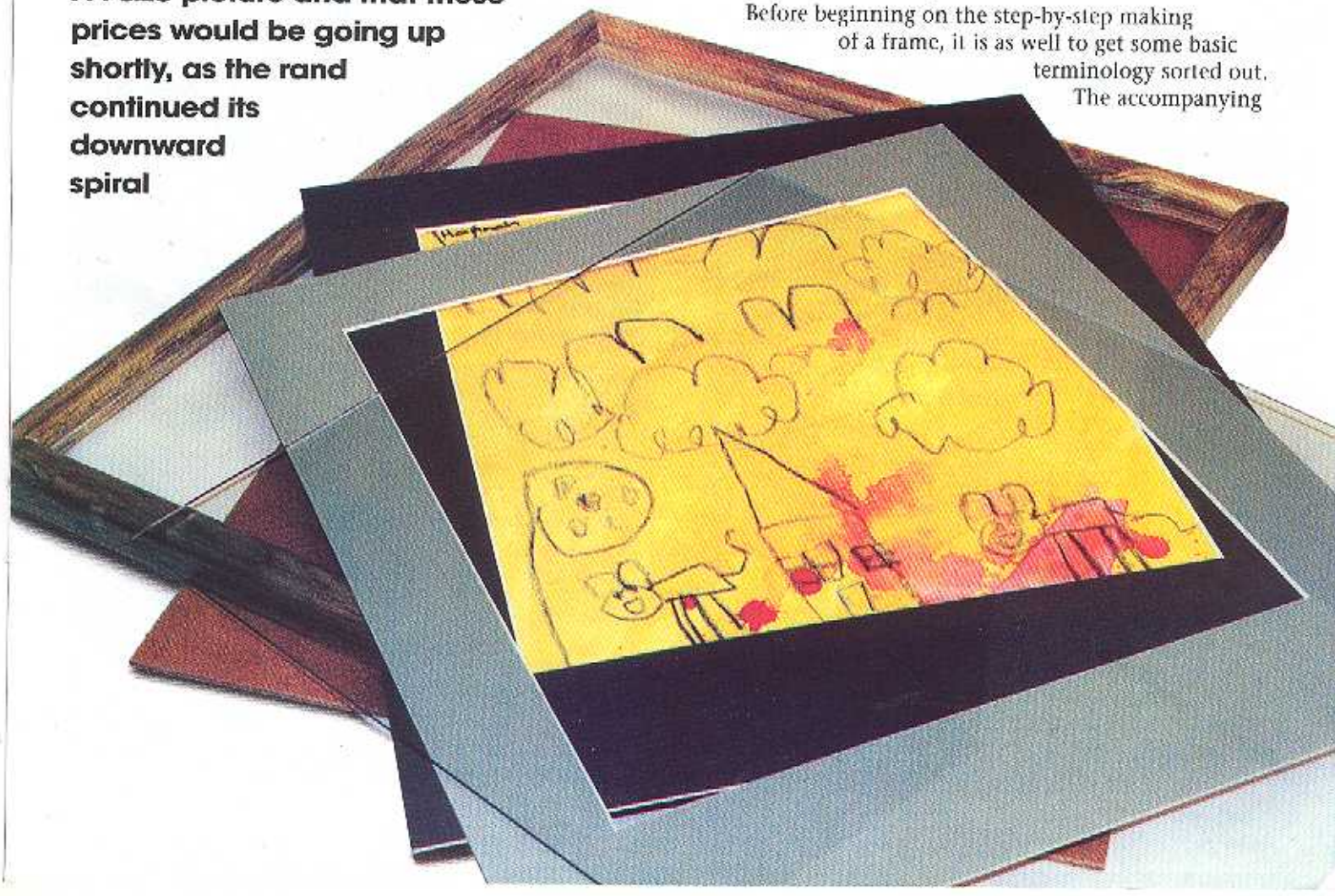
by Andrew Stevens

I discovered how expensive framing a picture can be when I decided that my youngest daughter's latest pre-school masterpiece deserved better than four blobs of Prestik and the kitchen fridge. A visit to our local picture framer revealed that it would cost between R80 (for a locally made frame) and R300 (for the most expensive, imported, gilt-finished, plastic moulded frame) for an A4 size picture and that these prices would be going up shortly, as the rand continued its downward spiral

