

# 8

## Making your own reed

In this chapter, I'll explain how you can turn a previously prepared piece of cane into a customised bassoon reed that will play really nicely.

Take a piece of gouged, profiled and shaped cane (diagram 1). Lightly smooth down the cane with 400 grade abrasive (wet and dry) paper.

Now put a piece of waterproof abrasive paper over the edge of your table and sand the cane to provide a smooth edge. This is essential for the reed to fit tightly on the bocal and to avoid any leakage of air.

To work on the cane in the next stages you have to soak the cane in water to prevent it from cracking. I like to soak it for an hour in cold water, some prefer warm water and others even use boiling water. I am not fond of the boiling water method because, in my opinion, it takes away all the natural strength. Make sure that the cane stays moist while you're working on it.



diagram 1



diagram 2



diagram 3

### Folding and wrapping

With a blade, score through the bark from a point about 2 mm from below the bottom edge of the blade down to the end of the cane. Do this at both ends. These scores should be about 1 mm apart and they should be through the bark but should not split the cane completely (see diagram 3). When you're working on the cane it has to be really well supported. The tool designed specifically for this purpose is the easel, but a short piece of broomstick will also do a good job.

Fold the cane in half, precisely from the midpoint. Make sure that both halves of the reed meet up tightly against each other. Now bind the reed using thick, damp cotton string or cord. Start at the wide end of the reed and bind it closely, working towards the narrower end. Don't bind the wide part too tightly, because the thin edges of the blade can be twisted out of shape. You should, however, bind the section with the bark quite tightly. Fix the end of your twine with a half hitch or slip-knot.

### Forming

Push a pre-warmed mandrel into the base of the reed. N.B.: don't twist this because, if you do, the two halves will slide apart. Then squeeze the reed onto the mandrel from above and below with pliers. Don't squeeze from the sides because then all the tension will end up in the thick center of the reed, which will then split! When forming the reed, you should use a special reed plier which mirrors the shaft of the reed precisely. Then push the mandrel in a little more and again squeeze the reed around it. Continue like this until the reed meets the marking on the mandrel. When forming the reed with your pliers, don't get too close to the blade.

### Tying on the wires

To make the two blades into a single unit, we tie them together using metal wires. The wire is usually 0.6 or 0.7 mm in diameter. Cut some lengths of approximately 7 cm.

Unwind a short length of the cotton string or cord back from the round end of the reed. Wrap one of the wires twice around the reed and then twist the ends across each other. The turns of the wire should be neat and flat against the reed (see diagram 4). The direction of the turn is not important, as long as the wires do not cross each other!

Using a small reed pliers, grab the ends of the wire (#3 on diagram 5) and tighten them up just enough to form the cane into a nice round tube.

Be sure not to turn the wires too tightly, because the integral structure of the cane must not be damaged! Only fix the second and third wires (#2 and #3 in diagram 5) in place at this stage. Don't attach the top wire (#1 in diagram 5) yet. Doing so would disturb the natural tension too much, and that might lead to the reed cracking. Snip off the ends of the wires (showing 3 twists) to tidy them up.

