Brazing Hinges

It is a common problem for the lid of a square piano lid to shrink across the grain, with the consequence that the front overhang is lost, and the lockboard doesn't fit properly. The answer is to move the lid forward when it is the closed position. Moving the hinges on the lid looks terrible, as damaged wood and redundant screw-holes are revealed. Recessing them into the spine is easy, but involves loss of wood. One entirely non-invasive solution to this problem is to make new hinge leaves, a bit longer, to fit on the lid.

The first picture shows the blank for the new, larger, hinge-leaves top left. Note that the distance from the pair of holes to the end of the blank is greater (by the correct amount!) than on the old leaf – seen at the right. If possible, re-use the leaves with three lugs rather than two; this makes drilling the holes for the pin easier, as we will see towards the end of the process. The reason for making the two new leaves end-to-end is simply that the piece is a bit easier to handle. Holding little bits in place is not easy. Fingers not a good idea, wood not much better, and metal tends to become part of the job! So during the brazing operation the leaf must be simply laid on the fire-brick 'hearth', and a larger piece is less likely to move about. There is one safety point I would like to mention for the benefit of beginners – the hearth MUST be assembled from fire-bricks. House-bricks and concrete can explode with very unpleasant results.

Also shown in this picture is a piece of brass rod, turned down to the correct diameter to form the lugs of the hinge. This can easily be done with a file in an ordinary chuck on a woodworking lathe or a pillar drill. Absolute accuracy is not necessary. Of course, it's even easier if the correct diameter rod is available.

The ends of the blank have been chamfered to make a better joint. Ideally this chamfer would be concave, to match the rod, but this is not essential.

In the picture above, the leaf-blank has been laid on the hearth, underneath one of the bricks – now we see the reason for making the blank ‘double’. A piece of rod sufficient for two lugs (to fit the three on the part that will be re-used) has been placed against the chamfer.

For the actual brazing part of the job, I use a high-silver flux-coated rod which fuses at 650 – 750°C. The job needs to be hotter than this to ensure a good flow and a strong joint; a good bright orange is about right, and easily obtainable with a good gas blowtorch.

This is not a full lecture on health and safety – it is your responsibility to ensure that. But unless you have a huge workshop, do the job outside on a calm day, as the fumes from the flux are unpleasant and harmful. There is also less risk of an accidental fire outside.

The picture above shows the piece after the joint is made – we see that the alloy has filled the gap, and there is sufficient metal to form a fillet.

Allow the job to cool for a moment or two to ensure that the joint has solidified. It may then be carefully removed with tongs (remember that the bricks are hot as well!) and turned to do the other end. It may be cooled finally in water, but do not do this too soon, as there is a risk that the alloy will become brittle.

It looks a mess at this stage, but things will soon get better!

In the picture below, one end has been cleaned up and shaped with fine-cut files, and then finished with finer grades of emery paper to remove the scratches. What was a single piece of brass rod has also had the middle removed to make two lugs. The screw-holes are countersunk and the new l, which have been fitted accurately to the other hinge part.

Now we need to drill the hole for the pin. After dividing the double-leaf into two, hold the job in a machine-vice, and use the existing hole as a pilot.

It should be possible to re-use the original hinge-pin, and then the new hinges are ready to fit.

David Hackett 2012