These facts set me thinking about the possibility of a DIY job (and being able to justify the purchase of a number of new bits and pieces of equipment!). At the same time as these thoughts were doing the rounds in my head, Brian Jolly, the owner of Strand Hardware in Port Elizabeth, asked me to give a talk to the local Woodworkers' Guild. While chatting about possible topics, he showed me a brand-new range of DIY framing equipment, which had just arrived from Australia. Bingo! I would do a talk on picture framing. This generated so much interest that it was decided to put it in writing. So, if you missed the movie, at least you can read the book!

Components of a picture frame

Before beginning on the step-by-step making of a frame, it is as well to get some basic terminology sorted out. The accompanying



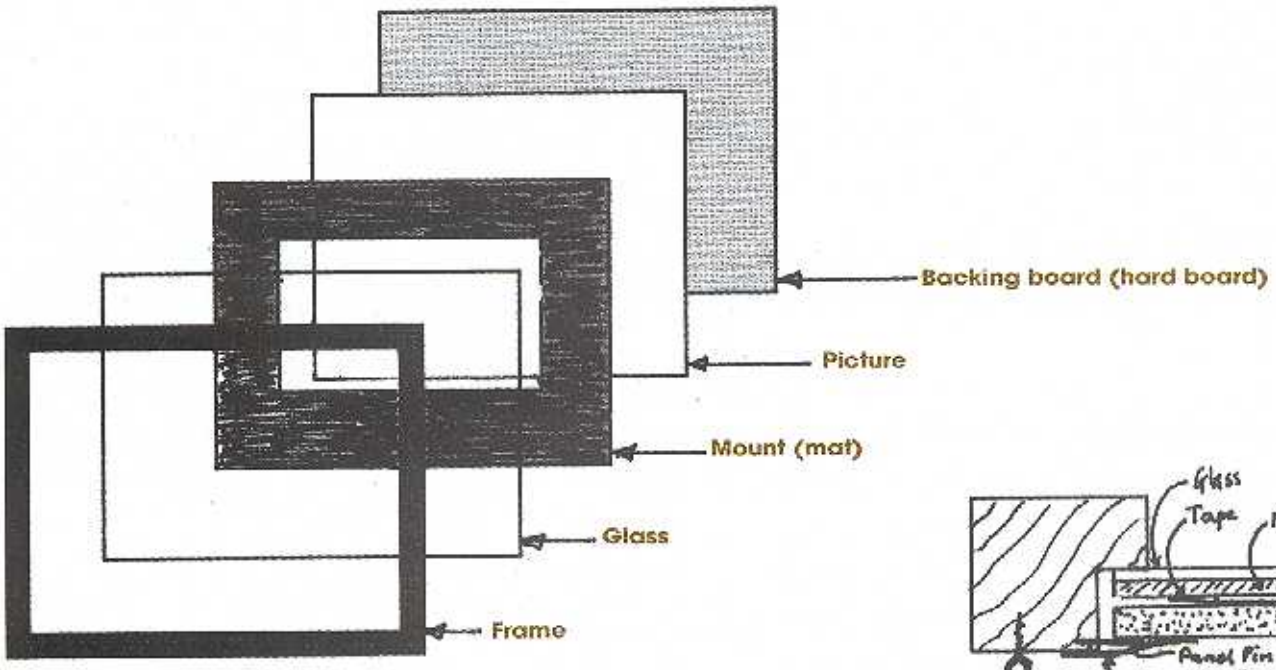


Fig 1: Exploded view of framed picture

Fig 2: Cross-section of framed picture

sketches shows an exploded view of a typical picture frame *(fig 1)* and how the pieces fit together *(fig 2)*.