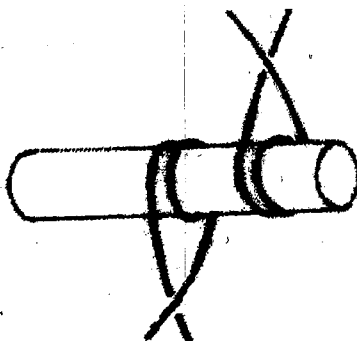


diagram 4

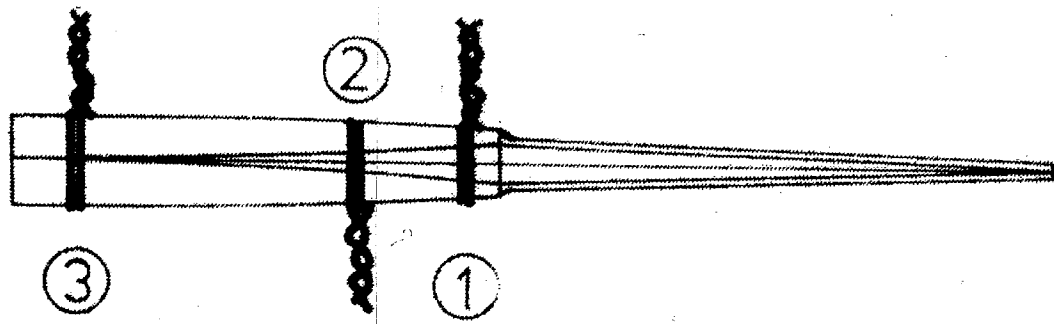


diagram 5

### Drying and tying

Allow the reed to dry on a binding mandrel for at least two weeks. As the reed dries out on the mandrel, the shrinkage of the cane means that the sides will start to open up. Don't tighten up the binding wires, but first of all take the reed pliers and squeeze the tube from above and below around the mandrel. Then do the same thing from side to side. This further squeezing will seal the dry edges completely. Now's the time to tighten up the second and third wires! Also, you can now put the first wire loosely in place, but don't tighten it up too much (#1 on diagram 5). The reed will not vibrate properly if the first wire is too tight.

### Making the Turk's head binding

Scrape away the bark between the second and third wires and smear some household glue on to this bare cane. The glue is to hold the thread and to avoid leakage after the drying of the cane under the Turk's head knot.

Take a good length of binding thread, depending on the thickness of the thread, 1.5 to 2 meters. Take a firm grip of the mandrel, with the reed on it, in your left hand. Do this so that the ends of the 1<sup>st</sup> and 3<sup>rd</sup> wires are facing you and the reed is pointing to your right in a horizontal plane.

Grip the tail of the binding thread (about 20 cm) and the mandrel in your left hand, and lay the rest

along the length of the reed to the 2<sup>nd</sup> wire. Begin to wind the thread around the tube just below the 2<sup>nd</sup> wire and work gradually back towards the 3<sup>rd</sup> wire (see diagram 6).

Wrap up a few extra layers, on top of each other, at the 3<sup>rd</sup> wire. With the extra length of thread from your left hand, make a loop over the 1<sup>st</sup> binding wire and then take this length of thread back into your left hand.

Then continue to turn the thread around the reed, as described above. Make a looping movement with your right hand so that the thread goes from one side of the built-up ball of thread to the other over half of the circumference of the reed. After each full circuit with your right hand, turn the mandrel very slightly towards you, so that each successive turn is a fraction further on. Once you get the Turk's head looking the way you want it, lift the loop away from the first binding wire. Put the end of the thread you've used to make the Turk's head through this loop. Then, again using pliers, pull on the other end of the loop (the long thread), so the loop disappears under the knot. Cut off the thread close to the Turk's head at the base of the reed. The last thing to do now is to spread some household glue over the thread and then let it dry out for at least two days. Don't be tempted to snip open the blades of the reed at this stage!

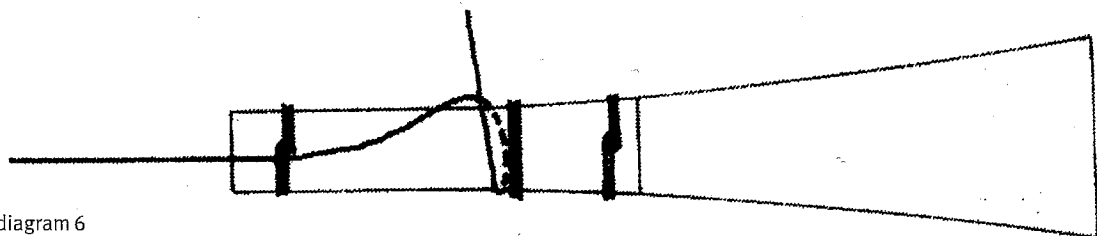


diagram 6

## Finishing the bassoon reed

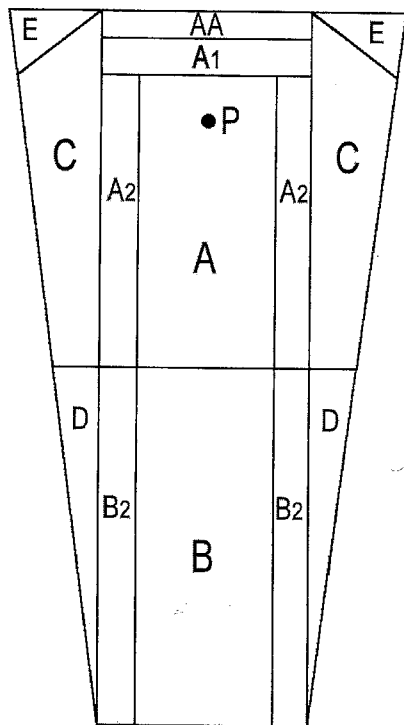
### Tip

Take plenty of time over finishing the reed. Let it dry out for a couple of days after each scraping session. Scraping the reed changes the tensions in the cane, and the reed needs time to absorb these new tensions

Both blades of the reed must always be scraped in the same way. This keeps them identical to each other. The reed gets its final resistance, its ability to "speak", and its sound from further adjustment of the thickness of the reed itself.