Making a frame

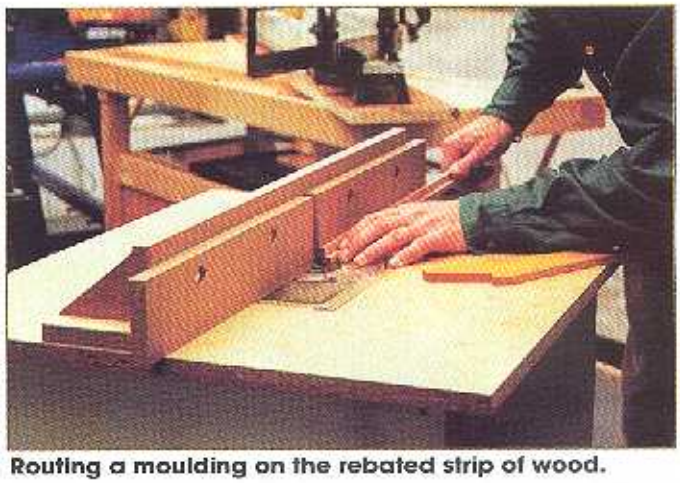
STEP 1: DESIGN YOUR FRAME MOULDING

There are a bewildering number of mouldings available from specialist framers (and some good hardware shops), many of which are produced using complex moulding cutters. However, it is well to bear in mind the old saying: "It's the artwork that is the star; the frame is only the supporting act." The following shapes can all be produced using relatively simple machinery or hand tools.

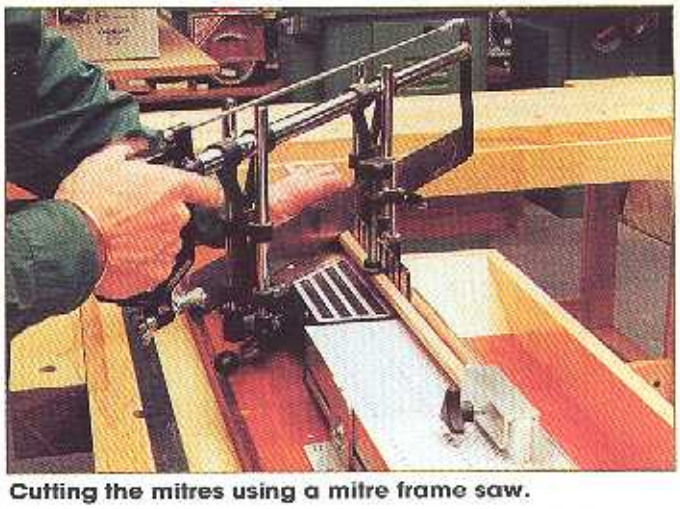
STEP 2: MAKING THE MOULDING:

Start with a straight length of the timber of your choice. Softwood such as pine is fine, providing it is relatively free of knots and defects. The length, width and thickness are dependent on the size of the picture you wish to frame, but assuming an overall size of 420 x 300mm (ie roughly the size of an A3 sheet of paper), then you will need a piece approximately 1 500mm long with a cross-section of 20 x 20mm. The first step is to work a rebate on one edge about 6mm wide and 10mm deep. This can be done using a variety of methods, from hand-planing using a rebate (rabbet) plane to routing. I find it easiest to use two cuts on a table saw with the blade protruding the depth of the cut. Remember to use push sticks!

Once you have produced the rebate, you can work the decorative moulding of your choice. If you are a novice woodworker, you may wish to keep things simple and not add any decorative moulding *(see fig 3)*. The more decorative effects illustrated overleaf may be produced using a hand plane and abrasive papers, surform tools or home-made scratch stocks. However, the easiest (though not the quietest or cleanest) method is to use a router



Routing a moulding on the rebated strip of wood.



Cutting the mitres using a mitre frame saw.

mounted upside down in a table *(see photos 1 and 2)*. There are a large number of cutters (bits) available with which you can produce almost any conceivable shaped moulding. Nevertheless, it is remarkable how effective a simple frame produced using only hand tools can be.

STEP 3: DECIDING ON THE SIZE

The dimensions of the frame depend on the size of the mounted/matted picture. The following formula may be used to calculate the length (l) and breadth (b) of the frame. This formula allows for a gap of 1mm between the mount and the inside edges of the frame.