This is done by removing a little cane at particular areas, and also possibly - at a later stage - by adjustment of the first and second wires.

Soak the blade of the reed in cold water for 10 minutes (some prefer warm water or at least body temperature). Don't allow the thread to get wet, or the glue will end up looking messy. Now is the time to cut off the tip, so that the blade is 27 mm long. The easiest way to get a good, square cut is to use a guillotine.



The following diagram shows you where the blade needs to be scraped. Always scrape evenly, so that the reed is really smooth, without any hollows or bumps.

When we deal with the upper part of the blade (AA, A1, A2, C and E, see diagram), the primary influence is on the reed's vibration, with the back part of the reed (B, B2 and D) affecting its resistance.

N.B.: First get the reed to vibrate properly, and only then work on resistance.

Place the reed firmly on the mandrel and carefully insert a plaque between the blades.

Place your left-hand thumb at point P and, using a knife, scrape away the tip in the shape of a semicircle around your thumb. Remove some cane at points AA, A1, E, C, and a little bit at point A2. The cane should become gradually thinner towards the sides. Continue this only until the reed vibrates. Be careful that the corners don't get too thin or get chopped away.

Aim first for lots of vibration. It's best if the reed sounds a bit buzzy at this stage because, as I mentioned earlier, there's no sound without vibration! Leave the middle of the reed - what we call the "spine", at points A and A1 - intact for as long as possible, as this is the heart of the reed. The sides of the reed (C and D) are scraped from the bark to the tip so you end up with a gradual thinning of the cane.

### Points to note

When scraping, sanding or polishing the reed, take care not to make a hollow at point A1. Check this regularly by looking at the reed from the side and, at the same time, checking the symmetry of the blades. Both blades must taper from thick to thin in a mirror image of each other.

You can always check the thickness by looking at the reed end on and comparing it with a reed that you know to be a good one. Looking closely and making careful comparisons pays dividends! If the reed doesn't vibrate nicely, you can repeat the treatment outlined above.

### Finishing the reed

Scraping at point ... has the following result...

- P the end of the spine. Don't remove any cane here, because this part gives the reed its stability.
- A provides more vibration
- AA improves immediate attack
- A1 scraping away too much results in a middle E that will sag in pitch
- A2 scraping the sides of the spine should free up the reed
  
- B scraping here reduces resistance
- C scraping here reduces vibration
- D improves attack in the lower register. Only work in this area if the reed is vibrating well but doesn't yet have a good tone quality (so deal with AA first)
- E snipping off the corners improves clarity. If the extreme tip is narrower, the reed is capable of more rapid articulation.

The following procedures can be used for reeds that are really quite good but still need that something extra.

The roundness of the reed, and with it the tension on the blades, can be changed by adjusting the wires. A rounder tube involves squeezing from the sides, and a flatter tube requires squeezing from top and bottom.

Do this really carefully and very gently!

### These are the effects if you do it properly

*1st wire rounder*

more resistance, higher tuning

*1st wire more oval*

less resistance

*2nd wire rounder*

less resistance

*2nd wire more oval*

more resistance

*1st wire pushed higher*

a little more resistance, higher tuning

*1st wire pushed lower*

a little less resistance, lower tuning

*1st wire looser*

more "space" in the sound

### Tip

If the cane is on the soft side, it can be made harder by soaking it a couple of times, for three hours at a time, in cold water. Dry it out for a week after this.

### Tip

If there is a leakage between the reed and the crook. Warm up the end of a small screwdriver and dip it into beeswax or candle grease. Rub the resulting drop of grease into the join at the rear side of the reed. Do this on both sides of the join. Use a mandrel to spread the grease well in the joins. Your reed will now fit perfectly on to the crook without leaking.