Formula for calculating dimensions:

Length, l = x + 2w + 2mm

Breadth, b = y + 2w + 2 mm

The dimensions of the glass and the backing board should be the same as those of the mounted picture.

STEP 4: CUTTING THE MITRES

Once again, there are number of ways of producing the 45° cuts which comprise the simple mitre joint at the corners:

- Using a tenon saw and mitre box (home-made or commercially manufactured);
- using a commercial mitre frame saw *(see photo 3)*;
- using a radial arm saw with a purpose-made jig;

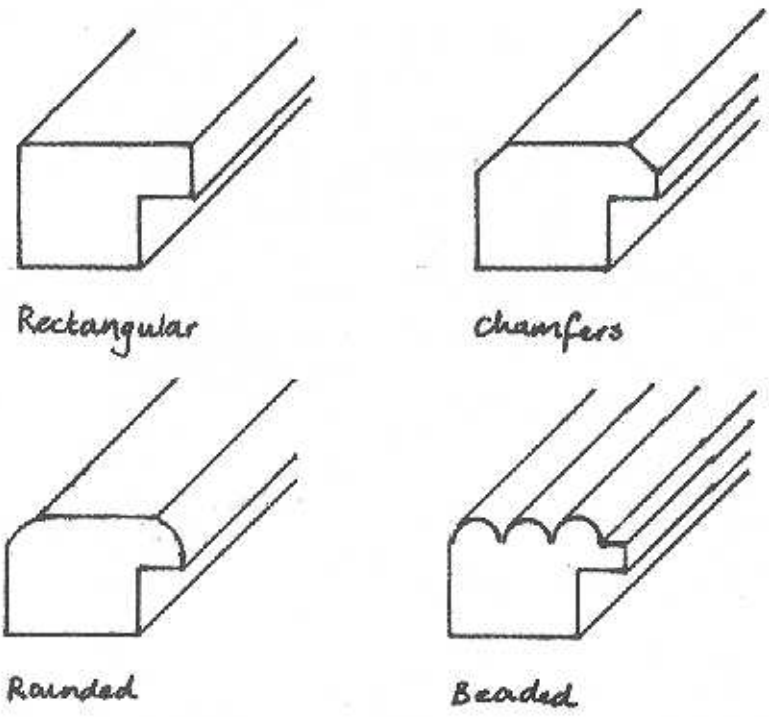
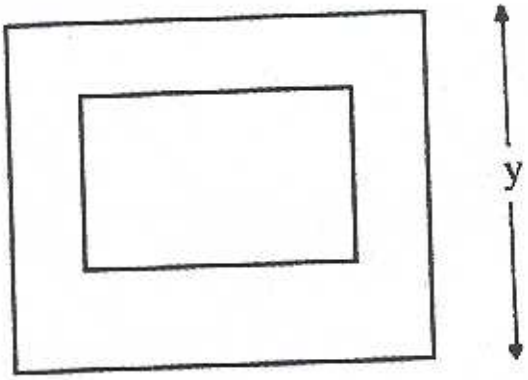


Fig 3: Variety of mouldings that can be produced with simple hand or power tools



- using a table saw and jig;
- using a motorised chop/cut-off saw.

Whichever method you use, remember to mark the lengths carefully. Remember the old adage: "Measure twice, cut once!"

Note: Professional framers use a special guillotine with massive angled blades which slice through the moulding material, producing a smooth 45° surface.

STEP 5: TRIMMING THE CUT SURFACE

Depending on the sharpness and accuracy of your tools, you may need to trim the mitre cut to ensure a close-fitting joint with a minimal glue line. There are a variety of ways of going about this, but the secret is to keep the trimming to a minimum by ensuring that your cutting tools are sharp and your mitres are accurate.

1. **Plane with mitre shooting board** *(see photo 4)*: Although common in days gone by, the shooting board is seldom seen in woodworking workshops today. The secret here is a very sharp, finely set plane blade and an accurate shooting board.
2. **Disc sanding:** If using this machine, a light touch is essential – these machines are made to gobble wood! Ensure that the table of the sander is perpendicular to the disc and that you have an accurate 45° fence against which to hold the frame component. A simple, purpose-made jig can be made for this operation *(see photo 5)*.

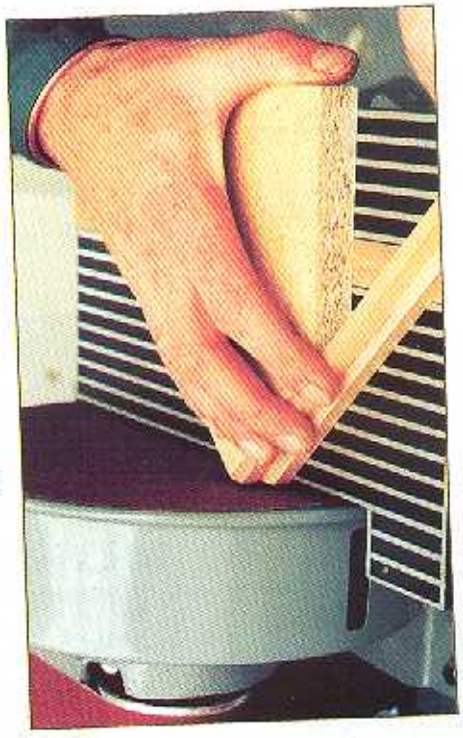
Note: Avoid hand-sanding the mitre surfaces as it is virtually impossible to hand-sand such a joint accurately enough.

Before proceeding to the joining of the frame members, check that the pairs of length and breadth members are exactly the same length by placing them "back to back" and trimming until they are precisely the same size.

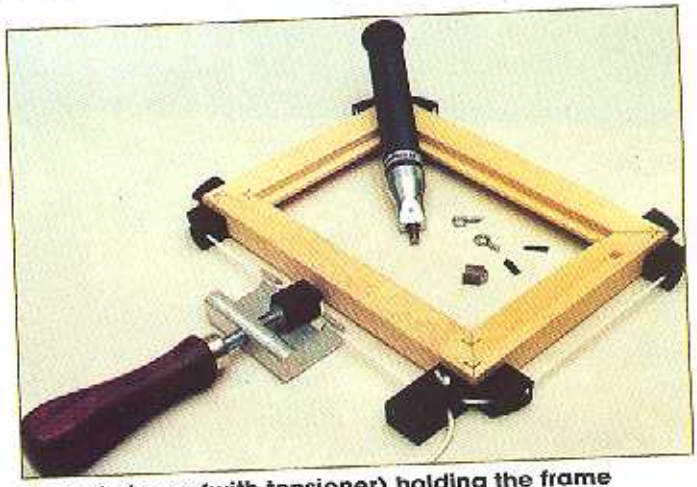
STEP 6: GLUING AND CLAMPING

To ensure tight corner joints, it is essential to clamp the frame after applying a light smear of PVA glue to each of the mitre surfaces. Although it is possible to join the corners two at a time (ie in pairs,

Trimming the sawn mitre cut using a mitre shooting board. Note the wafer-thin end grain shavings produced by the sharp plane blade.



Trimming using a disc sanding machine. Note the home-made jig for holding the frame component at 45°.



A cord clamp (with tensioner) holding the frame together while the glue dries and the V-nails are inserted using the Push Master.

before joining the pairs to make the frame), I find it simpler and quicker to join all four members at once. Here are some ideas:

* **Using rubber bands:** If the frame is fairly small, a low-tech solution is to cut a rubber band from an old car tube and stretch this around the frame after gluing. Ensure that the frame is weighted down while the glue dries.
* **Using proprietary clamps:** Once again, there are a number of options:

1. *Cord clamp:* This is a simple, but very effective clamping system which comprises four plastic corner pieces and a length of cord which is used to provide the tension. For small to medium-sized frames it works well *(see photo 6).*
2. *Metal strap clamp:* A more sophisticated clamping system which uses a metal strap and a screw-operated tensioning device. With this clamp, a considerable amount of tension can be applied to frames as large as big doors.

STEP 7: REINFORCING THE MITRE JOINT

Since a glued mitre butt joint has very little mechanical strength, the joint will need reinforcing of some kind. Here are some options:

- **Panel pins across the corners:** If using this method, it is recommended that you pre-drill the holes and ensure that the joint is securely held in a vice while the pins are gently tapped home. The heads should be punched below the surface and the holes filled with wood filler.
- **V-nails:** Professional framers use these small, "V"-shaped

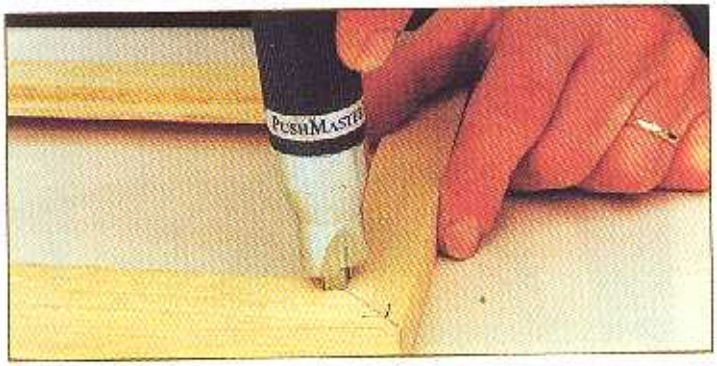
A strap clamp in operation while the nails are inserted using the Push Master mounted in a cam-operated jig (useful for hard timbers).

staples, which are inserted using a special machine (usually powered by compressed air). A DIY version of this has recently arrived on the South African market. Made in Australia, this handy tool (known as the "Push Master") is simple to operate and is highly recommended for those intending to make a number of frames. It can also be used to insert pins or plates to hold the backing board in place *(see photos 8 and 9)*.

- **Splines and biscuits:** For wide and thick frames, splines or wooden "biscuits" can be used for reinforcement, although this is not necessary for the average picture frame.

STEP 8: FINISHING THE FRAME

Once the glue has dried and the frame has been reinforced, it is lightly sanded to remove excess glue and dirt and to tidy up the joints. A variety of finishes can then be applied. If an attractive wood has been used, the frame may be sealed with a clear varnish or lacquer. However, you may wish to colour the frame to pick up one of the colours in the picture. In this case, an acrylic paint available in a wide range of colours is the easiest option. It is a good idea to follow an acrylic paint finish with a coat of clear varnish or a PVA clear sealer to give the paint finish added protection and an attractive sheen.



Reinforcing the mitre joints using the nails inserted with the Push Master.

STEP 9: PUTTING IT ALL TOGETHER

Assuming that you have carried out all the above steps, you are now ready to put all the pieces together. Although this is perhaps the simplest stage of the process, there are a number of tips which are worth pointing out:

- Firstly, the glass (which should be 2mm thick and is available in clear or non-reflective finishes) must be carefully cleaned before placing it in the frame (you won't be able to clean the inside surface for decades, so it's worth doing a good job!).
- Secondly, the mounted picture is placed face down on top of the glass. Although it is possible for enthusiastic amateurs to "mat" (mount) their own pictures, this operation is best left to the professionals, who will advise on the best colour of mat to use and will cut a bevel-edged window in the mat with a special mat-cutter (basically a razor blade mounted in a special 45° angled jig which slides along a guide rail).
- Thirdly, if you are framing a valuable masterpiece, it is worthwhile placing a sheet of special acid-free paper between the mounted picture and the backing board. This helps to preserve the artwork from the gradual migration of harmful chemicals from the hardboard. The backing board is held in place with small panel pins or special framing plates driven into the inside edge of the frame (this is where the Push Master is additionally useful – *see photo 9*). The back of the frame is now sealed with gummed paper tape (available from most stationers) to prevent dust and insects from invading your (and the artist's) masterpiece. All that remains is to screw in two small eyelets into the sides of the frame, approximately one third of the distance down from the top of the picture and to tie a length of braided nylon cord securely through the eyes.

Hang your framed masterpiece in a prominent place and bask in the reflected glory. But remember: yours was only the supporting act!

The backing board is held in place using flat plates or small panel pins.